The kind of inside lining is not stated. The kilns are fired with powdered coal. The clinker passes into two 60-foot rotary coolers, then into four storage bins 26 feet in diameter and 45 feet high. At this point, gypsum is added and the product ground in five 57-inch Fuller mills and is then elevated to the storage bins. There are 10 bins, each 26 feet in diameter and 80 feet high with walls 7 feet thick, the total capacity being 100,000 barrels. The entire plant is motor driven, there being in all some 50 motors in service. The power plant is equipped with a 1500 kw. Westinghouse steam turbine with Le Blanc condenser, and a 2000 kw. Allis-Chalmers turbine and a jet condenser. Steam is supplied by four 450 h. p. water tube boilers equipped with Taylor forced-draft stokers.

F. A. KIRKPATRICK.

CERAMIC PATENTS.

G. E. MIDDLETON, ABSTRACTOR.

Truck for tunnel kilns. C. H. ZWERMANN. U. S. 1,306,160, June 10, 1919. The frame of this truck is of channel irons. Upon this frame is a sheet metal platform upon which rests a series of transverse I-beams embedded in kieselguhr. The platform proper which rests upon these I-beams is composed of overlapping, interlocking fire-clay blocks. As these blocks become worn they can be replaced.

Tunnel kiln. C. H. ZWERMANN. U. S. 1,306,161, June 10, 1919. This is a twin-tunnel muffle kiln, the two tunnels being parallel and having a common inner wall. The ware in one passes in a direction opposite to that of the ware in the other, thus effecting a mutual cooling and preheating through the medium of a specially designed central wall in the end portions of the kiln. The combustion chambers extend longitudinally of the tunnels, the walls thereof being of relatively thin plates of carborundum capable of withstanding great heat and at the same time readily transmitting it. The ring is longitudinal. The fuel is either oil or gas.

Brick-mold-handling apparatus. I. C. FREY. U. S. 1,306,477, June 10, 1919. This apparatus comprises synchronously operating, divergently moving conveyors for separating a mold from its contents, means for moving the emptied mold to a sander by which it is coated with a regulated quantity of sand, turning the sanded mold to the upright or filling position and automatically returning the mold to the filling chamber of a brick machine.

Glass-matting process. T. UEDO. U. S. 1,306,505, June 10, 1919. A paste is made comprising active ingredients, such as basic alkali silicates, basic lead silicates, lead oxides, plumbates and lead borates; inert ingredients, such as pulverized highly refractory material, for example, burned porcelain, burned stoneware, fire clays, quartz, etc.; and a binder, such as boiled starch, gum, glue, etc. This is painted in appropriate design upon the glass surface to be matted and the whole placed in a furnace and heated at a temperature higher than the softening point of the glass for a time sufficiently long to

effect a fluxing action upon the glass by the active ingredient. The glass is then cooled and treated with any ordinary strong mineral acid. During the heating the active ingredients combine chemically with a thin surface layer of the softened glass forming a new combination, which, on account of the presence of the inert materials, can be easily decomposed and removed by an acid, thus effecting the matting. The inert materials function principally to prevent the active materials and the reaction products from sticking so fast to the glass surface as to make their decomposition by the acid difficult.

Process of drawing glass cylinders. W. WESTBURY. U. S. 1,306,651, June 10, 1919. During the elevation of the bait a complete air circuit is maintained within the cylinder being drawn, said circuit including downwardly and upwardly flowing air currents, the upward current coming into contact with the surface of the cylinder.

Glass-stowing tool. J. A. BECHTEL. U. S. 1,306,993, June 17, 1919. A reversible stowing tool having its blade or that portion which comes in contact with the glass of greater length than the linear dimension of that edge of the glass plate with which the tool contacts.

Glass-delivering and melting apparatus. E. ROIRANT. U. S. 1,307,150, June 17, 1919. Molten glass is collected from a furnace by means of a receptacle which is swung from position under the delivery end of the furnace to the gathering device and back again. During this operation the glass in the receptacle may be kept molten by passing an electric current through it.

Magnesia brick and method of making the same. H. H. HANSON. U. S. 1,307,197, June 17, 1919. Calcined magnesite or magnesite, 83%, is mixed with 17% fireclay, then a small amount of sodium silicate and water is added and the whole thoroughly mixed in a pug mill. It is then formed into bricks subjected to a pressure of six tons per square inch, and then subjected to 1600° C. The product is said to be a practically non-porous, basic brick expanding very little when heated to high temperatures.

