No. 816,156. PATENTED MAR. 27, 1906.

A. DELLAMORE & S. T. & A. M. NORTON.

APPARATUS FOR MIXING AND MAKING PLASTER AND MORTAR.

APPLICATION FILED NOV. 21, 1904.

7 SHEETS—SHEET 1.

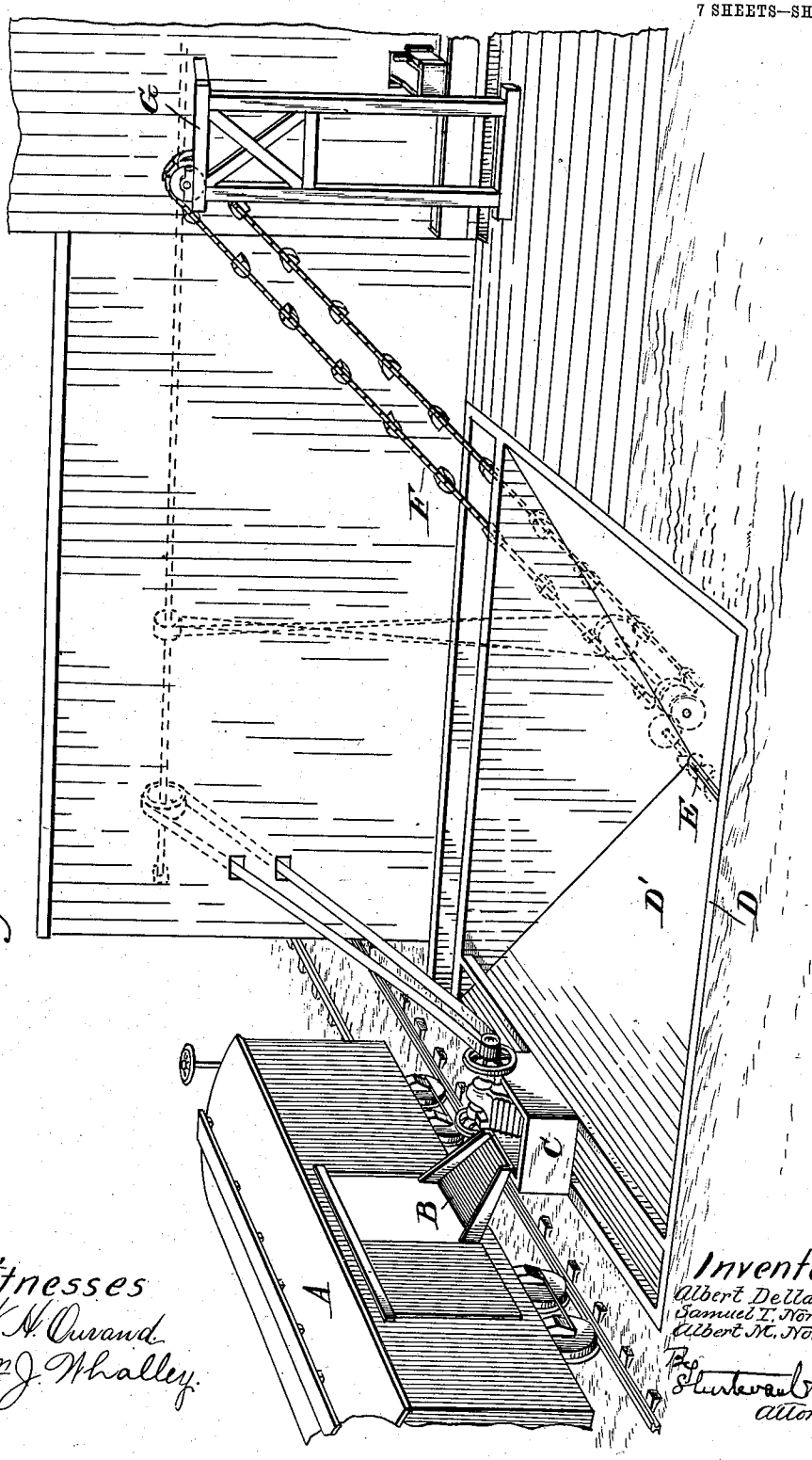

Fig. 1.

