

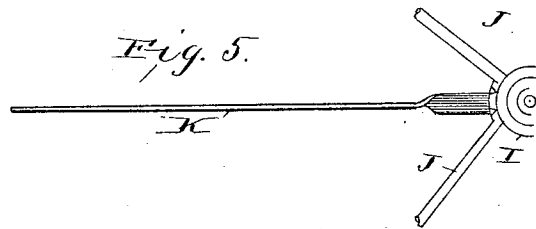
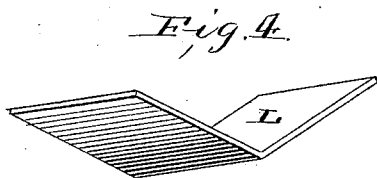
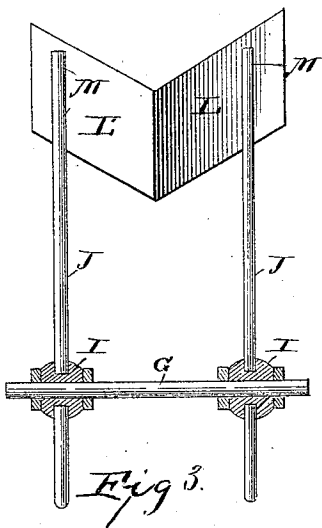
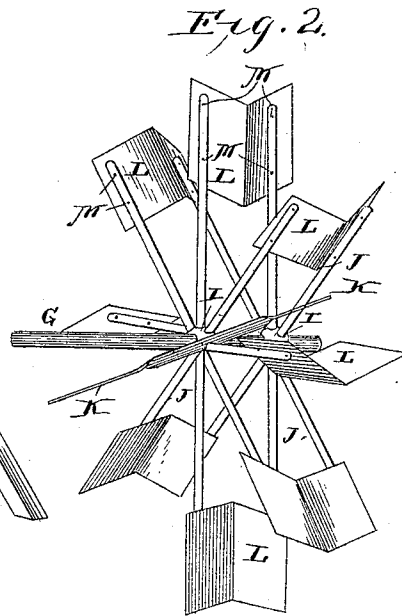
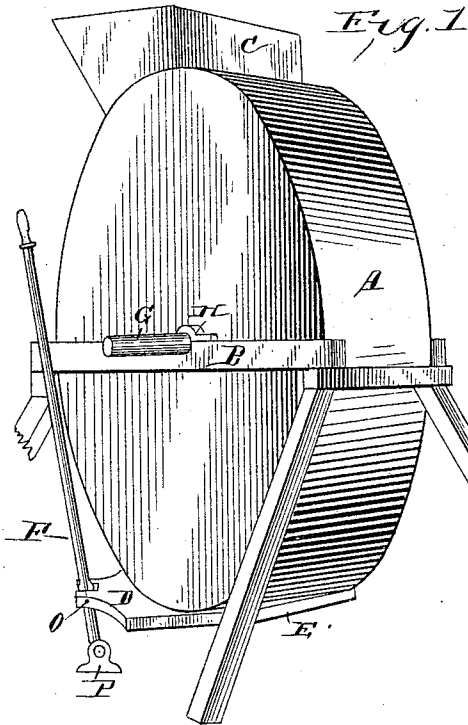
(No Model.)

2 Sheets—Sheet 1.

E. J. POWERS.
MIXING MACHINE.

No. 443,654

Patented Dec. 30, 1890.



Witnesses
Louis S. Duliba
C. P. Cluwell

Inventor
E. J. Powers
Hopkins & Atkins
 Attorneys

(No Model.)

2 Sheets—Sheet 2.

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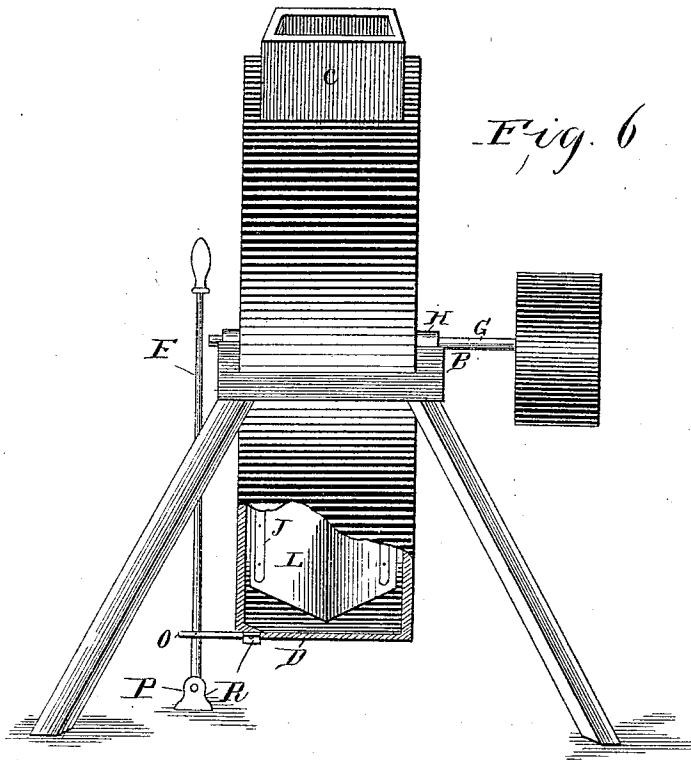


Fig. 6

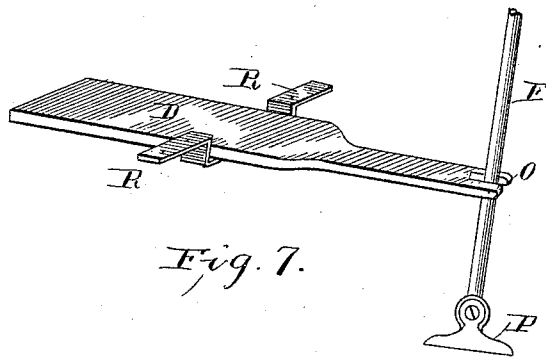


Fig. 7.

