C. T. ROWE.

Mortar-Mixing Machine.

No. 217,297. Patented July 8, 1879.

FIG. 1.

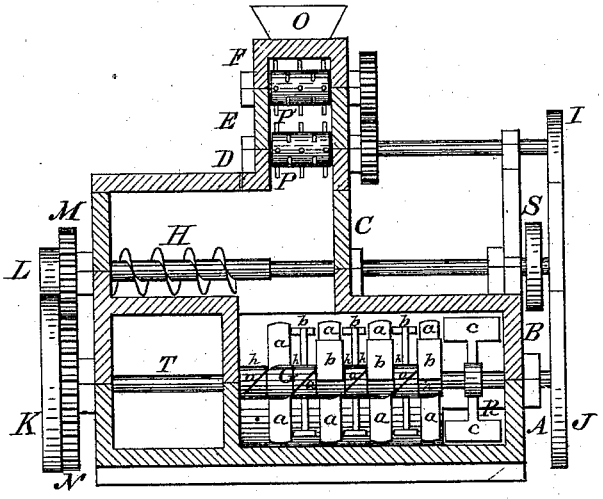
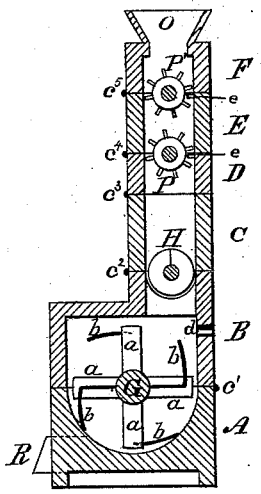


FIG. 2.



WITNESSES

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CHARLES T. ROWE, OF SYRACUSE, NEW YORK.

IMPROVEMENT IN MORTAR-MIXING MACHINES.

Specification forming part of Letters Patent No. **217,297**, dated July 8, 1879; application filed April 23, 1879.

To all whom it may concern:

Be it known that I, CHARLES T. ROWE, of Syracuse, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Mortar-Machines; and I declare the following to be a full, clear, and exact description of the invention, so as to enable any person skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in mortar-mixing machines, in which devices are provided for conveying the ingredients, consisting of sand, lime-paste, and hair, into a mixing-chamber, and submitting them to the action of a system of rotating agitators, consisting of hoes and conveyers, arranged upon a revolving shaft, and operating to intimately mix and convey the mortar to a discharging-spout, where it can be taken upon an elevator or loaded in wagons, as desired.

To accomplish these desirable results my invention consists of a frame having a semi-cylindrical mixing-chamber with water-tight lining. The mixers and conveyers operate in this chamber. Hinged to the mixer-frame is an auxiliary frame containing an apparatus for conveying sand to the mixers. Additional frames are hinged to each other and to the auxiliary frame, sitting on the auxiliary frame, and containing the pickers, (preferably two in number.) The sand-conveyer is driven by a gear-wheel on the mixer-shaft, and the pickers are driven by twin gears, to which motion is communicated by belting from a pulley on the mixer-shaft to a pulley on the outer end of the lower picker-shaft. The shaft of the sand-conveyer is extended outward to project beyond the frame, and a pulley is attached to the outer end to drive the pump supplying the lime-paste to the mixing-chamber.

For a more specific description of my invention, reference is had to the accompanying drawings, forming a part of this specification, like letters indicating corresponding parts, in which—

Figure 1 is a front elevation of the machine, the outer wall being removed to show the interior arrangement; Fig. 2, a vertical cross-section.

The letter A represents the lower portion of the frame of the machine, having a semi-cylindrical mixing-chamber, in which the mixing apparatus rotates on a shaft passing through the chamber. A discharge-spout, R, connects the mixing-chamber to an elevator or other device for carrying off the prepared mortar. The upper part, B, of the frame is hinged at c^1, Fig. 2, to the lower part, the object in hinging the parts together being to render them accessible in case it should become necessary to repair the mixers or to replace them.