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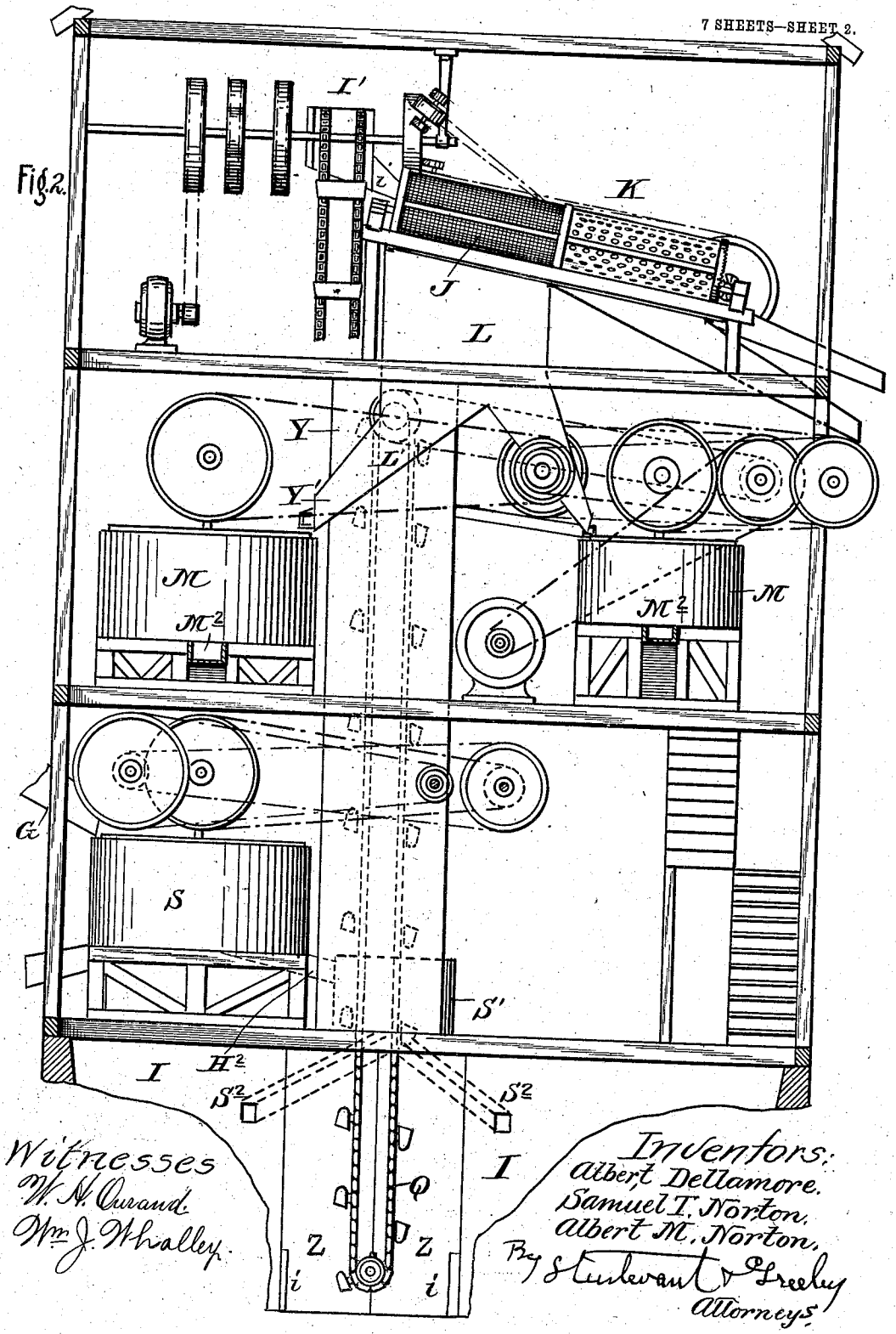
7 SHEETS—SHEET 2.

Fig 2.



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7 SHEETS—SHEET 3.

