

PATENTS FOR INVENTIONS.

ABRIDGMENTS OF SPECIFICATIONS.

CLASS 22,
CEMENTS AND LIKE COMPOSITIONS.

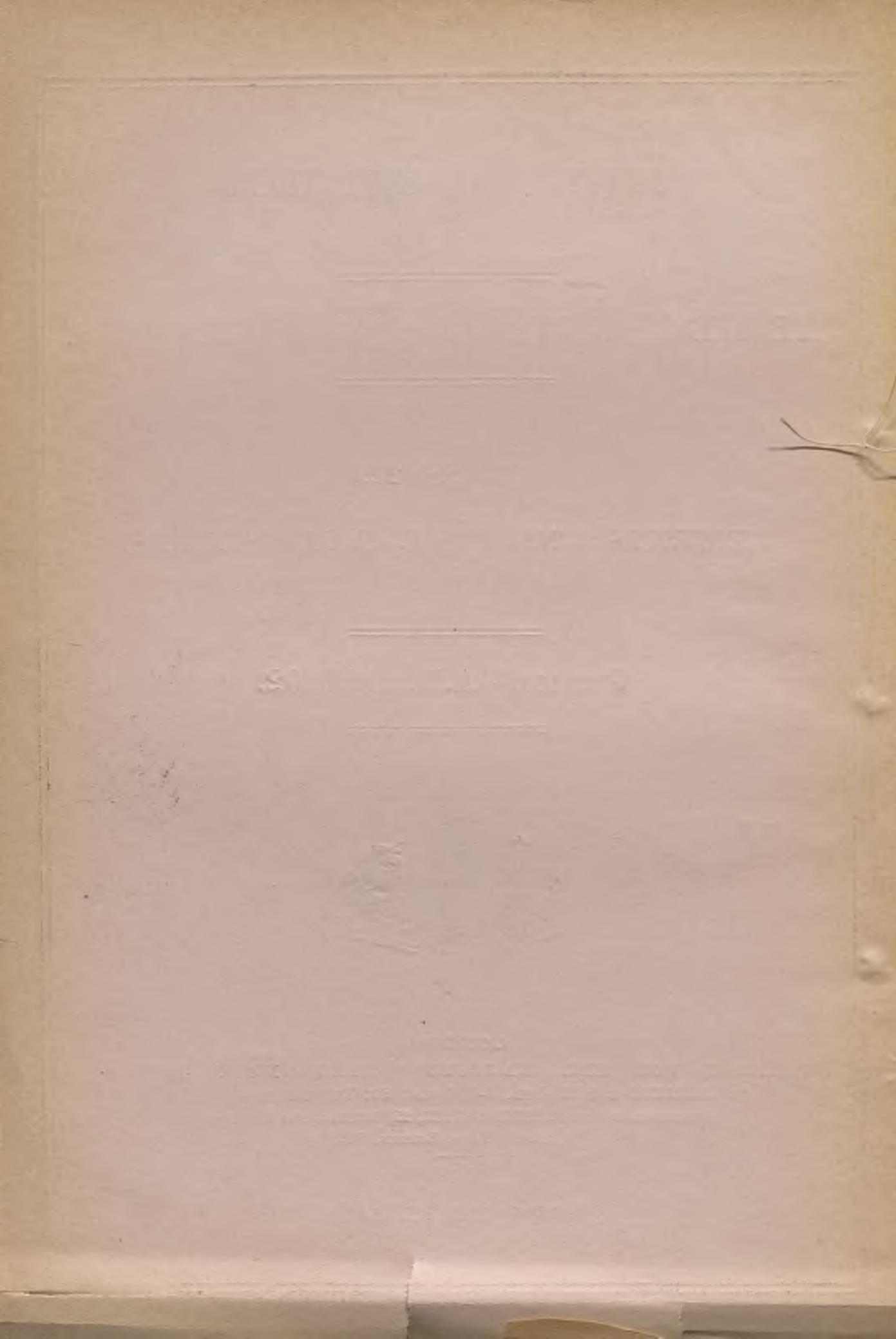
PERIOD—A.D. 1889-92.



LONDON:
PRINTED FOR HER MAJESTY'S STATIONERY OFFICE.
By DARLING & SON, LTD., 1-3, GREAT ST. THOMAS APOSTLE, E.C.
PUBLISHED AT THE PATENT OFFICE, 25, SOUTHAMPTON BUILDINGS,
CHANCERY LANE, LONDON, W.C.

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EXPLANATORY NOTE.

The contents of this Abridgment Class may be seen from its Subject-matter Index. For further information as to the classification of the subject-matter of inventions, reference should be made to the *Abridgment-Class and Index Key*, published at the Patent Office, 25, Southampton Buildings, Chancery Lane, W.C., price 1s., postage 5d.

It should be borne in mind that the abridgments are merely intended to serve as guides to the Specifications, which must themselves be consulted for the details of any particular invention. Printed Specifications, price 8d., may be purchased at the Patent Office, or ordered by post on the Patents Form C' (to be obtained from any Post Office), no additional charge being made for postage.

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Abridgments are printed in the chronological order of the Specifications to which they refer, and this index quotes only the year and number of each Specification.

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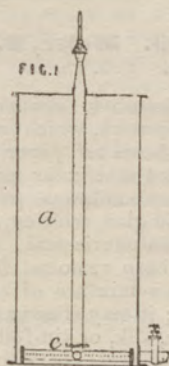
CEMENTS AND LIKE COMPOSITIONS.

Patents have been granted in all cases, unless otherwise stated. Drawings accompany the Specification where the abridgment is illustrated and also where the words *Drawings to Specification* follow the date.

A.D. 1889.

94. Hargreaves, J., Robinson, T., and Hargreaves, J. Jan. 3.

Cements.—Relates to a process for treating carbonated alkali waste to render it suitable for cement making. The carbonated waste is first treated with air or other oxidizing-agent such as chlorine, bleaching-powder, hypochlorites, or manganates, to oxidize the insoluble sulphur compounds and liberate free sulphur; the waste may be made into a slurry and treated in a tank *a* fitted with perforated pipes *c* through which the air is injected, or it may be placed in heaps open to the atmosphere and the air supplied through pipes placed near the bottom of the heaps. The free sulphur is removed by adding lime or lime sludge from caustic soda manufacture to form soluble sulphur compounds, which are eliminated along with any alkali by washing and filtering; hydrosulphide, obtained by steaming alkali waste under pressure, may be used in place of the lime sludge, or carbonate of soda, caustic soda, or caustic lime may be employed. The waste so treated is mixed with clay and made into cement in the ordinary way. To jointly eliminate sulphur and alkali from lime sludge obtained from caustic soda manufacture, it is treated with air or oxidizing-agents such as bleaching-powder &c., to form soluble sulphides which are removed together with any free alkali by washing. The clay and carbonated alkali waste or lime sludge, or both, may be mixed together to



form a slurry by means of an air blast, which simultaneously oxidizes the sulphur compounds, the sulphur being removed together with the alkali by filtering.

116. Stone, R. Jan. 3. *Drawings to Specification.*

Cements.—Lime, chalk, mud, flint, &c. are mixed in the proper proportions and crushed; sawdust or other fibrous material which has been saturated in petroleum, petroleum spirit, sulphuric acid, oils, &c. is then added, and the mixture is burnt. To form cement for use as a fine concrete a mixture of flints, river mud, and chalk is ground together and burnt. This cement or concrete is preferably re-ground while wet and compressed into moulds by reciprocating grooved or plain rollers operated by chains. Grinding-apparatus and kilns are described.

900. Fleming's Oil and Chemical Co. and Fenner, G. H. Jan. 17.



Casting naphthalene. The mould is constructed in two halves A, B, each having a hollow space C, provided with pipes D and E for the circulation of cooling-water. Recesses F are formed on the inner face of each half, which, when the mould

is put together, form a series of rectangular passages, into which the material is run. A number of moulds may be supported on a frame by lugs G and clamped together.

964. Widmark, C. J. Jan. 18.

Cements, making. Slaked lime, alone or mixed with ground and burnt slate, is burnt and the mixture ground.

1540. Refuse Disposal Co., Stanley, J. C. W., and Russell, J. Jan. 28.
Drawings to Specification.

Mortars.—Relates to a method of, and apparatus for, treating the refuse obtained from dust bins and similar places, with a view to carbonizing or consuming the useless portions and to utilizing various portions thereof for obtaining mortar and other products. The refuse is treated in sifting, separating, washing, and consuming apparatus. The broken crockery and similar refuse, together with the clinker obtained from certain steam-generator furnaces employed, are ground up in an ordinary mortar mill.

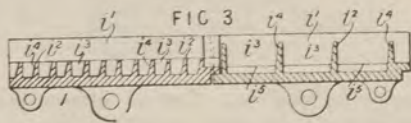
1628. Bradbury, J. Jan. 30. *Drawings to Specification.*

Mortars.—The furnace ash from refuse destructors is utilized for making mortar &c.

2066. Paget, L. Feb. 5.

Casting plates for secondary batteries. The fused active material is poured into a heated mould in which is arranged a suitable powdered reducing-agent in the configuration required for the supporting-frame or grid. Thus, if lead chloride is the salt employed, the reducing-agent may be finely-divided zinc, magnesium, an alloy of zinc and magnesium, &c.; while for lead oxide, carbon or a mixture of carbon and nitre may be used.

2456. Hawdon, W. Feb. 12.



Slags, treatment of; casting.—Relates to improvements on apparatus for removing molten

slag, scoria, &c. from furnaces, described in Specification No. 14,803, A.D. 1887. The endless travelling mould which receives the slag is formed of segments I, provided with side-plates i^1 , transverse partitions i^2 , and longitudinal partitions i^3 to form recesses or pockets i^4 . The partitions i^2 have inclined faces i^5 , to facilitate discharging the slag blocks, and they are of less height than the side plates i^1 ; the partitions i^3 are also of less height than the partitions i^2 . The slag is run from the furnaces into the moulds to the level of the side plates i^1 to form continuous slabs indented by the partitions i^2 , i^3 , or to the level of the partitions i^2 to form blocks. The partitions may be arranged diagonally or otherwise to produce blocks of different shapes.

2632. Sugden, J. Feb. 14.

Stone, artificial.—A mixture of sawdust, calcined magnesia, and plaster of Paris is ground to a paste with a solution of chloride of magnesium, the whole being cast in a mould with the addition of alternate layers of coarse jute. A kind of stone plate is thus produced which is suitable for cornices, linings for passages, partitions, roof coverings, &c.

2702. Mejer, E. C. de, and Greenwood, T. Feb. 15.

Stonework, ornamental.—Relates to artificial stuccowork, which is formed by pressing a number of sheets of paper or linen separately into a heated matrix or mould, each layer being coated with an adhesive paste. The paste is formed of liquid glue, whiting, or chalk, gypsum, a siccative, and sulphuric acid. After the impressed material has been removed from the mould, it is coated with a mixture of chalk and glue and allowed to dry; it may afterwards be painted or covered with satin, silk, or tin-foil.

2718. Ponton, A. C., Mosely, B. L., and Chambers, C. Feb. 15.

Stone, artificial.—Relates to the preparation of silicious materials for use in the manufacture of artificial stone. Sand or flint is subjected to a prolonged red or white heat until the specific gravity of the same is reduced to about 2.3, to convert it into the form called "tridymite," which is afterwards reduced to a powdered condition. The sand may be mixed with a silicious cement, such as silicate of soda, and formed into blocks, for convenience in manipulation. If the sand is coarse and does not readily cohere, some of the previously-prepared material may be added to the same.

- 2780. Ponton, A. C., Mosely, B. L., and Chambers, C.** Feb. 16.

Stone, artificial, is formed of a silicious aggregate composed of sand, gravel, pebbles, &c. mixed with silicate of soda or potash or both. A powdered silicious material, such as pulverized burnt flint or burnt sand, may also be added. The mass, after being well mixed, is moulded into blocks, which are compressed, and then heated in a kiln or oven.

- 2781. Ponton, A. C., Mosely, B. L., and Chambers, C.** Feb. 16.

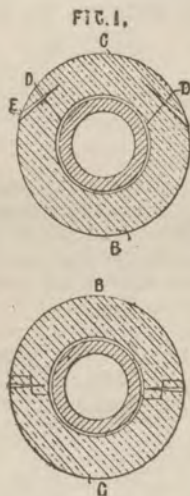
Stone, artificial, is formed by burning solid silicious materials, such as sand, gravel, flint, &c. until no change takes place in their specific gravity, and then mixing one or any combination of these materials with a silicious cement, such as silicate of soda or potash, or both. The mass is moulded into blocks, which are heated until the cementitious material has become crystallized.

- 2844. Ponton, A. C., Mosely, B. L., and Chambers, C.** Feb. 18.

Stone, artificial.—The materials usually employed are carbonate of lime (whiting) and sand, silica dissolved in a solution of potassium or sodium silicate being employed as the binding-material. The silica employed is preferably the gelatinous silica obtained by precipitation. The stone after moulding is preferably immersed in a hot solution of the silica. For a very fine grained stone the sand may be omitted, and the materials after drying and moulding immersed in a hot solution of silica until chert is produced.

- 2922. Gilman, C. C.** Feb. 19.

Fireproof coverings for columns, posts, steam &c. pipes, &c. The column &c. is encased in blocks of porous terra-cotta, prepared as described in Specification No. 15,579, A.D. 1886. In Fig. 1 the blocks B, C have been prepared by sawing a tubular moulded piece along the lines D, and are secured together by mortar, nails, &c. In the modification shown in the lower Figure, the blocks



are moulded separately, with rabbeted joints. The columns &c. are finished by applying a covering of stucco to the blocks.

- 3357. Leigh, H. H., [Clausen, L. H., and Ehlers, J. H.].** Feb. 25.

Stone, artificial; asphalts.—Relates to the manufacture of artificial stone or asphalt for forming mouldings, flagstones, flooring tiles, ornaments, &c., also imitation marble, granite, mosaics, &c., and pavings and road metal. The material is formed by mixing loam, clay, chalk, or sand with melted resin; tar or the like may be added to modify the colour. The liquid mass is poured on to heated polished plates or into heated moulds, the surfaces of which may have been previously painted to imitate marble &c. To produce imitation granite, mosaic, &c., small fragments of granite, marble, &c. are saturated with oil and distributed through the liquid mass; for mouldings, ornaments, &c. the fragments may be arranged in the moulds, or the mass, while in a plastic state, may be pressed into moulds. The mixture may be employed for the production of parquetry by embedding therein the pieces of wood, bone, ivory, &c., or pouring the heated mixture over the same.

- 4175. Murjahn, E.** March 9.

Fireproof compositions.—Green-stone, diabase, actinolite, and similar varieties of hornblende are ground to a powder, washed, and dried. The powder thus obtained can be used as a fireproof filling, or lagging-material.

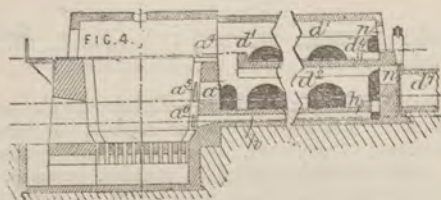
- 4195. Mühlenbruch, F.** March 9.

Stone, artificial; cements.—Consists of a process for producing monocarbonate of calcium for the purpose of forming a hard stone-like substance suitable for covering walls, making imitation marble, and other like purposes. Finely ground or powdered calcium carbonate is mixed with a quantity of finely-ground calcium oxide, forming basic or sub-carbonate, and then stirred up with water. This product is afterwards treated with carbonic acid or any gas containing carbonic acid, or may be simply exposed to the atmosphere, whereby the solid homogeneous monocarbonate forms. and may be polished, painted, or otherwise treated.

- 4333. Batchelor, G.** March 12.

Cements.—Relates to apparatus for drying slurry by waste heat from cement kilns. Two drying-chambers d^1 , d^2 are formed at the back of each kiln a the floors of which are slightly inclined towards the kilns gradually to decrease the depth of the

layer of slurry. The chambers are made of sufficient size to contain enough slurry to charge the kiln. Flues *h* are formed beneath the floor of the lower chamber *d*². The gases pass from the kiln



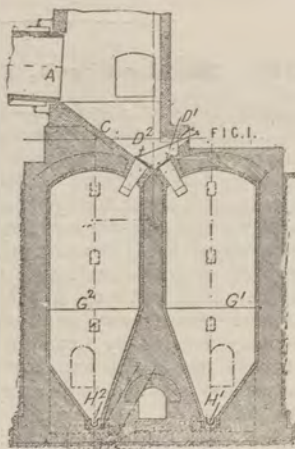
into the chambers and flues through the openings *a*¹, *a*², *a*³, and after traversing the same they pass through openings *d*¹ into a main flue *d*⁷ fitted with a counterbalanced damper and leading to a chimney. The roofs of the drying-chambers are formed of pairs of arches, the troughs between which are employed as tanks for the slurry, from which it is run upon the drying-floors through openings. Ventilating-openings *n* are formed in the ends of the chambers.

4411. Paddon, J. B. March 13. *Drawings to Specification.*

Concretes; mortars.—The residual matter from refuse-consuming retorts or kilns is employed, among other applications, in the manufacture of concretes, mortars, and the like.

5157. James, J. W. H. March 26.

Cements.—Cements are matured by keeping the cement clinker at a high temperature after burning. The hot clinker is discharged from the revolving or other furnace *A* down an inclined shoot *C* into chambers *G*¹, *G*², &c., preferably arranged in a series of four, and fitted with valves *D*¹, *D*², &c. and discharging-worms *H*¹, *H*², &c. When one of the chambers is filled it is closed and the clinker discharged into the next, one chamber being charged, two others remaining full, and the fourth one being discharged.



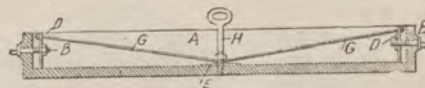
5190. Bryan, St. G. T. C. March 26.

Slags, treatment of; casting.—Consists of a process for treating slags to render them suitable for building and other purposes. The slag is delivered from the furnaces into receptacles, and agitated either by stirring or by revolving the receptacle, by which means the impurities are removed and a homogeneous mass obtained, any metal being removed from the bottom of the receptacle, and lighter impurities from the top. It is then run into moulds lined with or formed of a mixture of asbestos and plumbago, clay, soapstone, or coal tar. When set the slag blocks are placed in the annealing-oven, or the moulds may be placed in the annealing-chambers, and the slag conveyed to them in the receptacles. A cellular or porous slag is produced by treating with hydrogen and carbonic-acid gas. This may be accomplished by delivering molten slag on to coke held in a receptacle, and acted upon by jets of steam. Slag may be produced which is partly porous and partly solid, for forming pipes, and blocks for floors, pavements, walls, building purposes, &c. These blocks may be covered with cement or other plastic substance. This form of slag may be produced by pouring cellular slag upon solid slag; or by rotating the mould containing the cellular slag; or by discharging molten slag into moulds provided with chilling walls for solidifying part of the slag, before the gases are introduced for producing the cellular portion; or by allowing molten slag treated to become cellular to stand in moulds.

5412. Ferguson, T. K. March 29.

Mortars; plasters.—Consists in the use of quicklime, silicate of aluminium, potash, or calcium, or quartz, or flint, plaster of Paris, and vitriol, together with sand, to form a mortar for building or a plaster for ceilings &c.

5537. Briggs, W. H. April 1.



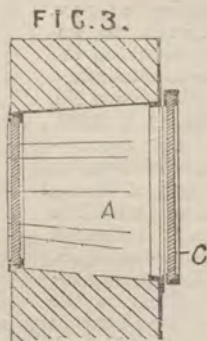
Casting cements and concretes for making girders, railway sleepers, &c. Metal wires, rods, or bands are embedded in the concrete or cement forming the body of the beam, in such a manner that they take up the tensile stress on the underside. The Figure shows the wires *G* strained in position between the plates *D*, *E*, *D* within the mould box *A*. The plastic material is filled into the box, and after setting the screws *B*, *B*, *H* are drawn back, and the block is lifted out by the eye-bolt *H*. The wires may be threaded through a central partition plate in addition to the end plates. These blocks may be used as bressummers, lintels, window heads, or like parts which are exposed to a bending stress.

5919. Lea, W. S., and Lynam, H. M. April 6.

Cements; refractory substances.—Relates to fire-resisting cement for lining furnaces, kilns, ovens, crucibles, &c., applicable also as a non-conducting covering for steam boilers, cylinders, and pipes, and for use in the manufacture of bricks, gas and other retorts, muffle kilns, crucibles, and apparatus for use in chemical operations. The cement is formed of disintegrated granite or granitic rock, blast-furnace slag, basic steel slag, or other compound silicates, such as glass, earthenware, &c., hydrated silicates of alumina and magnesia, such as clay, kaolin, steatite, &c., silica, such as sand, loam, and silicious ochre, phosphate of lime, carbonate of lime, caustic potash, chloride, sulphate, silicate, and carbonate of soda, manganese oxide, refractory oxides, and borax. The granite is disintegrated by the action of hydrochloric and nitric acid fumes in a kiln at a high temperature, and the steatite and slag are similarly treated, the latter being first calcined, ground, and washed to remove sulphur. The disintegrated material is then reduced by grinding, the sand, loam, phosphate and carbonate of lime, caustic potash or borax, and manganese oxide being added; this mixture is afterwards further reduced with the addition of chloride and silicate of soda or potash, either in the dry state or as a solution. Linseed or other oil may also be added. For storing, the mixture is preferably kiln-dried before the addition of the chloride and silicate of soda, caustic potash, phosphate and carbonate of lime, borax, and manganese oxide, these being added immediately before use. The Provisional Specification mentions the use of felspar, argillaceous marl, carbonate and sulphate of barium, and cement.

6310. Sibson, J. H. April 13.

Statuary.—Consists in forming boxes or recesses in monuments, memorial stones, statuary, &c. for the reception of flowers, memorial cards, busts, portraits, &c., by cutting one or more holes A of suitable shape through the stone. The front of the hole is glazed, and the back is fitted with a hinged frame C in which is a sheet of plain, coloured, or silvered glass.

**6348. Wolf, J. G.** April 13.

Fireproof compositions.—The composition is fire and weather proof, and is applicable for making roofing tiles and materials, railway sleepers, insulators, fire-damp indicators, electric elements, &c. It consists of a mixture of sawdust, shavings, wood

pulp, or the like, with calcined magnesite and chloride of magnesium; colouring and other matters may be added. The hardness of the product for its various applications is varied by altering the proportion of sawdust &c.

6433. Schleuning, W. April 15.

Cements; mortars; stone, artificial.—The residue from soda manufacture is exposed to the atmosphere for some weeks until it is oxidized to soda-gypsum, and is then mixed with burnt gypsum and lime, with sufficient water to form a mortar or paste. The mass may be moistened with a solution of zinc, copper, or iron sulphate to harden or colour the blocks, or permit of them being used under water. The mixture may be used for filling into coffer dams, or between boards to form walls in a similar manner to concrete walls. It may also be used in varying proportions as a mortar, for facing buildings, or for foundations, special descriptions of lime and gypsum being preferably added for fine work. The oxidized residue, with or without a small addition of gypsum, may be used to fill the space between beams and joists, or for the groins of arches. These compositions preserve wood against dry rot.

6584. King, G. R. April 17.

Cements; plasters.—The setting of plasters and the like is delayed by adding to them compositions consisting of slaked lime and a glutinous or gelatinous substance, such as a solution of glue. The lime should be slaked, then mixed with the glue, and dried; it may be ground to powder at once, or when required for use.

6585. Brunton, R. H. April 17. *Drawings to Specification.*

Casting.—Relates to the manufacture of relief tablets for advertising and other purposes. A gelatine mould is first formed from a model; a mixture of plaster of Paris and alum, in a liquid state, is then placed into this mould to fill up the interstices of the same. Tow or other fibrous material is next placed on the plaster, and layers of canvas, in conjunction with pieces of wood, are afterwards applied to form a framework, this being covered with a final coat of liquid plaster. The tablets may be surrounded by frames sufficiently high to protect the relief during transport &c. The tablets may be steeped in boiled linseed oil to preserve them.

6825. Broadbent, C. F. April 23.

Casting, compositions for. The composition is applicable for making medallions, picture frames, and other articles, and consists of a mixture of

sulphur, pumicestone, powdered antimony, and ivory or drop black, melted and stirred together in a suitable vessel.

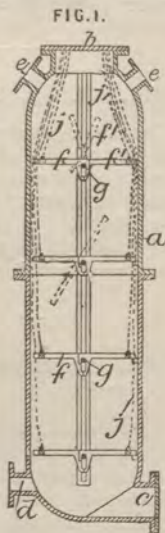
6928. Murray, R. S. April 25.



Casting cream confectionery. The confection is poured into a mould composed of strips A of metal or other suitable material, preferably galvanized iron, fitted into a frame B and containing matrices C.

6968. Hargreaves, J., Robinson, T., and Hargreaves, J. April 26.

Cements.—Relates to a series of operations for treating black ash and the residual waste therefrom to obtain, among other substances, calcium carbonate for making into cement. The black ash is lixiviated in vessels arranged in series, so that any vessel may be shut out from the series. A small amount of soluble soda is, however, left in the waste. The Figure shows a section of a lixiviating-vessel, which is fitted with grids f, f' , supported on bars g and raised and lowered as required by chains j . The charging-door is shown at b , and the discharging door at c . The vessel containing the exhausted ash is cut out of the series, and forms the last of a fresh series of similar vessels, also containing waste, which is being treated with carbonic acid under pressure, the waste being formed into a paste by treatment with a water spray. Sulphuretted hydrogen escapes, and impure calcium carbonate forms. The gas inlet is shown at d , and the outlets at e, e . The impure carbonate left in the apparatus is treated in the same vessel (which is first cut out from the series) with heated air, water, lime, and steam to dissolve the insoluble sulphur compounds. The purified carbonate is then run out on a screen, filtered, and washed, after which it is mixed with one-third the amount of clay and roasted to form a cement.



