

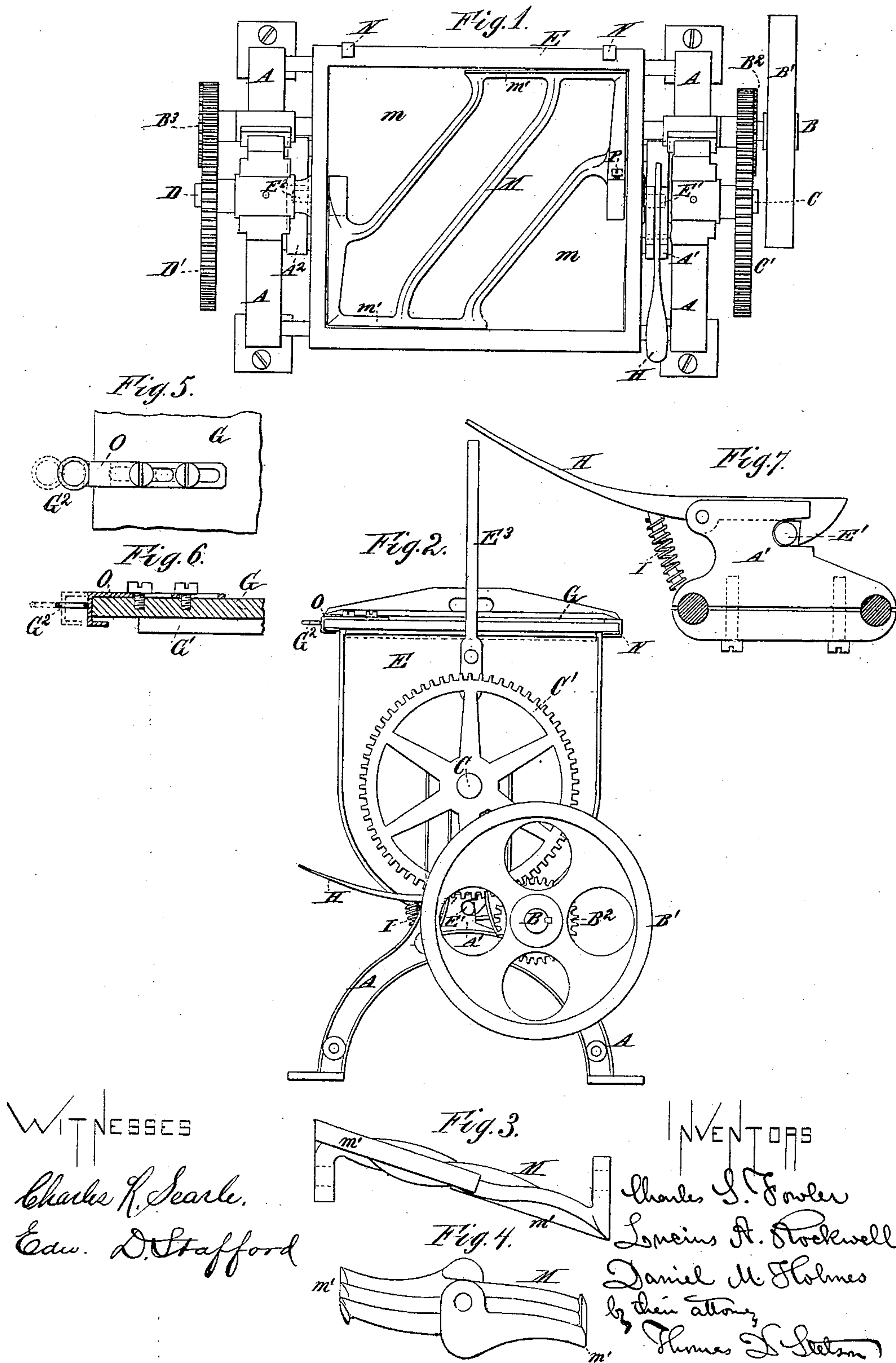
(Model.)