Fig. 3

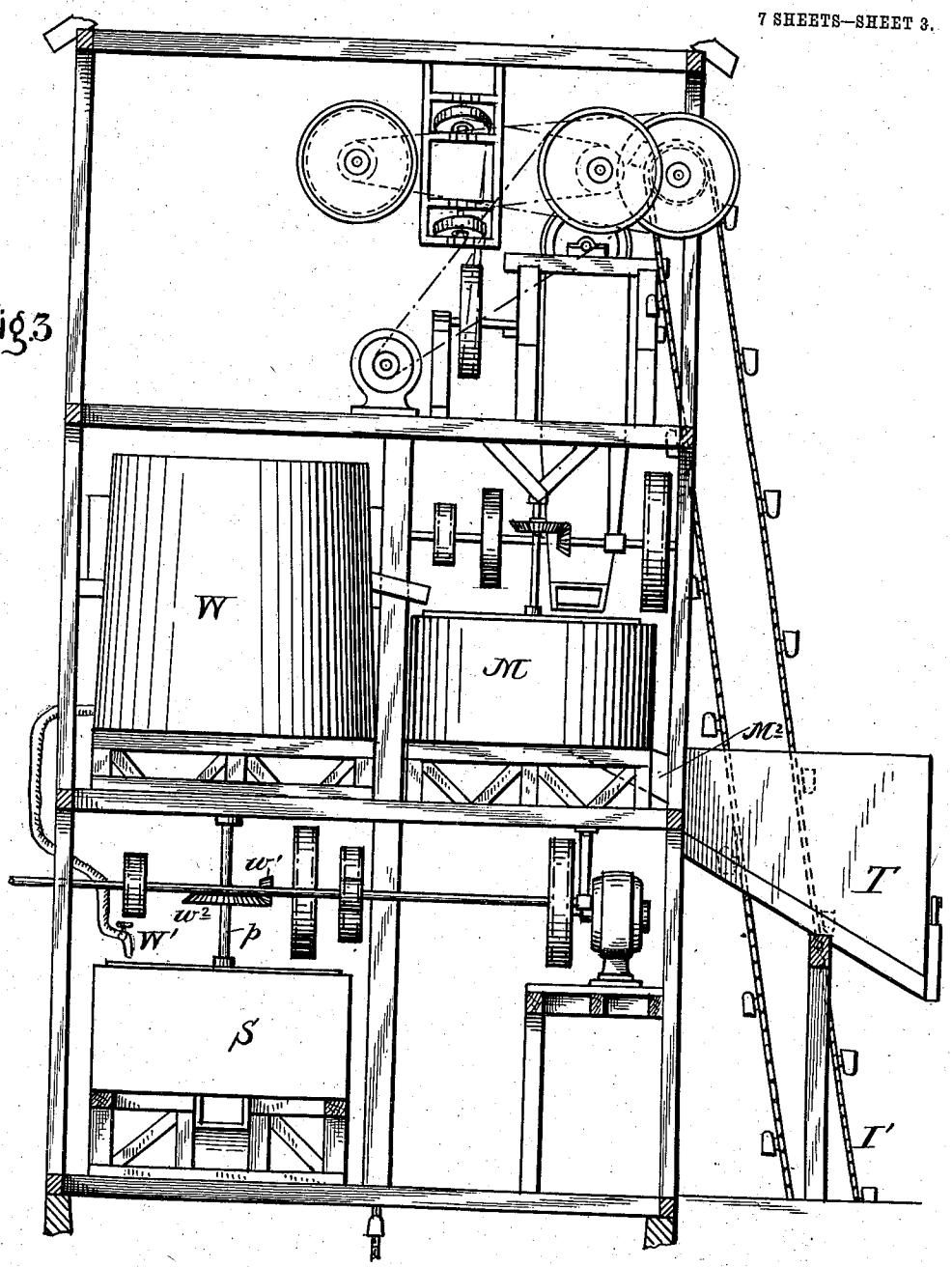

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