

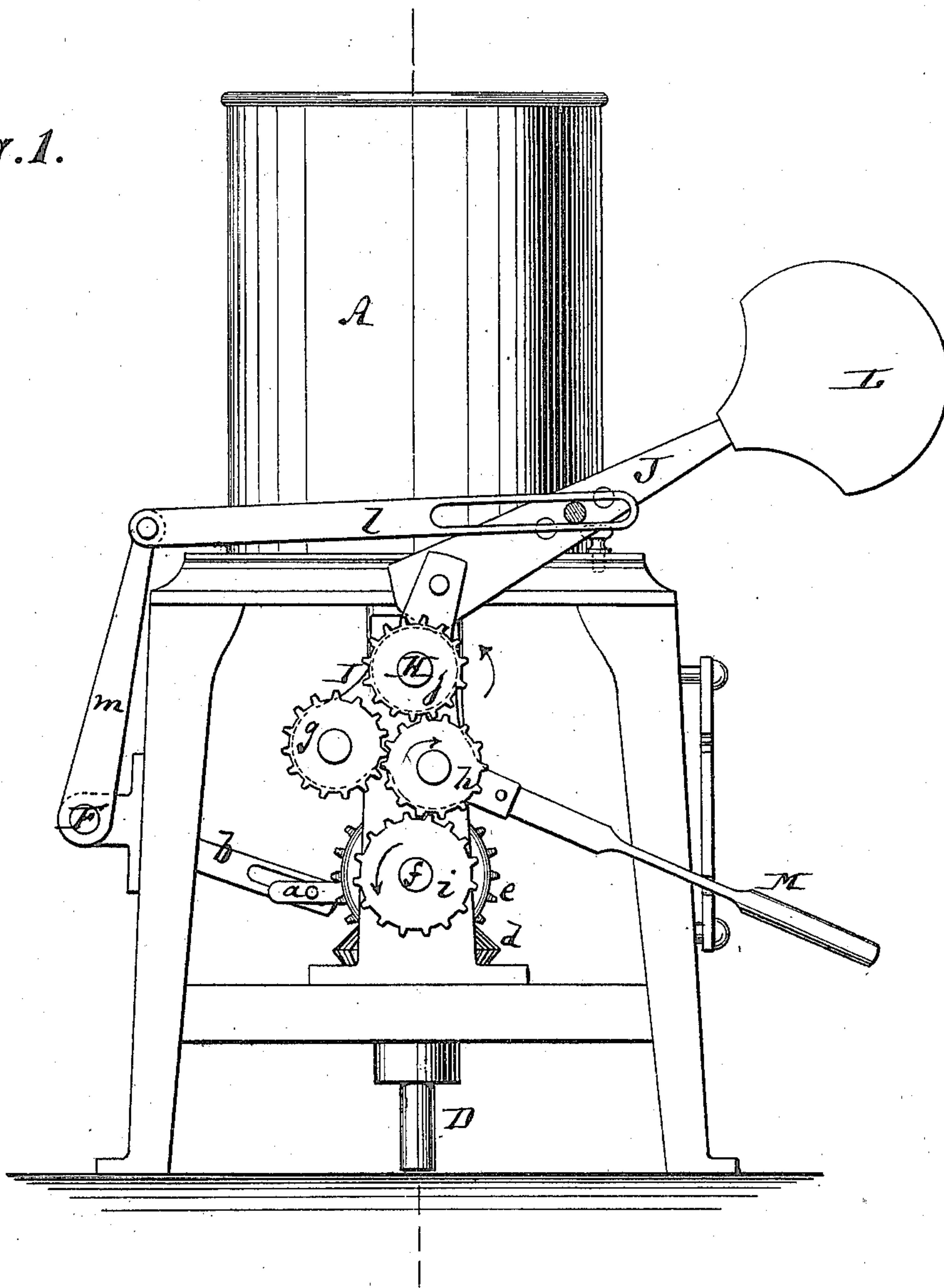
J. ATKISS.

