

(No Model.)

2 Sheets—Sheet 1.

S. J. FISCHER.
MIXING MACHINE.

No. 463,892.

Patented Nov. 24, 1891.

Fig. 1.

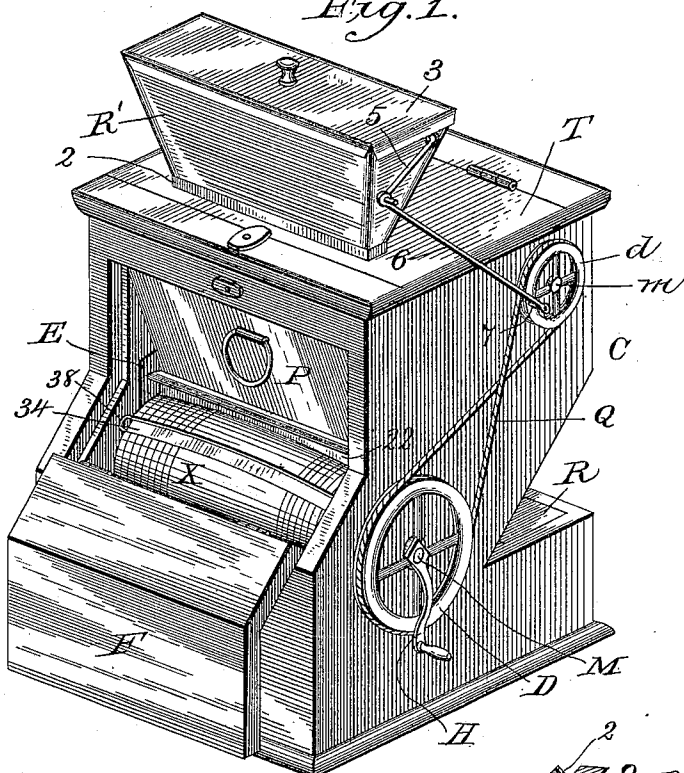


Fig. 6.

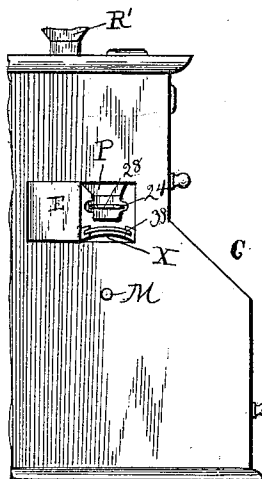
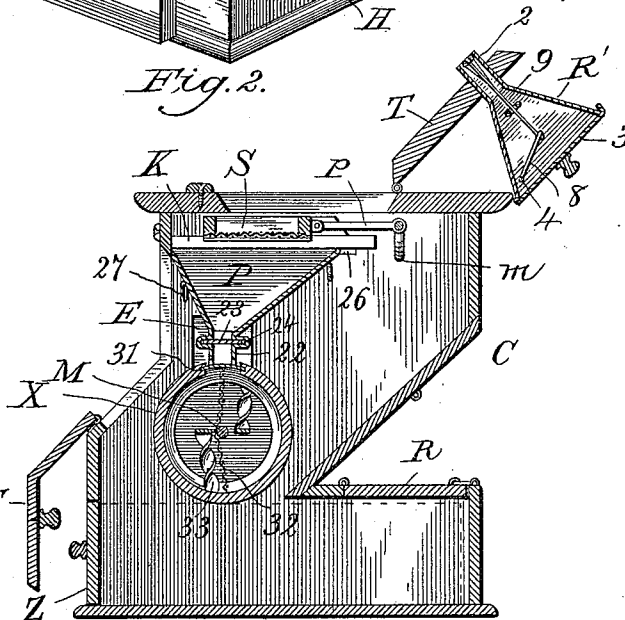


Fig. 2.