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UNITED STATES PATENT OFFICE.

ELAH J. POWERS, OF WILMINGTON, NORTH CAROLINA.

MIXING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 443,654, dated December 30, 1890.

Application filed April 16, 1890. Serial No. 348,280. (No model.)

To all whom it may concern:

Be it known that I, ELAH J. POWERS, of Wilmington, in the county of New Hanover and State of North Carolina, have invented certain new and useful Improvements in Mixing-Machines, of which the following is a specification, reference being had to the accompanying drawings.

The objects of my improvements are, first, the rapid and perfect mixing of all substances, and, second, to facilitate the cleaning and recharging of the mill. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the complete machine. Fig. 2 is a perspective view of the interior revolving mechanism, showing the shaft, hubs, and radial spokes carrying the mixing-shovels, as hereinafter described. Fig. 3 is a longitudinal section of shaft and hubs, showing the mode of attaching the spokes to hubs and the mixing-shovels to the spokes. Fig. 4 is a perspective view of one of the mixing-shovels detached from spokes. Fig. 5 is a perspective view of cleaning-knives, showing their mode of attachment to the hub and their relative position to the spokes, both of which are shown in cross-sections. Fig. 6 is a perspective view of entire machine with a portion of the casing A broken away, showing the section and position of the dump-lever and trap. Fig. 7 is an enlarged perspective view of trap, stirrup, and lower portion of lever detached from case.

Similar letters refer to similar parts throughout the several views.

The cylindrical inclosing-case A, its legs or standards B, feed-hopper C, and trap D, covering the dump-opening E, constitute the frame and covering of the machine. The lever F is attached by means of a pin-joint O to the trap-blade D, and continuing thence downward is hinged in the base-plate P, which is firmly secured to the flooring. The trap-blade D lies in and slides through a stirrup R, which is firmly secured to the under side of the containing-case A and retains the trap-blade D in its position over the dump-opening E when so desired. Any means for sustaining the trap-blade may of course be employed.

On the cross-rails of the frame B are the

bearings H, retaining the shaft G, to which are attached the mixing-shovels L, as hereinafter stated. The shaft G, Fig. 2, has firmly keyed thereto two hubs I I, from which radiate any desired number of spokes J J, the spokes J J on both hubs I I being so arranged that they lie in parallel pairs.

To the hub I, at the farther extremity of the spokes J J, are fastened the mixing-shovels L L, held by means of the bolts M M. The hubs I I are also provided with cleaning-knives K K, Figs. 2 and 3, which knives are so arranged by a twist near the hub that their flat sides are at right angles to the ends of the cylindrical cover A, and the extreme end of the blade K from the hub I will just clear the sides of the cover A.

The mixing-blades L, Fig. 4, are formed of oblong plates bent in the centers of their cross-line, so that their extreme edges are at a distance from each other of a little less than the interior depth of the cylindrical cover A.

To operate the machine I place the core, Fig. 2, consisting of the shaft G, hubs I I, spokes J J, cleaning-knives K K, and mixing-shovels L, within the cylindrical cover by allowing the shaft G to rest in the bearings H, one-half of the cover A being removable to facilitate this action. A suitable gearing and power being applied to the shaft G, the shaft is caused to rotate at any desired speed. The hopper C, communicating with the interior of the cylindrical cover A, is provided with a suitable cover, by removing which access is had to the mixing-shovels L L, on which the substance desired to be mixed is poured from above. By causing the shaft G to rotate at a suitable speed and precipitating the substance desired to be mixed on the shovels L L, attached to the spokes thereof, the material is alternately lifted in the hollow of the shovels L L and precipitated therefrom when they reach the perpendicular, or thereabout, which action is continued until the desired amount of mixing or blending is attained. By placing the cover D in position to cover the dump-opening E in the lower side of the cover A any substance contained therein is prevented from escaping. This cover may be removed and readjusted at will by a lever F or other convenient arrangement. By drawing back

the lever F the trap D is forced to slide back in its stirrup or groove R, leaving the dump-opening E clear. The trap-blade D being of such length that by working the lever F it is not entirely withdrawn from the groove or stirrup R, it is obvious that by replacing the lever F in its original position the opening will be covered or closed. By working the lever F the trap or door D is removed from the opening E, and any substance falling thereon is allowed to fall to the floor below, thus dumping the contents of the cylinder.

As some of the substances desired to be mixed may be of a resinous or sticky nature, which by adhesion to the sides of the cylinder would impede its rapid and perfect work, the cleaning-knives K K are provided, their

edges traveling close to the sides of the cylinder A, thereby removing anything that may adhere thereto. 20

What I claim is—

The combination of the frame, the casing A, having openings above and below, the shaft G, provided with spokes J, having secured at their outer ends shovels L, with scrapers K for cleaning the inner faces of the casing, substantially as set forth. 25

In testimony of all which I have hereunto subscribed my name.

ELAH J. POWERS.

Witnesses:

SOL. C. WELL,
THOS. M. STRANGE.