Splitting buck for glass cylinders. J. MURPHY. U. S. 1,307,209, June 17, 1919. This buck has two sets of supports, one consisting of flexible strips of fabric for holding the cylinder during splitting and another consisting of two sets of anti-friction rollers, one set at each end of the buck, which may be raised to lift the cylinder from the first-mentioned supports and to permit of its being rotated for inspection preparatory to splitting.

Apparatus for the manufacture of plate glass. H. K. HITCHCOCK. U. S. 1,307,357, June 24, 1919. By means of this apparatus the use of tank furnace glass for the manufacture of plate glass is said to be rendered practical and economical. The operation of the apparatus by which the glass is caused to flow from the tank to the casting-table is automatically controlled by the movement of the table itself below the glass delivery spout.

Window-glass-blowing head. W. E. STANDLEY. U. S. 1,307,381, June 24, 1919. The construction of this head enables the flow of air to and from the hollow bait to be regulated to maintain a uniform pressure within the hollow cylinder.

Machine for fire-finishing tumblers and other glass articles. H. H. PRITT. U. S. 1,307,453, June 24, 1919. Means are provided for passing water, steam, air or other cooling medium through the plugs or stands which support the hollow glass articles being fire-finished, thereby cooling the interiors of the articles and preventing their sticking to the plugs.

Glass furnace. F. L. O. WADSWORTH. U. S. 1,307,527, June 24, 1919. This furnace is designed to deliver in an upward direction a constant stream of molten glass under a gravity head in such condition that open-bottomed receptacles may be successively brought into register with the delivery opening to receive comparatively small quantities of molten glass and when withdrawn the flow of molten glass will continue and will fall away from the orifice.

Heat insulating composition. F. A. HEADSON. U. S. 1,307,548, June 24, 1919. Calcined diatomaceous earth, 75%, finely divided or fibrous asbestos either calcined or raw, preferably the former, 25%, either with or without a binder of refractory or bonding clay amounting to 3% to 10% of the combined diatomaceous earth and asbestos. This composition is molded in any desired shape and burned at from 2000° F to 3000° F for six hours.

U. S. 1,307,549 discloses substantially the above.

Utilization of cement-kiln dust. R. J. NESTELL. U. S. 1,307,920, June 24, 1919. Cement-kiln dust, which sometimes contains as high as 13% K_2O , nearly all water soluble, is rendered suitable for use as a crude fertilizer by first mixing it with water and then passing hot kiln gases containing CO_2 through the mixture in such a manner as to increase the solubility of the potassium compound and to carbonate any free lime present.

Glass-drawing apparatus. W. WESTBURY. U. S. 1,307,943, June 24, 1919. By the use of this apparatus a cylinder may be formed from a charge of glass taken from the melting furnace, drawn from a pot which closes or seals the drawing opening and in which the charge of glass is exposed to atmospheric cooling while protected from the heat of the furnace.

U. S. 1,307,946 discloses substantially the above. The claims are drawn to the process.

Brick-carrier. W. H. ALLEN. U. S. 1,308,021, July 1, 1919. By means of this device a number of bricks can be transferred from a stack or kiln to a car or *vice versa*, thereby eliminating manual handling.

Tile press. F. B. YINGLING. U. S. 1,308,213, July 1, 1919. A toggle-operated dry-press having a reciprocating charging hopper comprising means for agitating the clay therein. The surfaces of the dies are automatically cleaned by means of a brush supported by the charging hopper.

Glass-bait. G. C. DEBAY. U. S. 1,308,278, July 1, 1919. The necessity for submerging this bait in the molten glass to start the draw is avoided by the use of a suction means which draws the glass up into an annular cavity in the bottom of the bait. Means are also provided for relieving the strain on the glass cylinder due to cooling and contracting.

Glass-carrying rod for glass-annealing leers. J. W. CRUICKSHANK. U. S. 1,308,337, July 1, 1919. This carrying rod or lifting bar is designed to be of low conductivity and thus avoid either chilling or heating the sheet of glass being annealed. The bar is made of two angle irons riveted together and carrying between them a strip of asbestos projecting beyond the working faces of the irons.

Glass-flattening oven. H. E. DEVAUGHN. U. S. 1,308,341, July 1, 1919. The driving mechanism of this flattening oven is outside and above it and the rotary wheel is suspended from a support located at a point such that the temperature of the oven can have no detrimental effect upon the operation. The making of repairs is thus expedited.

Process and apparatus for making glass plate letters. A. W. GAST. U. S. 1,308,408, July 1, 1919. Glass-plate blanks of the desired size are passed through a longitudinal heating chamber upon suitable supports and when attaining the proper temperature are impressed by means of a heated pneumatic die. The formed blank is then passed through the remaining length of the longitudinal chamber and slowly cooled.