Witnesses

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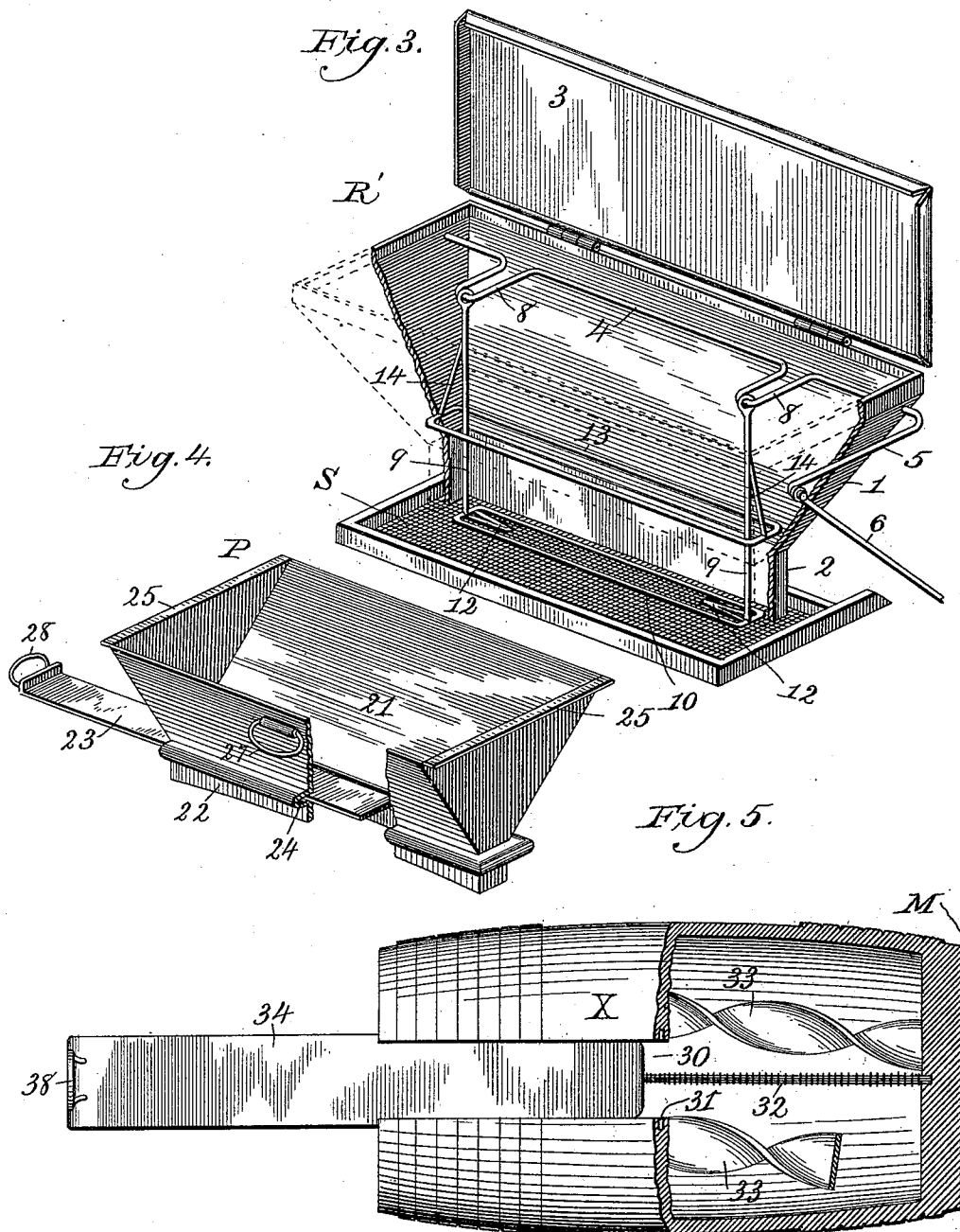
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

SIMON JULIUS FISCHER, OF QUINCY, ILLINOIS.

MIXING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 463,892, dated November 24, 1891.

Application filed June 22, 1891. Serial No. 397,101. (No model.)

To all whom it may concern:

Be it known that I, SIMON JULIUS FISCHER, a citizen of the United States, residing at Quincy, in the county of Adams and State of Illinois, have invented a new and useful Combination Sifting and Mixing Machine, of which the following is a specification.

This invention relates to sifters and screens, and more especially to that class thereof which are adapted for use in mixing baking-powder and the like; and the object of the same is to improve the construction of devices of this character.

To this end the invention consists in the details of construction hereinafter more fully described and claimed, and as illustrated on the accompanying two sheets of drawings, wherein—

Figure 1 is a general perspective view of this device with the front door open. Fig. 2 is a central vertical section thereof with the top door raised. Fig. 3 is an enlarged perspective detail of the stirrer, the hopper being shown in longitudinal section in position around the same. Fig. 4 is a perspective detail of the mixer-hopper removed from the casing and with its slide partially withdrawn. Fig. 5 is a plan view of the mixer with a portion thereof in section. Fig. 6 is a partial left side elevation of the casing.