An aperture, *d*, in B is constructed for the reception of the pipe for conveying the lime-paste to the mixing-chamber. The upper portion, B, of the frame forms a support for the frame C, containing the sand-conveyer H. This frame is also hinged to the part B at c^2, so as to permit access to the sand-conveyer H. The picker-frames D E F and hopper *o* are hinged together, respectively, and to the frame C at c^3, c^4, and c^5, Fig. 2.

The shaft T, Fig. 1, is journaled upon and between the divisions of the frame A B. Its outer ends are provided, respectively, with the pulleys K and J. A gear-wheel, N, secured to the shaft inside of pulley K, meshes into a gear, M, and drives the sand-conveyer H, and a belt from J communicates motion to the pulley I on the picker-shafts and to the pickers by means of twin gears.

The mixers G, consisting of the hoe-shaped arms *b* and conveyers *a*, are secured to separate hubs or collars *h*, Fig. 1, which fit over the shaft, being retained in position by keys. It will be observed that the conveyers consist of flat strips of stiff metal, preferably of steel, secured diagonally on the hubs *h* and shaft G, as shown in Fig. 1. The hoes *b* are constructed as shown in Figs. 1 and 2, having a bend at right angles to their shanks, and projecting so as to compress and work the compound against the bottom and side linings of the chamber, thereby tending to thoroughly reduce and commingle the mortar composition. The conveyers are all secured diagonally to the collars, so that their projecting edges are parallel to each other, the effect of which is to carry or convey the compound to the discharging-spout R, where it is expelled by the discharging-wings *c c*, attached to and revolving with the mixer-shaft T. The sand-conveyer H is shown in Fig. 1, and is a well-known device, operat-

ing merely to convey the sand to the common passage leading to the mixing-chamber.

A pulley, L, is provided for driving an elevator for carrying sand to the conveyer H, if desired to apply power feed. The pickers, preferably two in number, are shown at P and P′. They are journaled in frames D, E, and F, which frames are hinged at c^3, c^4, and c^5, Fig. 2. The cross-section view, Fig. 2, shows the construction of the pickers, which consists of a cylinder of wood or metal having projecting splines, which draw the hair through a coincident row of teeth inserted in the sides of the frames D E at *e*, Fig. 2, and operating to pick or separate the hair used in mortar for plastering, which is effectually accomplished by this device.

A hopper, O, is provided to carry the hair to the pickers. It will be observed that the hair, as it is separated from the second picker, drops down with the sand and lime-paste onto the revolving mixers in the mixing-chamber, and that all of the ingredients are thoroughly commingled, greatly shortening the process of mixing mortar, and at the same time improving its quality, which results from thorough commingling and working with the mixers before described.

On the outer end of the sand-conveyer shaft I provide a pulley, S, from which the supply-pump for the lime-paste can be operated. It will be observed that the rapidity of feed for proportioning the sand and lime-paste to the mixing-chamber can be controlled and varied by either speeding or using proportional pulleys, and by valves on the lime-paste feed-pipe the quantity of hair per bushel can be regulated at will, and that all of the working parts of the machine are compact and accessible, so that in case of breakage or accident it is only necessary to throw off the belts and open the machine, which is permitted by the jointed or hinged frames, and the repairs made without taking the machine apart, and the loss of time consequent thereto, which is a serious defect in the machines now in use, for the reason that the liquidized lime-paste has a greater affinity for the sand when mixed or run off through the machine immediately after slaking, producing a much better quality of mortar.

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

1. The mixers G, consisting of a series of separate or independent hub-collars, *h*, mounted detachably on a rotating shaft extended longitudinally through a mixing-trough, and having radially extended therefrom spreaders or hoes *b*, constructed as described, in combination with the conveyers *a*, secured diagonally to the separate hub-collars *h*, substantially as herein specified, and for the purposes set forth.

2. A mortar-machine consisting of a series of hinged compartments, A B C D, provided with mixers G, sand-conveyer H, and hair-separator P P′, the parts being combined and operated substantially as described and specified.

3. The hair pickers or separators P P′, in combination with the teeth *c* in the frames D and E, the sand-conveyer H, and mixers G, substantially as described, and for the purposes set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 12th day of April, A. D. 1879.

CHARLES T. ROWE.

Witnesses:

ORVILLE ROWE,

HOMER WESTON.