7058. Weatherdon, B. W., [Compere, T. A.]. April 27.

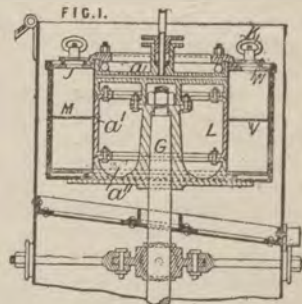
Stone, imitation.—Hemp, flax, jute, or other fibrous material is cut into short lengths, boiled in a solution of lime, washed, pulped, and treated with a solution of alum. Oil, animal size, dyes, or colouring-matter may be added to the pulp, which is moulded into slabs or blocks in wire moulds. These slabs are piled one upon another, intermediate layers of canvas or woollen cloth preventing adjacent slabs from touching. Hydraulic or other pressure is applied to expel the liquid further, the slabs being afterwards dried and rolled. They are then steeped in a warm solution of alum, and are again subjected to hydraulic pressure. After steeping in a bath of vegetable or other oil, they are pressed, rolled, dried, and polished. The material can be made to represent slate or the like, by varying the colouring-matter, and may be used for the construction or manufacture of roofing tiles, floors, buildings, structures, cisterns, pipes, boats, vessels, carts, carriages, wheels, ceilings, panels, counters, shop fittings, furniture, &c.

7387. Palin, G. May 3.

Refractory substances.—Consists in the use of sugar, which is mixed with silica and alumina or substances containing large proportions of the same, such as silicious sand or gannister. The material so produced is applicable for making firebricks, furnace and cupola linings, retorts, crucibles, muffles, saggars, quarries, tiles, fireproof safes, pots for melting glass, and other refractory articles.

7517. Adant, G. May 4.

Casting sugar. Relates to improvements on the apparatus described in Specification No. 13,084, A.D. 1888, for the manufacture of sugar in the form of blocks, slabs, or bars. The drum L is formed of the parts a, a', a'' , the lowest part a'' being fixed to the



shaft G, and the parts a, a' being removable. The basket M, which also serves as a mould, is provided with compartments situated between movable and fixed wedges, the latter being fixed to the lower plate of the basket. The upper annular plate J is secured to the fixed and movable wedges by nuts K and screws. Between the wedges the plate J is formed with rectangular holes through which the sugar mass is fed from funnels, temporarily secured to the plate, into cells formed between adjacent wedges by partitions which are supported and

kept in position by distance-pieces V. After the basket has been filled, the funnels are removed and replaced by covers W, and the basket is then fixed upon the drum L by means of the annular plate placed at the upper part. After the refining operation the basket is removed to a table and the blocks of sugar taken out. When the working of the sugar is effected by means of steam, the part *a*¹ is replaced by a truncated cone, and the pipe or pipes for liquoring fitted to the part *a* are replaced by a steam pipe or pipes.

7733. Alkaline Reduction Syndicate and Cunningham, A. B. May 8.

Slags, treatment of.—Relates to the recovery of soda from slags, such as those obtained in distilling metallic sodium or reducing metallic ores by an alkaline treatment. The slags, consisting principally of sodium sulphide, are thrown, while in the molten condition, into water, whereby the soluble constituents become dissolved. To obtain caustic soda the molten slag is passed into milk of lime instead of into water.

7794. Gouraud, G. E., [Edison, T. A.]. May 9. *Drawings to Specification.*

Casting phonogram blanks. Relates to phonographs of the class described in Specification No. 12,594, A.D. 1888. Several methods of making blanks are described; thus, suitable paper cores may be covered with thread or the like to form a backing, and then placed in a special mould, into which the melted wax &c. is poured. In some cases flexible blanks formed of wax on paper backings are used. An outer coating of metallic soap &c. and an inner layer of asphalt or the like are sometimes employed.

8145. Gildea, G. P. May 16.

Cements.—Consists in mixing a small quantity of organic matter, in the form of oils or fats, with natural cement rocks, poor clays, and the like to render them suitable for making Portland or hydraulic cement. Crude oils or fats are mixed with the comminuted cement material by the agency of hot water, and the mixture is allowed to soak for about a week in the tanks or reservoirs, when it is dried and calcined.

8428. May, M. May 21.

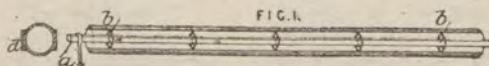
Stone, imitation.—A composition to imitate marble, granite, syenite, malachite, &c. is formed by mixing shavings or other ligneous materials with a binding-material. The mixture may be moulded under pressure into slabs, mouldings, or other ornaments, which, after drying, are planed or ground

and finally polished or coated with a mixture of camphor oil and linseed or other drying-oil, or paraffin, and the like. The binding-material is formed of casein, glycerine, soluble glass, hydrate of lime, magnesia, and linseed or other drying-oil. Baryta or strontia may replace the hydrate of lime or magnesia, or the magnesia may be omitted. Colouring-matters and resin powders, or resin soaps, may also be added. The shavings &c. are preferably softened by soaking in water containing glycerine. The Provisional Specification states that the shavings are soaked in glue water and then mixed with glue, lac, or other binding-material, and spirit.

9821. Shears, J. June 14.

Cements; slags, treatment of.—Relates to the treatment of tin slags and waste tin ores to obtain metals and various bye-products, among which materials for cement are mentioned. The slag &c. is fused with alkali or alkaline carbonate. The mass is lixiviated with water, and the solution, after electrolytic treatment to obtain the tin, is treated with milk of lime to precipitate silica and alumina. The precipitate may be used in the manufacture of cement.

9964. Rignault, C. June 18.



Casting bitumen into pipes. The core consists of an iron rod *a* having rings *b* supported by arms. A sheet of zinc is wrapped round rods attached to the rings. Metal washers *d*, with openings for pouring in the bitumen, are introduced into the ends of the mould. Wooden cores may be used for pipes of small diameter. Several such moulds may be arranged side by side and clamped together by transverse bars.

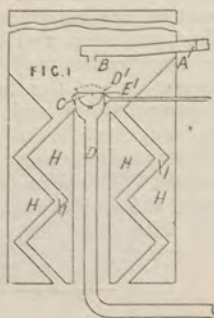
10,141. Hall, C. R. G., and Lucas, E. June 21.

Cements.—A cement used in the manufacture of fresco panels consists of ground tufa stone, Portland or other cement, and ground lime.

10,835. Hydes, T. July 5.

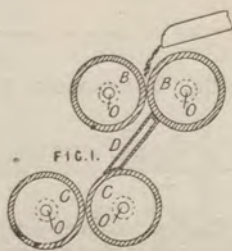
Slags, treatment of.—Relates to means for granulating or disintegrating blast-furnace and other slags. The molten slag is run through a pipe A, B, and discharged on to a spreading-block C, supported at the upper end of a blast pipe D, and surrounded by two annular openings D¹, E¹,

through which air or steam is discharged. These blasts spread the slag, which falls down cooling-passages I formed in a water space H. In a modification, the slag, as it reaches the end of a shoot, is acted upon by a blast, and carried forward to cooling-passages. The Provisional Specification states that the molten slag may be run into a funnel-shaped receiver, from which it is blown on to a conical spreader or revolving disc by an air blast. The funnel-shaped receiver and jet may be dispensed with, and the slag discharged on to the spreader through a short tube, around which is discharged an annular induction blast. The spreader &c. is placed at the bottom of a tube covered by an inverted cone provided with overhanging edges for deflecting the slag into cooling-passages.



10,836. Hydes, T. July 5.

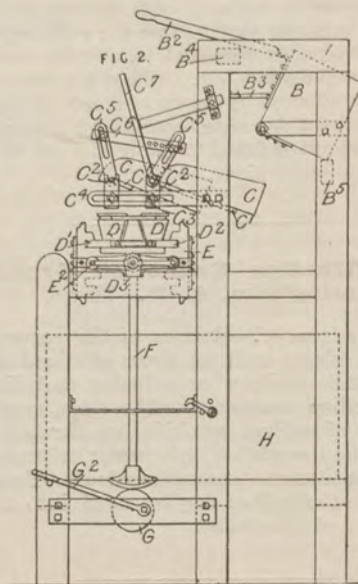
Slags, treatment of; cements.—Molten slag is chilled and disintegrated, pulverized, or granulated for use in cement making &c. by passing it between two or more pairs of rollers B, C, cooled by the circulation of cold water through the openings O. These pairs of rollers may be connected by shoots D, or arranged immediately beneath each other. The rollers may be ribbed, recessed, or otherwise shaped to produce slabs &c. for road metal or structural purposes.



10,897. Chapman, D. July 5.

Casting pottery, apparatus for. A series of moulds D are fixed in pairs upon a longitudinal board D¹ sliding in guides D² formed in a reversible tray E, mounted between end rods F, resting upon eccentrics G. Two rows of troughs C are arranged above the moulds D; they are connected to longitudinal bars C¹ secured to rods C² resting in bearings C³ adjustable along slotted bars C⁴. The rods C² are connected by links C⁵, C⁶, and a handle C⁷ is provided for tilting the troughs. Slip is fed from a cistern B through a series of pipes B³ into the troughs C, which are tilted to discharge it into the moulds D, these being held in their raised position by rotating the eccentrics G through the handle G². After the slip has remained in the moulds for some time the tray E is rotated through half a revolution or reversed by means of a handle E², to drain any excess into a box H. A second

board, carrying another series of moulds, may be placed in grooves D³ on the opposite side of the



tray E. The cistern B is moved by a handle B² between stops B⁴, B⁵.

10,997. King, J. B. July 9.

Plasters for walls, ceilings, &c., and for making busts, architectural works, &c. Any mineral, earth, stone, or stone-like material, such as marble, chalk, plaster, lime, &c., is reduced to a fine powder and mixed with a solution of gelatinous, glutinous, or saccharine matter, preferably glue. The resulting pasty mass is then dried, and the material obtained is powdered by grinding or otherwise, and called a "restrainer." To form the composition this "restrainer" is mixed with comminuted fibrous material, such as asbestos, mineral wool, &c., and plaster or like material. Colouring-matter, sand, &c. may be added.

11,064. Cousins, E. E., [Olsen, B. E.]. July 9.

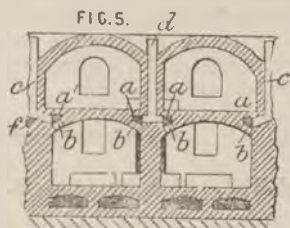
Casting, compositions for. Relates to a fusible composition for forming glazed tiles, drain pipes, flushing-chambers, &c., and for lining conduits. The composition is formed of sulphur, sand, and pitch, together with clay, cement, lime, or ground brick. These ingredients are mixed together in the dry state, and fused in a crucible heated by superheated steam or hot air.

11,067. Snedekor, C. T. July 9.

Fireproof coverings and compositions.—In insulating and fireproofing electric cables or conductors, they are first coated with liquid shellac upon which is placed a layer of fibrous material, such as cotton, jute, or silk, saturated in alum. A coating of glue is next applied, and the cable &c. is then varnished, powdered glass, alum, or asbestos being dusted upon the varnish. A fibrous coating is now applied, saturated with a paste of linseed oil, litharge, white lead, asbestos, and alum. Another fibrous coating, saturated with alum, is then applied, and when dry the coating is varnished. This coating, before drying, receives a layer of asbestos fibre, and when dry receives a final coat of varnish.

11,128. Batchelor, G. July 10.

Cements.—Relates to improvements on the invention described in Specification No. 4333, A.D. 1889, for drying slurry by the waste heat from cement kilns. To expedite the drying of the slurry on the floors of the upper chambers, longitudinal flues *a, a'* are formed beneath the same, which communicate with the lower chambers by flues *b*. For cooling and ventilating the lower chambers, while dried slurry is being removed therefrom, shafts *c, d* are formed in the side walls and pillars of the upper chambers, which communicate by flues *f* with the flues *a, a'*. When the shafts *c, d* are opened cold air passes through the lower chambers and escapes by the flues *a, a'* into the shafts.

**11,149. Rogers, G., and Rogers, J.** July 11.

Fireproof compositions for use in the manufacture of felt, and also for coating felt or wooden roofs or other similar structures. The composition consists of a mixture of melted pitch, terra alba, soda, and salt, reduced to the desired consistency by the addition of coal tar, preferably refined or freed from spirit.

11,668. Doebling, W. July 22.

Fireproof compositions; sound-deadening compositions; cements.—Relates to fireproof and sound-deadening plastering for walls, floors, ceilings, &c. The surface is coated with a mixture of a metallic oxide, such as zinc oxide, water-glass, and lime, or carbonate of lime, to the required thickness.

Coarse sand or gravel is then added before hardening. A third and principal coating is now laid on; it is made up of a mixture of gypsum and cellulose, the cellulose being preferably steeped in sulphuric acid or ammonium alum. Finally a thin layer of ordinary plaster may be laid on and the surface papered or painted as desired. In certain cases the composition containing cellulose is replaced by the following, which may be used alone:—a mixture of silicic acid, metallic oxides, water-glass, carbonate of lime, in the form of chalk, marble, &c., and sand, brick dust, or clay.

11,908. Wilson, D. July 26. *Drawings to Specification.*

Casting.—Millstones, grindstones, scythe stones or rubs, whetstones, holystones, and abrading and polishing stones are made by mixing together sand and Portland cement with either water or a solution of a soluble silicate. The composition is given any desired form by the use of suitable moulds; after it has set the articles are soaked in a solution of a soluble silicate, or in water. For grindstones &c. the mould consists of a horizontal plate and a band of sheet metal of a length corresponding to the circumference of the stone and connected at its ends by bolts. The core for the eye fits in a hole in the plate and in a pair of cross-bars lying across the top of the band and with the ends turned over its edge.

11,922. Redfern, G. F., [Muardt, J. G.]. July 26.

Plasters.—The composition is for covering brick walls and the like, and it is prepared by adding calcined magnesia to a calcined mixture of carbonate of lime and kaolin.

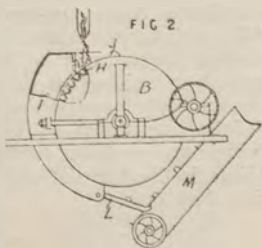
12,696. Bickley, J. Aug. 12.

Cements for preventing dampness or "sweating" of walls and floors of tennis and racquet courts. The joints of the brickwork are raked, and after moistening for a few days, a layer of Portland cement and water is applied with a brush. The next coating consists of a mixture of Portland cement and coarse flinty grit, and when nearly set it is scored horizontally. After sprinkling with water for a week or more, a final coat, consisting of a mixture of fine sand and cement, is applied and faced. The surface is painted with black paint, or stained black with a mixture of cement, sand, and black manganese.

12,811. Hydes, T., and Wilkinson, S. W.
Aug. 14.

Casting slags &c.

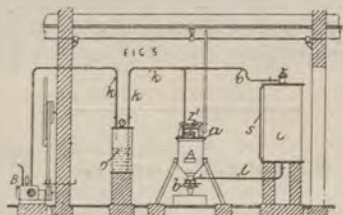
Relates to apparatus for casting slag or other molten material into pigs, blocks, or other like forms. A number of moulds H are formed in the periphery of the cylinder B, which is rotated by suitable gearing. I is a hollow frame containing water, and fitting closely to a part of the cylinder. The molten material is run into the moulds from a hopper J, formed by extensions of the sides of the frame I. The moulds are closed, after filling, by the concave surface of the frame, and finally discharge the pigs &c. upon a shoot L, leading to an elevator M.



13,329. White, C. M., [Blank, A.]. Aug. 23.

Fireproof coverings.—Relates to a waterproof and fireproof material for roofing and other purposes. Asbestos board or sheet is treated to coat its surface with plumbago or other non-volatile carbonaceous matter. The prepared sheet is then coated electrolytically with copper, and the material is immersed in a bath of molten lead, tin, zinc, or alloy of two or more of them.

13,957. Mertelmeyer, B. Sept. 4.



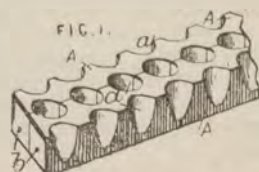
Stone, artificial.—Artificial sandstone is formed by mixing together *in vacuo* cement, washed gravel or quartz sand, colouring-matter, and water, from which all air has been exhausted. The dry materials are placed in a mixing-machine A, provided with airtight covers a, b, and fitted with a central spindle carrying radial arms or beaters, and rotated by bevel gearing Z; the cover a is provided with a feed aperture and an air cock. This machine is connected by a pipe l with a water reservoir C, and by a pipe k with an exhaustor B. The reservoir C is also connected with the exhaustor by the pipe o, and it is fitted with a water gauge s. The pipe k passes through a dust-collector D. The air having been exhausted

from the machine A and reservoir C, the water from the reservoir is mixed with the dry materials in the machine A.

14,147. Thompson, W. P., [Dodge, P. T.].
Sept. 7.

Casting confectionery.

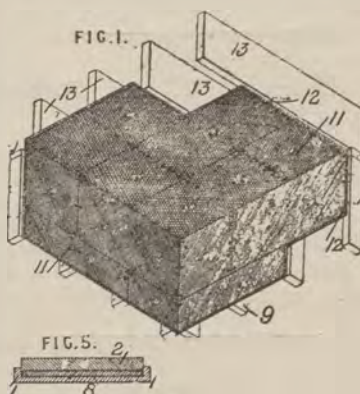
Consists of a hand mould for producing fondants or the cream filling for chocolate drops &c. The mould is composed of a series of vulcanized india-rubber bars A, having suitably-shaped cavities a formed in their side faces; when these bars are placed together the pairs of cavities form mould cells as shown. The bars are stiffened by longitudinal rods b, or by flat strips let in the upper or lower faces. The castings fall from the cells when the bars are separated.



14,281. Jorgensen, S. Sept. 10.

Cements.—Consists in forming a special material for admixture with ordinary cements or hydraulic limes. Blast-furnace cinder or other natural product or mineral of a similar composition is pulverized and treated with sufficient sulphuric acid to decompose it, after which it is again pulverized and mixed with the cement or hydraulic lime, preferably in a ball mill.

14,515. Paris, A. J. Sept. 14.



Fireproof coverings; plasters.—Blocks, which are stated to be fireproof, are formed of plaster enclosed within a covering of burlap or other fibrous material, and are suitable for covering walls, ceilings, partitions, and the like, and for making fireproof curtains and screens for theatres.

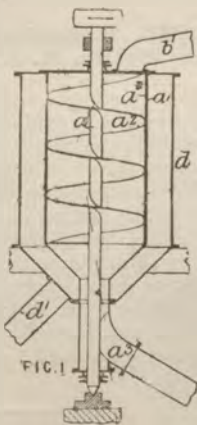
The plaster employed is formed of quicklime, plaster of Paris, sand, pulverized coke, and glue, to which hair may be added. The blocks are formed by placing a covering of burlap over a mould 1, Fig. 5, then introducing the plaster 8, and covering the same with the burlap, the ends and sides of which are folded over entirely to enclose the plaster; pressure is applied by the plate 2 and a lever or screw press. The piece of burlap for enclosing the plaster may be made of similar shape to an ordinary letter-envelope blank. The blocks 11 are secured by nails 12 to the partition studs 9 and joists 13 of the walls &c., as shown in Fig. 1, and are arranged to break joint, alternate blocks round the corners being scored across the centre and bent at right-angles. A finishing-coat of plaster is applied to the blocks after they are secured in position

14,797. Barton, R. Sept. 19.

Fireproof compositions.—Diatomaceous earth, linseed or other oil, lead oxide or carbonate, and baryta or the like are mixed together to form a paint or composition specially adapted for surfaces exposed to heat. Colouring-matters such as lamp-black, ochre, &c. may be added.

15,115. Joy, W. Sept. 25.

Cements, making. The slurry is strained to separate any imperfectly - disintegrated chalk &c. The slurry is passed from the wash-mills to a feed-tank from which it flows through an agitating-chamber and pipe b^1 , Fig. 1, to the strainer, which consists of an inner perforated casing a , a^0 having an outlet a^3 , and an outer casing d having an outlet d^1 . The inner casing is formed of a slotted cast-iron portion a and an inner removable perforated lining a^0 , and it is fitted with a worm a^1 , a^2 . In a modification, the perforated lining a^0 is dispensed with and the slots in the cast-iron casing are fitted with check plates and cleaned by reciprocating blades attached to sliding rings. The kilns are provided at the top with inclined shoots for charging purposes. They are charged with a mixture of slurry and fuel, and neat slurry fed in alternate layers or heaps, the quantity of neat slurry in the central portion of the kiln exceeding the quantity of mixed slurry and fuel. The clinker is treated in a special edge-runner mill, and sorted by pneumatic means. The cement is treated with steam, spray, or moistened air to hydrate any free caustic lime which may be present. This treatment may be effected by



allowing the cement to meet ascending currents of steam &c., or by introducing steam &c. into the apparatus for manufacture.

15,226. Campion, A. J. Sept. 27.

Slags, treatment of.—The slag or débris from tin smelting is treated for the recovery of products. The slag is mixed with carbonaceous matters and fused in a cupola with such fluxes as fluor spar, granite, felspar, or analogous material, or alkali waste, with or without the addition of rock salt or sulphate of soda, the object being to form fusible silicates with the impurities, leaving metallic tin, which is purified by fusing with sodium or potassium nitrate, or by injecting air into the molten metal. If nickel and cobalt are present, they form a layer at the bottom of the furnace or vessel. According to the Provisional Specification, the process may be carried out by fusing the material with sodium sulphate and lixiviating, afterwards precipitating the tin by means of zinc. In a modified process, the slag is immersed in a boiling solution of caustic alkali. The sodium silicate and tungstate (if any) are separated and utilized.

15,406. Oswald, W. J., Ashwell, J. R., and Cooke, J. A. Oct. 1.

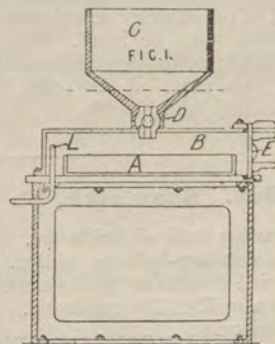
Plasters.—Plaster of Paris is manufactured from old moulds or casts and other like waste or artificially-prepared hydrated sulphate of lime, by breaking the same into small pieces and then calcining in a furnace provided with stirring-appliances, the temperature not being allowed to exceed 300° C. or fall below 95° C. Pulverulent material is preferably compressed into small nodules before calcining.

15,669. Erslev, J. Oct. 5.

Asphalts.—Artificial asphalts for floors, pavements, roads, or streets &c. is made of a mixture of resin and coal tar, together with sand or silicious, argillaceous, or other finely-divided earth or chalk, and rough gravel. The mixture may be formed into blocks to facilitate transport.

15,673. Lumley, C. Oct. 5.

Casting.—Relates to a method of moulding or producing artificial litho stones from finely-ground cementitious &c. materials. The powdered material is moistened until a plastic mixture is obtained, and this

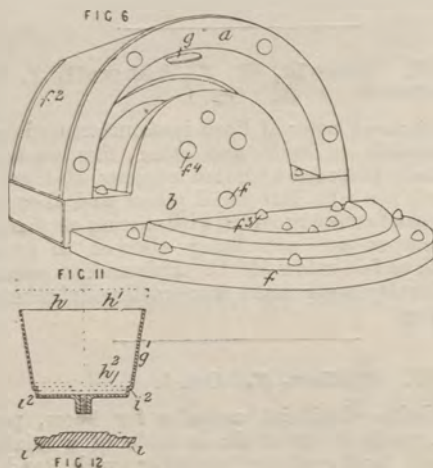


is placed in a hopper C. The hopper communicates, by means of a tube and stop-cock D, with a chamber B containing the mould A. The chamber B is provided with an airtight door E, and a pipe L for exhausting the air. The air being pumped out of the chamber B, the stop-cock D is opened, when the plastic material will be forced into the mould. The moulding and setting of the material in a vacuum cause the air bubbles to be removed therefrom, and a homogeneous stone to be produced.

15,737. Timewell, W. T. Oct. 8.

Cements.—Portland cement is made from hard limestone and tidal or non-tidal river mud. The limestone is reduced to an impalpable powder, and formed into a slurry with the mud; the slurry is then dried and burnt, the resulting clinker being afterwards ground.

15,745. Wilcox, E. Oct. 8.

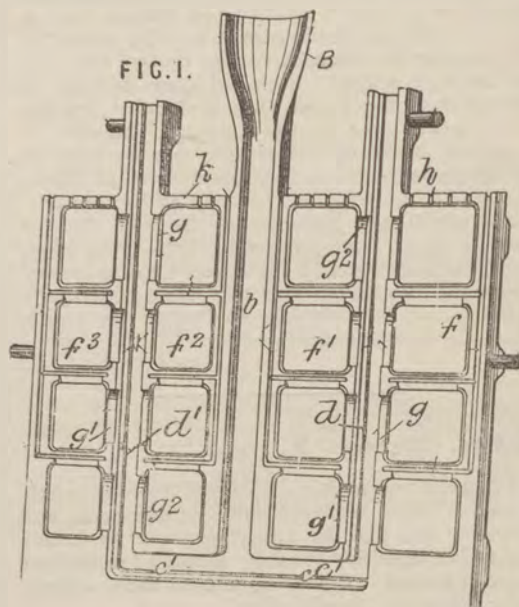


Casting cements. Relates to the manufacture of pottery moulds. The moulds are built up of two halves h, h^1 , Fig. 11. The case in which the half moulds are cast is shown in Fig. 6, and consists of a semicircular wall a , back b , top f , and bottom f^2 , held in position by dowel pins f^3 and holes f^4 , and a metal strap or band. The plaster of Paris is poured into the case or mould through the opening g . The parts of the case are strengthened by embedded metal bands.

16,662. Shapleigh, W. Oct. 22.

Casting lead chloride &c. for the manufacture of secondary-battery plates. In casting lead chloride or similar plates a mould, half of which is shown in Fig. 1, is employed. The gate B leads to a horizontal channel c, c^1 communicating on each

side with a riser d, d^1 . The plate moulds are arranged in series f, f^1, f^2, f^3 on each side of the



risers, with knife-edge slits g, g^1, g^2 between. Air holes h, k are provided.

