

(No Model.)

C. L. EMENS.

GRANULATING AND FEEDING DEVICE FOR BRICK MACHINES.

No. 360,568.

Patented Apr. 5, 1887.

Fig. I.

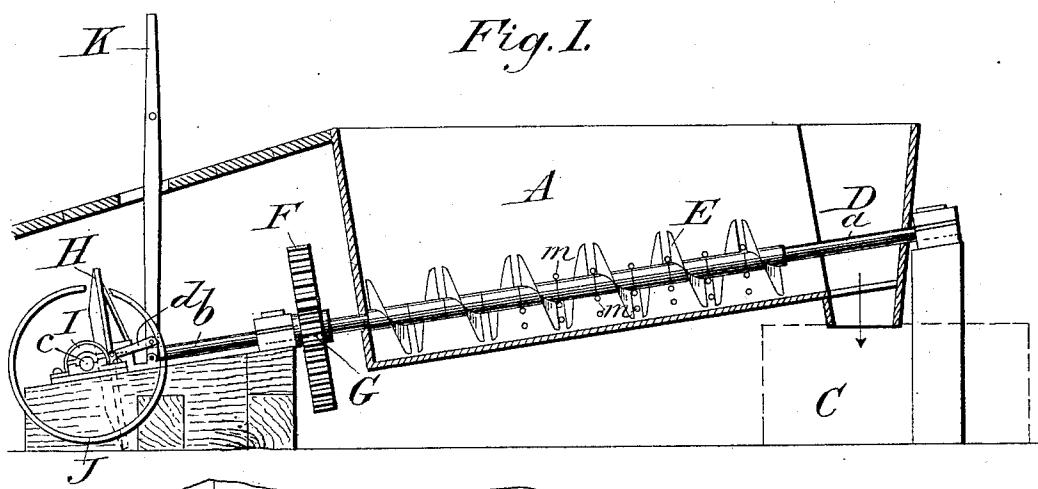


Fig. 2.

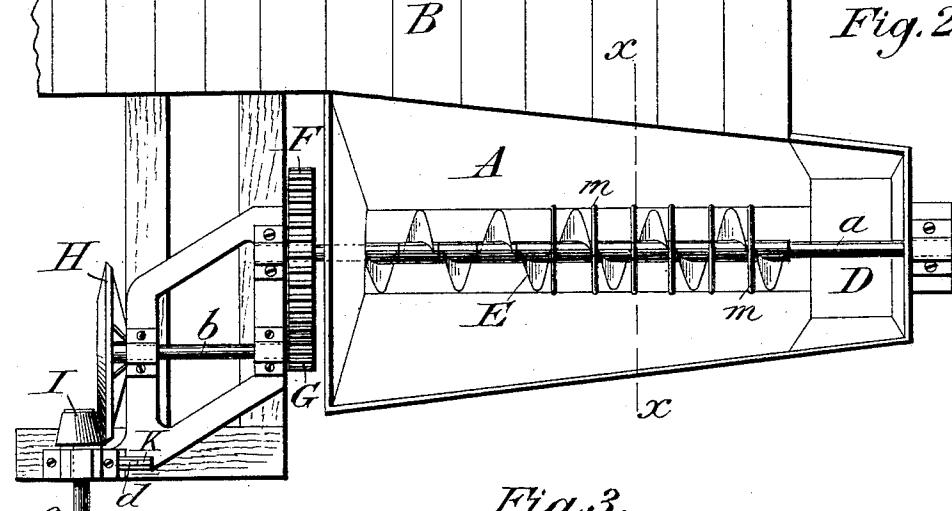
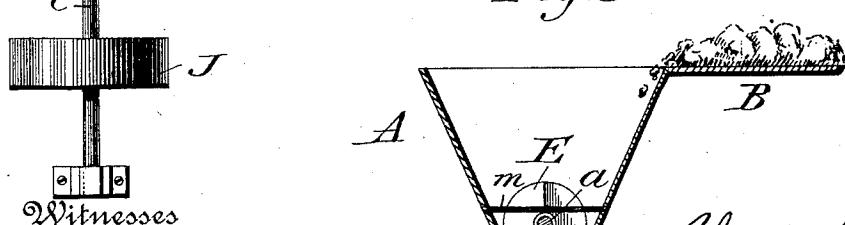


Fig. 3.



Witnesses

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GRANULATING AND FEEDING DEVICE FOR BRICK-MACHINES.

SPECIFICATION forming part of Letters Patent No. 360,568, dated April 5, 1887.

Application filed May 13, 1886. Serial No. 202,049. (No model.)

To all whom it may concern:

Be it known that I, CHARLES L. EMENS, a citizen of the United States, residing at Holton, in the county of Muskegon and State of Michigan, have invented certain new and useful Improvements in Granulating and Feeding Devices for Brick-Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to an improvement in granulating and feeding devices for brick-machines or other clay-working machinery; and it consists in the construction, arrangement, and combination of parts, as will hereinafter be fully described, and then more particularly pointed out in the claims.

In the annexed drawings, illustrating my invention, Figure 1 is an end elevation of my improved granulating and feeding device for clay-working machinery. Fig. 2 is a top plan view of the same, and Fig. 3 is a cross-section on the line *x x* of Fig. 2.

Like letters of reference designate like parts in all the figures.

Hitherto it has been customary, in preparing clay for stiff-clay-working machinery for the manufacture of brick or tile, to granulate the clay, mix the same with sand, and otherwise prepare it for the molding process of the brick or other clay-working machinery by hand-labor, and a considerable force of workmen has usually been required for the purpose. By my improved devices herein described it is intended to supplant this slow and laborious method by providing mechanical appliances which will dispense with the necessity of a force of workmen to disintegrate the clay, and will enable the clay, sand, and other substances which are commonly placed therewith to be more thoroughly intermingled, and consequently more serviceable, in making bricks or other molded-clay goods.