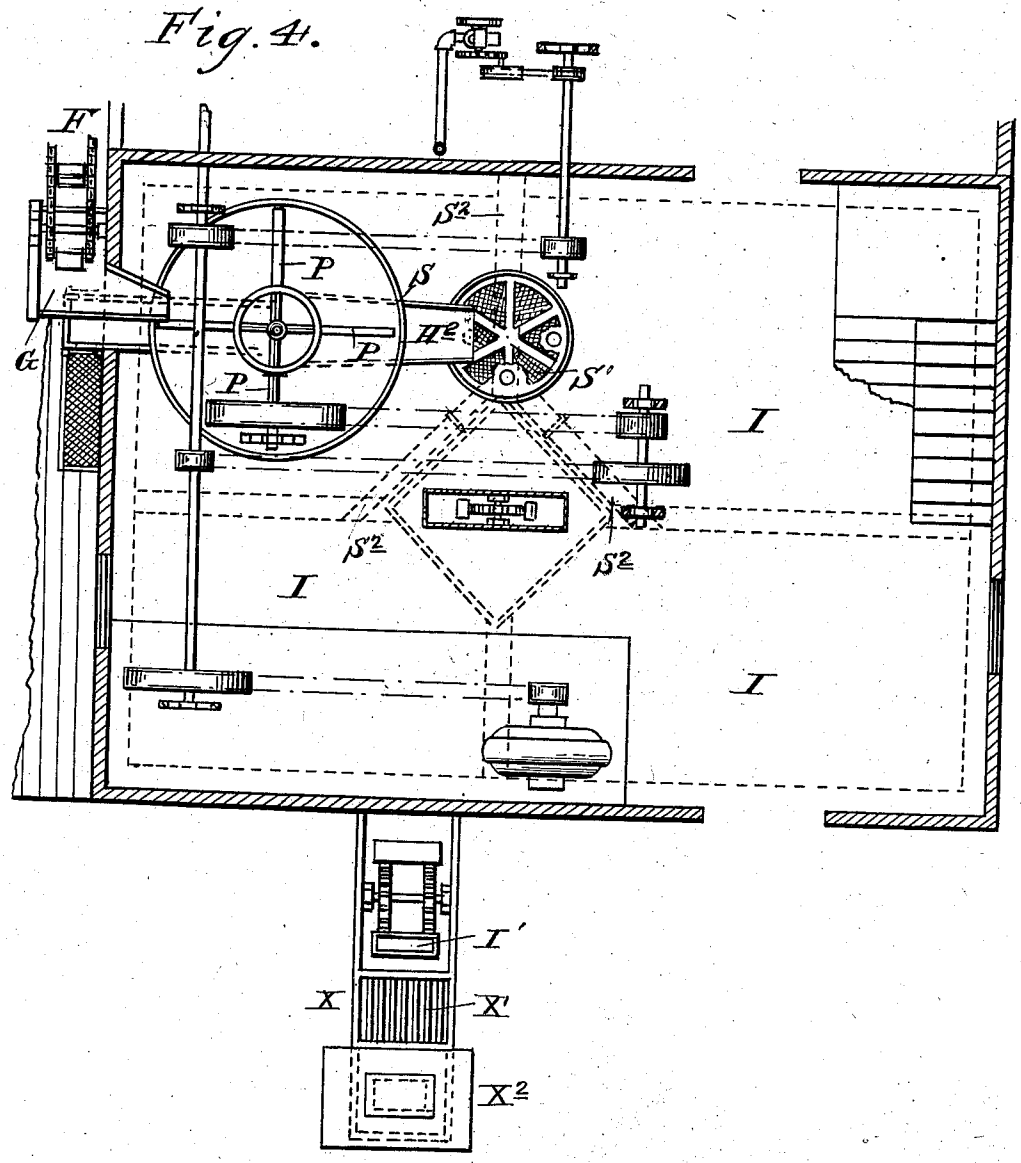
Fig. 4.