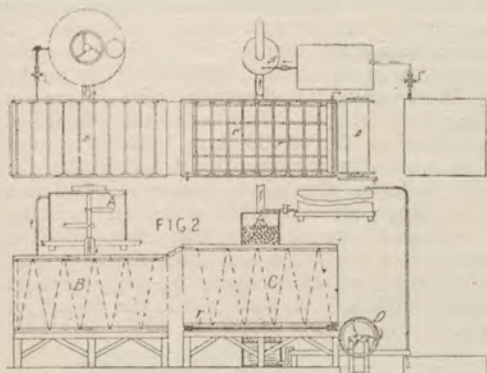
16,696. Rostaing, F. R., Garchey, L. A., and Geille, N. E. Oct. 22.

Stone, artificial.—Artificial marble, granite, &c. is formed by agglomerating, under heat, waste pieces of glass of different colours. The pieces of glass are placed in moulds lined with silica &c., and partly fused in a furnace. The charged mould is afterwards placed in a re-heating furnace. Pieces of china, porcelain, enamel, or other similar material, or pigments, may be added. Designs in relief or intaglio may be impressed on the face of the slab or other article while in the mould, or the articles may be enamelled. Cornices, statuettes, or other ornamental shapes may be formed in the moulds.

16,708. Baswitz, C. Oct. 22.

Fireproof compositions.—Textile fabrics are treated with an ammoniacal solution of copper obtained by dissolving copper hydrate precipitated by soda lye from sulphate of copper. The Figure shows a sectional elevation of the apparatus. A is a mixing-chamber in which the solution is prepared and whence it passes to the chamber B through which the fabric is passed by means of guide-rollers. The fabric then passes to a chamber C provided with steam pipes r to drive off the ammonia, which is removed by an exhaust stream of air passing through a scrubber. The fabric is received on a take-up roll D. The roll D when

full is placed in a vessel containing acetate of aluminium or a mixture of acetate and sulphate of



aluminium, when basic aluminate of ammonia is left in the cloth and acetate of copper is formed in the solution.

17,623. Crompton, R. E. B., and Jenkinson, B. H. Nov. 5.

Asphalts.—A composition for coating floors, tanks, &c. to enable them to resist the action of acids is made up of crushed slate or other schistose material mixed with melted asphalt.

17,640. Thompson, W. P., [Kohn, C.] Nov. 6.

Stone, artificial; stone, preserving.—An artificial stone is formed of a mixture of powdered quartz, magnesia, and soluble potash-glass. After being moulded or cast into blocks, plates, or other articles, and while in a plastic condition, it is dried, then placed in a vacuum, and afterwards treated with carbonic-acid gas under a pressure of about ten atmospheres. Ordinary artificial stone or articles made therefrom may be treated with carbonic acid in a similar manner. The stone may be made fireproof by incorporating it with asbestos fabric, network, cord, or perforated board, or by arranging cores of the same material within the stone or articles formed therefrom. Water may be substituted for the solution of potash-glass, and sand for the quartz.

17,758. Bassett, H. A. Nov. 7.

Stone, artificial; plasters.—A binding and hardening composition for use in the manufacture of building materials is formed by adding unboiled oil, such as rape or linseed oil, and carbonate of soda to a viscous fluid formed of glue and water. For artificial stone, tiles, tablets, &c., a certain proportion of the above composition is dissolved in water, together with borax, china clay and plaster of Paris being added to the solution. To form plaster

for covering walls, ceilings, &c., a dry pulverized composition is first produced by adding plaster of Paris and slaked lime to a solution of the binding and hardening composition, drying the mixture in a kiln, and adding borax. This powdered composition is mixed with plaster of Paris, sand, and wood dust, fibre, or similar material; china clay and pulverized stone may also be added. For cornices, centre flowers, and enrichments, the powdered composition is mixed with china clay, plaster of Paris, and carbonate of lime.

17,378. Meese, J. Nov. 9.

Fireproof coverings.—Relates to a fireproof material for coating iron or other metal plates &c., which may be afterwards ornamented by firing colours on them. The composition consists of nickel oxide, iron chromate, a lead glass flux, stearic oil, and oil of turpentine.

18,291. Brookman, F. W. Nov. 15.
Drawings to Specification.

Cements; mortars; concretes.—Relates to forced or natural draught furnaces for the destruction and utilization of town and house refuse, sewage, offal, infected articles, food, or diseased animals. The slag from the refuse destructors, in which lime and limestone is used as a flux, is ground up and utilized as cement, or, when mixed with sand, as mortar. The slag may be also employed in making concrete and used for bricks and tiles &c.

18,911. Kristoffovitch, P. de. Nov. 25.

Stone, artificial.—The stone is made from a mixture of two clays in imitation of granite or marble, and may be employed for forming stair steps, paving blocks or slabs, bricks, tiles, architectural or artistic pieces, &c. The two clays, which have different fusing points, are dried, and then pulverized or granulated. An intimate mixture is then formed which, after moistening, is moulded under pressure, dried, and heated to a temperature sufficient to wholly or partially fuse the less refractory clay. After heating, the stone is cooled slowly.

19,246. Wilson, J. Nov. 30. *Drawings to Specification.*

Concretes for hearths. The concrete is composed of broken firebrick, Portland cement, and fresh river or pit sand.

19,906. Lonsdale, W. H. Dec. 11.

Cements for covering boilers, steam pipes, or vessels containing steam or hot water are formed

by mixing together ground cork, paper pulp, charcoal, clay, fireclay, cowhair or other animal hair, flax, soot, and water.

20,149. Boulton, A. J., [*Grote, L.*]. Dec. 14.

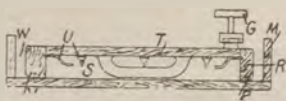
Casting, compositions for. Handles, tool shafts, and other articles are formed by casting or moulding a composition consisting of paper, water-glass, starch, and a fatty substance such as beeswax. The paper may be in the form of pulp, or long strips may be impregnated with the water-glass composition and wound on a core, being afterwards compressed and turned to the desired shape. The articles, after drying, are coated with a composition formed of sugar, slaked lime, and water. The Provisional Specification states that any suitable cement may be added to the water-glass and beeswax, and also that the articles, while drying, are exposed to the action of sulphuric-acid vapour to form a coating of silicic acid.

20,303. Smith, C., [*Nielsen, G. P. V.*]. Dec. 17.

Asphalts.—An artificial asphalt is formed by mixing together resin, powdered chalk, and rubbish (such as gravel or chippings), with or without tar, and a little natural asphalt.

20,347. Pearson, J. Dec. 18.

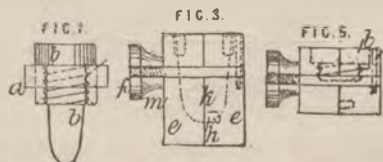
Casting. — For casting mangers, sinks, troughs, and the like, the outside mould M is made of wooden strips rabbeted and screwed together, and is made wider at the top to facilitate the removal of the moulded article. The inner part of the mould is made to fold up, and is secured to the outer mould by dowels or pins P. The end R consists of two parts hinged together and to the sides S. The bottom T is secured within the sides by pivoted catches U, and is fitted with a core or handle G for moulding the hole and recessed projections for receiving the waste pipe. To produce a rim on the inside edge of the article, the edges of the inner box are grooved at V. The plastic or other material is filled into the space W and over the bottom T, until it is level with the top of the outer box M.



20,665. Baswitz, C. Dec. 23.

Fireproof compositions.—Relates to the treatment of fabrics for waterproofing and fireproofing, and the recovery of ammonia used in the process. The fabrics are impregnated with a solution of vegetable parchment in ammoniacal oxide of copper, produced by dissolving hydrated copper oxide in ammonia. The apparatus used is similar to that described in Specification No. 16,708, A.D. 1889. The copper is subsequently removed by treating the fabric with a solution of sulphate of ammonia and acetate of alumina; osmosis takes place, and acetate of copper passes into solution. The ammoniacal fumes arising from the liquid, and from the impregnated fabric, are drawn into an absorbing-chamber containing sulphuric acid, as described in the Specification referred to above.

20,867. Martin, N. H., and Stuart, C. E. [*trading as Brady & Martin*]. Dec. 30.



Casting.—Relates to the manufacture of pessaries and suppositories for administering medicaments or foods, and to the moulds for casting the same. The pessary or suppository consists of a hollow cone composed of cocoa butter, gelatine, or other substance commonly used for this purpose, and provided with a removable cover attached by means of a screw thread, slot, or groove. The mould for casting the hollow cone is shown in Figs. 1 and 3, and that for casting the cover in Fig. 5. The former consists of two parts, (1) a plate a carrying a number of plugs b, screw-threaded at the central part, and (2) a box provided with wells k and composed of two halves e, e, secured together by means of a pivoted bar f and nut m. The mould for the cover is built up similarly to that shown in Fig. 3, but the wells t are screw-threaded at the lower part.

20,914. Klapperstück, A., and Meyer, A. H. Dec. 31.

Plasters; fireproof compositions.—Relates to fireproof ceilings and walls. A little colophony in an acid is added to a mixture of plaster of Paris and mortar. The plaster is applied to a fireproof backing, preferably of coarse wire netting.

A.D. 1890.

795. Stone, R. Jan. 15.

Stone, artificial.—Peat, sawdust, and other fibrous and vegetable materials are mixed with silicate of soda or other silicious compounds, to which may be added glue, resin, cement, or lime. The composition is run or pressed into moulds or dies, or rolled into sheets, slabs, &c., and dried or baked. The material is applicable for the manufacture of various articles, and for use as a substitute for stone.

1097. Lake, H. H., [*Gesner, J. F.*]. Jan. 21.
Drawings to Specification.

Stone, artificial.—An artificial solid material is formed from soluble glass by evaporating a solution of the same, and heating the salt, preferably under pressure, to drive off the water of crystallization and obtain a hard porous mass, which is afterwards treated with acids or salts to decompose the alkaline silicate and form an insoluble compound in place of the same. Any soluble salts remaining in the porous mass are washed out by the action of steam, water, or spray, when it is again compressed and dried. The porous mass may be made waterproof by filling its pores with a waterproof substance, or by painting, lacquering, &c. The soluble glass may be mixed with colouring-matter and other material.

1176. Sinclair, W., and Mackay, M. Jan. 22.

Cements for stone joints &c. Consists of a compound for cementing iron rails to stone curbing, pipe joints, &c. Palm wax and plaster of Paris are stirred into melted resin; graphite and iron filings or ochre may also be added. The compound is used in a heated state.

1178. Sinclair, W., and Mackay, M. Jan. 22.

Stone, preserving.—A compound for preserving and waterproofing stone, plaster surfaces, &c. is made by dissolving gum dammar in hot turps or mineral spirit and then adding paraffin wax. The surface should be cleaned by water or soda and water.

1310. Sharratt, D. Jan. 25.

Casting.—Relates to toys so constructed that they may be easily attached to Christmas trees. A wooden model is made of the toy, say of a mouse, and a mould is made thereof in two parts. Two holes are made in the mould, one near the front and the other near the rear. In the former is passed one end of a piece of elastic, ending at its free end in a wire hook, while in the latter is passed a piece of twine. The plaster is then poured in, and the toy made, after which the elastic and string are carefully drawn through the holes. The string forms the mouse's tail, and, by means of the hook and elastic, the mouse may be easily hung on a tree or other article.

1356. Boulton, A. J., [*Deissner, W.*]. Jan. 25.

Stone, artificial.—Facing-stones are formed by moulding a moistened mixture of Portland cement and sand. The faces of the stones are coloured by sifting on to them a mixture of colouring-matter and cement, and dressing with a steel or iron scraper. After colouring, the stones are placed in chambers for ten or fourteen days, their surfaces being constantly soured with water. The stones may be glazed by means of a mixture of alcohol, shellac, Venetian turpentine, chloride of magnesium, and colouring-matter; or water-glass may be employed.

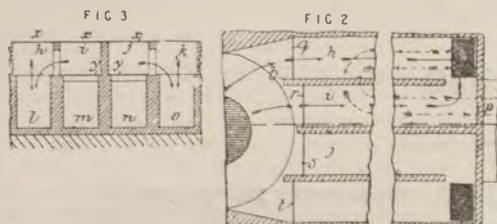
2371. Edwards, C. H. Feb. 13.

Refractory substances.—Waste sand from glass works is mixed with a binding-material such as clay shale, ground firebrick being also added in certain cases. The mixture is moulded into bricks under hydraulic or other pressure, or it may be used as a substitute for fireclay.

2896. Joy, W. Feb. 22.

Cements, making. Steam is supplied to the kilns during the burning of the charge. The steam may be generated by means of pipes arranged in the kiln or by means of separate boilers, or by pipes arranged in the kiln flues and heated by the waste gases. The steam may be first passed through a coke oven or over incandescent coke, before passing into the kiln. To utilize the waste heat of the gases for drying slurry, two sets of

longitudinal drying-chambers or flues *h, i, l, m* and *j, k, n, o* are constructed as shown in Figs. 2 and 3, the floor and roof of the upper chambers being formed of removable iron plates *x, y*.



Dampers *g, r, s, t* are fitted between the kiln and the ends of the upper chambers. By opening the dampers *g, r* the gases pass along the flues *h, i* and along the flue *l*, returning by the flue *m* and passing to the chimney by the flue *p*. The set *j, k, n, o* work in a similar manner by opening the dampers *s, t* and closing the dampers *g, r*.

3025. West, G. Feb. 25.

Cements; plasters.—Relates to a compound for mixing with cements and other plastering-material used for wall mouldings or cornices, and other architectural purposes, to retard the setting of the same, and so render it plastic for a longer period. The compound is formed by mixing a solution of glue and sodium carbonate or sulphate with a dry mineral absorbent, such as whiting, clay, plaster of Paris, marble dust, &c., and then adding dextrin. The glue may be replaced by molasses or acids, and the dextrin by alum or saltpetre. Boracic acid and oil may also be added.

3113. Sier, W. T. March 4.

Stone, hardening.—Soft, porous, or oolitic stone is hardened for making chimneypieces and for enamelling and other purposes, by soaking or boiling in a bath of sodium silicate, then drying in a stove, and finally coating with "Alabastine," or boiling with lime water and alabaster.

3462. Solemacher - Antweiler, Baron A. von. March 4.

Casting, compositions for. Silica, fluor spar, felspar, soda, tin putty or oxide, alumina, red lead, tale, and cryolite are mixed in definite proportions and melted in a suitable furnace, such as a glass-melting regenerative furnace. Suitable oxides of metals are added to the melted enamel for colouring purposes, and the fluid mass is cast in iron moulds into bricks, plates, or tiles.

3514. Lloyd, F. H., and Hemming, J. March 5. *Drawings to Specification.*

Cements or asphalts for setting drain pipes and

paving-blocks for tramways. A quick-setting cement is composed of 75 per cent. of sand or grit, with or without iron swarf, 22.5 per cent. of gas tar or melted pitch, and 2.5 per cent. of sulphur.

3676. Lever, J., Holland, J., and Todd, W. H. March 7.

Refractory substances.—In place of the usual fireclay and similar refractory structures and appliances employed for smoke-consuming purposes, alumina or hydrate of alumina is employed. This material is moulded into form and, for hardening purposes, heated to incandescence.

4219. Engel, G., [Grossheim, G.]. March 18.

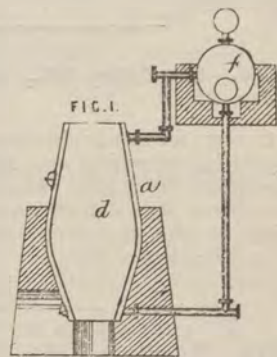
Stone, imitation.—Relates to a process for ornamenting doors, walls, panels, and other surfaces so as to imitate marble and the like. The surface is first painted as is usual for graining, and then there is transferred on to the surface the required design from a moistened paper having the design in reverse printed in colour in any suitable manner. After rubbing with a soft brush till the design sets off, the paper is removed, and the surface brushed over with a soft brush.

4451. Boulton, A. J., [Kutschbach, A.]. March 21.

Stone, artificial, for toy building-blocks. A mixture of 25 per cent. of Portland cement, 50 per cent. of sand, and 25 per cent. of colouring-matter is compressed in moulds.

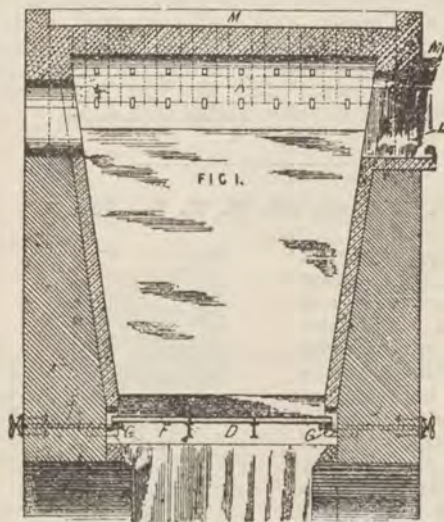
4741. Gibbs, W. A. March 26.

Cements.—The objects of the invention are (1) to utilize the heat employed in the burning of cement and other mineral substances for heating and circulating water and other fluids, and for the generation of steam; (2) to employ the waste products of combustion from the calcining-kiln for drying the cement slurry on



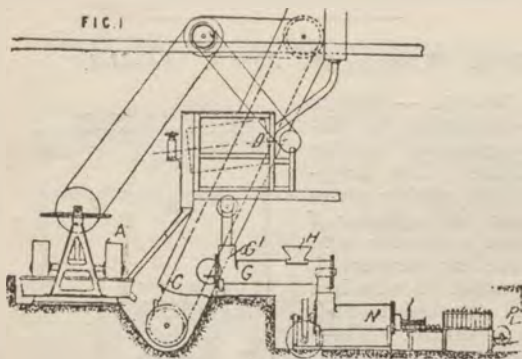
the ground level. The kiln *a* is formed with the hollow lining jacket *d*, in which is placed the water or other fluid to be heated or circulated. When the kiln is worked on the downdraught principle, a fan is employed, the escaping kiln gases being utilized for drying the slurry in chambers or open troughs on the ground level.

5581. Skelsey, G. H. April 12.



Cements.—Relates to means for drying slurry. As the heated gases pass away from the cement &c. kiln shown by the flues L they are employed for drying slurry placed upon trays M, the crown of the flue being provided with apertures for facilitating such drying.

5719. Taylor, W. R. April 15.



Cements, apparatus for making. Liquid fuel, alone or in conjunction with solid fuel, is mixed with the clay and limestone during the formation of pug. The pug, whether moistened with water or liquid fuel, is moulded into perforated and corrugated blocks, to present a large surface to the action of the heat in the furnace. The limestone is crushed in an edge-runner mill A and fed by an elevator C to sieves D, whence it passes into a mixer G'. The clay is mixed with water or liquid fuel, and also fed into the mixer G', where it is mixed with the pulverized limestone by steam jets. The mixed materials are fed along a cylinder G, provided with a hopper H for the introduction of coal dust, into a pug-mill N, from which they are

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forced through a die to a cutting-apparatus to form perforated and corrugated blocks. These blocks are fed by an endless band P to a conical or rotary kiln or furnace, which may be heated by means of liquid or gaseous fuel. When coke or other solid fuel is employed for heating the kilns, it is sprinkled with liquid fuel.

5847. Wood, C. April 17.



Slagwool.—Slagwool or silicate cotton is prepared by blowing the slag from a discharge spout along a tube b in the ordinary manner. The end of the tube b is bell-mouthed, and opens into a chamber a fitted with an angle-shaped baffle d and a series of oppositely-inclined bars e. The particles and fibres of slag strike against the plate d, the shotty pieces dropping into a well f, and the fibre passing through the bars e into the chamber.

6711. Goodall, F. C. May 1.

Asphalts.—Marine cement for coating surfaces &c. is formed of a mixture of hard asphaltum, liquid asphaltum, boiled oil, and finely-ground corkwood. The Provisional Specification states that soapstone and black varnish may also be added.

6855. Higham, G. May 3.

Cements.—Chalk or limestone, mud or clay, and fuel, such as turf, breeze, or charcoal, are mixed together, and the mixture is formed into suitably-shaped blocks for drying and burning.

6951. Kellner, C. May 6.

Cements.—Iron or steel boilers or digesters for paper-making &c. are lined with successive coatings of (1) ground slate made into a paste with water-glass, (2) equal quantities of ground slate and Portland or Roman cement (preferably the former), and (3) Portland or Roman cement mixed with water or with a weak solution of water-glass. In some cases, the second coating may be dispensed with.

6952. Kellner, C. May 6.

Fireproof coverings and compositions; cements.—Relates to a composition or cement for coating iron, steel, or other metal, to render them fireproof, applicable also for coating brickwork tanks or vessels, such as stuff-chests, rag-engines, &c. The material is first coated with an aluminium-silicate composition formed by mixing ground slate with water-glass; then with a mixture of ground slate and Portland cement; and, finally, with Portland cement alone. The third coating may be dispensed with, and glass added to the second coating-mixture.

7354. Ford, F., and Ford, A. N. May 12.

Fireproof compositions.—Relates to the manufacture of table and floor coverings, carriage linings, &c. Fibres of wood, flax, jute, cotton, worsted, &c., or paper in the sheet or pulp, are repeatedly immersed in linseed or other drying oil, which may be first heated and then combined with siccatives. The fibres may be first rendered fireproof by soaking in a solution of soda or lime. The substance is dried, after each immersion, by being first supported on a perforated draining-frame, and then placed on shelves of wire gauze, or in wicker baskets, hot air being forced through by a fan or blower. The substance is then ground up between rollers, and spread on to suitable fabrics, it being first softened, if required, by the addition of naphtha or turpentine &c. Colour-modifying or colouring substances, such as whitening, white lead, &c. and resin, resin oil, or gum resins may be added. The Provisional Specification states that gutta-percha or india-rubber may be added.

8108. Sang, F. May 23.

Cements; concretes; stone, artificial.—Consists of a mixture of tufa sand and Portland cement. It is applicable for making vaults, roofs, arches, floors, casements, tubes, bricks, tiles, building-blocks, domes for bakers' ovens, &c.

8413. Hartnell, J. May 30.

Stone, artificial, specially applicable for use in making breakwaters, dock and quay walls, fireproof floorings, pavements, steps, stairs, mantelpieces, headstones, channellings, window sills, &c., is formed of crushed stone, preferably granite, gravel, and cement mixed with a solution containing sugar of lead, alum, blue stone, common soda, and oil of vitriol.

8519. Prinz, O. June 2.

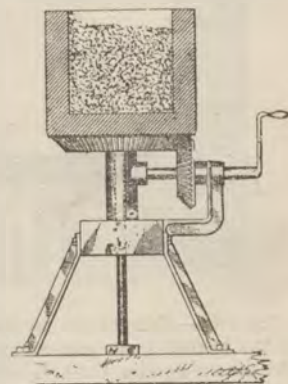
Casting; cements; castings.—Cements composed principally of magnesium oxide and chloride are

prevented from swelling and separating into their constituent substances, when employed for casting articles, by the addition of a gelatinous substance, such as albumen, white of egg, gum, dextrin, gelatinous silica, aluminium and other hydrates, &c. To prevent the "sweating" of articles cast from the cement, they are first treated with carbonic acid, and then washed with water.

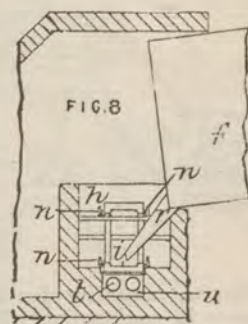
8606. Bryan, St. G. T. C. June 3.

Slags, treatment of; casting.—Slags

are annealed and mixed with alumina or aluminium compounds to make them homogeneous for the construction of building and paving blocks &c. Molten slag is mixed with alumina or aluminium compounds, and then agitated by stirring or in a rotating vessel, as shown in the Figure. Foreign matters are removed through the action of centrifugal force and gravity. Cellular slag is cast in moulds lined with wood, paper, or carbon composition, and it is agitated by stirring, or by rotating the mould.

**8919. Wilson, D.** June 9. *Amended.*

Cements.—Relates to apparatus for discharging and cooling clinker. The finely-divided clinker passes from the cylinder *f* down a shoot *r* on to travelling scrapers *i*, mounted on wheels *n* and attached to endless chains. These scrapers are enclosed in a flue or conduit *h* at the end of which is a pit for receiving the clinker. Doors are fitted in this flue for the admission of air to cool the clinker, the resulting hot air being used for any purpose. Water pipes *t* may be arranged in a flue *u* beneath the scrapers, or air may be allowed to flow along this flue.

**8993. Daguzau, V. L.** June 10.

Asphalts; cements; plasters; mortars; stone, artificial.—Relates to an asphalt composition applicable

as a substitute for limes, cements, plasters, mortars, concretes, or artificial stone, also for paving roads and footpaths, and for forming foundations, joints for wood paving, tubes, conduits, coatings, blocks and works for sea and river, &c. The consistent matter resulting from the preparation of petroleum, coal, and schistous oils &c. is heated in a boiler and mixed with powdered natural silicates and silica, such as clays and argillaceous earths, combined or not with oxides or ores of iron. A small quantity of a natural powdered sulphate, such as those of calcium, aluminium, barium, magnesium, &c., may also be added.

10,002. Breakell, T., and Breakell, J. W. June 28.

Stone, colouring; stonework, artificial.—Consists of a method of colouring and polishing calcareous and other stones and producing variegated effects in one or more colours, by the application of colouring-matters, resins, and oils. For red, a melted mixture of gum-dragon and resin is applied to the heated surface of the stone, which is afterwards placed in an oven for about two hours. After cooling, the superfluous colouring-matter is removed and the stone polished. For some shades of brown, boiled linseed oil, in conjunction with tar and resin, is employed. To produce a variegated effect in two or more colours, the stone is rubbed down until portions of the first colour are removed, the second colour being then applied,

and this treatment being repeated as often as required. To produce imitation marble, a pattern is formed on the stone by means of a solution of white gum lac in naphtha, the colouring-mixture when applied not acting upon the portion so protected.