Mixing Apparatus for Soap, Clay, Paste, &c.

No. 134,415.

Patented Dec. 31, 1872.

*Fig. 1.*



Witnesses:

*A. Bernerhoff.*  
*C. Stueger.*

Inventor:

*J. Atkiss*

PER

*Munn & Co.*  
Attorneys.

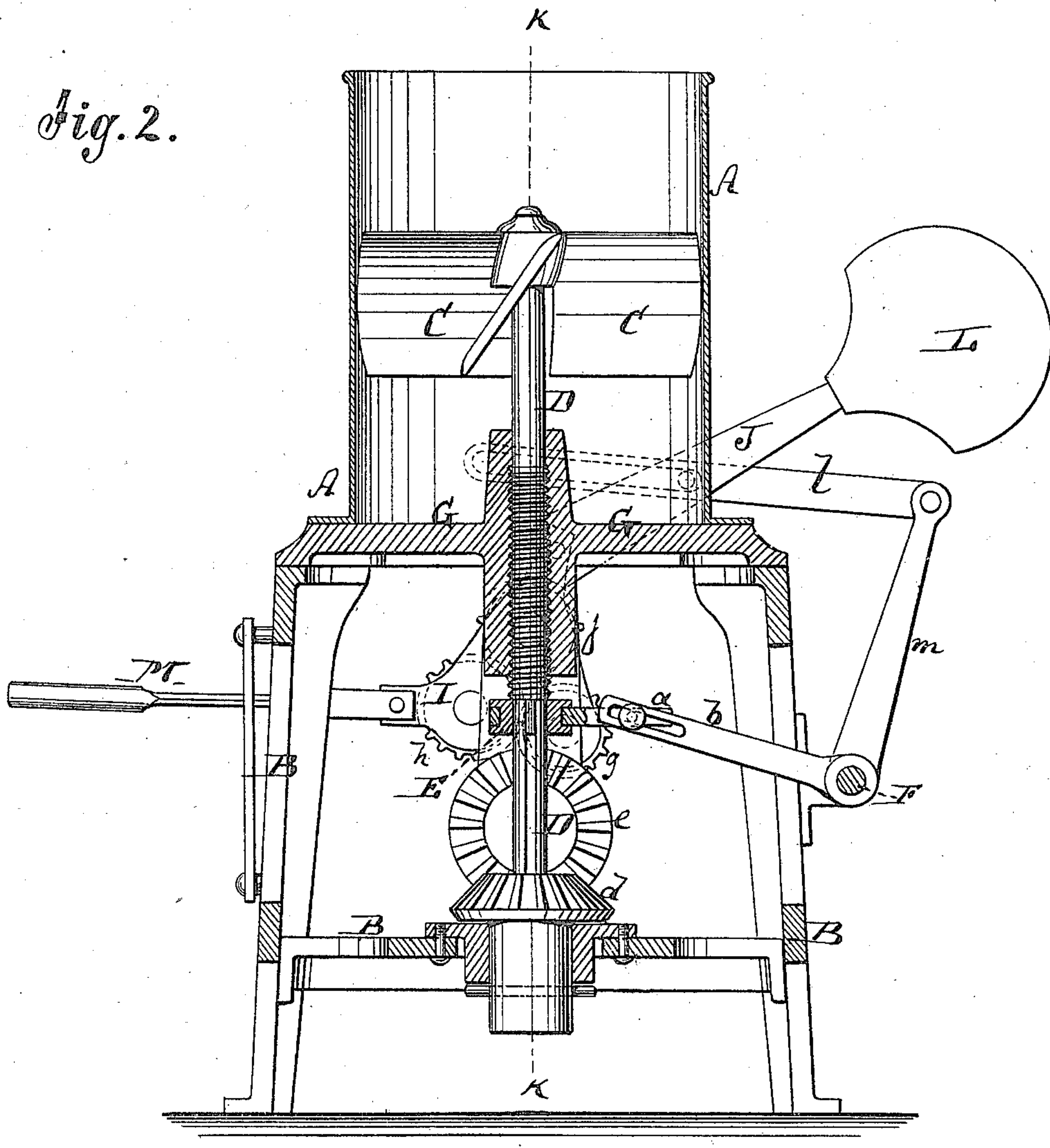
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Fig. 2.