2 Sheets—Sheet 1.

C. S. FOWLER, L. A. ROCKWELL & D. M. HOLMES.
DOUGH MIXER.

No. 267,414.

Patented Nov. 14, 1882.



WITNESSES

Charles K. Searle.

Edw. D. Stafford

Fig. 3.

Fig. 4.

INVENTORS

Charles S. Fowler

Levi A. Rockwell

Daniel M. Holmes

by their attorney

Thomas D. Sisson

(Model.)

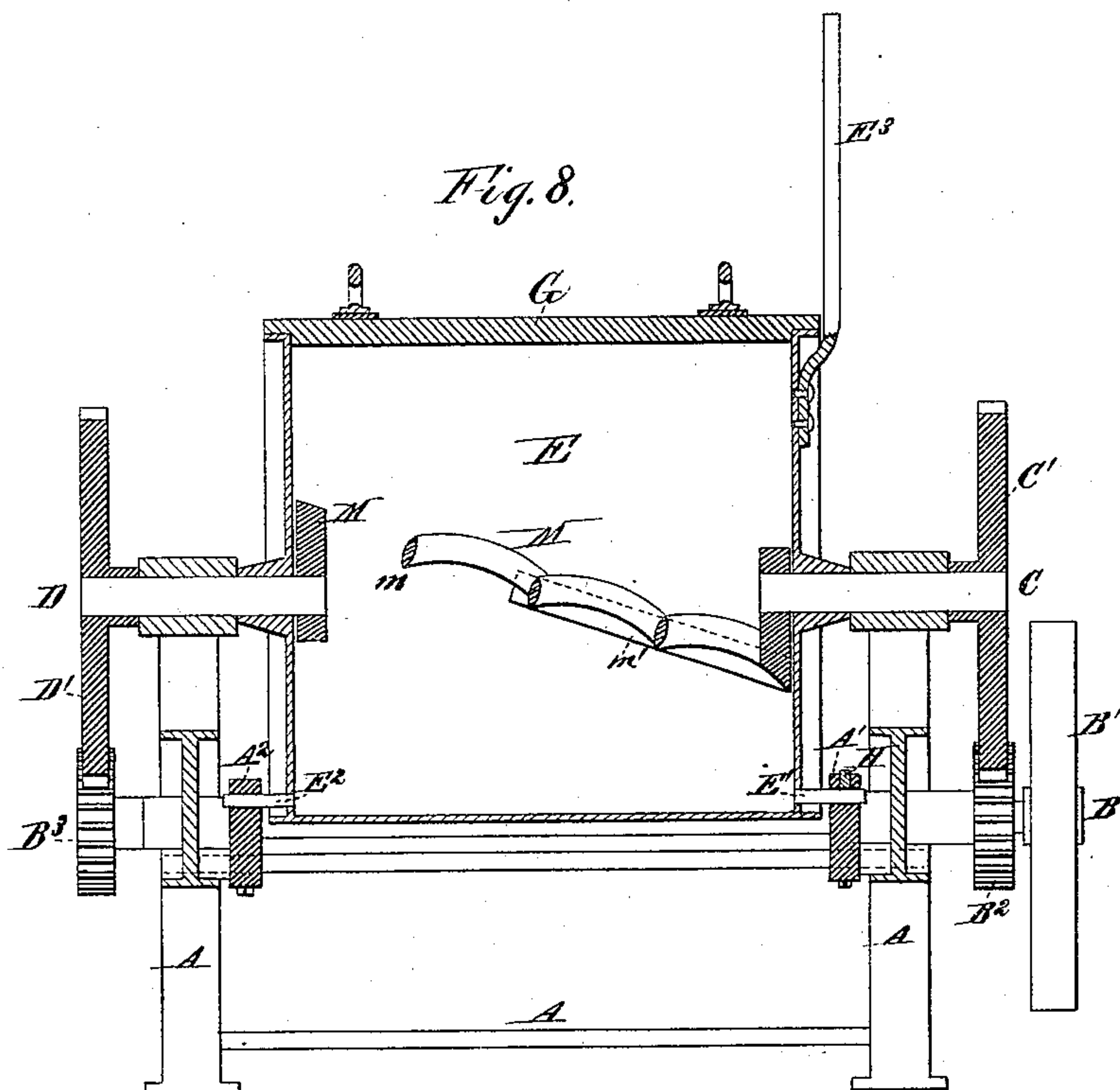
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Charles K. Searle,
Hattie R. Acken.