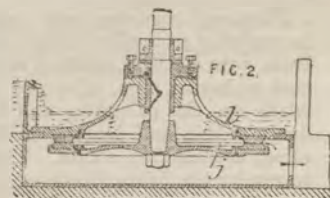
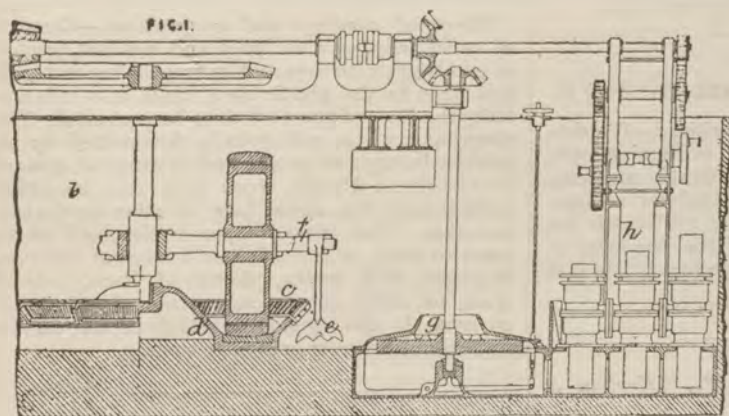
10,116. Pemberton, F. B. June 30.
Amended.

Sound-deadening compositions.—The composition is made up of the following ingredients in varying proportions, viz., peat, moss litter, charcoal, sheep's wool, fireclay, plaster of Paris, Manilla fibre, alum, boiled linseed oil, and water. If some of the materials specified are not available closely-analogous substances may be employed. In some cases the oil and Manilla fibre is dispensed with.

10,427. Darling, W. July 5.

Cements; mortars; slags, treatment of.—Limestone, cementstone, or other similar carbonated mineral is calcined by means of molten slag, for making cement &c. The slag is run from the blast or other furnace into a bogie or vessel fitted with a crucible or retort containing the limestone &c. The limestone &c. may also be calcined by mixing it with the molten slag, thus forming a mixture which may be ground and used as a cement, mortar, or concrete, and also as a manure; other materials may be added.

10,918. Curtis, N. W., and Carey, A. E. July 14.



Cements, making. Relates to apparatus for crushing, mixing, grinding, and delivering materials. Fig. 1 shows the general arrangement, the apparatus being placed in a tank *b*. The material is crushed in an edge-runner mill *d*, on the arm *f* of which is placed an agitating-device *e* for mixing the fine material, which escapes through a detachable grating *c*, with the water in the vessel. The mixture flows to a disc mill *g*, and is drawn therefrom and delivered by a set of pumps *h*.

- 10,962. Vasson, R. G. de, and Soc. dite La Subérine.** July 14. *Drawings to Specification.*

Cements; mortars; plasters; fireproof compositions; sound-deadening compositions.—Relates to the preparation of plastic compounds to be used in the manufacture of bricks, tiles, squares, plates, mouldings, or other building materials, for filling up partitions, for mortars, cements, and plasters, and serving as bad conductors of sound, the compositions being, in some cases, incombustible. Rasped cork is mixed in a dry state with burnt sulphate of lime and sesquioxide of iron or other colouring-matter, and the mixture is incorporated with dextrin or glue in either a dry or dissolved state. Into the mixture may be introduced ashes, puzzuolana, or cements, and also fireproofing-substances such as soluble silicates, ammonium phosphate, or sodium tungstate. For building materials adapted for humid places, the cork is metallized by an oxychloride such as oxychloride of zinc, by means of zinc oxide and hydrochloric acid, or magnesia and magnesium chloride. To adapt the composition for various uses any of the following materials may be introduced, viz.:—india-rubber, gutta-percha, animal or vegetable fibres, cements, or lime milk to which zinc silicate, zinc chloride, potassium silicate, or sodium silicate has been added.

- 10,974. Pickford, H.** July 15.

Cements for use in making mosaic work consist, for external wall coverings, of Roman or Portland cement, sand, and plaster of Paris. For inside work, equal parts of plaster of Paris and lime are used. The cement may be mixed with colouring-matter.

- 11,005. Gratz, A., and Gratz, B.** July 15.

Fireproof coverings and compositions.—Consists in applying to textile fabrics, such as bagging made from jute butts, a solution of a suitable chemical, such as borax, soda, alum, or chloride of sodium, while on the calender, and then rolling up the damp fabric and leaving it for the chemical to effect a bleaching action. The process is also said to render the fabric fireproof.

- 12,145. Thompson, W. P.,** [*Krutina & Möhle*]. Aug. 2.

Stone, artificial.—An artificial stone, resembling sandstone, for use in the manufacture of figures, ornaments, building blocks, &c., is formed by mixing cement with finely-reduced slag produced in the manufacture of foundry pig iron. Soda, colouring-matter, and gravel or small pieces of slag may also be added. The mixture is moistened with water, and pressed into moulds of the required shape.

- 12,230. Christy, T.** Aug. 5.

Fireproof coverings and compositions.—Relates to the manufacture of the waterproof, fireproof, or impermeable material described in Specification No. 13,917, A.D. 1888, and its application as a substitute for gutta-percha, rubber, leather, oiled silk, and the like, or for use as a greaseproof impermeable paper, and also to the treatment of the material to render it unflammable or fireproof. For making a thin material, a fibrous fabric, such as unsized paper, or a woven fabric is saturated with a solution of glue or agar-agar, to which has been added glycerine, and a solution of a chromium salt, such as bichromate of ammonia or potash, to which liquid ammonia has been added. The material is then hung up to dry and bleach, being then ready for use. To obviate the necessity for bleaching by exposing to light, reducing-agents, such as ammonium sulphite, may be added to the chromium compounds, either before or after admixture with the glue; or the chromium salt may be partially reduced by previously heating. The paper &c. may be replaced by a woven or felted fabric joined to paper by the composition, felt, lint, carpet felts, asbestos paper, millboard, or other asbestos materials, wood pulp, &c. Various substances may be added to the composition, such as resins, fats, disinfectants, farinaceous substances, oils, and dyes. The material thus treated is unflammable, but to make it still more fireproof it may be treated with a solution of silica before it is saturated with the glue composition. A fireproof fabric or material is thus produced, which is especially applicable for theatrical decorations, ballet skirts and dress linings, &c.

- 12,248. Johns, H. W.** Aug. 5. *Drawings to Specification.*

Fireproof coverings and compositions.—Consists of wood pulp, or wood pulp and sawdust, treated or combined with fireproof or fireproofing material, and when in the plastic state made into substantially the form of the surface to be protected. The covering may be additionally fireproofed by an interior lining, and an external coating of cement or asbestos. To the wood pulp may be added cork, sponge, hay, straw, hair, or other equivalent material. The inmost layer is composed of an asbestos sheet, or formed from cement of asbestos, magnesia, clay, earths, plaster of Paris, mineral wool, or other substances. An outer fireproof covering is also employed, which in its turn is protected by canvas or similar coating.

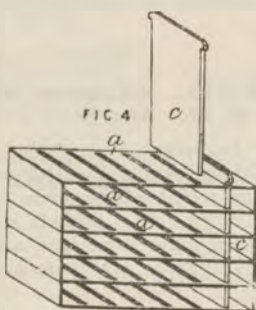
- 12,249. Johns, H. W.** Aug. 5. *Drawings to Specification.*

Fireproof coverings and compositions.—The covering is made up of successive layers of soft, compressible, and porous sheets or slabs, corrugated or otherwise indented, of wood pulp, fireproofed and preferably waterproofed. In conjunction with the above, sponge or other suitable porous material, preferably of a fibrous nature, may be employed.

Porous sheets of wood pulp are fireproofed and rolled round a mandrel of substantially the diameter of the pipe to be covered. They are then cut up to facilitate application. The sheets may be treated with the fireproofing-material when in the plastic state, and before drying they may be formed into the desired shape. In a modification, a layer of asbestos or similar material may be rolled up with the covering, or an interior lining may be employed. Waterproofing-material may be also incorporated if desired. The whole may be protected by canvas, paper, or other covering.

12,272. May, L. Aug. 6.

Casting.—Sugar is moulded into sticks or bars suitable for cutting into cubes, in compartments formed between slotted plates *a*, and removable partitions *c* which pass through the slots. The sticks are connected at both ends by a narrow strip of sugar. In another form, one-half of the partitions *c* are replaced by fixed partitions extending from side to side of the plates *a*, and each pair of sticks is connected by a thin strip.



12,485. Firth, J. C. Aug. 9.

Fireproof compositions.—Relates to a heat, cold, or electrical insulating and fireproofing substance for use with steam engines, steam generators, ships, railway carriages, refrigerating-safes, strong-rooms, safe depositories, and electric conductors. The composition consists of a mass of pumicestone fragments held together by a grouting of Portland or other cement intermixed with granulated pumicestone. When applied to steam engines and the like, coal tar may be incorporated therewith, the composition being rolled into sheets to facilitate usage.

12,607. George, C. Aug. 12.

Stone, artificial.—Artificial marble, granite, sandstone, or other stone is formed by mixing stone material, such as pulverized marble, magnesia, magnesian limestone, sand, clay, &c., with purified silicic acid, combined with lime. Silicic acid is ground, cleansed, and mixed with water and burnt lime to form silicate of lime, which is mixed with sand, magnesia, fluorspar, &c. to form artificial stone. This mixture may be cast in moulds of various shapes, the castings, after drying, being treated first with steam and then with calcium chloride under a pressure of about ten atmospheres. The stones are finally dried, when they may be

coloured and polished like common stone. The Provisional Specification states that the silicic acid may be in a gelatinous form, and that slag, hydrate of alumina, or aluminate of soda may be employed.

12,610. Ainbach, F. F. von. Aug. 12.

Stone, artificial; stonework, ornamental.—Small pieces of marble, lapis lazuli, malachite, and the like are mixed with a metallic-oxide cement such as oxide of zinc, lead, or magnesia, and the mixture is applied to the rough moistened surfaces of artificial or natural stone or the like. The coloured composition may be applied under pressure, the surface being afterwards ground and polished by wax or oil polishing. Designs in relief may also be ornamented in this manner.

12,670. Simpson, J. Aug. 13. *Drawings to Specification.*

Slags, treatment of.—Relates to the treatment of low-grade phosphatic slags, in which the by-products may be employed in alkali manufacture, if desired. The ground mineral or slag (after roasting, if it contained carbonate) is treated with sulphuretted hydrogen, whereby calcium-sulphate solution is obtained, while calcium phosphate remains insoluble, and may be filtered and dried. This operation preferably takes place in absorption towers, and under a pressure of 20 lbs. or more to the square inch.

12,831. Zappert, E., [Scarnes, C.]. Aug. 15.

Sound-deadening compositions.—Relates to the manufacture of a material for wall and door sound-deadening linings &c., from animal or vegetable fibres or pulverized minerals, for example, sinews, hemp, or pumicestone. Slabs or blocks are formed and secured by sewing, and then subjected to (preferably hydraulic) pressure: they are then enclosed in waterproof canvas and sewn through with stitches crossing in all directions. When fibres are employed they are laid in strands crossing one another, and several layers secured by stitching. Mineral powder is placed in a canvas sack and secured by long stitches, pressed, covered with a layer or layers of fibrous material secured by stitching, and then again pressed &c.

12,858. Moore, T. Aug. 16. *Drawings to Specification.*

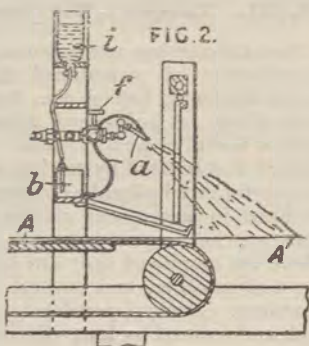
Casting sweetmeats. A mould-box or tray is mounted on rollers, and is carried by an endless chain which passes under a hopper containing starch. The tray engages with a catch attached to a sliding bottom of the hopper, and is filled with starch in passing, the sliding bottom being afterwards closed by a spring. The starch surface is

levelled by the tray passing under a fixed straight edge or scraper, and is afterwards stamped with the requisite impressions or moulds. The stamps are attached to wooden bars carried by rotating discs, which are moved at the same rate as the tray by toothed gearing. Suitable catches on each bar are released in case they come in contact with the sides or wood of the tray, thus allowing the stamps to slide back. Damage to the stamps is by this means prevented. After receiving the impressions, the mould tray is moved under hoppers containing the viscous or semi-fluid material to be cast. A series of holes in the bottom of each hopper correspond with the impressions or moulds in the starch, and are fitted with vertical valve rods, which are secured to a crosshead operated by a cam or ratchet-wheel, levers, and sliding rods. The valves are lifted periodically to allow the liquid to drop into the impressions in the starch underneath, the teeth of the ratchet-wheel being spaced so as to open the apertures at the proper time. When the tray passes from under the hopper, a catch falls, and a spring throws the valve levers out of action. The chain which moves the tray is operated by a chain-wheel on the driving-shaft, or by a pawl and ratchet-wheel. To remove the sweetmeats from the moulds, the tray is inserted in a frame or box, which is turned half round. The starch and sweetmeats fall out of the tray on to a riddle, the sweetmeats being retained and discharged through a side door, while the starch falls into an empty tray below. To remove the starch from the sweetmeats, they are passed between stationary brushes which form a zig-zag or tortuous passage.

12,900. Strahan, T. Aug. 16.

Stone, imitation.

—Liquid or colour is discharged in the form of spray on the paper or fabric A by means of atomizers *a*, which are supplied by tanks *b* in communication with receptacles *i*. To produce a rainbow-tinted effect, a series of atomizers supplied with the requisite colours play constantly on the fabric as it passes in front. For clouded effects the flow of colour is interrupted by a stop-cock *f*; by raising or lowering the supply tanks *b*; by periodically interposing interrupting-plates; or by reciprocating the atomizers. Imitations of granite, marble, stone, &c. can be produced. The design may be printed on a ground produced by the above process.



13,105. McLean, A. Aug. 20.

Stone, artificial.—A decorative artificial stone is

made in the form of flat slabs or blocks &c. by placing marble chippings and small pieces of metal, such as brass spelter, into a backing of concrete formed of cement and sand. When set the mass is pressed and polished.

13,134. Abel, C. D., [*Meurin, J.*] Aug. 21.

Stone, artificial; fireproof compositions; sound-deadening compositions.—Pumice sand or pumice gravel is mixed with a binding-material such as lime, gypsum, or cement, and the mixture is moulded into the required forms or articles which are ready for use after drying. After drying, the material is porous, fireproof, and also a bad conductor of sound and heat.

13,595. Williams, H. P., and Williams, E. G. Aug. 29.

Asphalts.—An asphalt for resisting the action of acids is formed by mixing silver sand with pitch from which all creosote or creosote oils have been removed. The asphalt is specially applicable for lining or flooring rooms containing electric batteries, making tanks for containing acids, &c.

14,263. Day, W. C. Sept. 10.

Casting; castings.—Relates to the manufacture from plaster of Paris of dummy cigars for display in shop windows. A bundle of real cigars is taken, and the cigars are glued together to hold them in position; the interstices between the middle portions are then filled up with clay, leaving the spaces at each end vacant. The bundle is then surrounded, except at its bottom, with a coating of clay, and a plaster shell with a filling-hole is cast round this. The shell is then removed, and the cigars, freed from the coating of clay, are placed under it on a suitable support. Gelatine is then run into the space surrounding the cigars. When the gelatine has set, the whole is removed from the shell, the gelatine is cut in halves, and the cigars are removed. The gelatine now forms two half-moulds, which are replaced in the shell and greased. Plaster is now run in to form a cast, which is then baked, finished by hand, treated with linseed oil, and painted and shaded as desired. The same method may be used for making dummy single cigars.

14,398. Forell, C. von. Sept. 12.

Cements.—A cement, resembling Portland cement in its properties, is formed by mixing finely-ground calcium hydrate, or slag, or a mixture of the two, with ordinary Roman cement or burnt and ground clay marl.

14,745. Cooke, J. Sept. 18.

Asphalts.—Relates to a composition for forming lawn-tennis courts, drives, walks, floors, and the like. Spent logwood chips or wood or cork chip-pings, or a combination of these, are mixed with boiled Stockholm, Archangel, or coal tar. The composition, after being laid and rolled, is coated with tar containing a little resin.

14,846. Kennedy, W. H. Sept. 19.

Slag wool.—Consists of apparatus for producing slag wool by means of air or steam jets. The slag is run from the furnace &c. along a trough A into a vessel A, from which it escapes down a trough B. Any chilled slag is removed from the trough B by a scraper G carried by a pivoted lever F. An air or steam chest C is arranged beneath the trough B and provided with four series of circular holes D, E, as shown. The series D are inclined towards each other in horizontal planes, while the series E are inclined upwardly. The jets issuing from the two series G intersect each other, and they are both intersected by the jets issuing from the two series E, which latter series spread the stream of slag into a fan shape.

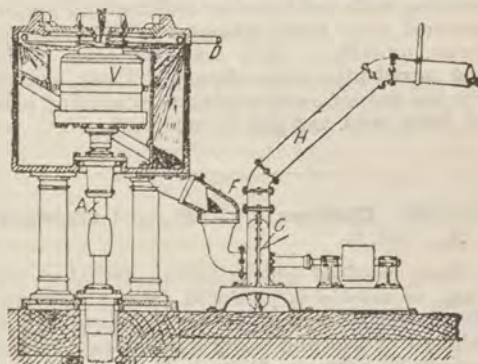
15,334. Guillaume, G. J., [alias Gaiffe]. Sept. 27. *Drawings to Specification.*

Fireproof coverings for boot soles and heels. An ordinary leather or wood sole or heel is covered with a non-conducting incombustible material, over which a sheet of metal or wire gauze is secured by nails. The non-conducting material used may be asbestos, or a fabric of glass-wool or other suitable material, or thin leather or cardboard treated with silicate of soda; asbestos cloth coated with india-rubber may be used.

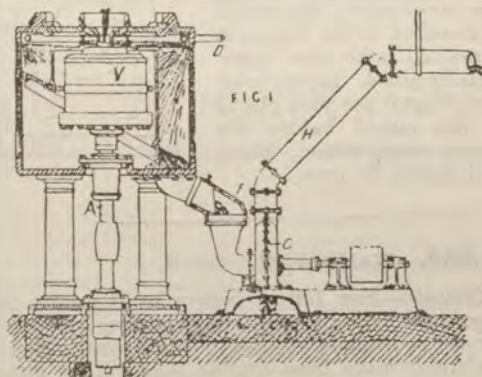
15,341. Peck, O. B. March 3, [date claimed under Sec. 103 of Patents &c. Act, A.D. 1883].

Slags, treatment of.—Consists in granulating molten slag by finely dividing the same and cooling it with water, and then pumping away the mixture of water and granulated slag to a place of deposit. Any suitable apparatus may be employed, but the Figure shows a preferable form. A vessel V for

receiving the slag from the furnace is mounted on a rotary shaft A within a chamber as shown. The particles of slag thrown from the vessel are cooled



by water, fed from a pipe D, the mixture of water and granulated slag passing along a pipe F to a centrifugal pump C, which forces it along the pipe H to any suitable place of deposit.

15,342. Peck, O. B. March 3, [date claimed under Sec. 103 of Patents &c. Act, A.D. 1883].

Slags, treatment of.—Consists of apparatus for granulating slag and for pumping away the mixture of granulated slag and water to a place of deposit. The molten slag is run into a rotary vessel V mounted on a shaft A, from which it is thrown in small particles and cooled by water fed from a pipe D. The mixture of water and slag flows along a channel F to a centrifugal or other pump C, which forces it along a pipe H to the place of deposit. The pump is preferably duplicated, so that the apparatus may be worked continuously should one of the pumps become choked. The channels F leading to the pumps are fitted with spring traps or doors connected by cords with a flap valve fitted at the junction of the channels. When one of the pumps becomes choked the weight of slag opens the trap, thus throwing over the flap valve and closing the channel so as to divert the whole of the slag to the unchoked pump.

- 15,678. Robinson, W. A., and Terry, J. Y.** Oct. 3.

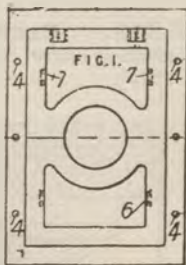
Plasters.—Relates to plastering-compositions for covering walls and for other architectural purposes. Sawdust, after being saturated with a mixture of water, quicklime, white lead, and alum, is dried and mixed with sand, plaster of Paris, and glue. For the finishing-coat a mixture of whiting, plaster of Paris, sand, and glue is employed,

- 15,782. Chiverall, J. F., and Chiverall, A.** Oct. 6.

Stone, artificial and imitation.—Imitation stone, slate, or marble is produced from a mixture of Keen's parian cement, plaster, or stone dust with sulphate of iron and colouring-matters. The composition is subsequently coated with varnish, with or without colours, and rubbed down with rotten-stone to produce a surface.

- 15,783. Mucklow, J. D.** Oct. 6.

Casting, moulds for. Photographic cameras and dark slides &c. are formed from pulp or india-rubber &c. compounds by casting. The lower part of the mould represented in the Figure is connected with the upper parts by pins 4. The metallic mountings 6 are first placed in the mould before the plastic composition, being held therein by pins.



- 15,930. Kellner, C.** Oct. 8.

Cements.—For lining boilers or digesters for paper-making &c., a preparatory coating is applied, formed principally of silicate of alumina, which is preferably made from ground slate, mixed into a paste with a solution of silicate of soda or water-glass, with or without the addition of burnt clay tiles, ground to a powder. Upon this coating is applied a cement, consisting of ground slate, ground glass, and Portland cement, all ground to a fine powder and mixed into a paste with a weak solution of silicate of soda or water-glass. Reference is made to Specification No. 6951, A.D. 1890.

- 15,931. Kellner, C.** Oct. 8.

Cements.—For lining boilers or digesters used in paper-making &c., a coating or cement, made as described in Specification No. 6951, A.D. 1890, is applied. This cement consists of ground slate mixed into a paste with sodium silicate or water-glass. Or this may be varied by the addition of burnt clay ware ground into a powder.

- 15,976. Davis, G. J., and Jones, E.** Oct. 8.

Fireproof coverings and compositions.—Crushed crocidolite or other fibrous mineral or fire-resisting substance, is mixed with any or all of the following substances, viz. caoutchouc, cellulose, stearine, paraffin wax, leather flock, gelatine, starch, petroleum refuse, glycerine, silicate of potash, silicate of soda, hair, infusorial earth, mica, gypsum, shellac, clay, or Portland cement, in proportions according to the purposes to which the compounds are to be applied. After thorough mixing, the compound is rolled or moulded into sheets, tubes, or other forms suitable for covering floors, walls, ceilings, or woodwork, or for insulating electric conductors. The material is waterproof and fire-proof, and may be cut or worked after the manner of wood.

- 16,553. Redfern, G. F., [Heller, W.].** Oct. 17.

Stone, artificial; stone, colouring; stone, preserving; statuary.—Gypsum is treated to render it suitable for statuary, and for building and other purposes, by heating it until only about 10 to 20 per cent. of its water of crystallization remains, when it is placed into a solution of potassium borate. It is next heated to about 100° C., and then hardened and coloured by means of metallic salts. Treatment with sulphate of potash and aluminium produce an artificial marble; coloured marble may be obtained by treatment with other solutions. Objects which have to be exposed to atmospheric influences are heated and dipped into wax, resin, &c.

- 16,637. Hastie, J.** Oct. 20.

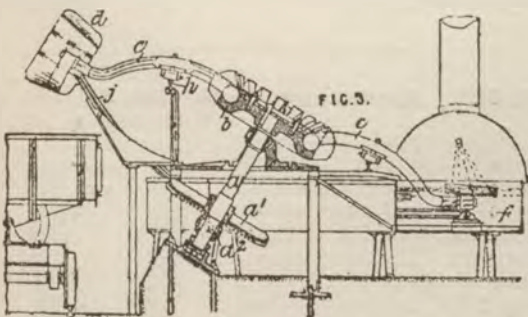
Concretes.—The soles or bottoms of bakers' or other ovens are formed of concrete compositions, preferably in two layers. The composition for the first or lower layer is formed of broken bricks, cement, and salt; and the composition for the second or upper layer of Portland or other cement, sand, or pulverized granite, or a mixture of the two, salt, and sugar molasses. A single layer of the latter composition may be employed.

- 16,747. Thame, J. R.** Oct. 21.

Stone, artificial.—Relates to an electric insulating-composition to take the place of slate &c. The composition consists of cellulose or fibres or fibrous material treated with gums or resins and drying-oils or other solvents. Slate dust and soda or sodium or potassium silicate may also be used.

16,789. Stone, R. Oct. 21.

Cements; stone, artificial; fireproof compositions.—Consists in treating granite, rocks, slate, slate refuse, shale, spar, glass lava, ores, marble, China or other clay, slag, or other materials or substances in the manufacture of fireproof cement compositions or fluid substances, applicable for forming erections of all kinds, columns, bricks, tiles, statuary, roadway and floor surfacing, pottery ware, pipes, and sanitary appliances generally. When treating the materials for the production of cement &c. they are burnt or roasted, either with ordinary fuel or a flux consisting of petroleum, petroleum spirit, vitriol, or oils of an inflammable nature. This has the effect of melting any metals, such as iron, gold, lead, copper, aluminium, zinc, or tin, which may be in the materials, which metals are run off into moulds. After burning, the materials are ground while hot. The materials may, in some instances, be used without burning, in which case the ground material is mixed with sodium silicate, or other silicious liquids or substances, and lime. The burnt materials may also be mixed with these substances. Cement may be formed by burning, together or separately, granite or other hard rocks or substances, and clay or river mud, or lime or chalk. For white cement, Nottinghamshire, Derbyshire, or Leicestershire rocks and lime, marble, spar, China clay, &c. are preferably employed. One or more of the materials, such as slate, shale, &c., may be melted and run into moulds or dies. The burnt or unburnt ground materials mixed with silicious liquids may also be run into moulds. When the manufactured material requires glazing or ornamenting, the glaze is laid on in a molten or hot state, or it may be laid on cold and melted in by a forced flame, hot air, heated rolls, &c., or the material may be coated with a glaze formed of ground granite and oils or other liquid substances.

