A. FORD.

MACHINE FOR MIXING PLASTER.

No. 173,401. Patented Feb. 15, 1876.

Fig. 1.

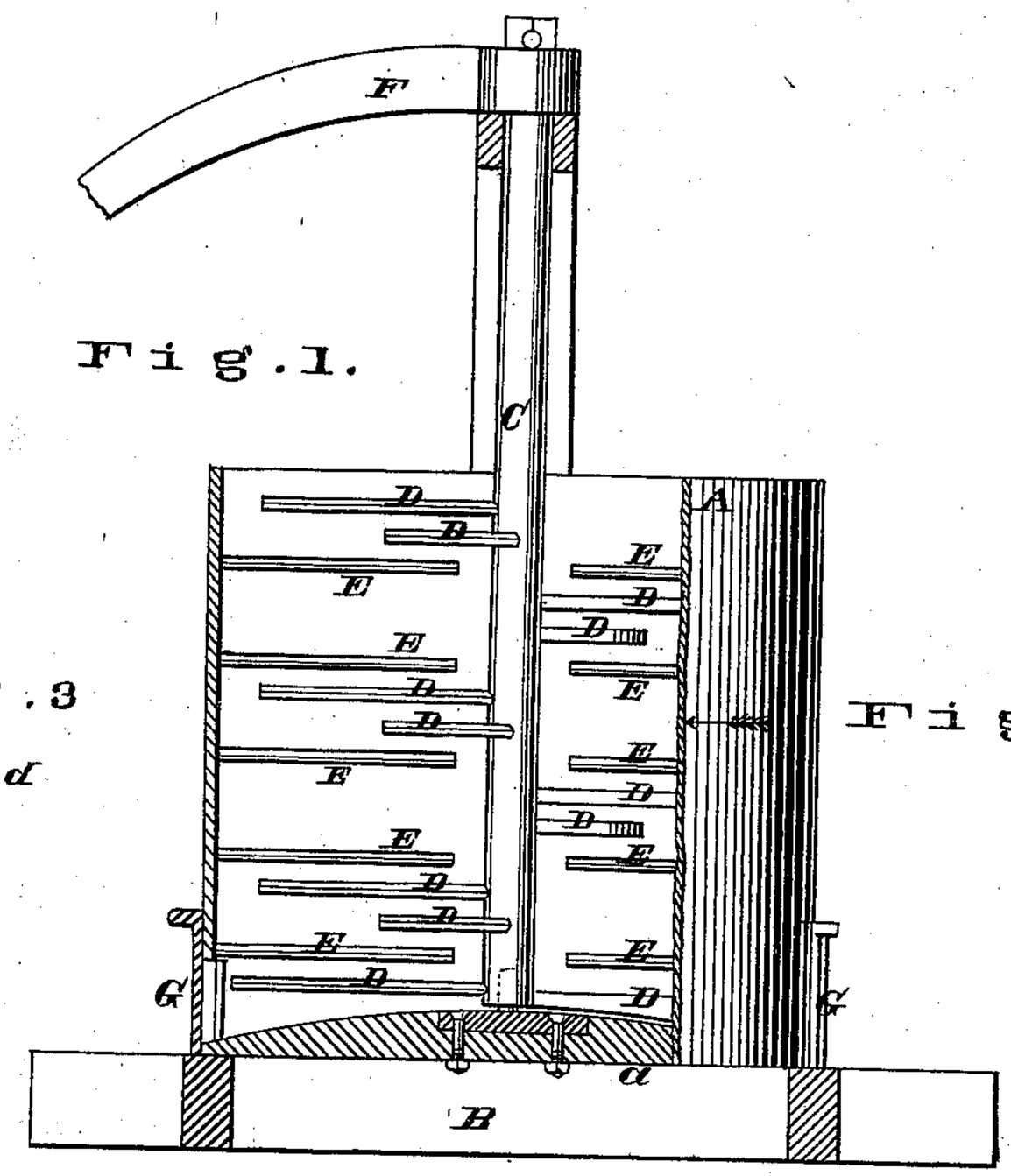
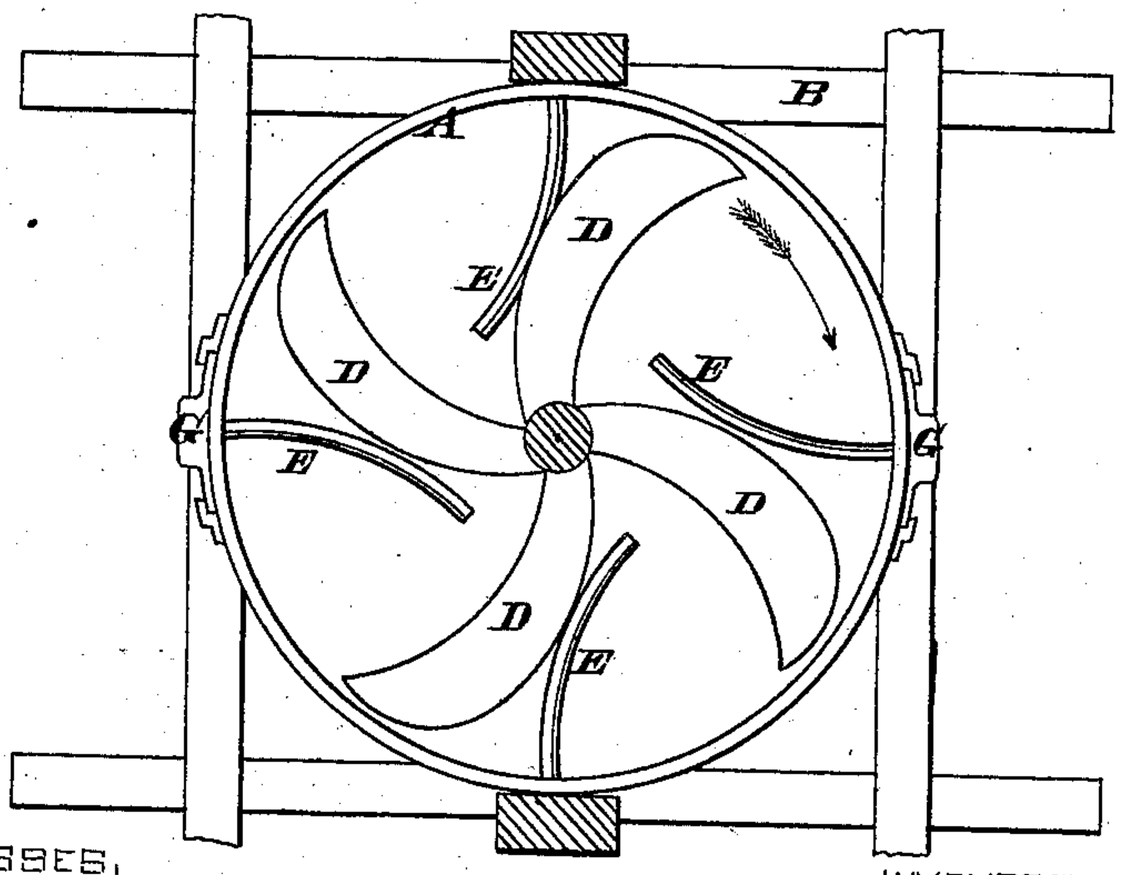