INVENTOR

Charles S. Fowler
Lucius A. Rockwell
Daniel M. Holmes
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UNITED STATES PATENT OFFICE.

CHARLES S. FOWLER, OF BROOKLYN, AND LUCIUS A. ROCKWELL, OF NEW YORK, N. Y., AND DANIEL M. HOLMES, OF CINCINNATI, OHIO, ASSIGNORS TO SAID FOWLER AND ROCKWELL.

DOUGH-MIXER.

SPECIFICATION forming part of Letters Patent No. 267,414, dated November 14, 1882.

Application filed December 7, 1880. (Model.)

To all whom it may concern:

Be it known that we, CHARLES S. FOWLER, a citizen of the United States, residing in Brooklyn, Kings county, in the State of New York, and LUCIUS A. ROCKWELL, a citizen of the United States, residing in New York city, in the State of New York, and DANIEL M. HOLMES, a citizen of the United States, residing in Cincinnati, in the State of Ohio, have invented certain new and useful Improvements relating to Dough-Mixers, of which the following is a full and exact description.

The improvements lie in details which overcome objections and render the action more efficient. We employ a form of agitator which promotes the active change of the material from one side to the other of the agitating device, and have provided improved means for confining and releasing the vessel and the cover, to facilitate the change of condition from that for use to that for discharging the material, and the reverse.

We can mix various materials in our machine; but we will describe it as applied for mixing batter and the various grades of partially-fluid material known in the manufacture of bread and cake.

The accompanying drawings form a part of this specification, and represent what we consider the best means of carrying out the invention.

Figure 1 is a plan view, and Fig. 2 an end elevation, of the entire machine. Figs. 3 and 4 are views of the agitator detached, Fig. 3 being an edge view, and Fig. 4 an end view. The remaining figures represent certain portions on a larger scale. Fig. 5 is a plan view of a small portion. Fig. 6 is a vertical section through the same, and Fig. 7 is a side view of another portion. Fig. 8 is a central longitudinal vertical section of the device.

Similar letters of reference indicate like parts in all the figures where they occur.

A is a fixed frame-work; B, a main driving-shaft impelled by a hand-crank or other suitable means. We have shown a pulley, B', receiving a belt (not shown) driven by any suitable power, and having fixed thereon two gear-wheels, B² B³.

C and D are short shafts free to revolve in fixed supports.

E is the mixing-vessel, cylindrical at bottom, and with an open top, except as it is closed by a removable cover, G. The shafts C and D enter each end in line of the axis of the cylindrical bottom, and in some conditions of the machine form the main support of the vessel E. The shafts C and D, being thrust inward, afford bearings, to which the mixer M is rigidly fixed. The vessel E is equipped with a strong but short projection at the bottom of each end. (Marked E' E².) When the vessel E is turned into its upright position these arms or projections are received in pockets A' A², formed on the framing, and by resting on the bases of said pockets support a large proportion or the whole of the weight. Thus conditioned, the shafts C D are relieved from the friction due to such weight, and their turning is resisted only by the semi-fluid contents of the vessel E which is being mixed.

H is a dog operated by the foot of the attendant and by a spring, I, to engage and release the vessel E by taking hold and liberating one of the projections, E'. An arm, E³, aids to control the turning of the vessel E as required when liberated.