17,053. Truran, W. Oct. 25.

Slags, treatment of.—Consists of apparatus for receiving, cooling, and discharging slag from blast and other furnaces. A vertical or inclined shaft *a*, rotated by bevel spur gearing *a1*, *a2*, carries a slotted disc or boss *b*, to which are pivoted arms *c* supported by tracks *h*, *j* of varying level. The slag is received from a runner by pans or plates *d* pivoted to the ends of the arms *c*, and is cooled by

passing through a water tank *f* and then discharged by tipping the pans, which is effected by means of a break in the outer track *j*.

17,645. Smallwood, A., and Fenney, H.

Nov. 4. *Drawings to Specification. Amended.*

Stonework, ornamental.—Relates to ornamenting surfaces, designed for name plates, advertising tablets, &c., and consists in coating the surfaces with one or more layers of enamel, varnish, paint, or the like, and then removing one or more of such layers by means of a sand blast, a suitable stencil plate being intervened, thereby leaving the design either in relief or in intaglio. According to the Provisional Specification, the enamel &c. or the like may be removed by means of acid, a suitable resist being employed over the parts not to be acted upon.

17,795. Oschwald, F. July 5, [date claimed under Sec. 103 of Patents &c. Act, A.D. 1883].

Stone, artificial.—A building material or "peat stone" is formed of a mixture of peat and plaster of Paris; small quantities of cement, sand, burnt ballast, or like materials may be added. The mixture, after being formed into a paste with water, is pressed into blocks or slabs which are specially applicable for the construction of walls and partitions.

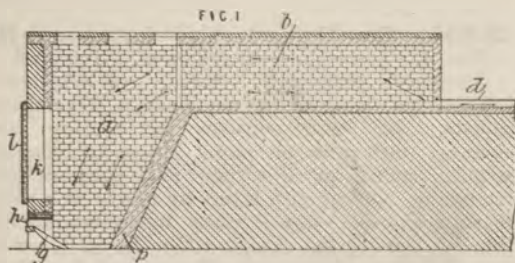
18,468. Jurschina, F., and Gunesch, R. R. von. Nov. 15.

Stone, artificial; casting; fireproof compositions; refractory substances.—An artificial stone or composition is formed of quartz sand or flint gravel, Tripoli, and Portland cement, made into a paste with sodium water-glass. The composition is applicable for casting and moulding purposes, for forming building and paving blocks or slabs, ornaments, facings for facades, grindstones, fireproof and acid-proof vessels and linings, and also for making moulds or matrices for casting ceramic products, ornaments, type, stereotype, &c. Articles formed of the composition are hardened by drying, or by drying, burning, and slowly cooling.

18,603. Arnold, T. Nov. 18.

Cements.—Relates to kilns and drying-chambers and floors for the manufacture of cement. The products of combustion from the kiln pass through a drying-chamber, in which cement blocks or bricks are so arranged as to intercept soot &c., and then beneath a drying-floor on which slurry is placed. The temperature of the kiln is regulated by charging fuel therein and admitting air for supporting combustion through sliding doors or dampers, according to the state of the slurry. At

the end of the calcining operation, cold air is suddenly admitted to the kiln to make the clinker more easily reducible to powder. Fig. 1 shows one form of the apparatus. The kiln *a* is formed with



a sloping back *p*, air opening *k* covered by sliding door *l*, and grates *g* having sliding doors *h* for controlling the admission of air to support combustion. The products of combustion pass through a drying-chamber *b* and beneath a drying-floor *d* to the chimney. In another form of apparatus, a double kiln having a central flue is used, the two sides of the kiln being used alternately as drying and calcining chambers.

19,201. Johns, H. W. Nov. 25.

Sound - deadening compositions; fireproof compositions.—Consists of a fireproof composition for use as a non-conductor of heat, also applicable as a sound-deadener for floors, walls, partitions, &c., and for other uses to which similar products are put. The composition is made up of the following ingredients:—wood pulp, plaster of Paris, chalk, diatomaceous or infusorial earth, magnesia, ground asbestos, clays, with sawdust, straw, hay, cork, or sponge, or with hair, asbestos, or other fibrous materials. When applied in the plastic form, linings or coatings of fireproof material such as asbestos are provided. The Provisional Specification mentions the addition of silicate of soda and the soaking of the sponge or straw in an antiseptic, to render it vermin-proof, and oil, to render the composition waterproof.

19,202. Johns, H. W. Nov. 25.

Sound-deadening compositions; fireproof compositions.—Relates to a fireproof composition for use as a non-conductor of heat, also applicable as a sound-deadener for floors, walls, partitions, &c. and for other uses to which similar products are put. Comminuted or disintegrated sponge is worked up with fibrous material, such as asbestos, with oxides of the metals, such as zinc, and with chalk, actinolite, chrysolite, hornblende, mineral wool, and the like; also metallic turnings or filings, suitable sizing-substances such as silicate of soda, rubber solution, starch, glue, and the like. To render the composition additionally fireproof, the sponge may be

treated with silicate of soda or the like. Disinfecting and antiseptic substances may be also added to render the mixture vermin-proof and to adapt it to sanitary purposes generally. The composition may be also waterproofed with oil or its equivalent. The product may be made, if desired, by pulping the said bodies with water in an ordinary paper-makers' apparatus.

19,579. Allard, L. Dec. 1.

Fireproof coverings.—A fireproof fabric is formed of a mixture of asbestos and animal fibre felted together by any suitable means.

20,628. Waymouth, S. Dec. 17.

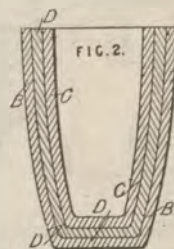
Fireproof compositions.—Clay, whiting, chalk, or other earthy substances are dissolved in water. Glue, size, or other adhesive is then added and the water evaporated. The substance thus formed is reduced to powder. This powder may be mixed with paints for coating substances. Joists, laths, panelling, and other parts of buildings are smeared with or dipped into the composition.

20,948. George, C., and Wernaer, O. Dec. 23.

Stone, artificial.—Artificial marble and granite are formed by mixing together a coloured and an uncoloured molten bath formed of the following ingredients:—Silicates such as blast-furnace or other slags, argillaceous sand, infusible earths such as fossil meal, and fluor spar or other flux, with or without a small quantity of flint. Colouring-matter is added to one bath and small pieces of granite or marble may be added to the mixture. The Provisional Specification states that zinc oxide may be used.

21,212. Alzugaray, J. B. Dec. 30.

Refractory substances.—Relates to refractory materials or articles for use in smelting, fusing, or reducing metals, ores, &c., and for chemical purposes. The materials are used in layers as shown in Fig. 2, for making crucibles, melting-pots, bricks, &c., and for lining converters, furnaces, &c. The layers B, C are formed of different materials capable of withstanding great heat or chemical action, as may be necessary, the central layer D being simply a strengthening or filling layer. Any number of layers may be employed. The compositions are formed by mixing, in certain proportions, one or



more of the following ingredients:—Silica, lime, alumina, magnesia, emery, corundum, asbestos, limestone, graphite, gas-retort coke, bauxite, kaolin, quartz, aluminous earth, iron oxide, fireclay, and magnesite. The ingredients are agglomerated by the addition of tar, pitch, oils, hydrocarbons, or other carbonaceous substances, the moulded articles being slowly heated to drive off the volatile substances.

A.D. 1891.

1115. Taylor, W. R. Jan. 21. *Drawings to Specification.*

Cements, making. The materials are thoroughly mixed by blowing or forcing them together in a powdered or liquefied state by means of steam or compressed air. The mixture is then further mixed by stirring, and coal or other fuel is added. The material is then moulded into bricks and burnt in a rotary kiln, with an internal flue in which the preliminary drying process is carried on.

1526. Aston, C. H. Jan. 28.

Cements; refractory substances; fireproof compositions.—Relates to improved methods of utilizing the dust which accumulates in hot-blast stoves, and in the flues of such stoves and of boilers. The fine and coarse particles are separated by an air blast and by the use of a sieve. The coarser portions are also separated by carrying them off with water, the finer particles remaining being then mixed with clay which has been previously brought to a creamy consistency. The dust, mixed with various substances, is capable of a large number of applications. In making cements, the dust may be mixed with clay, oil, litharge, coal or wood tar, pitch, crushed brick, or sand. Bricks, fireclay, fireproofing-compositions for wood or other floors, furnace linings, and crucibles are made from the dust with various proportions of asbestos, gannister, and matter containing large amounts of silica; soda, potash, and alum may be added.

1565. Thompson, J. K. Jan. 28. *Drawings to Specification.*

Refractory substances.—Furnace linings are made of a mixture of plumbago or graphite and fireclay,

or of ordinary firebricks coated with the same mixture.

1750. Forell, C. von. Jan. 30.

Cements.—Relates to the manufacture of artificial Roman cement. A finely-powdered material rich in alumina is added to combine with the free lime present in the cement. The process of manufacture is as follows:—Marls rich in alumina are burned at a temperature lower than that of incipient vitrification, and the mass is pulverized. The proportion of lime to the hydraulic factors (silica, alumina, and iron peroxide) is determined by analysis, and sufficient powdered silicate of alumina is added to make the proportion 1·7 to 1.

1975. Potter, C. J. Feb. 3.

Casting slag &c. to form millstones. A loam or sand mould is packed with lumps of emery and heated, after which molten blast-furnace or other slag or fusible silicate is run in to form a binding-agent. The stone may be cast in segments.

2761. Healey, B. D. Feb. 16. *Drawings to Specification.*

Refractory substances.—Furnace linings are made of a mixture of 60 parts of silica, 30 of alumina, and 10 of ferric oxide.

- 2791. Boyd-Wilson, J. V.** Feb. 16.
Drawings to Specification.

Concretes.—A mixture of kieselgühr, cement, broken hard-burned bricks, burnt ballast, slag, cinders, or clinkers, burnt shale, &c. is used for building-blocks for bridges, roofs, &c.

- 2865. Williams, H. F.** Feb. 17.

Asphalts.—Refined lard or lard oil is mixed with about twenty times its weight of bitumen, which is obtained by melting crude asphalt in a tank and stirring it until the impurities sink to the bottom, the refined bitumen being drawn off. The melted product is run over a backing of canvas and forms a flexible tenacious material suitable for roofing, or it may be mixed with infusorial earth or sand for making pavements or building-blocks.

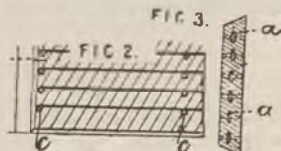
- 3140. Barber, S.** Feb. 20. *Drawings to Specification.*

Asphalts; cements.—Relates to a method of and apparatus for the continuous distillation of "carbons" (coals, coke, sawdust, &c.), stones, shells, sand, cork, pulps, vegetable materials, and other substances, the residues being used for making asphalts, cements, &c. The material is fed by a worm into a mixer in which it is subjected to a spray of tars, oils, acids, or the like. From the mixer it passes through a shoot into a trough which supplies a series of distilling-chambers. The materials are agitated and carried forward during distillation by helical or bevelled arms carried by rotating shafts, and are discharged through shoots into a second series of similar distilling-chambers from which the heavier products of distillation are drawn off by pipes. The residue from the treatment of stones, shells, sand, cork, or the like is suitable for use as a asphalt or plaster, or it may be formed into flooring blocks.

- 3351. Coursen, R. R.** Feb. 24.

Casting cements.

Fireproof bevelled slabs for walls and partitions are produced by stretching wires *a* round nails or removable cores in the mould, and filling in the mould with plaster. The nails form perforations *c* passing through the slab and loops of wire *a*.



- 3365. Lake, H. H., [Sochaczewski, E.]** Feb. 24.

Cements; casting; stone, artificial.—Relates to a plastic material for forming casts. $1\frac{1}{2}$ parts of marble or other pure or mixed minerals such as porcelain materials, and $1\frac{1}{2}$ parts of burnt gypsum are separately stirred into a heated solution of glue, formed of one part of glue and three parts of water; $\frac{1}{4}$ part of colophony or other resin may also be added. Casts are formed by casting the composition in cooled metallic moulds.

- 3785. Simpson, J.** March 3.

Cements.—Any mineral or slag containing calcium phosphate is first treated (if it also contains carbonate or oxide of lime in any quantity) as described in Specification No. 12,670, A.D. 1890, to separate these bodies, as calcium sulphhydrate. The purified mineral or slag is then treated with dilute hydrochloric acid, whereby the phosphate is dissolved out. The residue is employed in the manufacture of cements, or for other purposes.

- 3797. Skelsey, G. H.** March 3.

Cements.—Portland cement is made from a hard chalk found in the neighbourhood of Hull and elsewhere, containing lime, magnesia, iron oxide, alumina, silica, soda, and potash. The chalk is ground by heavy runners in a wash-mill; the paste is then mixed with clay, and the manufacture completed in the usual manner.

- 4672. Olson, E.** March 16.

Cements; plasters.—Stucco for plastering floors, walls, ceilings, &c. is formed by mixing ordinary stucco and sand with a decoction of hickory bark, slippery elm bark, pine tar, alum, and white glue. Skunk oil may replace the glue. A facing of plaster of Paris, mixed or not with colouring-matter and moistened with the decoction, may be applied. The colouring-matter may be applied as a paint, and polished with a mixture of castor oil and gum mucilage.

- 4750. Soc. Anonyme des Ardoisières de Deville and Der Heyden, V. van.** March 17.

Stone, artificial.—Slate waste or débris is crushed, mixed with colophony and tar or other materials, which bind the mass together when heated, and the mixture moulded into bricks, paving-blocks, slabs, artificial slates, pipes, &c. Part of the colophony may be replaced by olibanum, Venice turpentine, or other fatty bodies, and pitch may replace the tar. The binding-material may consist of a mixture of lime, gelatine, and albumen, and crushed granite or

gravel may be added to the slate. For pavements, fine ballast or shingle is added to the mass to prevent slipping, and the surface is further roughened by rolling it with a grooved or ribbed roller. By adding coloured pigments a marble-like effect is produced.

5309. Bruck, H. March 25.

Stone, artificial.—An artificial marble for casting slabs for washstands, tables, &c. is formed of magnesia, carbonate of lime, quicklime, silicic acid, argillaceous earth, chloride of magnesium, and colouring-matter, mixed with water. A jute fabric is arranged in the casting-mould for strengthening the slabs.

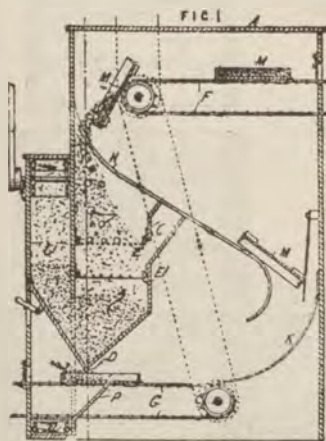
5709. Clausen, O. April 2. *Drawings to Specification.*

Refractory substances for firebricks. Sawdust, ground peat, or the like is mixed with washed fireclay, and plastic potters' clay is added if necessary. Porous baked bricks of this material are dipped into water containing magnesia in suspension or a magnesium salt in solution.

5719. Boulton, A. J., [Grote, L.]. April 2.

Stone, artificial.—The material, which may be turned in a lathe or polished while it is solidifying, is formed from cellulose, such as wood pulp, steeped in an ammoniacal solution of copper oxide, and a cement or filling formed of burnt magnesite and chloride of magnesium and zinc.

5987. Paris, A. W., and Glacher, N. A. April 7.



Casting confectionery. Relates to a machine for emptying moulding-trays, separating the confections from the moulding-material, and re-filling

the trays. Fig. 1 shows a section of the machine. A tray M containing the moulded articles is fed by an endless carrier F into a casing A. It falls over on passing the drum, and the contents are thrown out into a hopper C. The inverted tray passes along the guides H and is inverted again by the guides K. It then passes on to the carrier G, and is refilled with starch at D. In the hopper is arranged a sieve E of coarse mesh and at E' a finer one. The confections separate at E and broken materials at E' pass out through suitable openings. The waste starch from the refilling of the trays falls into a vessel P, and is raised by an elevator and supplied to the hopper C'. The sieves E and E' are vibrated by a suitable cam arrangement.

6751. Moss, R. J. April 20.

Casting, compositions for. A composition for taking casts of footprints and other impressions is formed of resin and paraffin or wax. The composition is fluid at a temperature below the boiling point of water.

7184. Horn, W. W., [Mason, W. L., Blakey, T. W., and Wright, J. A.]. April 25.

Stone, artificial.—Calcined granite is pulverized and made into a paste with water. Pulverized flint, felspar, and fireclay are added, and the mixture is pressed or moulded into the required forms. When dry the moulded &c. articles are placed in saggars, and burnt in a pottery kiln. The articles may be coloured to resemble coloured marbles, glazed, polished, &c. The composition is specially applicable for making building-blocks, bricks, tiles, statuary, friezes, wainscotting, terra-cotta, pottery, &c.

7214. Watt, A. April 27.

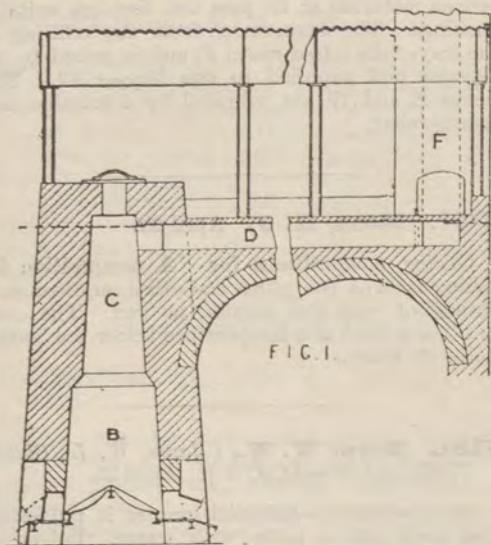
Stone, imitation.—Relates to ornamenting wood, metal, glass, canvas, paper, millboard, and many other surfaces, and to imitating marble, granite, and other stones. The surface or article to be ornamented is coated with an adhesive material, such as glue, and then sawdust or similar material, small seeds, and talc chips are affixed thereto. The sawdust or seeds may be previously bleached, and dyed or stained, and may be placed entirely over the surface, or in patterns as desired.

7756. Eberhardt, M. May 5.

Fireproof coverings.—Relates to chemicals for fire-extinguishing purposes stated in the Specification to form a fire protecting-film over burning materials, which prevents re-ignition. 3 kilogs. of chloride of soda, $\frac{1}{2}$ kilog. of burnt alum, $\frac{1}{2}$ kilog. of bicarbonate of soda, and $5\frac{1}{2}$ kilogs. of

liquid silicate of soda are carefully mixed with 100 litres of water and agitated to cause the solids to dissolve rapidly. After allowing the mixture to stand, 100 litres of water is added. The compound so formed may be applied by means of a pump or grenades.

7845. Fatja, H. May 6.



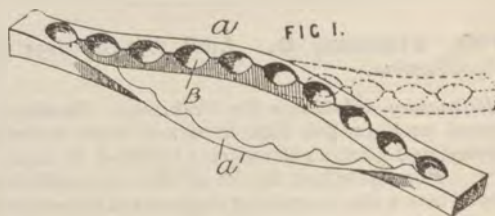
Cements.—Relates to the construction of continuous or running kilns adapted to utilize the waste products of combustion for drying slip, slurry, or compo prior to feeding the same into the kiln. The kiln is constructed in two portions, viz., the calcination chamber C, and the cooling-chamber B from which the material is discharged. Suitable firegrates and air-supplying and other doors are provided at the base of the kiln. The combustion products pass away to the chimney F through flues D arranged below the floor of the drying-chamber. The flues are respectively provided with dampers for controlling the course of the kiln gases, so that one portion of the floor is being heated while another is cooling down. When manufacturing cement by the wet or semi-wet processes, a light roofing only is placed above the drying-floor. When, however, the dry process is used, in which the compo is formed into bricks or lumps before drying, an arched chamber is built above the floor through which the bricks or other articles are passed on trucks or upon endless bands. In a modification, the combustion products themselves pass into the drying-chambers, one on each side of the kiln mouth.

8567. Imray, O., [Schleuning, W.]. May 19.

Stone, artificial.—Relates to the invention described in Specification No. 6433, A.D. 1889. Soda residues of the Leblanc process are used for

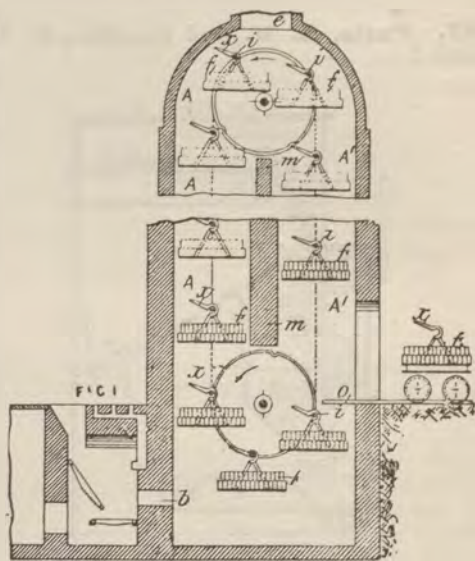
the manufacture of artificial stone, after having been subjected to the decomposing action of the atmosphere and then lixiviated. The residues, or those resulting from the sulphur regenerative process, are mixed with water and gypsum or hydraulic &c. cement or residues from Chance's desulphurizing process. Powdered clay and slaked lime are preferably added, and the mixture is moulded by pressure. If it is not certain that the residues have been fully decomposed by the atmosphere, a small quantity of pyrites may be added.

9244. Ball, S. E. Dec. 31, A.D. 1890, [date claimed under Sec. 103 of Patents &c. Act, A.D. 1883].



Casting confectionery. Relates to candy moulds. India-rubber or other flexible strips *a, a'*, with the moulding-cavities *B* formed therein, are capable of being opened or separated for the purpose of discharging the moulded creams, fondants, or other articles. These strips may be secured together at the middle or ends by means of pins.

10,080. Schöfer, A. June 13.

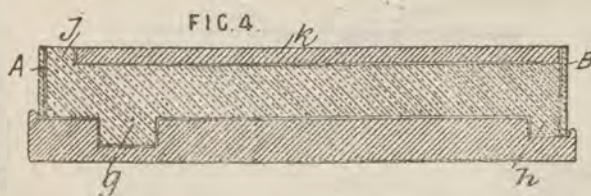


Cements, drying. Cements before being burnt are dried on trays *f* which are caused to pass up

and down a tower traversed by furnace gases. The tower is divided by a partition *m* into two chambers A, A' which communicate at the ends, and the trays *f* are hung by hooks *x* on to bars *i* carried by chains which take over chain-wheels at the top and bottom of the tower. Furnace gases are admitted to the tower at *b*, and the moist gases escape at *e*. Trucks running on rails *o* may be used to facilitate the charging of the apparatus and the removal therefrom of the dried material.

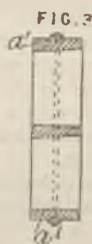
10,395. Morris, J. June 18.

Casting.—In making roofing tiles three parts of Portland cement are mixed with three parts of sand, and about four parts of gravel, shingle, crushed stone, or the like. Fig. 4 shows a cross-section of a mould for making diamond-shaped tiles. The sides of the mould consists of two bent plates A, B, connected together at the top and bottom angles by bent interlocking ends and a pin. A hanging nib *g* is formed underneath the upper angle of the tile, and projecting ribs *h*, *j* are cast underneath the lower edges, and above the upper edges, respectively, of the tile. The main body of the tile with the under ribs is first cast by using sides reaching to the upper surface, pure cement being dusted over the stiff or dry concrete forming the body. After levelling the surface, the sides are withdrawn and replaced by sides A, B of a height-sufficient to form the ribs *j*. A plate *k* covers the upper surface with the exception of the spaces *j* along the upper edges, which are filled in with the composition and trued level. Red ochre, lampblack, lime-blue, or other colouring-materials are dusted on the surface of the tile after moulding, and are smoothed in. After removing the tile from the mould, it is kept in a damp place for a few days, and is then immersed in a tank of water for a week. The tile is gradually hardened by keeping it in a damp shady place for some weeks.



10,420. Bird, H. June 19.

Casting ores. Purple ore obtained in the extraction of copper by the wet method is ground in a mill until it is brought into a state of slurry, and is then moulded into blocks or charges for blast or other furnaces, or the blocks may be used for paving, ballasting ships, building construction, and engineering works. The blocks are dried on a hot floor, heated to a bright red or white heat for some time in a kiln, and afterwards allowed to cool slowly. Fig. 3 shows a cross-section of the mould, which is constructed of tapered pieces of wood, secured together by bolts. The sides *a'* are prolonged to form handles, by which the moulds are lifted when the material is sufficiently hard.



10,563. Hossack, A., and Bull, H. C. June 20.

Cements.—Relates to the treatment of sewage, and the production therefrom of fertilizers, gas-making materials, &c. The sewage is mixed with lime and coal slack, and allowed to settle in tanks. The liquid drawn off from the settling-tanks is treated with carbonic anhydride under pressure. The carbonate of lime obtained during this treatment may be used in the manufacture of glass and for other purposes. River mud may be added to

the liquid during the introduction of the gas, the resulting mixture of carbonate of lime and river mud being suitable for the manufacture of Portland cement.