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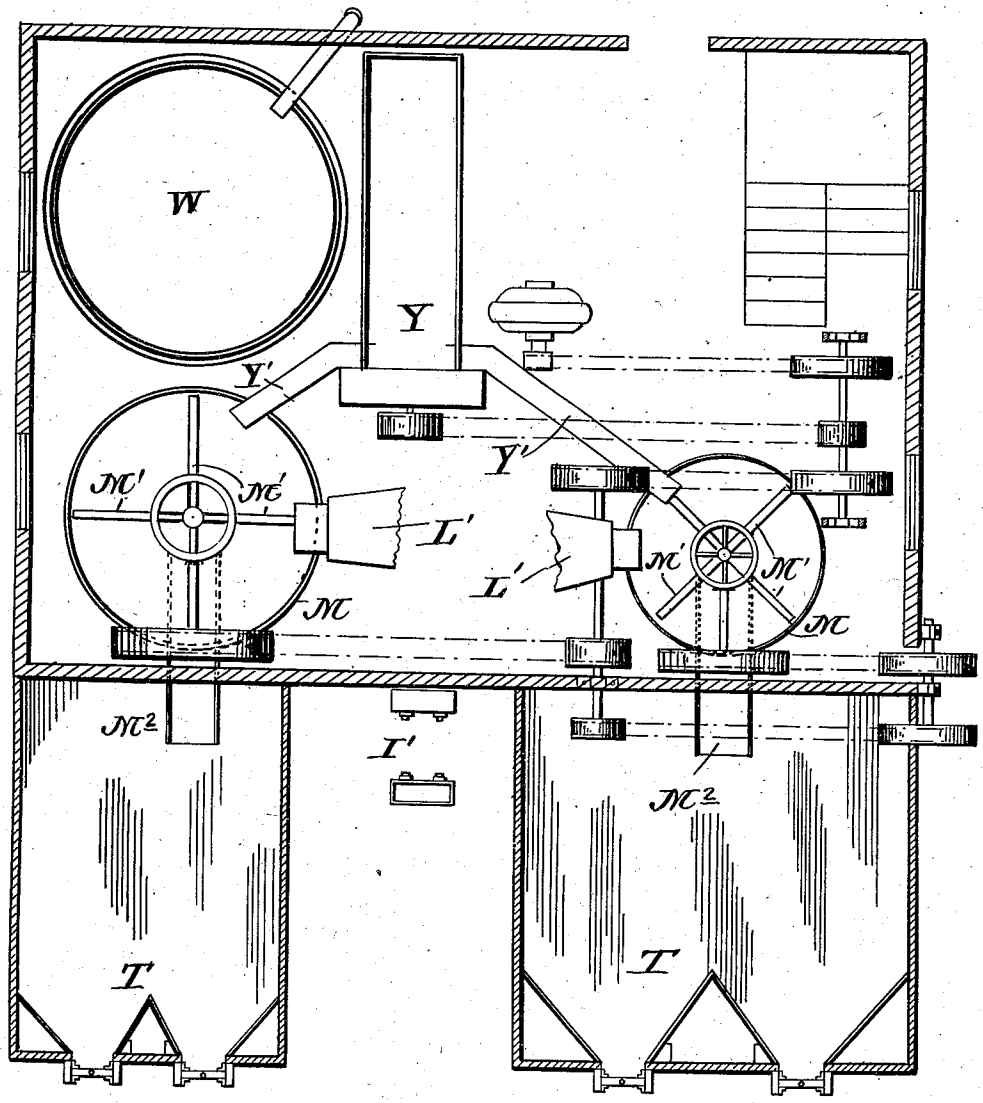
7 SHEETS—SHEET 5.

Fig. 5.



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7 SHEETS—SHEET 6.

Fig. 6.