Referring to the said drawings, the letter C designates the casing having a front door F, a rear door R, a top door T, and an end door E, all hinged to the casing, having operating-knobs, and held closed by buttons or hooks and staples in a manner which will be clear. Through the casing is journaled a main shaft M, upon which is mounted inside the casing the mixer X, and upon the end of this shaft is secured the main driving-wheel D, having a power-pulley or crank-handle H, by which the machine is operated. This driving-wheel is connected by a twisted belt Q with a smaller wheel d, mounted on the end of a crank-shaft m, journaled through the casing, and the crank of this shaft is connected by a pitman p with a sieve S, sliding on cleats K in the casing just beneath the top door T. Beneath this sieve is removably arranged the downwardly-tapering mixer-hopper P, and on the top door is mounted a hopper-shaped stirrer R', the several parts of the

machine being of the construction hereinafter described.

The stirrer comprises a hopper of the shape of body 1 with a rectangular extension 2 at its lower end, which extension passes through the top door T and delivers onto the sieve S, the hopper being closed at its top by a cover 3. Journaled longitudinally in the body of the hopper and near one side thereof is an oscillating shaft 4, having a crank 5 on one end connected by a pitman-rod 6 with a crank-pin 7 on the small wheel d on the end of the casing, and the body of this shaft inside the hopper is provided with cranks 8. From the latter depend hangers 9, whose lower ends are connected to a rectangular frame 10 of a size to move vertically within the extension 2 and having inwardly-projecting tongues 12 at their ends.

13 is a larger frame surrounding the two hangers, to which it is connected by inclined hangers 14, whereby it is supported at such height that in the lowest position of the cranks 8 this larger frame-work will come only to the bottom of the hopper-shaped body 1 above the extension 2.

Below the sieve S, above described, is located the mixer-hopper. (Best seen in Fig. 4.) This hopper, like the one above described, has a downwardly-tapering body 21 with a rectangular extension 22 at its lower end, and between the body and extension moves a slide 23, whose edges engage grooves 24 just above the extension. The upper edges of the ends of the body are provided with outturned lips 25, engaging horizontal grooves 26 in the casing C, and by means of a handle 27 the entire mixer-hopper can be withdrawn through the front of the casing when the door F is opened. The slide 23 has a handle 28, and by opening the door E in the casing access may be had to this handle to withdraw the slide fully or partially, and thus to permit the contents of this hopper to run out its extension 22. I call this device the "mixer-hopper," because what material is stirred in the stirrer and dropped through the sieve S falls into this hopper, whence it is to be delivered to the mixer, which will now be described.

In Fig. 5 is shown the mixer X, which comprises a barrel-shaped body mounted on main shaft M, which extends longitudinally through

said body, and the latter has an opening 30 in one side extending throughout the length thereof and provided with grooves 31 in its edges. Diametrically across the body and
 5 extending from the center of this opening is a screen 32, and on each side of this screen is a twisted blade 33. 34 is the slide-cover for the opening 30, which, as will be understood, is passed in through the door E when
 10 this opening is uppermost, the slide having a handle 38, by means of which it may be operated.

With the above construction of parts the operation of the device is as follows: Although
 15 the machine is capable of mixing or stirring any granulated or pulverized powders, I prefer it for use in mixing the ingredients of baking-powders and the like, wherein it is highly essential that there be no lumps of
 20 any one article—such as saleratus—which would tend to render the finished powder unfit for use. With this machine the various ingredients are poured into the stirrer R', the slide 23 in the bottom of the mixer-hopper is
 25 closed, and motion is imparted to the driving-wheel, and hence to the smaller wheel d, and thence to the oscillating shaft 4. By this means the hangers 9 are caused to reciprocate vertically, the frame 10 is moved within the
 30 extension 2, the tongues 12 cleaning the ends thereof at each motion, and the frame 13 is caused to move vertically within the body 1 of the hopper, so as to agitate and stir the several ingredients therein before they pass
 35 into the extension 2. From the latter the then considerably-mixed ingredients fall onto the reciprocating sieve S and through the same into the mixer-hopper P. When the hopper is nearly filled, the driving-wheel D is
 40 stopped at a point that will bring the opening 30 in the mixer X just below the mouth of the extension 22 of the mixer-hopper P. The end door E is then opened and the slide-cover 34 withdrawn therethrough by its handle
 45 38. The slide 23 is then withdrawn from the hopper P by its handle 28, and the charge in said hopper runs down into the mixer, after which the two slides are reinserted and the door E is closed. Another charge is in-
 50 serted in the stirrer and the operation is repeated; but this time the rotation of the main shaft M, moving the mixer X, causes the first charge which is now therein to pass through screen 32 first in one direction and then in
 55 the other, whereby, with the assistance of the twisted blades 33, the ingredients are even more thoroughly mixed than before. Before the second charge is delivered from the mixer-hopper into the mixer X it will be understood
 60 that the latter, with its slide removed, must be turned over to pour the first charge into the casing, which may be provided with a drawer Z, as seen in dotted lines in Fig. 2, for the reception of the same. By this means the ingredients
 65 are very thoroughly stirred, sifted, and mixed, and there can be no lumps in the same and