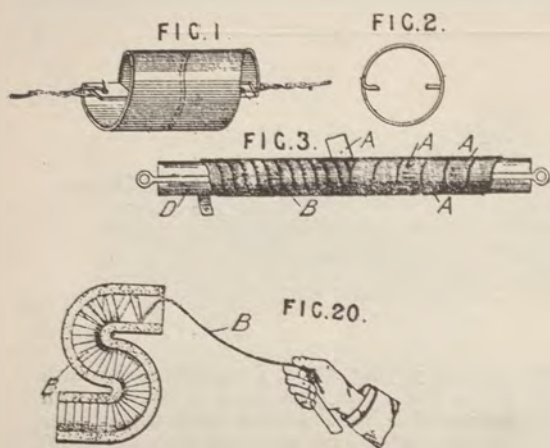
10,761. Bildt, C. W., Ashworth, G., and Ashworth, E. June 24.

Refractory substances.—Bessemer converters are lined with a mixture of quartz sand, black oxide of manganese, or other substance containing manganese, and clay, tar, or other binding-material; or a mixture of silicate of manganese and binding-material may be used.

11,140. Chenoweth, A. C., and Edmonds, W. D. June 30.

Casting.—Relates to centerings or cores for use in the manufacture of hollow articles or structures from plastic or fluid materials which afterwards become consolidated, such as concrete. The centerings are in the form of helically wound or arranged strips of metal or other material, the object being to facilitate withdrawal from the finished article or structure; this is accomplished by extending the helix so as to decrease its diameter, or by pulling out the strip as shown in Fig. 20. Such centerings may be used in the formation of conduits and sewers *in situ* as well as for making joints between lengths of sewer and

like pipes, and for repairing such pipes, and for the manufacture of drain pipes and traps, conduits for electric conductors, &c. A flask-like form of centering is also illustrated. Figs. 1 and 2 show a

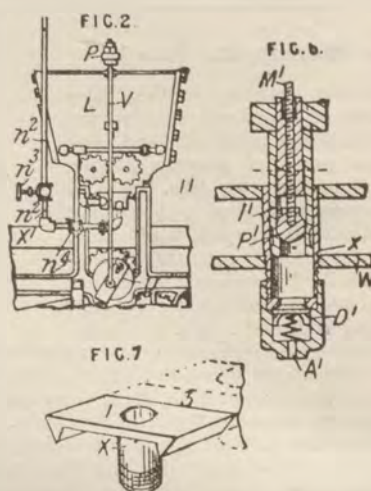


short length of cylindrical centering with wires attached for extending and removing it. A number of such lengths may be connected together. Fig. 3 shows one method of forming the centering by winding a metal strip B on a core or mandrel D, and afterwards covering it with a protecting-wrapping A. The mandrel is in two portions to facilitate its removal. Special methods are employed for forming bent or irregular forms. In place of winding a strip, a helix may be cut from a metal tube or cylinder. Clay or other substances, to prevent adhesion of the plastic or fluid material, may be laid on the centering. As applied to the manufacture of conduits for electric conductors, the centering is coated with non-conducting material, which is left in the conduit and forms a lining for it, and linings may be formed in sewers or pipes in the same way. In forming concrete sewers or conduits *in situ* the centering, with or without a strengthening-core, is placed on a layer of the concrete in the trench and covered in, and any desired length may be continuously constructed, the lengths of centering being attached, so that they can be withdrawn as above described.

11,152. Ruby, J. C. June 30.

Feeding sweetmeats &c. A feeding-hopper L is surrounded by a casing through which hot water circulates for the purpose of keeping the substance to be moulded in a fluid or semi-fluid state. A hollow bottom or box W fitted with a series of valves and regulating-tubes, as shown in Fig. 6, is secured at the bottom of the hopper, and is supplied with steam by a pipe n^2 which is provided with a cut-off valve n^3 and a check valve n^4 . The series of valve spindles M^1 , Fig. 6, are attached to a cross-bar P, Fig. 2, which is reciprocated by adjustable cranks U and side connecting-rods V. On each up-stroke of the cross-bar the valves P^1

are raised, and with them the hollow plungers I^1 so that the contents of the hopper can flow through openings in the plungers into the tubes or receptacles X. Openings at the bottom of the tubes X are closed by spring valves D^1 which are opened



by the down-stroke of the valves. The mixture is forced through openings A^1 into moulds carried by a tray X^1 , which is mounted on endless chains fed forward intermittently by a crank, pawl, and ratchet arrangement. The feed to the tube X is regulated by adjusting a screwed sleeve on the valve spindle, and thus altering the travel of the valve within the plunger I^1 . Stirring-paddles mounted on parallel shafts within the hopper keep the contents well mixed and assist in feeding the material to the apertures. The main driving-shaft is fitted with a clutch and lever for throwing the feed-mechanism of the mould carriage into or out of action. In a modification shown in Fig. 7, the bottom is constructed of a number of sections 1, provided with tubes X and intermediate distance-plates 3.

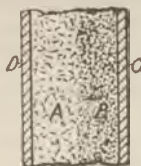
11,209. Aitken, H. July 1.

Stone, preserving; cements; plasters; mortars.—Stone, brickwork, mortar, plaster, stucco, &c. are treated with various materials in order to destroy organisms which are stated to cause their decay. The following substances may be employed, corrosive sublimate, metallic chlorides, mercury binoxide and salts, potassium cyanide, calcium sulphide, carbolic acid, paraffin oil, prussic acid, &c., iodine and iodides, mineral and organic acids, sulphur, sulphides, sodium bichromate, camphor, arsenic, verdigris, phosphorus, tannic acid, essential oils, strychnine, sumac, staphisagria, lead acetate, coal-tar derivatives, and carbonic-oxide gas. The stone &c. may be immersed in the preservative material, or the latter may be applied with a brush after admixture with paraffin scale dissolved in spirit. If to be applied to steeples &c., a bag of soluble material may be suspended near the top so

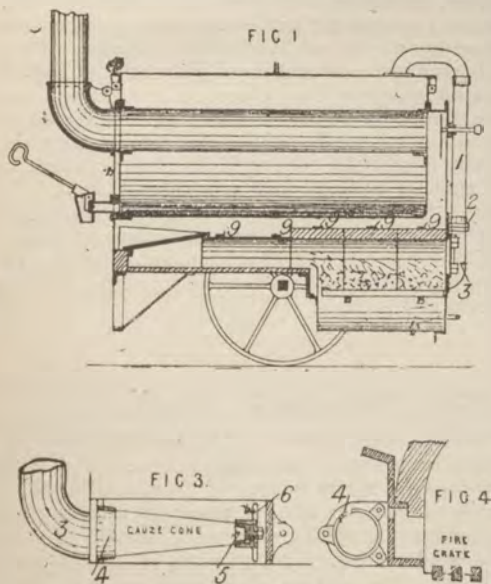
that the rain washes it down. In the case of the soluble materials the stone &c. after impregnation is coated with paraffin wax &c. In treating cement, mortar, &c., the preservative materials may be incorporated therewith. When gaseous substances are employed they may be made to penetrate the stone &c. by pressure. When dry materials are used they are preferably mixed with greasy material &c. Stone &c. may be first heated to destroy any organisms existing therein. Colouring-matter can be added to the preservative materials.

11,359. Sorel, E. E. A. July 2.

Cements; concretes; sound-deadening compositions.—Light material, such as chopped wood, bark, straw, cork, or leather, is mixed with pulverized magnesia and a solution of chloride of magnesium, and also in some cases with limestone. These mixtures may be used for making bricks, tiles, slabs, rubble floors, columns, fences, doors, shutters, or chests, or for the construction of fortifications and vessels. In the Figure, a compressible cork cement A, and a more dense cement B, are shown enclosed between inner and outer walls C, D of a ship. A metal core or casing may be used to strengthen the structure, and flint stones may be added to the plastic composition. These compositions are bad conductors of sound, heat, and electricity.



11,443. Healey, B. D. July 6.



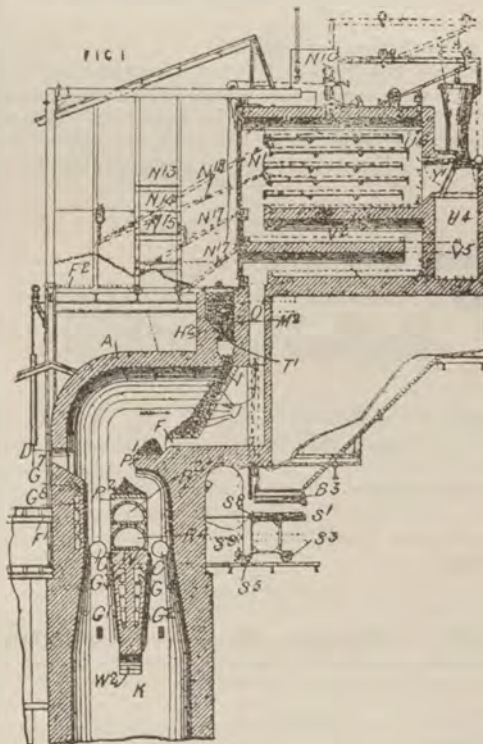
Asphalts.—Relates to cauldrons for melting pitch

&c., particularly such as are described in Specification No. 5959, A.D. 1886. The pipes 1 for drawing off gases from the pan to the grate are made about four times as large as before. They rest in glands 2, below which are movable elbows 3, provided with D-shaped flanges which enter D-shaped flues at each side of the grate. A gland 4, at the end of each elbow, secures the larger end of a safety gauze cone, the small end being held between two conical cups 5 and 6. The central heating-flues are made with cramps 9 for holding down the separate parts to the main casing. The front, back, and top plates of the casing are bolted to outside angles so as to be readily removable. The top angles of the pan ends are put outside and bent down at each end, so as to be joined to the top angles of the pan sides at each outer corner. The side heating-flues are made much larger than before, the side seating angles of casings being turned inwards and secured to the pan seating angles by means of bolts.

11,524. Day, C. A., [United States Fireproofing Co.]. July 7. Drawings to Specification.

Cements; fireproof compositions.—A fireproof cement is formed of asbestos and cork or sawdust incorporated with plaster of Paris, lime, and hydraulic cement.

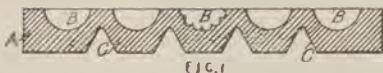
11,618. Lodge, T. H. July 8.



Cements.—The hot waste gases from the cement kiln K are utilized for drying the chalk and clay

used for making cement. The chambers V^2 &c. are built on piers or natural elevations above the level of the kiln, and are heated by the hot gases from the flue O^1 . The chambers are worked in pairs, and are fitted with suitable dampers &c. for shutting them off when drawing and charging. The compartments N^1 are provided with tiers of drying-plates on which the slurry is placed. The drying-vaults V^1 , V^2 may be lengthened as shown by dotted lines at V^5 . The drying-plates are provided with longitudinal ridges and end plates U^6 . The drying-vaults have each a single layer of slurry placed on a floor made of tiles with ridges, and fitted with end bricks for determining the depth of the slurry. Slurry is fed into the chamber from the main N^{10} fitted with slides operated by levers and ropes from the front of the chamber. When dry the slurry is raked out by men standing on the floor F^2 or on adjustable platforms N^{13} , N^{14} , N^{15} , &c. The slurry slides down detachable shoots N^{17} , N^{18} , and is filled into the hopper H^2 as required. The drying-chambers are provided with gas burners for lighting, and are fitted with sliding doors formed of double plates enclosing slagwool. The damper Y^1 is operated by a cord lever and trip lever mechanism, and is connected to a fusible wire embedded in the wet slip so that, in the event of over-heating, the wire fuses and the damper closes under the action of a counterweight. An exhaust fan connected to the flue U^1 is used to create a draught through the drying-chambers. The air is drawn through a cooling-chamber in order to protect the vanes &c. of the fan from injury. The fan spindle is cooled by water playing upon it. A steam jet is arranged so as to be available in case of a breakdown of the fan. A bell governor, worked by the degree of exhaust in the flue U^1 , is connected to the motor which drives the fan, so that the speed of the latter is regulated. To prevent explosion the air in the gas ports may be displaced by carbonic acid before the gas is ignited in the kiln.

12,021. Ball, S. E. July 15.



Casting confectionery, moulds for. A series of plain or ornamental recesses or matrices B are formed in the upper surface of a slab A , composed of india-rubber or other elastic material, and a series of grooves C in its lower surface, so that it may be bent to discharge the sweets readily after casting.

12,219. Reagan, W. J., and Longley, R. R. Jan. 20, [date claimed under Sec. 103 of Patents &c. Act, A.D. 1883].

Plasters; sound-deadening compositions.—A composition or plaster for plastering walls &c. is formed from a mixture of soapstone, plaster of Paris, and vegetable or animal fibre, such as

manilla. The plaster may be made into slabs for fixing to walls, or into blocks for sound-deadening purposes.

12,429. Reynolds, F. J., and Brown, J. July 22.

Cements; stone, artificial.—Well-calced lime is slaked by hand or machinery with a solution of potassium carbonate, or of potassium and sodium carbonates. A small quantity of raw sugar is added, and shell, pit, or other sand, brick dust, burnt clay, or similar gritty matter is then mixed in. Iron slag may also be used. In some cases metallic powders and salts are combined with the cement to give strength and hardness and certain colours when required. Thus brick dust produces an artificial stone of a grey colour, capable of receiving a high polish. The following substances are mentioned as suitable for admixture with the cement:—antimony sulphide, iron dust, oxides of iron, manganese, chromium, lead, and zinc, and carbonates and sulphates of iron and copper. The cement will harden under water.

12,633. Harries, T. D. July 25.

Stone, artificial.—Portland cement is mixed with metalliferous matrices left after the extraction of the metals gold, silver, lead, tin, and copper. The mixture is made into a paste with water, and is cast in moulds. The matrices used consist of clay, slate, quartz, and limestone.

12,730. Wachsmuth, F. July 27.

Stone, colouring and preserving; statuary.—Relates to a process for hardening, waterproofing, and colouring articles cut from crude gypsum. They are heated to a temperature of from 100° to 150° C. to expel moisture, then placed in a warm solution of barium hydrate, and afterwards transferred to a solution of oxalic acid. By this process the gypsum is partially converted into barium sulphate and calcium oxalate, and is rendered hard. If desired, the objects may be coloured before the hardening treatment by immersing them in a solution of iron, copper, or chromium sulphate, &c. Or colouring-matters may be added to the barium hydrate or the oxalic acid.

13,016. Williams, G. July 31.

Cements; stone, artificial.—Calced limestone &c. is placed in a steam-tight tank, and is treated with high-pressure steam generated from a solution of silicate of soda; or natural limestone is pulverized and placed in a boiling solution of silicate of soda in a similar tank. The mixture is incorporated with pulverized clay or other substance containing alumina and silica, and a thin paste composed of calcium chloride, lime, and water. The material

thus formed is moulded, dried, and burnt at a white heat. When burning, alternate layers of the material and coke are placed in the kiln so as to produce a clinker, which after grinding forms a cement applicable for general purposes, and as artificial stone. The boiler used is fitted with pipes so that steam can be supplied to the tanks, or the solution of silicate of soda can be run off thereto, as required.

13,117. Hunkel, O. G. Aug. 1.

Fireproof compositions.—Ammonium chloride, burnt alum, ammonium sulphate, sodium chloride, and sodium bicarbonate are separately dissolved in water, and the solutions are mixed together. Liquid water-glass is then mixed with the solution. Linen or other fabric is rendered unflammable by steeping it in the compound and drying it.

13,139. McMurray, T. Aug. 4.

Slags, treatment of.—Relates to the preparation of compounds for disinfecting, deodorizing, germicide, sanitary, manuring, and like purposes. They are also stated to be specially valuable as bases or retainers of products for preventing disease in either stored or growing potatoes. Furnace slag, or a compound of slag and lime, is treated with sulphuric, boracic, or other acid and mixed with carbon or charcoal. The furnace slag is previously disintegrated by running it from the furnace into water. In a disinfecting-whitewash the carbon or charcoal is dispensed with.

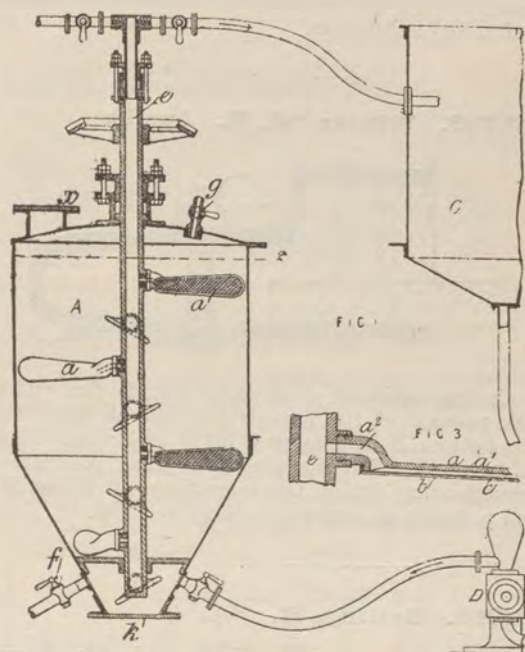
13,491. K  pke, C. H. Aug. 10.

Cements; fireproof compositions.—Coke poor in combustible properties, such as the coke from bog-head coal, is calcined and ground. The material may be used as a cement, either alone or in combination with cements, lime, and gypsum. Firebricks and other articles may be moulded from the material in admixture with cork, quartz, firebrick powder, coke, lime, soluble glass solution, hair, clay, organic substances, alkalies, alkaline earths, and magnesia.

13,616. Bloemendal, C. Aug. 12.

Mortars, hydraulic. Relates to apparatus for simultaneously mixing and extracting the air from materials used for making mortar. The cylinder A is fitted with a tubular shaft *e*, which carries a series of stirrers *a*. Each stirrer consists of a trough-shaped vane *a'*, Fig. 3, which is fitted with a perforated plate *b* and a filter cloth *c*. The cavity of the vane communicates by a tubular stem *a''* with the shaft *e*. The material is introduced through an opening *x*, the cylinder is closed, and water is admitted through *f*, the air escaping

through *g*. The cocks *f* and *g* are closed, water (preferably boiled) from a receptacle C is forced into the cylinder by a pump D, and the stirrers are set in motion. The vanes act as filters and extract



the air from the mixture, the water &c. which passes through them being returned through the shaft *e* and cock to the receptacle C. Any material that passes through the cloths is thus conveyed back to the cylinder by the pump D. The treated material is removed through the opening *k*.

13,690. King, J. T., and Gayly, J. Aug. 14.

Refractory substances.—In blast furnaces the inside courses of the walls of the boshes are built with bricks moulded from a mixture of fireclay and graphite, or other form of carbon. The bricks may also contain a certain quantity of lime or other basic material, such as magnesia.

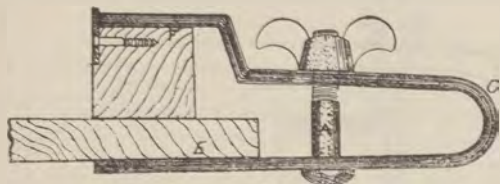
13,738. Schleuning, W. Aug. 14.

Stone, artificial.—Powdered terra-cotta, clay, porcelain, clinkers, &c. are mixed with burnt powdered gypsum, burnt slaked lime, colouring-materials, and water to form a cement or plastic composition, which is moulded or cast into the desired forms. The articles or mouldings are hardened by impregnating them with baryta water, and exposing them to the air, or to gases or solutions containing carbon dioxide. The outer surface is made impervious by means of water-glass or the like.

- 13,906. Darby, J. H.** Aug. 18. *Drawings to Specification.*

Refractory substances for furnace linings are compounded of ground chrome ore and tar, magnesia and tar, or other carbonaceous or neutral refractory substances.

- 13,983. Winter, W. P.** Aug. 19.



Casting artificial stone &c., moulds for. The side pieces F of the moulds are held in place on the bottom E by clamps C fitted with screw bolts A, as shown. The side pieces are thus prevented from moving during the operations of filling in and punning the cement or other material.

- 14,948. Seiling, H.** Sept. 4.

Cements.—A composition is formed of coal tar, sulphuric acid, and gypsum, applicable as a preservative composition or cement for cementing foundation walls, coating tile-roofing, plastering on laths, and for other building purposes. The Provisional Specification states that chalk and various mineral salts, such as copperas, zinc vitriol, copper vitriol, and white lead, zinc carbonate, permanent white, &c. may be added to the coal tar. Hard woods are previously coated with linseed oil or a solution of mineral salts in acid and water, and fences, window-sills, barn doors, stables, and other buildings or parts of buildings may be painted with the composition.

- 15,281. Thomas, W. F.** Sept. 9.

Stone, artificial.—For producing inlaid designs in artificial stone, metal or other moulds of geometrical or floral pattern are filled with a mixture of ground stone, metals, &c. and cement, and any kind of artificial stone, asphalt, cement, &c. is then poured round the mould, which is afterwards removed, leaving a solid slab with an inlaid pattern. Letters or devices running from front to back are cast in blocks of artificial stone, and are either left in place or removed and the space filled in with liquid cement &c. The letters may be made of wood, cement, china, glass, clay, or metal. The process is applicable to forming pavements, street name slabs, notices, advertisements, tombstones, &c.

- 15,509. Dolenz, G.** Sept. 12.

Stone, artificial; casting.—A mixture of burnt magnesite, sand, and chloride of magnesium is poured into wooden or metal moulds which have been lacquered, varnished, &c., so as to give a smooth surface to the material. The mode of preparation of the ingredients is varied according to the kind of stone it is desired to produce. To give a very brilliant surface, the moulds are of metal and are hot lacquered. They are coated with oil before use. The composition is allowed to dry in the mould. Veins &c. may be produced by mixing coloured and uncoloured compositions, or by painting a design on the mould with coloured material.

- 16,692. Davies, J.** Oct. 1.

Asphalts.—Finely-ground slate debris is mixed with silica and asphalt, lime being added in some cases. The proportions of ingredients may vary as follows, viz. :—for roads, two parts of slate and one of asphalt; and for footpaths and roofs, equal parts of slate and asphalt; silica is added in each case according to requirements.

- 17,050. Robertson, J. U., [Kennedy, C. W.]** Oct. 7.

Stone, artificial.—Consists in the utilization of materials of small commercial value to form an artificial stone &c. The process is applied to materials such as salt hay, grass, straw, reeds, rushes, common hay, leaves, twigs, husks, wood chips and splinters, sawdust, hair, waste paper, junk, scraps of hemp, jute, flax, coir, and other fibrous materials. In preparing the composition, long fibres of hemp &c. are immersed in a tank of water, to which a vibrating motion is imparted for the purpose of loosely intermingling the fibres. Finely-powdered silica or cement is then added, together with any suitable scrap or waste as described above. The pulpy mass thus produced is subjected to pressure in suitable moulds, and the resulting material is used, in some cases with a subsequent treatment depending upon its special application, for beams, columns, and building-materials generally. For making artificial stone, the composition is mixed with gluten, gelatine, pitch, resin, or silicates of sodium or potassium; coated with hydraulic cement and sand mixed with silicate of potassium and sodium; and, after treatment with water and being compressed, immersed in a bath of calcium chloride.

- 17,130. Perez-Gutierrez, F.** March 28, [date claimed under Sec. 103 of Patents &c. Act, A.D. 1883]. *Drawings to Specification.*

Casting.—Common salt is formed into balls or solids of other shape by a casting process. The salt, with or without previous desiccation, is melted in a furnace and then cast into balls &c. in moulds.

17,755. Alzugaray, J. B. Oct. 16.

Refractory substances.—Relates to basic furnace linings and materials for firebricks and the like. Carbonate of barium is employed with one or more alkaline earthy carbonates or other metal ores or minerals, such as magnesia, alumina, bauxite, and others. In other cases there are added in variable proportions graphite in a suitable form, liquid hydrocarbons, or silicate of soda, the whole being then submitted to pressure and baked.

18,284. Briggs, W. A. Oct. 24.

Cements.—A cement composition for coating the tanks, bilges, decks, peaks, waterways, and other parts of ships is formed by mixing together crushed pumice-stone and Portland cement.

18,413. Himmel, R. Oct. 26.

Statuary.—Relates to a process for the production of mother-of-pearl imitation on various polished or lacquered surfaces, the application to statuary being mentioned. Bronze powder is distributed over the surface, and a heated die, having an intaglio design, is pressed on it. Several differently-coloured bronzes may be mixed together and then employed, and the bronze may be distributed through a stencil plate.

18,498. Lake, H. H., [Wilder, C. H.]. Oct. 27. *Drawings to Specification.*

Refractory substances.—Gas retorts are lined with a mixture of plumbago and molasses which is converted by the heat into a fixed carbon.

18,559. Arnold, T. Oct. 28.

Cements; slags, treatment of.—Ground slag or blast-furnace scoria is mixed with Portland cement, the relative proportions being controlled by the amount of lime in the slag. The mixture is compressed in moulds in a dry state by intense pressure, or by a succession of blows or shocks, and the moulded article afterwards absorbs water from the atmosphere or by immersion. For paving-blocks, an outer roughened surface or tread is formed of neat cement. Drain pipes, building-blocks, garden edgings, and the like may be produced in a similar manner.

19,106. Ward, D. Nov. 5.

Cements; concretes.—Colours are mixed "with cement or lime, sand or rubble with water," and the mixture may be moulded into concrete blocks, tiles, or the like, or be applied in the plastic state to walls.

19,118. Foster, H. Le N. Nov. 5.

Refractory substances.—Regenerative or other furnaces, for use in a special process for making iron suitable for puddling, are lined with a basic or neutral material, preferably shrunk dolomite, basic slag, or chrome-iron ore.

19,330. Johnson, J., [Gayley, J.]. Nov. 9.

Refractory substances.—The inside walls of the boshes and hearths of blast furnaces are built of bricks moulded from a mixture of coke and tar. The Provisional Specification states also that bricks moulded from a mixture of fireclay and graphitic carbon may be employed.

19,467. Bloomfield, J. C. Nov. 10.

Cements; concretes.—Relates to the manufacture of plaster for making ornaments, figures, mouldings, and for general purposes. Raw shale is mixed with hydraulic lime or other cement, in a dry state. The shale may be coarsely broken or finely pulverized, according to the finish required; in the latter case the plaster dries with a glossy polished surface.