Witnesses:

Albrecht  
Sedgwick

Inventor:

J. Atkiss  
Munn & Co  
Attorneys.

PER

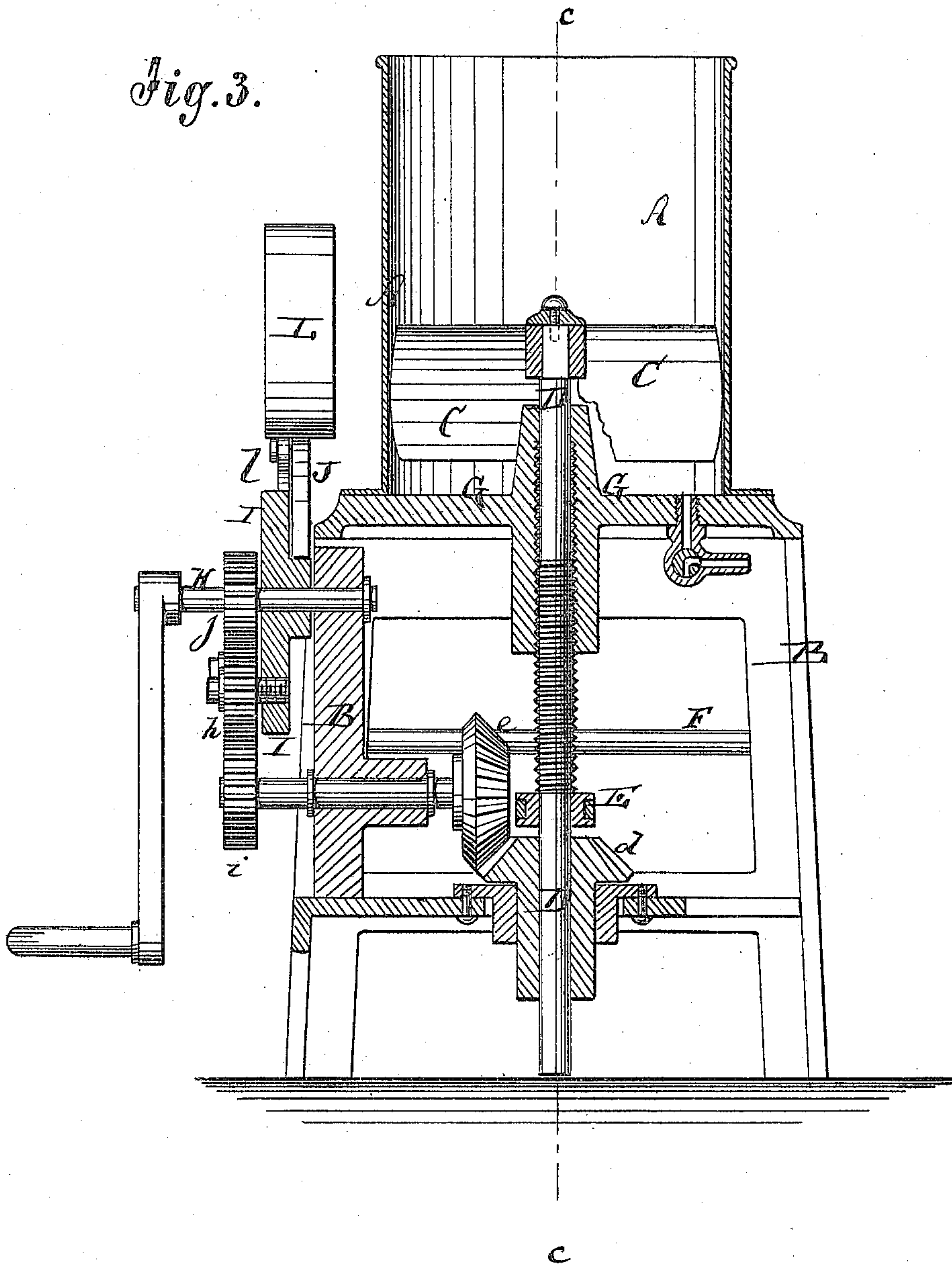
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Fig. 3.