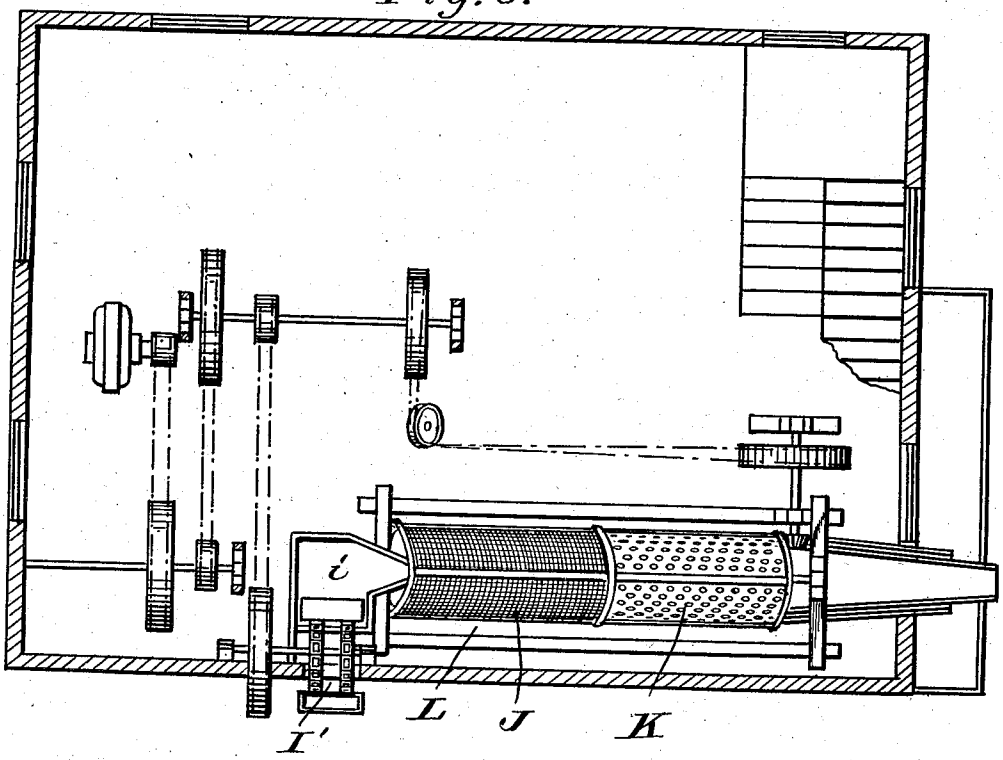
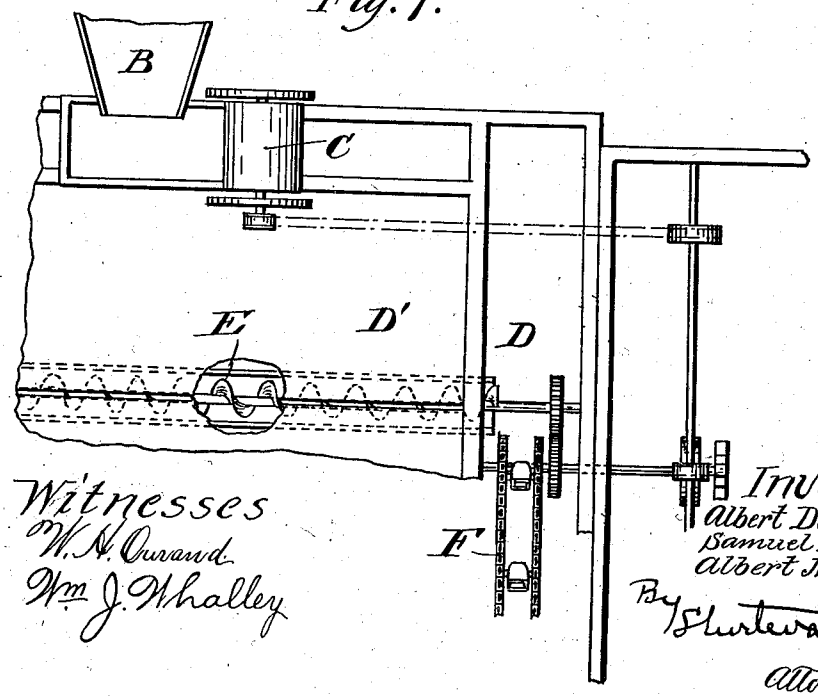


Fig. 7.



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7 SHEETS—SHEET 7.

Fig. 8.

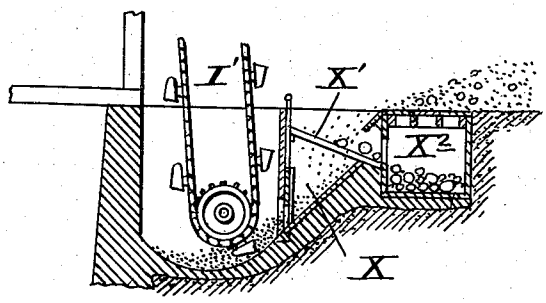


Fig. 9.