19,740. Jackson, G. Nov. 14. *Drawings to Specification.*

Casting concrete to form building-slabs. The slabs are cast within a mould frame placed on a sheet of glass, zinc, or the like forming the bottom of the mould. The slabs may be cast with a smooth or figured face of cement, or with a surface roughened to receive a finishing-coat of cement after the erection of the building.

19,899. Weighill, T. Nov. 17. *Drawings to Specification.*

Sound-deadening compositions for telephone boxes &c. The composition is formed of teased-out peat, sometimes mixed with sawdust, spent tan, &c.

20,269. Haarmann, L. Nov. 21.

Stone, preserving, by applying asphalt mastic. In order to make asphalt mastic adhere to bricks, concrete, sandstone, &c., the surface is first painted or coated with a syrupy solution consisting of bitumen or any asphalt-like substance dissolved in sulphide of carbon, benzene, or other volatile solvent. After the evaporation of the solvent, asphalt mastic is applied in a heated liquid condition. The asphalt mastic may in this manner be applied to walls, arches, cellars, foundations joints, stones, &c.

21,199. Norwood, R. Dec. 4. *Amended.*

Cements ; casting —Relates to an adhesive compound for making casts and mouldings, similar to that described in Specification No. 1620, A.D. 1882, and now known as "alabastine." The compound is formed of a mixture of animal glue and a suitable base, such as gypsum, with or without the addition of sulphate of zinc or other salts. Colouring-matters may also be added. The glue, in solution or dry, is preferably mixed with the gypsum during or after its calcination and while it is still hot, so as to render the glue friable. The resulting mass is ground and is prepared for use by admixture with cold water.

21,374. Norwood, R. Dec. 7.

Cements; casting.—Relates to an adhesive compound similar to that described in Specification No. 21,199, A.D. 1891. The composition is formed by mixing animal glue with an inert base, such as whiting, and heating the mixture. Colouring-matters and a small proportion of zinc sulphate or equivalent mineral salt may be added. When required for use, the dry mixture is mixed with cold water.

21,997. Thompson, J. K. Dec. 16.

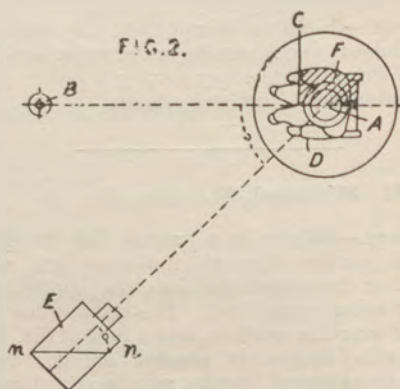
Refractory substances.—Ground fireclay is mixed with plumbago, graphite, and cement, the necessary quantity of water being added. The mixture may be moulded into bricks by hydraulic pressure, or it may be applied as a coating, or (with or without the cement and clay) as a wash, to ordinary firebricks, or the linings of fireplaces, fireboxes, furnaces, ovens, or kilns.

22,172. **Bordenave, J.** Dec. 18. *Drawings to Specification.*

Casting pipes, tanks, &c. with metal skeletons. A coil of bar iron forms the skeleton, which is placed vertically in a mould; cement, mortar, or concrete is run in to surround it and fill the interstices. The upper coils are somewhat closer together, to make up for the less dense condition of the head cement. The coils of the iron are bound together by longitudinal bars, which in the case of tanks are bent round so as to meet at the centre and thus form the skeleton of the base. The skeleton constructed as above described is placed vertically within a mould which contains a contractile mandrel and an outer shell in two hinged parts. The general arrangement of a work-yard is described. A carriage fitted with hoisting

and casting apparatus runs upon circular rails. The transverse boards of the railway have holes corresponding in size to the mandrel, so that, as the carriage is moved from one to the other, a pipe may be cast and left to harden. In operation, a ring of tough iron is placed on the ground, and upon this the skeleton coil; the mandrel is then lowered by tackle within the coil and expanded to its right size, after which the half shells are put into position and bolted together, and the cement or mortar is run in.

22,825. Pötschke, H. Dec. 31.

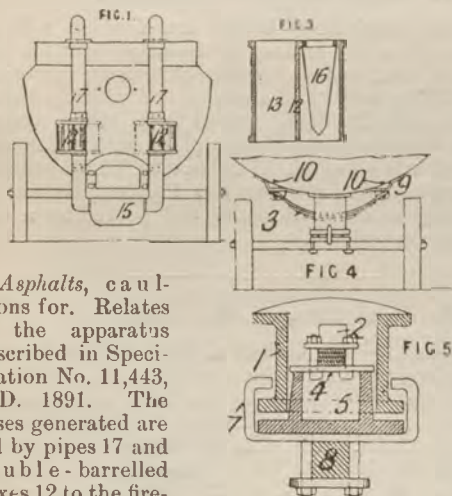


Statuary.—The object is to facilitate the modelling of busts and the like by means of silhouettes produced by photography. The sitter D, shown in plan in Fig. 2, is placed on a revolvable chair so that he can be turned on a vertical axis A and silhouettes negatives obtained in the camera E on a number of vertical planes passing through the axis A and separated by equal angles. To obtain illumination on one side of the head only, a screen C, D is fixed as shown, the plate in the camera being fixed parallel to the line D, A. In a modification, a mirror placed at an angle of 45° to the line D, A is used to reflect the image towards the camera. The light is placed on a level with the head of the sitter, and a ring F which acts as a head-rest comes out as a strip on each negative and thus can be used as a datum line for arranging the silhouettes to form the bust. The sensitive material of the plates is coated on an etching ground on a copper plate support; the outlines of the silhouettes are traced out by an etching-needle, and the separation of the plates at the outlines effected by etching. When the copper silhouettes are arranged each in its proper position about a vertical axis the angular spaces between them are filled in with clay which is modelled to correspond with the outlines of plates, and thus produces a bust of the sitter.

A.D. 1892.

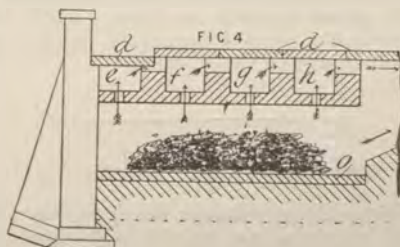
50. Moreau, P. A. Jan. 1.

Stone, artificial; stone, colouring.—Relates to processes for colouring and hardening soft white stone, such as chalk and Portland stone, either in the form of blocks or sculptured articles, in order to make artificial marble. The colouring is effected as follows:—A spirit varnish, prepared with Prussian red, is dropped on water to form veins &c., and the dried stone is applied to the water so as to take up the colour. The varnish on the water may be broken up with soap suds if fine veins are required. The varnish can also be applied with a sponge. The stone is then dipped successively in colour baths as described in Specification No. 19,395, A.D. 1892, and is finally placed in hot water to develop the colour. After the above treatment, or after the stone has been uniformly coloured, it is dried and hardened by immersion in a solution of zinc sulphate. To harden the stone throughout, it is removed from the bath after a short time, dried, and re-immersed. In some cases it is soaked in hot and cold water baths before it is returned to the bath. The length of time of immersion varies with the size and kind of stone treated. The process is sometimes repeated.

324. Healey, B. D. Jan. 7.

Asphalts, cauldrons for. Relates to the apparatus described in Specification No. 11,443, A.D. 1891. The gases generated are led by pipes 17 and double-barrelled boxes 12 to the fire-grate 15. The

boxes 12 are constructed as shown in Fig. 3. One barrel 13 is open, and the other is fitted with a gauze cone 16. The boxes are pivoted so that either barrel can be brought in line with the pipes 17. The open barrel is used when the heat is low &c., but when inflammable gas is being generated the other barrel is employed. The front axle of the cauldron is mounted on a bogie as shown in Figs. 4 and 5. The piece 1 is slotted at 2 to receive the spring 3, which carries a circular washer 4 secured by bolts &c. The conical under part 5 of the bogie is connected to the axle 8 and turns on the washer 4. A bar 7 holds the parts 1 and 5 together. Each end of the spring 3 works on a shoe 9 secured to the main casting 10.

736. Davey, T. J. Jan. 14.

Cements.—Relates to apparatus for drying slurry. The slurry is placed on a floor *d*, which forms the roof of a coke oven. Incandescent fuel is placed on the hearth *o* of the oven, and the apparatus is charged with small coal. The charging-aperture, which is at the end of the oven, is then almost completely closed, and the gases evolved by the combustion of the coal are burnt in chambers *e*, *f*, *g*, *h* immediately beneath the floor *d*.

795. Websky, E. Jan. 14.

Castings, treating. Gypsum casts are heated and immersed in hot linseed or other drying-oil, for from eight to ten hours. They are then removed and exposed to the air for about twelve hours, re-immersed and again exposed. This treatment gives the casts a stone-like appearance, and enables them to resist the action of the weather &c. A small quantity of "dammar" or other resin may be added to the oil.

- 1567. Levieux, A.** Jan. 26. *Drawings to Specification.*

Cements.—In the combustion, distillation, &c. of sewage, filth, blood, meat, horn, bone, town refuse, rags, hair, old leather, and other refuse, and of schists, pyrites, ligneous earths, &c., special furnaces are employed, puzzolana, cement, &c., being produced. The ashes and residues may, after pulverization, be employed as mortar. A drying-chamber may be used for drying the cement paste &c. before its introduction into the furnaces. This chamber is provided with superposed inclined gratings, down which the paste &c. slides. Air, heated by the waste heat of the furnaces, passes through the drying-chamber.

- 2033. Baker, C. F., Randall, J. H., and Mayhew, G. S.** Feb. 2. *Drawings to Specification.*

Fireproof coverings.—Relates to a composition or material, forming boards, slabs, linings, and the like, to serve as a substitute for wood, lath and plaster, and other materials, which is applicable for use in railway carriages &c., and for making external sheathing for frame buildings, wall and ceiling coverings, &c. The material consists of a body of wooden strips or slats placed side by side, and covered on both sides with paperboard, the slats being cemented to each other, and to the paper, by adhesive material, and the whole subjected to great pressure to form a rigid board. The boards are made fireproof by means of oil of creosote or any of the silicates.

- 2957. Hartmann, H.** Feb. 15.

Concretes.—Chips, cuttings, shavings, wires, wool, or fibres of metal are mixed with lime, trass, cement, gypsum, or like materials, with or without the admixture of sand or gravel. A homogeneous mixture of the material may be used in the formation of ceilings, floors, walls, or plates; or the metal wool or fibres may be applied between alternating layers of plastic material at those parts of the structure which are under the greatest stress.

- 3026. Dubbs, J. A.** Feb. 16.

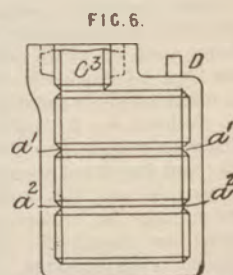
Asphalts.—Asphaltum is produced by heating crude petroleum or petroleum residues with sulphur. Crude oils containing paraffin &c. are distilled until the paraffin is driven off, before the sulphur is added. The sulphur may be mixed with the cool residue, or can be added to it gradually while still hot. Sand or other silicious material is sometimes added to render the asphaltum hard and rigid.

- 4131. Knowles, J. T.,** [*Actiengesellschaft "Cimbria"*]. March 2.

Cements.—In making Portland cement, the raw materials, such as crude lime or chalk and clay, are treated in the moist state in which they are extracted from the quarries by passing them through a rolling-mill, the rolls of which move at different speeds so as to produce a rubbing as well as a crushing action. The materials are then mixed in pug-mills &c., and are finally prepared for burning in the usual way.

- 4408. Dobbs, C. J.** March 5.

Casting.—Slag blocks for paving or other purposes are cast with a head C^3 , so that, on solidifying during the annealing process, the formation of cavities due to shrinkage is prevented by the liquid slag of the head descending into the blocks. Fillets a^1, a^2 within the mould cause a number of V-shaped grooves to



be formed round the compound block so as to facilitate the separation into a number of blocks after the slag has solidified. The head C^3 preferably projects beyond the sides of the blocks, to prevent them from touching one another when packed closely together during the annealing process. A blow-hole D is provided for the escape of air or gas. The sides of the mould are hinged so as to turn back and allow the compound block to be removed. Methods of casting two, three, and four blocks are described, and it is stated that the blocks may be cast singly with a head at one end.

- 4496. Holliday, J. S.** March 7.

Stone, artificial.—Blocks are formed with a facing of a fine-grained composition suitable for carving &c., and a backing of coarser material. The facing consists of a mixture of whiting, Bath-stone dust, Portland cement, and yellow ochre. This mixture is made into a paste with water and poured into a mould. The backing, which consists of crushed slag, granite, and Portland cement, is similarly mixed with water and poured upon the facing-composition.

- 4553. Knights, J. W.** March 8.

Cements.—To produce a good clinker for the manufacture of Portland cement, the layers of chalk and clay, while in the kiln, are sprinkled with common salt or potassium chloride, either dry or in solution. The alkaline chloride is vaporized during the burning of the cement and combines with the silica in the clay, forming a clinker which does not readily disintegrate.

5094. Crompton, R. E. B. March 15.

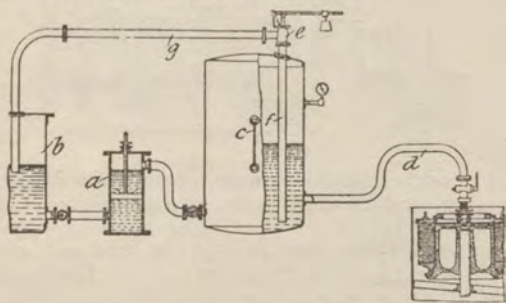
Fireproof coverings for walls &c. Asbestos sheets, softened by soaking or steaming, are embossed or ornamented in relief by rollers or other suitable means, and are dried, coloured, and decorated with asbestos or other paints or coatings. The spaces at the back may be left open, or be filled in with slagwool, plaster, or fireproof composition. A backing of thin asbestos, millboard, or canvas coated with asbestos paint may be applied to the covering.

5561. Sneade, W. S. March 22. *Drawings to Specification.*

Slags, treatment of.—Basic or other slag, in large pieces cemented together, broken up and made into concrete or cast into the required shape is used for making millstones. The molten slag may be rendered porous by forcing air through it in moulds having fine perforations.

5737. Joseph, W. W. March 23. *Drawings to Specification.*

Stone, artificial.—To prevent slipping on pavements or roads, slabs of sandstone or other gritty material are laid between the rows or series of rows of wood blocks. The slabs may consist of sawdust, grit or crushed stone, and cement.

6160. Brockhoff, R. March 30.

Casting sugar. Relates to apparatus for making sugar in slabs or blocks, and more especially to apparatus of the kind described in Specifications No. 13,084, A.D. 1888, and No. 7517, A.D. 1889. The clear is fed to the centrifugal apparatus along the pipe *d* from a closed vessel *c*, to which it has been supplied by a pump *a* in communication with the clear reservoir *b*. The reservoir *b* and vessel *c* are connected by pipes *f*, *g*, which are fitted with a safety valve *e* so arranged that a too great pressure in *c* forces some of the clear back into *b*. The mould basket, which serves both as centrifugal separator and mould for the sugar blocks, is octagonal or polygonal in plan, the number of sides of the polygon depending upon the number of wedges used, the wedges being of the kind described in Specification No. 7517, A.D. 1889. When desired, the refining may be carried

out in a separate apparatus, the above-described centrifugal apparatus being used only for driving out the last portions of clear from the slabs or blocks.

6745. Smidth, V. F. L. April 8.

Cements; mortars.—Portland, Roman, or other hydraulic cement is mixed with sand, gravel, ballast, &c. by grinding. For forming mortar, a further quantity of sand &c. is added to the above mixture; the proportions of the two materials are the same as is usually used, the mixture of cement and sand thus taking the place of cement alone.

7152. Duke, J. F., and Redman, F. April 13.

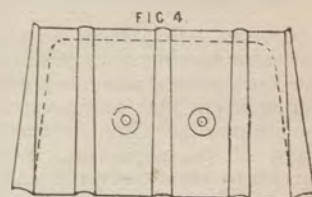
Casting.—Relates to the reproduction in bronze plaster, clay, wax, &c. of articles of intricate form without a seam. A mould is first made in india-rubber by dipping the article to be reproduced, and this india-rubber mould may be backed by a coating of plaster-of-Paris or a casing of metal cast from the plaster-of-Paris coating. The india-rubber is slit in the least conspicuous place and the article taken out: it is then put in its plaster or metal backing, and a fusible alloy or wax is run in to form a pattern. The india-rubber mould is removed from this pattern and a mould for casting metal is formed from the latter in powdered kaolin, or powdered kaolin and bone ash. For casting articles in plaster, wax, &c., the india-rubber mould is used.

7270. Huppertsberg, R. April 16.

Stone, artificial.—An artificial bituminous stone is made by mixing together, in a finely-divided condition, asphalt, or some similar bituminous matter, with a mineral binding-material, such as cement, plaster, dolomite, lime, or magnesia. To the mixture a suitable quantity of magnesium chloride and water is added to form a paste, and sand or powdered quartz may be mixed in. The operation takes place without the application of any heat except that produced when the water is added to the lime or other mineral binding-material. The surface of the stone, after setting, may be smoothed by the application of heated rollers.

7448. Mayer, W. April 20.

Casting.—Slag boxes and similar moulds for use at blast furnaces, steel works, &c. are corrugated as shown to permit of their expanding freely without bursting.



7473. Aston, C. H. April 20. *Drawings to Specification.*

Slags, treatment of; casting.—Hollow or solid slag blocks are cast with corresponding ribs and recesses which engage and interlock with one another. The moulds may be made of fireclay, ganister, asbestos, silicate of soda, flue-dust, magnesian lime, and tar, and are lined with asbestos and silicate of lime. Glazed blocks are produced by coating the moulds with salt, borax, lead, gypsum, stove flue dust, manganese, or fluor-spar, before the molten slag is run in. One or more of the following substances may be mixed with the slag before casting, viz., clay, flue dust, magnesian lime, lead, borax, fluor-spar, &c.

Cements.—Slag is mixed with magnesian lime and flue dust, and plaster of Paris may also be added.

Slagwool, preparation of.—The slag may be disintegrated by jets of steam, or water from the tuyeres of the furnace, and the powdered slag may be used for polishing glass, knives, or metal.

7502. Thompson, W. P., [Roeser-Müller L. O., and Deike, B.]. April 20.

Cements.—Plaster for building purposes is rendered porous by adding to the gypsum or plaster bicarbonate of soda together with acids, acid salts, &c. or bicarbonate of soda mixed with boiling water. Hydrochloric or sulphuric acid, acid tartrates, and acetate of alumina may be employed. The plaster thus produced is much lighter than that made in the usual manner. To give greater firmness, fir or pine brushwood, which has been dipped in a suitable agglutinant, may be mixed with the porous plaster. The brushwood may also be combined with ordinary plaster.

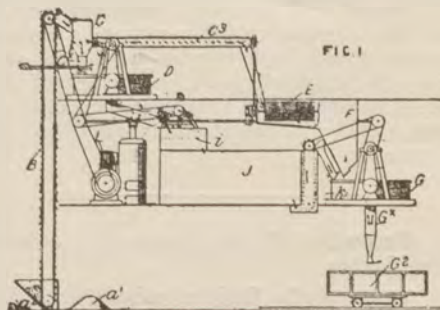
7845. Worthington, L. N. April 26.

Casting; statuary.—A mould is taken of the features of a deceased person, and the corpse is then cremated. The ashes are mixed with plaster of Paris, silicate of potash, &c., and are cast in the mould, thus producing a portrait medallion, which may be coloured or electroplated and framed, encased, &c. Other forms of memorials may be made with the ashes and plaster if desired.

7850. Warner, E. T., and Curry, J. F. April 26.

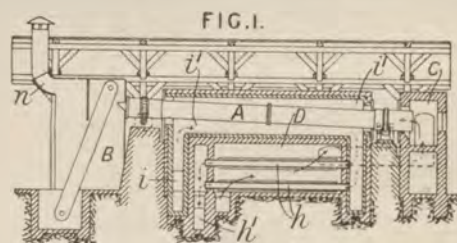
Cements.—Relates to an arrangement of apparatus for making and mechanically mixing mortar; the lime, after slaking, being kept in bulk in a tank for sufficient time to allow it to assume a putty-like consistency &c. Fig. 1 shows the general arrangement of the apparatus. Sand a^1 or lime a^2 is carried by the conveyer B and fed into the hopper C, which is fitted with a flap valve so as to allow the lime to be delivered from the spout C^x into

the slaking-box D, while the sand is passed on by a worm conveyer C^3 to a rotary sieve E. The box D is fitted with mixing-arms, and, when the lime is completely slaked, it is led to a sieve i fitted with a



rotating brush to break up lumps, whence it passes to the vat J in which it is allowed to remain for some time. It is then transferred by a conveyer k to the mixer G, which also receives the sifted sand from a bin F. The mortar is delivered by a spout G^x into trucks G^2 &c. placed underneath. Any suitable form of mixing-apparatus may be used.

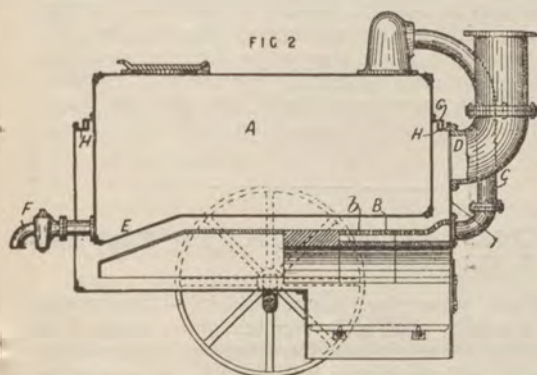
7922. Fellner, J. C., and Ziegler, C. April 27.



Cements.—Relates to rotary apparatus for drying, burning, and roasting lime, cement, &c. The material is fed by a hopper or an elevating-apparatus into the upper end of an inclined and rotating cylinder A fitted inside with U-shaped stirrers, which may be continuous throughout the length of the cylinder or arranged in short lengths at intervals thereof. The cylinder is rotated by worm gearing, and is supported upon rollers which at one end are mounted upon a rocking frame and at the other are adjustable towards and from one another so that the inclination of the cylinder may be increased or diminished as desired. The chamber i^1 containing the cylinder is separated from the end chambers B, C by adjustable plates or obturators. The chamber B serves as a dust settling chamber, and when the apparatus is fed by an elevator as shown the material is partially heated therein in its passage to the cylinder. The chamber C receives the finished material, which then passes by a shoot &c. into wagons &c. in a chamber below. The air for drying purposes &c. is passed through the latter chamber, and thence through the chamber D, traversed by heating-tubes h , to the exit end of

the cylinder, through which it passes, escaping finally through apertures at the feed end to the chimney *n*. These exit apertures for the air &c. are fitted with tubes projecting inwards and bent in the direction opposite to that in which the cylinder rotates, and various gridiron and other valve arrangements are provided for partially closing the apertures and controlling the exit of the air or gases to the chimney. The cylinder may be heated externally by furnace gases which pass from the firebox along the flue *i* into the chamber *i'*, and through the tubes *h* and along the flue *h'* to the chimney. If it is desired to treat the material with gases other than air, these are passed directly into the chamber *C*.

8961. Hawley, J. May 11.

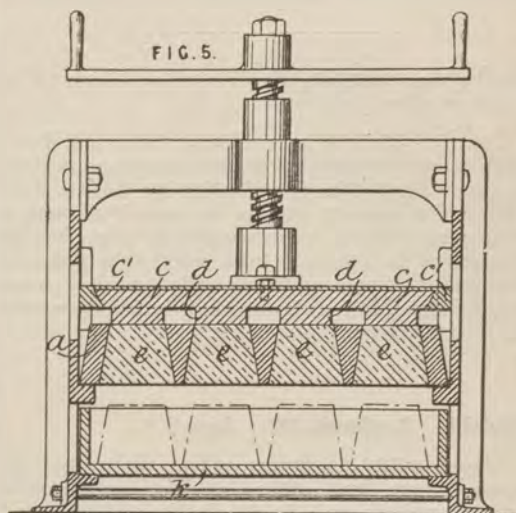


Asphalts.—In boilers for melting asphalt, to prevent the gases from the boiling pitch from taking fire in the boiler, the pipes *C* which conduct them away to be burnt communicate with a hollow saddle-shaped flue *B* instead of directly with the fireplace. The flue is provided with openings *b* through which unconsumed gases pass to the chimney *D*. The boiler *A* is formed with a channel *E* at a lower level than the bottom, the draw-off cock *F* being fitted at the end of the channel so that the boiler can be completely emptied. To facilitate taking the apparatus to pieces, the boiler *A* carries a flange *G* which rests in a channel iron *H* fixed to the outer casing *I*. The connection is made airtight with a packing of sand &c., and wedges are driven in to secure the boiler in position.

9086. Beason, J. May 13.

Casting blue and like domestic blocks used for whitening &c. hearths &c. In order to facilitate the removal of the blocks *e* from the moulds *a*, a plunger *c* with projections *d* corresponding with the moulds, is secured to a plate *c'* of a screw or other press. The ejected blocks fall into a drawer or receptacle *h* underneath. In casting the material, the moulds are placed on a bench or plate with the wide parts of the moulds

uppermost, or the moulds may be secured to a detachable bottom by pivoted catches. The blocks



may be ejected by tapping the plate *c* with a hammer, or by forcing it down by hand or mechanical means.

9279. Müller, W. F., [Administratrix of Müller, F.]. May 16.

Cements for paving. Wood blocks are laid on a cement consisting of finely-comminuted iron, sulphur, sal-ammoniac, vinegar, and a large quantity of water, to which finely-ground silicates may be added; the sulphur may be replaced by other substances capable of forming hard compounds with iron in alkaline lyes.