Witnesses:

A. Remmersdorf.  
C. Senguer.

Inventor:

J. Atkiss  
Munn & Co.  
Attorneys.

PER



# UNITED STATES PATENT OFFICE.

JAMES ATKISS, OF BROOKLYN, NEW YORK.

## IMPROVEMENT IN MIXING APPARATUS FOR SOAP, CLAY, PASTE, &c.

Specification forming part of Letters Patent No. 134,415, dated December 31, 1872.

*To all whom it may concern:*

Be it known that I, JAMES ATKISS, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Mixing Apparatus, of which the following is a specification:

Figure 1 is a side elevation of my improved mixing apparatus; Fig. 2 is a vertical section of the same on the line *c c*, Fig. 3; and Fig. 3 is a vertical section on the line *k k*, Fig. 2.

Similar letters of reference indicate corresponding parts.

This invention relates to a new machine for mixing soap, clay, paste, or other material of any kind; and consists, first, in making the rotary mixing-tool, which turns within the containing-cylinder up and down, movable while being revolved, so that it will reach and agitate all the strata of the contents of the cylinder. This adjustment is done by mounting the rotary mixing-tool upon a spindle which has a screw-thread cut upon it beneath the containing-vessel, and which passes through a female screw secured in or under the bottom of said vessel, so that when the spindle is revolved it will be screwed up or down, as the case may be. A sleeve embraces the said spindle beneath the containing-vessel, and is connected with an arm of a rock-shaft, from which another arm connects, by a rod, with a weighted lever, so that as the sleeve, by the rotation of the spindle, is moved up or down the rock-shaft will be vibrated, whose connection with the weighted lever will cause the same to first swing in one direction and then in the other. This connection of the weighted lever serves to regulate the position of several gear-wheels, by which motion is transmitted from the driving-shaft to the aforementioned screw-spindle. The object of this connection is to reverse automatically the motion of the spindle without reversing the motion of the driving-shaft; and this object is attained by the aforementioned connection of the rock-shaft with the weighted lever; for when the sleeve has been worked up to its greatest height the weighted lever will be projected to one side and tipped to carry the opposite gear in connection with the driving-shaft, and when, on the other hand, the sleeve has been carried down to its greatest extent the weighted lever will be once more tipped in the opposite direc-

tion to reverse the transmission of motion from the driving-shaft. Thus it will be observed that the invention herein referred to appertains not only to the mixing-tool and mode of turning and operating the same, but also to the means of regulating the direction of motion transmitted from the driving-shaft to the screw-spindle.