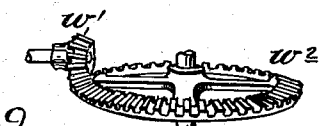
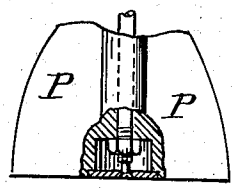
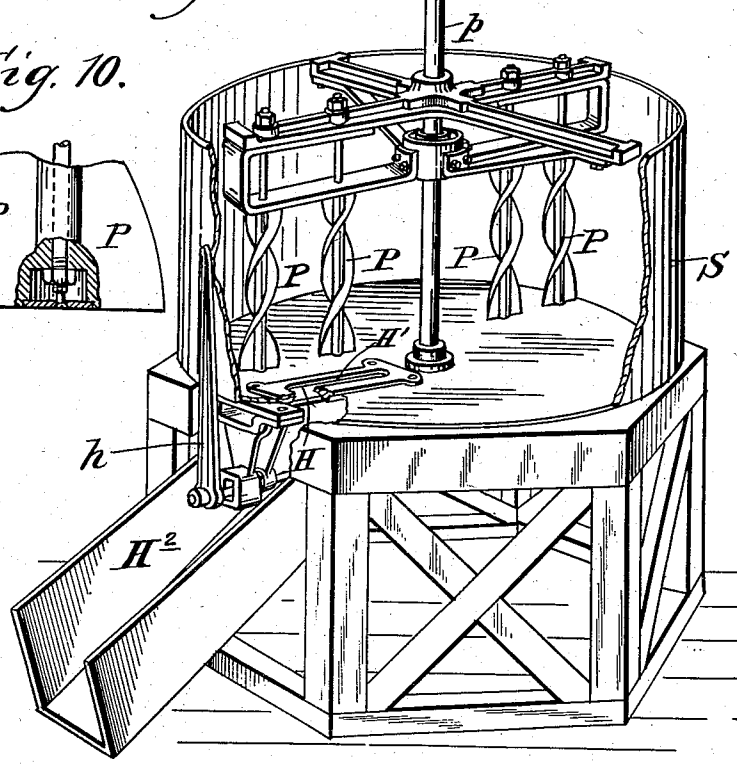


Fig. 10.





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APPARATUS FOR MIXING AND MAKING PLASTER AND MORTAR.

No. 816,156. Specification of Letters Patent. Patented March 27, 1906.

Application filed November 21, 1904. Serial No. 233,640.

To all whom it may concern:

Be it known that we, ALBERT DELLAMORE, SAMUEL T. NORTON, and ALBERT M. NORTON, citizens of the United States, residing at Los Angeles, in the county of Los Angeles, State of California, have invented certain new and useful Improvements in Apparatus for Mixing and Making Plaster and Mortar, of which the following is a description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Our invention relates to and deals with the production and mixing of common plaster and mortar composed of lime, sand, water, and fiber, as distinguished from the manufacturing and mixing of dry hydraulic plaster, mortars, and cements. It also deals with the manufacture of plaster and mortar upon a commercial scale and in large quantities by the aid of a complete apparatus or set of machines for handling, proportioning, and mixing the ingredients of mortar, and thereby economically obtaining a constant, uniform, and superior product, as opposed to the well-known manual manufacture and mixing of plaster and mortar in the street mortar-bed and to operations in no step of which is machinery employed.

Our invention consists in certain combination of machines and instrumentalities hereinafter described and claimed.

Briefly stated, our invention comprehends an apparatus for mixing plaster and mortar in which the lime is first thoroughly slaked in our slaking-machine, so as to form a lime putty or paste, in which the lime-putty thereby produced is screened and strained, so as to rid it of all unslaked or objectionable matter, and stored in vats in the ground, thereby removing all weight from the building, for a period of time—preferably from ten to fourteen days—sufficient to insure its slow but thorough slaking and digestion, it finally becoming cold, after which it is mixed with sand and fiber, thereby producing a product which can conveniently be used both for mortar for purposes of laying brick and mortar for plastering purposes.

In the accompanying drawings we have represented a three-story concrete-basement building conveniently adapted for our apparatus.

Figure 1 represents the apparatus for unloading, crushing, and conveying lime to our slaking-tank. Fig. 2 represents a side elevation of our building complete and the slaking and mixing apparatus. Fig. 3 represents a vertical section of the complete plant. Fig. 4 represents the plan of the first floor, containing the slaking-tank. Fig. 5 represents a floor plan of the second floor, showing the water-tank and mixing-tank, also the loading-bins for loading the delivery-wagons with the finished product. Fig. 6 represents the third floor of said building, containing the sand-screen. Fig. 7 represents a spiral conveyer for conveying the crushed lime to the bucket conveyer to be conveyed to the slaking-tank. Fig. 8 represents the lower portion of the bucket-lift for conveying the sand to the third floor of said building to be screened before mixing and also the means for loading said buckets. Fig. 9 represents in perspective a slaking and mixing machine, parts being broken away; and Fig. 10 is a detail view showing the lower end of one of the mixing-paddles.

We preferably select a site conveniently located on a side track of a railroad, as represented in Fig. 1.