9974. Majewski, H. A., and Beyenbach, W. May 26.

Stone, artificial; stone, colouring; stone, preserving.—Relates to the manufacture of artificial marble by the impregnation of natural gypsum with solutions of crystallizable salts, such as alum, iron sulphates, manganese sulphate, chromates, &c. The partially-dried gypsum is first saturated with a solution of potassium sulphite, which facilitates the penetration of the impregnating-solutions by acting as a vehicle therefor. In the case of large blocks, they are perforated longitudinally and suction is employed to draw the solutions into the pores. The potassium sulphite becomes oxidized and combines with the other metallic salts, thus producing varieties of colour; for instance, with chrome alum it yields a deep green solution.

10,010. Hoyle, J. May 26. *Drawings to Specification.*

Cements.—Relates to the manufacture of Portland cement. The clinker is first ground and

sifted; the residue is passed over a magnetic separator, and again ground by itself.

10,010A. Hoyle, J. May 26. *Drawings to Specification.*

Cements.—Relates to the manufacture of Portland cement by apparatus for carrying out the process indicated in Specification No. 10,010, A.D. 1892. The cement residue is passed through a sieve which serves to intercept any large foreign substances to a hopper from which it is fed over a magnetic separator. The purified residue passes into a hopper, and is elevated to grinding-apparatus of special construction.

10,532. Laffont, M. June 2.

Stone, artificial.—Bricks, tiles, slabs, paving-stones, pipes, and other building and ceramic articles are shaped from plastic material, and optionally pressed after partial drying; they are then dried, heated to over 1250° C., i.e., a white heat, and cooled slowly, the resulting substance being similar to natural eruptive rock. The material used is a mixture of crude fireclay with calcined "fusible" clay, containing considerable quantities of oxide of iron and lime, or with quartz sandstone, sand, slate, clay-slate, chips from brick-making, or fragments of eruptive rock, such as protogynite, eurite, retinite, perlite, obsidian, compact syenite, compact fine-grained porphyry, diabase, serpentine, trap, melaphyre, dolerite, or basalt. These materials are dried, crushed, sifted, mixed, and moistened uniformly. Quartz, clinker, or other material may be added to produce coloured veins.

10,927. Birkbeck, H., [Heise, H.]. June 9.

Cements; concretes; casting; fireproof compositions.—Consists of a mixture of lime or other cement, gypsum, and well burnt and washed coke. The cement is made into a paste, and the gypsum and coke in small pieces are mixed therewith. The material may be moulded or cast into blocks &c. A small quantity of alum may be added to the mixture. The composition is fireproof.

11,226. Taylor, G. C. June 15.

Cements; fireproof compositions; refractory substances.—Relates to a fireproof cement or composition for boilers, flues, &c., and for setting bricks in or re-lining furnaces. The composition consists of a mixture of clean sharp sand, free from oxide of iron and chloride of sodium, asbestos fibres, and silicate of sodium and water. The composition is applied in the form of a paste and hardens when heated. It can be rendered soft again by treatment with hot water. The Provisional Specification states that slagwool fibres may be used in

place of asbestos. The cement may be used in combination with the flue covers described in Specification No. 6594, A.D. 1892.

11,234. Hewitt, W. W. June 15.

Cements.—In making cements, the clinker &c. is reduced gradually by a series of alternate grindings and siftings.

11,765. Webster, W. June 23.

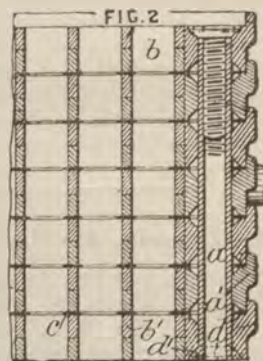
Cements.—Relates to the manufacture of artificial fuel, or cement, from sewage sludge. The fuel is made by moulding a mixture of coke or coal breeze and solid sewage sludge, previously ground. This fuel may be used for burning a mixture of sewage sludge with clay and chalk, or chalk and river mud, or lower grey chalk, the residue forming a cement. Sludge, obtained by treating sewage with Portland cement or burnt grey chalk, may also be mixed with the fuel and burnt in kilns to form a cement.

11,766. Talbot, W. H., and Venning, C. H. June 23.

Stone, preserving; stone, artificial.—The process is specially applicable for hardening natural or artificial stone of the softer kinds to render them capable of receiving a polish, and for preserving them. The stone, after being thoroughly dried, is immersed in a solution of an alkaline silicate. It is next washed and immersed in a strong solution of alum or aluminium sulphate, and finally heated for several hours and allowed to cool.

11,972. Hannah, W., and Curtis, F. June 28.

Casting sugar into cubes or other forms. Rectangular frames *a* with flanges *a'* are placed one above another, each frame being divided into square or other spaces by means of longitudinal bars *b* and removable cross-bars *b'*. Perforated plates *c* are placed between the frames, which are secured together by screws



d' and threaded tubes *d*. The moulds having been thus built up, massecuite is run in, and allowed to cool, when the moulds are placed in a centrifugal machine, and finally dried.

12,174. Terp, O. June 30.

Stone, artificial; casting; fireproof compositions.—Reference is made to Specification No. 12,175, A.D. 1892. A mixture of calcium-chloride and magnesium-chloride solutions is prepared, and hydrochloric acid and a saturated solution of chlorine is added thereto, the whole being constantly stirred. This solution is then mixed with "bitter-earth" (a native magnesium oxide), pigments if desired, and sand, quartz, peat fibre, paper pulp, spent tan, &c. The "bitter-earth" may be replaced by prepared magnesium oxide. For the preparation of artificial sandstone a thin paste is made by adding the chloride solution to "bitter-earth," sand, and suitable pigment. The mixture is then cast in moulds and allowed to set. When the composition has hardened it is removed from the mould, dried, and partially or entirely brushed over with hydrochloric acid to remove the outer glassy scale. When it begins to feel rough it is rinsed with cold water. Artificial marble is prepared from a mixture of the chloride solution and "bitter-earth." Veinings may be produced by adding coloured paste by means of a spatula, or by the use of saturated threads. The marble is cast on a smooth plate or in a mould. To preserve the polished appearance, the white coating which forms on the surface is not wiped off, but the casting is immersed in a solution of calcium and magnesium chlorides, and when dry rubbed with a soft rag and vaseline &c., this process being repeated on successive days until the coating no longer appears. The veining &c. may be confined to a thin facing, the body of the slab being formed of a coarser composition. Mosaic tables, tiles, &c. are produced by using compositions of different colours, or materials such as ground marble and basalt mixed with the cement. Vertical thin zinc &c. strips are used to separate the materials during casting, these strips being subsequently removed so that the compositions run together. Moulds for casting cements are made of a mixture of the solution of chlorides, "bitter-earth," and sand, and are coated inside with shellac solution and oil as usual. Pavements may be made in slabs or otherwise from a mixture of sand, granite, basalt, quartz, or other hard natural stone mixed with the solution of the chlorides and the "bitter-earth." Pigment may be added if desired. Panels, boards, parquet flooring, mangling &c. rollers, &c. are made from a mixture of the chloride solution with "bitter-earth," sawdust, wood wool, peat, paper pulp, spent tan, &c., and suitable pigments. This composition can be worked like wood and is fireproof. Non-conducting compositions for safes are prepared from a mixture of the chloride solution, emery, and "bitter-earth." This material is fireproof and resists steel drills &c. The artificial stone is also applicable for steps, balustrades, gravestones, monuments, statuary, columns, &c.

12,175. Terp, O. June 30.

Stone, colouring and preserving.—Relates to enamel paint for protecting surfaces from atmospheric action &c. and reference is made to

Specification No. 12,174, A.D. 1892. A mixture of solutions of calcium and magnesium chlorides is prepared, and hydrochloric acid, a saturated solution of chlorine and pigments, if required, are added thereto with constant stirring. When required for use, "bitter-earth" (a native magnesium oxide) is added to the composition, or ordinary oxide of magnesium may be used in place of "bitter-earth." The surface to be painted should be well cleaned, and if porous should be brushed over with a solution of salt or other chloride. A lustrous appearance may be given to the enamel by rubbing it with a hard brush, and a brighter effect is produced by coating when dry with linseed or other oil. The paint is applicable to brickwork, stone, plaster, figures, &c., castings in cement, and other surfaces. The paint can be washed with a syringe &c., and is thus adapted for use in hospitals and other buildings.

12,741. Shaw, F. A. July 12. Drawings to Specification.

Stonework, ornamental.—Slabs of marble, gypsum, alabaster, or other translucent material are prepared with a design in intaglio to be viewed by transmitted light. The material is cut away to a varying extent, so that it is thinnest where high lights are to appear and thickest for shadows. The designs may be used for cathedral windows and for other architectural ornamentation.

13,602. Bloomfield, J. C. July 26.

Cements; fireproof compositions.—A small quantity of gypsum is added to ordinary hydraulic lime, which is then intimately mixed with an equal quantity of sawdust. The composition thus formed is sifted and used in the usual way for plastering or for making ornaments, figures, bricks, &c. It may be rendered fireproof by adding a small quantity of tungstate of soda, sulphate of zinc, &c. to the water used for mixing.

14,162. Kirchmann, J., and Schwinghammer, K. Aug. 5. Drawings to Specification.

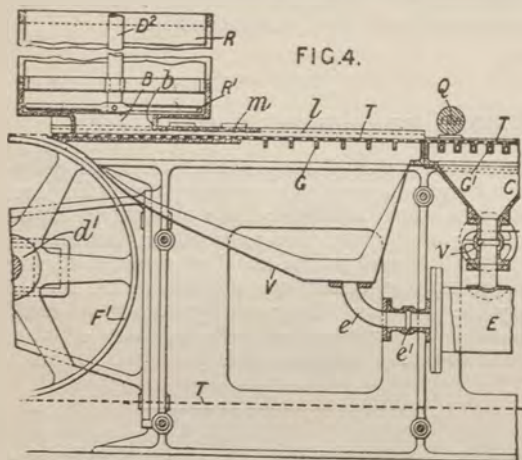
Refractory substances.—Relates to laggings, casings, and walls built round boilers or furnaces in general. The invention consists in particular conformations and compositions and in utilizing the chambers in the lagging for passages for supplying air to the furnaces. The laggings and furnace casings are built up of a double wall of iron trellis-work covered with a suitable plaster. When the wall is not exposed to the direct heat of the furnace gases, the plaster may be composed of clay, sand, powdered spar, or cryolite, with a suitable binding-material such as water-glass, borax, cement, or gypsum, with or without cinder or ashes. For such wallings as are immediately

exposed to the fire, there is used a composition of Portland cement, cinders, graphite, and asbestos, with firebrick earth if desired.

14,336. Keseling, J. E., and Fuchs, C.
Aug. 9.

Stone, artificial; cements.—Magnesium oxide obtained by calcining magnesite is made into a paste with specially-prepared magnesium chloride and sand, and asphaltum is afterwards added. Ground slate, sandstone, or flint powder may be used in place of the sand. Colouring-matter can also be added if desired. The material is then cast into bricks, tiles, &c., or can be obtained thin for use as a paint, or stiff for plaster work. Under atmospheric action the chlorine is eliminated; this elimination may be hastened by immersing the stone in a hot-water bath and then drying it. Articles made under pressure are treated with high-pressure steam. The magnesium chloride is obtained* by neutralizing hydrochloric acid with calcined magnesia.

14,419. Prangey, L. E. A. Aug. 10.



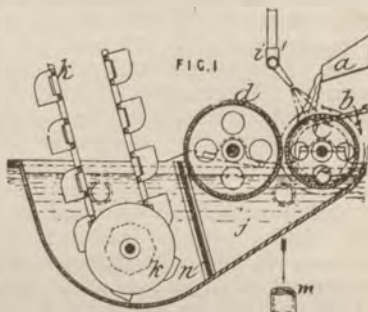
Casting.—Relates to apparatus for continuously moulding, clarifying, and drying sugar. R is a masse-cuite reservoir, provided with an agitator R¹ mounted upon a rotating shaft D², and opening below into a rectangular box B, in the front b of which is an opening for the passage of the sugar. The bottom of the box b is prolonged forwards and connected to two side pieces l, which determine the width of the moulded sheet of masse-cuite, the thickness being regulated by means of a removable moulding-plate m situated in front of the box B. The sugar is carried forwards by a perforated endless metal belt T, which passes over two wheels d¹ of one of which F¹ are horizontally adjustable, and over solid spaced bars G and sets of hollow bars G¹, which are situated in

the upper ends of a succession of basins C. The "green" syrup runs into a receptacle V connected by the pipe e and valve e¹ to the first E of a series of collectors, which are connected to the basins C by a pipe and valve v. A partial vacuum is maintained in the collectors, and the syrup is drawn into them through the gratings G¹ and vessels C. The sheet of moulded sugar may be smoothed by means of one or more rollers Q, or by a cutting-blade. Cold water may be caused to circulate through the hollow bars G¹. The moulded sugar is dried by means of air which enters a box situated above the belt which conveys the moulded sheet of sugar through the machine. Within the box is a steam pipe or coil. The apron or belt T is washed by means of warm water discharged upon it, after leaving the sheet of sugar, from a perforated pipe, and is wiped by passing between two strips of india-rubber.

14,889. Kieffert, R., and Thirion, H.
Aug. 17.

Cements.—A cement which is applicable as a preservative coating for stone, plaster, iron, wooden, &c. surfaces, consists of a mixture of boiled linseed oil, litharge, water, sifted river sand, lime, and colophony.

14,982. Rock, T. D. Aug. 19.



Slags, treatment of.—The slag, immediately after or during its treatment with cold-water spray, is passed between crushing-rolls or their equivalent. In the arrangement shown, the molten slag runs from the shoot a on to the roller b, and is simultaneously acted upon by water supplied from the pipe i. The slag then passes between the rolls b, d and falls into the tank j, through which cold water circulates. The slag passes through the grid n, and is raised by an elevator k, from which it is carried by a conveyer to a storage hopper &c. The roll d is driven from the roll b by friction or by toothed gearing, and may be mounted in inclined slots so as to remain in contact with the roll b. The space between the rolls can be adjusted. A paddle formed of a series of beaters may be used in place of or in combination with the rolls b, d.

- 15,147. Keseling, J. E., and Fuchs, C.** Aug. 23.

Stone, artificial.—Consists of a mixture of magnesium oxide and chloride, to which is added a large proportion of sand, asphaltum, and albumen. To give elasticity the asphaltum is dissolved in oil of turpentine. Mineral colouring-matters may be added.

- 15,911. Edwards, E., [Goetz, K.].** Sept. 5.

Casting, compositions for. Instead of mixing clay for casting with a large quantity of water to form slip, it is reduced to a fluid condition by grinding it with about 3 per cent. of an aqueous solution of soda, potash, lithia, or ammonia, or an alkaline salt. Lyes of soda, potash, lithia, or ammonia may be used; also carbonates, silicates, and fluorides or fluo salts of these bases, the carbonates of soda being excepted. When the slip is to be cast into articles of porcelain, cinnabar may be added to prevent the formation of a grey colour at the edges during the process of burning.

- 16,354. Keseling, J. E., and Fuchs, C.** Sept. 13.

Stone, artificial.—Basic cement composed of magnesium oxide and chloride is mixed with asphaltum, sand, and a solution of albumen and casein. The amount of albumen and casein used determines the degree of fluidity of the composition. Pigments may be added if desired.

- 17,810. Jumeau, E.** Oct. 6. *Drawings to Specification.*

Casting; stone, artificial.—Relates to the production of plaques, tiles, and the like of plaster of Paris or cement in imitation of mosaics, marble, stone, tapestry, ceramic ware, decorative painting, &c. by casting coloured plasters or cements in moulds with dividing-ribs, and applying a backing of plaster or cement, and on this a backing of canvas or other fibrous material. The lines produced by the ribs of the mould may be filled in with coloured cements to represent veinings &c., and, after drying, the whole may be varnished. For slabs in imitation of tapestry or shaded artistic painting, the fine lines or recesses are not filled in. A plaster model or pattern is first made, and from this the mould is obtained by casting. Templets, gratings, or pattern plates may be used for filling the different-coloured cements into the mould. Slabs may be moulded with designs in relief and a hollow roughened ground, this hollow being afterwards filled with a yellow or coloured plaster ground.

- 17,928. Hubbell, C. H.** Oct. 7.

Mineral wool.—A mixture of granite and limestone, or other flux having a calcium base, is fused and subjected in the usual way to the action of a jet of heated air or steam so as to form filaments which are collected in any suitable manner.

- 18,145. Jones, T.** Oct. 11.

Plasters.—Aluminous shale or alkaline clay from the coal measures is calcined at a low red heat until the organic matter is destroyed. It is then ground, mixed with dilute sulphuric acid, and boiled for some time. If the shale is not sufficiently alkaline, crude potash &c. is added. When dry, the mass is ground up with calcined gypsum, and when thoroughly mixed and bolted is ready for use. For ceilings &c., the plaster is mixed with an equal bulk of sand. For a second coat, the plaster is mixed with an equal bulk of lime putty. Water is added in both cases to bring the composition to the required consistency.

- 18,258. Viggers, A. M.** Oct. 12.

Sound-deadening compositions.—Blue clay and torn woollen ends are mixed in certain proportions and made into a plastic composition by the aid of water. If torn woollen ends are not obtainable, silk or cotton waste is used instead. The composition so made is used for making sound-deadening compositions. The articles produced may have a final protective coat of cement, wire netting, or plaster of Paris.

- 18,443. Jensen, C. A., [Walters, W. M.].** Oct. 14.

Cements.—Relates to a kind of putty or marine glue, for use in filling the seams of ships' decks, tanks, or barrels, or for coating ships' bottoms or bilges, in place of Portland cement. Resin is melted, being continually stirred to prevent burning, linseed or other suitable oil is run in, and the temperature raised; whiting, powdered chalk, slaked lime, plaster-of-Paris, barytes, magnesite, fuller's earth, or like substance is then added little by little, while the stirring is continued, and the temperature raised, till all air and moisture are expelled. The mixture is then run into moulds and allowed to cool.

- 19,009. Thomlinson, J.** Oct. 22.

Cements.—A non-efflorescent white cement is produced by mixing farinaceous matter, such as ground wheat, with calcined sulphate of lime.

19,018. Mitchell, G. Oct. 22.

Fireproof coverings.—Silicious cement, asbestos pulp, or the like is damped and mixed in a machine, and afterwards compressed into cakes, slabs, or sheets. Wire-gauze netting or woven material may be used in combination with the slabs to form a strengthening back or fin.

19,395. Moreau, P. A. Oct. 28.

Stone, colouring.—Stone is coloured in imitation of veined marble &c. by immersing the stone in a series of baths containing respectively sulphate of iron, sulphate of copper, and sulphate of zinc, or other suitable colouring-matter. The stone is previously treated by placing its surfaces on water upon which a film of protective composition is floated; or the protective composition may be applied in other ways. After colouring, the stone is dried by gentle heat, and is hardened and oiled, polished, or otherwise worked.

19,813. Böklen, O. Nov. 3.

Cements and mortars.—Cement mixed with sand &c. and moistened is subjected to pressure and a rubbing movement until "the silicate is completely dissolved." The simultaneous pressure and rubbing may be effected by means of a reciprocating roller, a grinding-mill with vertical stones, a press with a pressure plate formed with ribs &c. or working in a vessel with ribbed &c. bottom, crushing-apparatus, such as stone-breakers and roller mills, or by hammers worked by hand or mechanically.

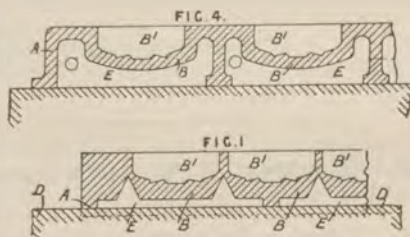
20,286. Duxbury, W. Nov. 10.

Cements; casting.—In making glass-faced tiles, bricks, cornices, mouldings, &c., a mortar made of brick or slate dust and lime is cast within a mould on a glass face which is roughened, corrugated, coloured, or otherwise ornamented on the side to which the mortar is applied. The mould may be of wood, metal, or stoneware, and may taper towards the top, and may have two opposite edges grooved.

20,414. Moreau, P. A. Nov. 11.

Stone, artificial.—Variegated or veined artificial stone is made by intermingling coloured compositions. Any cement or plaster may be used which sets sufficiently to allow it to be subsequently hardened, but chalk, Portland stone, and Bath-stone are specially suitable for forming the artificial stone, and when coloured and hardened form an imitation marble. The process is described with reference to the preparation of an artificial red marble. Chalk is finely pulverized, sieved, and

thoroughly dried. It is then used as the basis of four mixtures, the first containing sesquioxide of iron, and the three others containing also sesquioxide of iron and indigo blue in various proportions. These compositions are separately made into paste with sulphate of zinc and are poured into a vessel but not intimately mixed. The mixture is then poured irregularly into a greased mould and allowed to set. The moulded article may be hardened by steeping it in a bath of sulphate of zinc and treating as described in Specification No. 50, A.D. 1892. In some cases the four compositions are made into a thick paste and blended with a trowel. The artificial stone can be used for coating or facing blocks of chalk, stone, slate, glass, or cement, which are hardened simultaneously with the composition.

20,886. Horn, A. Nov. 17.

Casting.—India-rubber moulds for casting sweetmeats &c. are formed with channels or passages through which a cooling-medium may be passed. Fig. 1 shows one form. The mould B has a projecting rim or flange A cemented or otherwise secured to a table D. The cooling-medium is caused to travel through the space E thus formed. In modified forms, channels are formed in the body of the mould. Fig. 4 shows a form in which the moulded article may be readily removed from the mould when the article has sufficiently hardened in the spaces B'. The cooling-medium flowing through the space E is placed under sufficient pressure to force or bend up the mould and so partially eject the sweetmeat or other article.

21,084. Lockwood, H. Nov. 19.

Asphalts.—Relates to a composition for flooring &c. The burnt oxide of iron obtained in the manufacture of sulphuric acid from gas-purifier waste is mixed with pitch, anthracene pitch softened with anthracene oil being preferably used.

21,640. Meyer, K. S. Nov. 26.

Stone, artificial.—A thick paste is formed by mixing magnesite with water, and is used as the cementing-material for sand, pebbles, small pieces of marble, granite, &c., either alone or in combination. The wet mixture is pressed into moulds,

left therein for about two days, and then dried. Pipes, memorial stones, figures, &c. can be made of the composition.

22,004. Lührmann, F. W. Dec. 1.

Slags, treatment of; cements; stone, artificial.—Relates to the production of cement, building and paving stones, &c. from blast-furnace slag. The slag is remelted and, while molten, limestone, clay, quartz, oxide of iron, other forms of slag, &c. are added in such proportions as to form a composition of the required character. The resultant product may be moulded or disintegrated in the usual way.

22,784. Gaskell, J., and Robinson, W. Dec. 12.

Stone, artificial.—The product obtained during

glass grinding, consisting of sand, glass, and iron oxide, is used alone or combined with other materials as an artificial stone. Barytes, sulphate of lime, granite, clay, alkali waste, and other materials may be used as fluxes.

23,332. Nelson, E., [*trading as F. McNeill & Co.*] Dec. 19.

Slagwool, preparation of.—Aluminium silicate and a mixture of calcium carbonate and alumina are added to cold slag, and the whole is fused in a suitable furnace. The molten material is blown into fibres by a steam or air jet which is made to impinge on it as it flows from the furnace. The added materials act as a flux, and render the slag more vitreous, thus causing finer fibres to be produced.

APPENDIX.

The first of the following abridgments should be added to those appearing in the volume for A.D. 1884-88.

A.D. 1884.

12,901. Budd, J. Sept. 27.

Stone, imitation.—Consists in imparting to sheets of glass the appearance of marble, malachite, onyx, or other stone, for use in the decoration of ceilings, dadoes, &c. A tank is partially filled with a mixture of one part by measure of lime with two parts of water, and any ordinary pigments mixed with oil and of the tints desired are floated on the mixture. Any other mixture capable of floating the colours may be employed. The glass, which may be prepared with gold size or other

drying-material, is laid on the floating colours, which are thereby transferred to it. The veined or ornamented surface is then painted to form the ground, and coated with a mixture of shellac and plaster of Paris or other backing-material, and when dried is ready for use.

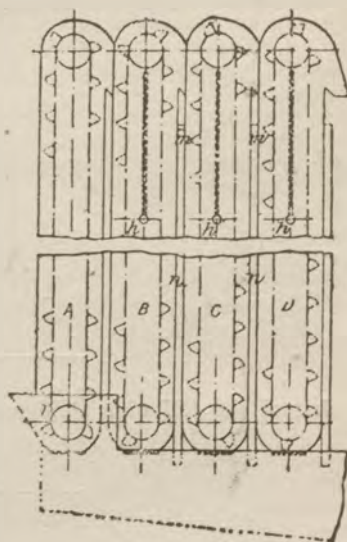
A.D. 1890.

14,522. Mueller, L. O., and Stader, L. Sept. 15.

Plasters.—Cements or plasters for coating coffins are composed of dextrin, soluble glass, and plaster of Paris. This cement renders the coffin airtight until after burial, when it is readily disintegrated by damp.

18,732. Cajot, A. Nov. 19.

Cements.—Relates to apparatus for enriching phosphate of lime and phosphated chalks, stated to be applicable also in the preparation of cements, marls, &c. The material to be treated, after being crushed and mixed with water, is fed into a hopper T from which it is raised and delivered into a casing by an elevator A. The casing is divided into three or more water-tight compartments B, C, D fitted with elevators, and provided in their upper parts with partitions and perforated water-supply pipes *h*. The water charged with impurities escapes through pipes *n* provided with apertures *m*. The bottoms of the compartments are provided with man-hole doors.



A.D. 1891.

10,595. Mueller, L. O., and Stader, L. June 22.

Plasters.—Relates to cements or plasters for covering coffins such as are described in Specification No. 14,522, A.D. 1890. To the cement, composed of gypsum, silicate, and dextrin, described in the previous Specification, may be added carbonate of soda or any carbonate and washed or precipitated chalk and sulphur, to facilitate disintegration in the earth. The dextrin may be replaced by any other mucilaginous substance.

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