In the drawing, the letter A represents a cylindrical vessel of suitable size and material, secured upon a frame, B, or other suitable support. Within this vessel A is arranged a rotary stirrer or mixing instrument, C, which is mounted upon a spindle, D, that enters the vessel A from below centrally. By rotating the spindle D the instrument C within the vessel A will be revolved, and will therefore mix and agitate the contents of the vessel A. It will be noticed that a screw-thread is cut upon the spindle D, and that the screw part of said spindle passes through a female screw-thread cut into the top plate G of the supporting-frame, or in the bottom plate of the vessel A, so that when, by suitable means, the said spindle is revolved it will be screwed up and down with the stirring device C. Below the threaded portion of the spindle D is hung upon it a sleeve, E, which will move up and down with the spindle, but not revolve with it, the same being, by an arm, *a*, connected with a crank, *b*, on the rock-shaft F that hangs in the frame B. *d* is a gear-wheel swiveled in the frame B, and embracing the spindle D. It serves to impart rotary motion to said spindle, but does not move up and down with the same. The spindle is for this purpose connected, by groove and feather, with the gear-wheel *d*. The said gear-wheel *d* receives rotary motion from another gear-wheel, *e*, on a horizontal shaft, *f*, which is hung in the frame B. H is the driving-shaft of the machine. It is hung horizontally in the frame B above the shaft *f*, and connects, by one or two intermediate gear-wheels, *g h*, with a gear-wheel, *i*, that is mounted upon the shaft *f*, the wheel *j* on the shaft H serving to make the connection. The two wheels *g h* hang in a frame, I, which is swiveled on the shaft H, and can be swung either as in Fig. 1, so as to directly connect the wheels *j, h*, and *i*, or else into the position indicated in Fig. 2, to throw *h* off the wheel *i* and *g* into gear with *i*. In this latter connec-



tion the motion imparted from the driving-shaft H to the shaft *f* will be reversed. The motion is imparted to the shaft H in the same direction constantly by suitable machine or by muscular power. To the upper part of the frame I is pivoted a lever, J, which has a weight, L, attached to its upper end. By a slotted rod, *l*, the lever J connects with a crank, *m*, of the rock-shaft F.

Whenever the parts are in the position shown in Fig. 1, and rotary motion is imparted to the shaft H in the direction of the arrow 1, the shaft *f* will be rotated in the same direction, and the spindle D thereby revolved so as to be screwed up. Thereby the sleeve E will also be elevated and the rock-shaft F so turned that, by its crank *m* and rod *l*, it will draw the lever J gradually into a vertical position until, when the spindle has been screwed up to its fullest extent, the vertical position will be actually reached by the lever J, and, being gradually drawn beyond the same, said lever J will be tipped over toward the opposite side, and will, by so tipping, carry the frame I along with it, which will cause the parts to assume the position indicated in Fig. 2—that is to say, will bring the wheel *g* into gear with *i*, leaving it, by its connection *h*, in indirect gear with *j*. The motion of the shaft H, meanwhile, is not interrupted, but is carried on, as before, in the same direction, while that of the shaft *f* will, by the shifting of the gear, be reversed, and also that of the spindle D, which, in consequence, will now be screwed down. While being screwed down the sleeve E will be lowered, and will swing the rock-shaft F so that the rod *l* will gradually push the lever J back to a vertical position, until finally the lever J is brought beyond such vertical position and caused, by its weight L, to swing over and to return the parts to the position shown in Fig. 1.

M is an arm projecting from the frame I, and serving as a handle for swinging the same in either direction, or entirely out of gear, as may be desired. There may be suitable locks or catches arranged on the frame B for securing the handle M in any desired position.

It will be observed that the instrument C, whether the same be made with inclined or cylindrical wings, as indicated, or with sharp or pointed projections, or otherwise, will be revolved with the spindle D, and, at the same time, also moved up and down with the same, and that its agitating parts or projections will thus be brought into line with all the parts of the vessel A, reaching every particle of the contents thereof and properly mixing or stirring the same.

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

1. The mixing-machine whose spindle D moves up and down while revolving to elevate and lower the rotary mixing-tool C, substantially as described.

2. The sleeve E, swiveled to the vertically-movable rotary spindle D of the mixing apparatus to move up and down with the same, as specified.

3. The combination of the vertically-movable sleeve E with the rock-shaft F and weighted lever J, for swinging the latter in manner described.

4. The frame I, carrying the gear-wheels *g h* and the weighted lever J, applied between the gear-wheels *j* and *i*, to operate substantially as described.

JAMES ATKISS.

Witnesses:

A. V. BRIESEN,  
T. B. MOSHER.