A represents an inclined trough of any suitable form, constructed with inclined longitudinal sides and of a V shape, at the bottom of

which is the granulating or feed screw. This trough is located adjacent to a platform, B, upon which, when desired, the clay may be placed in the same condition that it comes from the clay-beds. One end of the trough opens immediately over a hopper or spout, D, which communicates with the brick-machine C. The trough is generally made open-topped, and is situated in an upwardly-inclined position toward the hopper D, so that the clay which is granulated and intermixed with sand, &c., may likewise be gradually fed forward to the brick-machine by the rotative action of the granulating and disintegrating mechanism. The upward inclination of the trough is one of the characteristics of my machine, by virtue of which I am enabled to accomplish a more complete and thorough disintegration of the clay, for, as the revolution of the feed-screw pushes the clay forward up the incline and granulates it to a certain extent, the clay will have a tendency to fall or gravitate backward, so as to be brought again under the action of the same auger of the screw, thus causing the clay to be more completely granulated and more thoroughly mixed with the sand, so that when delivered to the clay-working machine it will be of a fine quality and evenly mixed, thus giving a superior value to the resulting clay goods.

Within the bottom of the trough A is located a peculiarly-constructed screw, E, whose shaft *a* is journaled at either end in suitable boxes. The extremity of the screw-shaft *a* farthest away from the brick-machine and outside of the trough, through whose end it extends, is provided with a gear-wheel, F, which engages a pinion, G, on the end of a shaft, *b*, the other extremity of which latter shaft carries a beveled disk, H. A shaft, *c*, is situated at right angles to the shaft *b*, and is provided with a paper friction, I, which rests in frictional contact with the disk H, and also with a driving-pulley, J, which connects with and is actuated by any suitable driving-power. The shaft *c* is journaled at either end in boxes, the box nearest the paper friction being what is commonly denominated a "sliding box," whereby the wheels I and H are enabled to be brought into contact or removed from one another. The manipulation of the sliding box in order to accomplish the desired

result is effected by means of a vertical hand-lever, K, pivoted at its lowermost extremity to the frame, and connecting with the sliding box by means of a short connecting-rod, d.

5 I have thus described one style of machinery by means of which a rotative motion is imparted to the feed-screw; but I desire it to be understood that I do not intend to limit myself to any peculiar actuating mechanism for 10 said screw, but reserve the liberty of employing any well-known device to accomplish the result.

The screw E does not consist of a regular and continuous spiral; but the screws are cast 15 in sections, each one forming one-half of the pitch, and consisting of a semicircular plate secured to a hub. The hub of each piece projects slightly past the end of the screw-section to which it belongs, and these hubs being arranged in a continuous line upon the screw-shaft a, and properly secured in place, there will be a greater or less break between each screw-section and its predecessor. This construction of the screw renders more effective 20 service as a granulator.

25 Across the trough A at intervals is placed a transverse rod, m, as shown in Figs. 1 and 2. This series of rods, in conjunction with the rotating screws serves to accomplish a more 30 thorough disintegration of the clay.

The operation of the machine is evident 35 without further description. The clay is first deposited upon the platform, whence it is thrown into the trough A; or, when the platform is dispensed with for any reason, the clay and sand are delivered directly to the open-topped trough. The revolution of the screw 40 acting on the clay will granulate the same and at the same time feed it forward in its improved condition to the machine for molding the bricks or other clay goods.

Heretofore, in the making of clay goods by the stiff-clay process, manufacturers have been 45 able with the machines at their command to mix the ingredients—such as clay and sand—only imperfectly, so that it was expedient to use only a limited amount of sand, if any at all, and when sand was used it was generally left in seams by itself, making the brick worse 50 than if no sand had been employed. The object of my invention was therefore to supply this great want and to enable the manufacturer of

stiff-clay to thoroughly mix his sand and clay preparatory to the molding process. With my improved machine any amount required 55 can be used, and it will be mixed evenly and thoroughly through the clay, thus cutting and destroying the laminations in the brick, which have been such a source of annoyance to brick-makers and loss to their patrons by the brick 60 peeling off in flakes or laminated structures. The granulating devices are so arranged that each little granule of clay is rolled in sand and is introduced into the brick-machine in the best possible condition for the molding of 65 a perfect brick.

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

1. A granulator and feeder for brick and 70 other stiff-clay-working machinery, consisting of the combination of the upwardly-inclined trough, the longitudinal rotative screw situated therein, the hopper of the brick-machine, and suitable mechanism for imparting 75 motion to the screw, substantially as shown and described.

2. In a granulator and feeder for stiff-clay-working machines, the combination, with an upwardly-inclined trough, of a granulating-screw consisting of a central shaft carrying a series of screw-sections, each one composed of a hub and a semicircular plate, substantially 80 as and for the purposes shown and described.

3. The combination of an upwardly-inclined open-topped trough, a hopper, a series 85 of transverse rods secured to the trough, a granulating-screw consisting of a shaft and a series of hubs placed thereon, each having a semicircular plate, and means, as described, 90 for imparting a rotary motion to said screw, as specified and shown.

4. The combination of an upwardly-inclined trough having inclined sides, a feed-screw located therein, the hopper of the brick-machine located adjacent to the upper end of 95 the trough, and suitable mechanism for revolving the screw, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES L. EMENS.

Witnesses:

ROBT. E. BUNKER,
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