Treatment of clays and earths. F. LANGFORD. U. S. 1,308,429, July 1, 1919. This process relates to the production of aluminum and aluminum compounds and comprises providing a wet mixture of comminuted wood of the California Redwood or *Sequoia sempervirens* together with the earthy material, clay or ore to be treated, adding to this mixture sulphur-oxygen compounds to produce a solvent solution containing H_2SO_4 to take up the undesirable impurities without dissolving the aluminum content of the mixture, separating the insoluble aluminum content from the solution, treating the insoluble aluminum residue with H_2SO_4 to form a solution of sulphates and an insoluble residue, separating the solution of sulphates from the insoluble residue and roasting the sulphates to provide the sulphur compounds for the treatment of the mixture of wood and earthy materials.

Protecting refractory furnace-linings. H. T. CHAPPELL. U. S. 1,308,481, July 1, 1919. Refractory furnace linings containing silica are protected from fusion and disintegration by supplying finely-divided calcined and leached alunite to such linings when they are at such a temperature as to be soft and partly fused.

Process of molding lenses. E. D. TILLYER AND H. H. STYLL. U. S. 1,308,820, July 8, 1919. Ophthalmic lenses are formed by first heating the glass blank, moistening the surfaces of the mold, placing the glass blanks between the mold sections while in a heated condition and then molding. The vapor films thus formed act as cushions preserving the fire polish of the glass while it is being shaped.

Process of treating lime. C. CATLETT. U. S. 1,308,931, July 8, 1919. Lime is slacked, preparatory to making lime plaster or mortar, by adding sufficient water and up to about 5 per cent of an oxychloride of calcium, magnesium or zinc, or mixtures thereof. The resulting plaster is said to be hard, tough and relatively free from any tendency to blister or check after application.

Cement composition and method of preparing it. C. CATLETT. U. S. 1,308,932, July 8, 1919. Relatively high, early-time strengths are developed in Portland cement mortars or concretes by the addition of not substantially more than 10 per cent of an oxychloride of calcium, magnesium or zinc, or mixtures thereof.

Continuous tunnel kiln. C. H. ZWERMANN. U. S. 1,308,973, July 8, 1919. A twin tunnel kiln, the two tunnels having a common inner wall. The ware passes in opposite directions in the two tunnels. The construction and operation of this kiln is somewhat similar to that of U. S. 1,306,161. The method of firing and controlling the draft is, however, quite different, this being an open fire kiln and similar to U. S. 1,275,352.

Sandless concrete. C. H. LIGHT. U. S. 1,309,038, July 8, 1919. A sandless concrete which consists of sawdust 8 parts, cement 4 parts, plaster of Paris 1 part, and lime 1 part.

Glass blower. E. O. WHITLEY AND E. L. KNOWLTON. U. S. 1,309,166, July 8, 1919. A glass-blower designed so that a plurality of tumblers may be drawn and blown at the same operation.

Glass apparatus. R. W. HILTON. U. S. 1,309,199, July 8, 1919. Means are provided in a glass furnace for supporting and shifting the pots in such a manner that when one pot is in position for the drawing of the cylinder, another pot will be in position for draining.

Kiln-furnace. R. W. MENK. U. S. 1,309,213, July 8, 1919. This furnace is shown in use on a downdraft kiln. The furnace consists of two parts, one without the kiln wall proper, the other within the bag wall. After the fire is started on the outer grate bars, the burning fuel is pushed back on grate bars within the bag walls. Within the outer furnace there is a removable corrugated, fire-clay liner tapering downwardly and outwardly so designed to prevent any "bridging" of the fuel. The draft enters above the fuel bed in the outer furnace and passes downwardly therethrough.

Process of drawing glass. J. A. CHAMBERS. U. S. 1,309,274, July 8, 1919. After a cylinder is drawn and removed a stump of hardened glass remains in the drawing ring. This patentee remelts this preparatory to a second draw by pouring molten glass through the drawing ring, this molten glass being of a higher temperature than the glass in the drawing part of the tank.

Concrete. A. MARKS. U. S. 1,309,296, July 8, 1919. A concrete consisting of Portland cement 2 parts, sawdust 1 part, sodium silicate solution sufficient to dampen and a calcium chloride solution or some easily ionized acid in such quantity that there shall be a slight excess of sodium silicate.

NOTE.—Copies of the above patents may be secured for five cents each by application to the Commissioner of Patents, Washington, D. C.