Fig. 3

Fig. 4.

Fig. 2.



WITNESSES,

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UNITED STATES PATENT OFFICE.

ARCHIBALD FORD, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF HIS RIGHT TO WILLIAM L. REYNOLDS, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR MIXING PLASTER.

Specification forming part of Letters Patent No. **173,401**, dated February 15, 1876; application filed July 10, 1875.

To all whom it may concern:

Be it known that I, ARCHIBALD FORD, a resident of St. Louis, Missouri, have invented a new and useful Improvement in Machines for Mixing Plaster, of which the following is a full, clear, and exact description, reference being hereby had to the annexed drawing, making part of this specification, in which—

Figure 1 is an elevation, the casing and frame-work being partly in section to show the interior construction; Fig. 2, a plan; Fig. 3, a cross-section of one of the movable arms; and Fig. 4, a cross-section of one of the fixed arms.

Like letters indicate like parts.

To make good plaster, the lime and sand must be thoroughly intermingled, to enable the largest quantity possible of sand to be taken up by the lime, and the hair must be evenly distributed and interwoven with every particle of the mass. By the ordinary hand method this is impracticable, and when it is attempted in an ordinary mortar-mill, wherein a shaft having straight arms radiating therefrom is used, it is found that the hair separates, forming in wads upon the arms and shaft, clogging the machine, and, in addition, preventing the proper admixture of the sand and lime.

To obviate this difficulty, and to provide means whereby the various ingredients can be properly compounded, is the aim of the present invention.

Referring to the accompanying drawing, A represents a cylindrical casing, arranged vertically, and supported on a suitable frame, B. C represents a spindle arranged vertically in the casing, and bearing on its bottom *a*. The spindle is provided with a series of arms, D D D, &c., arranged spirally on the spindle, and projecting horizontally therefrom. The shape of the arms is shown more distinctly in Fig. 2. Starting from the spindle they curve backward, and preferably to an extent of forty-five degrees. They are also, as indicated in Fig. 3, made with an edge, *d*, and beveled on the under side. E E E, &c., represent stationary arms, attached to and projecting horizontally from the side wall of the casing, and arranged, preferably, in four vertical rows. These fixed arms are also curved, but in a direction contrary to that of the movable arms D D, &c., and this combination of fixed and movable arms curving in opposite directions constitutes a peculiar feature of my invention. The fixed arms and the movable arms are so adjusted vertically, and with relation to each other, as to enable the latter, in their movement, to clear the former, and, as indicated in Fig. 1, passing closely enough to leave but a very thin layer of the plaster between them. F represents a sweep attached to the spindle.

In operation, the lime (suitably slaked and prepared) and the sand and hair are put into the cylinder at its top, and the spindle set in motion in the direction indicated by the arrow, Fig. 1, and so as to present the convex sides of the movable and fixed arms to each other. Owing to the shapes of the arms and the motion described, the one set of arms are drawn lengthwise upon the other, and by means thereof the hair is drawn out evenly and into every part of the mixture. The contents of the mill are (partly by virtue of the bevel on the under side of the movable arms) carried downward to the bottom *a* of the casing, which is made convex in order to divert the contents toward the sides of the casing, where are arranged doors G G, through which the plaster, when completed, is liberated. The lowest movable arm is shaped to conform to the convexity of the bottom and scrape it. The process is practically continuous, as eight or ten revolutions of the spindle suffice to properly mix the plaster.

By this improvement plaster is made cheaply and of a very superior quality. The even and thorough introduction of the hair into the compound greatly toughens it, and, by reason of this improved method of mixing the hair, a much larger proportion of sand can be combined with the lime, and a richer mortar is obtained.

In a practical machine I use twenty-four revolving arms, arranged vertically in rows of six each, and twenty fixed arms arranged vertically in rows of five each.

I am aware of the construction shown in Patent No. 143,575, granted Hoagland and Mickel, and disclaim the same.

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

The casing A, spindle C, arms D D D, &c., and arms E E E, &c., all of said arms being curved, as shown, bottom *a*, the lower movable arm conforming in shape thereto, and doors G G, combined and operating substantially as described.

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Witnesses:
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