The agitator or mixer is a nearly plane open-work frame, set so obliquely that it tends by a continuous revolution in one direction to throw the material first toward one end of the interior of the vessel and then toward the other; but each portion of the mixer which scrapes the interior extends only a little more than half the length of the vessel, and then stops abruptly, leaving a large aperture. This construction insures that, even when the material is so thick that the bars of our mixer will not cut through, but will revolve it continuously around, the material will still be thrown from each end toward and a little past the mid-length. Then so liberal a space is presented that it escapes temporarily from the influence of the mixer and comes partially or entirely to rest. In this condition it is struck vigorously by the other portion of the beater or mixer—a condition which greatly promotes the cutting of the mass by the bars which form the main skeleton

of the beater, and which are set to move each with a sharp edge foremost. This form and position subjects the material, not to a gradual movement first to one end and then to the other of the vessel, but to a succession of violent movements, first being thrown from one end toward the other, and then allowed to rest, whereupon it is suddenly struck by the opposite end of the mixer.

When the machine is operated the gear-wheels compel an active rotation of the agitator M and the semi-fluid contents of the vessel E are violently disturbed and mixed. The device M *m* divides the material into two parts; but the large openings *m* allow the liberal communication or flow of the material from one side to the other at three points without passing through the limited spaces between the bars which form the principal surface of the agitator M. While the contents are very liquid this is of little moment; but when, by adding flour or other thickening, the mass has become tough and resists the passage through those narrow spaces, a liberal portion moves at each revolution through the spaces *m*, and thus continually changes the position or lay of the mass.

N N are hooks extended upward at the back of the vessel E, and adapted to hold the back edge of the cover G. The front edge of the latter carries hook-shaped sliding bolts O O, which engage under the horizontal flange or lip of the vessel E, as will be obvious, and by the aid of the internal part, G', of the cover, which matches a little down into the vessel E, holds the cover rigidly, yet with great freedom, to be not simply opened, but entirely removed to allow of a thorough cleaning of all the parts when required. The cover is formed with handles G², to allow of handling without touching the under side.

We have designated by *m'* that portion of each edge of the agitator which scrapes close to the bottom. Each scraper *m'* is a little more than half the length of the vessel E; so by the alternate action of each the entire bottom is cleanly scraped.

We claim—

1. In a dough-mixer having a tilting body, E, and shaft C D, serving the double function of insuring a support for the vessel E and of affording an axis and means of turning the agitator, the combination, with said parts, of the pockets A' A² and projections E' E², for sustaining the weight of the vessel when in an upright position, thus relieving the shafts C D and preventing lateral swaying or movement, as set forth.

2. The tilting vessel E, with its projections E' E² and the receiving-pockets A' A², in combination with the shafts C D, and with the latch or catch H and spring I, the pockets being of right height to sustain the weight of the vessel by means of the projections and the catch and spring insuring retention of the projections, as set forth.

3. In a dough-mixing machine, the mixer M, formed of an open-work plate set on an incline to the axis, with the scrapers *m'* on the opposite edges, which extend from opposite ends to and a little past the middle, and with liberal openings *m*, so that the dough, when in that portion, is temporarily released from the influence of the beater, allowing the opposite side to strike it with increased force, as herein specified.

4. In a dough-mixing machine, the mixer M, composed of a set of sharp-edged bars, forming an open-work frame nearly plane, and mounted obliquely to the axis, having scrapers *m'* and liberal apertures *m*, combined and arranged to serve substantially as and for the purposes herein specified.

In testimony whereof we have hereunto set our hands, at New York city, this 6th day of December, 1880, in the presence of two subscribing witnesses.

CHARLES S. FOWLER.
LUCIUS A. ROCKWELL.
DANIEL M. HOLMES.

Witnesses:

EDWARD W. FRANCIS,
W. COLBORNE BROOKES.