A, Fig. 1, represents a car unloading lime. By any convenient method the lime is unloaded from car A through the chute B into the lime-crusher C. The lime-crusher comprises any suitable means for reducing lime to as small particles as possible.

D represents a bin in the ground for holding and storing the crushed lime. The crushed lime is deposited from the crusher on the inclined floor D′ of bin D, down which it descends by gravity to the spiral conveyer E. (More fully shown in Fig. 6.) The spiral conveyer E is of the ordinary form. The crushed lime is then conveyed by the conveyer E to the endless bucket elevator F, by which it is conveyed to the chute G, which discharges into the slaking-tank S in Fig. 2, located on the first floor of the building. Within the slaking-tank S are stirring-paddles or agitators P. (See Figs. 9 and 10.) As the lime is deposited in the slaking-tank S water is continuously let in through a faucet W′, leading from the water-tank W, as shown in Fig. 3, and at the same time the stirring-paddles are set in motion by means of the gear w', meshing with gear w^2 on the shaft p of the stirrer. After the lime is thoroughly slaked, the com-

bination of lime and water is discharged through the opening H, as shown on Figs. 2 and 9, by means of a slide-gate H′ and handle *h*, through the chute H^2, and through the screens S′ and chutes S^2, as fully shown on Fig. 4, into the storage-bins *i*, Fig. 2, located in the cellar, where the lime-putty is stored and permitted to remain in bulk for a period of time sufficient to allow it to digest thoroughly and slowly, the lime settling in the bins, leaving the water on the top to be pumped off later.

By any convenient method the sand is unloaded or dumped into the bin X, Fig. 8, where it descends over a screen X′ and empties into the bucket lift I′, Fig. 3, which conveys it to a chute *i*, discharging into the rotary screen J K on the third floor, Fig. 2. The gravel separated by screen X′ rolls down into a bin X^2. The rotary screen J K is any convenient screen, preferably one divided sectionally, as shown, so that the different grades of gravel and sand may be distinctly separated, division J screening the sand and division K screening what is commonly known as the "roofing-gravel," and the larger stones, or what is known as "concrete-gravel," rolling out through the open end of the screen K, Fig. 2, all into conveniently-located bins for receiving the same until carried off by the delivery-wagons. The sand screened by division J, Fig. 2, is stored in the bin L directly under it, Fig. 2, preferably a bin large enough to hold enough sand to conveniently accommodate enough lime to mix one mixing-tank full of the finished product.

The bins I I I I, Fig. 2, for holding the lime-putty are four separate bins, all having gates or doors *i*′ leading into the chute Z. The lime-putty contained in one bin is being thoroughly digested while the lime-putty of another bin is being used. The gate leading from the bin about to be used is raised, allowing the putty to escape into the chute Z, where it fills up the buckets on the conveyer Q Q, by which it is conveyed to the bin Y, Fig. 2, which bin is located on the second floor and constructed to hold sufficient lime-putty for the mixing of a tank full of the finished product. The gate of the bin Y (see Fig. 5) is then opened and the lime allowed to escape through chute Y′ into the mixing-tank M, also on the second floor. The mixing or stirring paddles M′ are then set in motion. Sufficient sand is then let in the mixing-tank through chute L′ from the bin L, Fig. 2, and when plaster fiber is to be mixed the operator in charge throws in a sufficient amount of fiber. The lime, fiber, and sand are then thoroughly mixed until the finished product is produced, the operator knowing when the mixture has proceeded far enough, after which it is discharged through chute M^2 into the storage-tank T, from which the delivery-wagons are filled. We prefer to use two mixers M and two storage-tanks T, as shown in Fig. 5.

The shafting and gearing for driving the endless carriers, rotary screen, mixers, &c., are not described herein, as they are of any usual construction and arrangement.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

In a mortar-mixing apparatus, a lime-slaking tank, a series of storage-bins arranged below said tank and into any one of which the contents of said tank may be discharged, a central compartment around which all of the bins are grouped, valved discharge-openings leading from said bins into said compartment, an elevated measuring-tank, a conveyer for raising the slaked lime from said compartment to said measuring-tank, an elevated sand-measuring bin, means for depositing sand therein, a mixing-tank, and chutes leading from both measuring-tanks to said mixing-tank.

In testimony whereof we affix our signatures in the presence of two witnesses.

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ALBERT M. NORTON.

Witnesses:
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