no parts thereof where one ingredient will be stronger than another.

Considerable change in the specific details of construction may be made without departing from the spirit of my invention. 70

What is claimed as new is—

1. In a device of the character described, a stirrer comprising a hopper-shaped body with a rectangular extension at its lower end, an
 75 oscillating shaft along one side of the top of the body, cranks on said shaft, hangers depending from said cranks, and an open horizontal rectangular frame carried by said hangers and moving vertically within said
 80 extension, as set forth.

2. In a device of the character described, a stirrer comprising a body with a rectangular extension at its lower end, a crank-shaft in
 85 said body, hangers depending from the cranks thereof, a rectangular frame carried by said hangers and moving within said extension, and inwardly-projecting tongues at the ends of said frame, as set forth.

3. In a device of the character described, 90 a stirrer comprising a hopper-shaped body having a closing cover, a rectangular extension at its lower end, an oscillating shaft journaled in the ends of said body near its top and extending along one side thereof, 95 cranks on said shaft, hangers depending from said cranks, a rectangular frame connecting the lower ends of said hangers and moving within said extension, and a larger frame carried by said hangers above their lower ends 100 and moving within said body, as and for the purpose set forth.

4. In a device of the character described, the combination, with the casing having cleats, a rotating crank-shaft in said casing, 105 a sieve on said cleats, and a rod connecting said sieve with the crank in the shaft, of a stirrer, substantially as described, a hinged top to the casing through which the stirrer delivers onto the sieve, a crank-wheel on the end 110 of said shaft, and a pitman-rod connecting the crank thereof with the stirrer, as and for the purpose set forth.

5. In a device of the character described, the combination, with the casing, a stirrer at 115 the top thereof, a reciprocating sieve below the stirrer, and a mixer at the bottom of the casing, substantially as described, of a mixer-hopper comprising a downwardly-tapering body having lips at its ends engaging grooves 120 in the casing, an extension at the angle of said body having side grooves, a longitudinally-movable slide in said grooves, and an end door in the casing opposite said slide, as set forth. 125

6. In a device of the character described, the combination, with the casing having front and end doors, a mixer at the bottom of the casing, and a feed-hopper at the top thereof, 130 of a mixer-hopper within the casing and removable through its front door, a slide at the lower end of said mixer-hopper, and a slide in

the upper side of the mixer, both said slides being removable longitudinally through the end door of the casing, as set forth.

7. In a device of the character described,
5 the combination, with the casing having a door in its end, a hopper within said casing, and a longitudinally-movable slide in the bottom of said hopper opposite the door, of a rotating shaft in the casing, a barrel-shaped
10 mixer-body mounted on said shaft and having a longitudinal opening in one side provided with grooves in its edges, a slide therein adapted also to be withdrawn through said door, and a screen in said body, as set forth.
- 15 8. In a device of the character described, the combination, with a hopper having a re-

movable slide, of a barrel-shaped mixer-body mounted on a rotating shaft and having an opening in one side adapted to register with that in the hopper, a slide removably closing 20 this opening, a screen across the body with one edge along the center of said opening, and twisted blades within the body at the sides of said screen, as hereinbefore set forth.

In testimony that I claim the foregoing as 25 my own I have hereto affixed my signature in presence of two witnesses.

SIMON JULIUS FISCHER.

Witnesses:

GEO. A. FISHER,
JOHN A. BROWN.