

No. 876,290.

PATENTED JAN. 7, 1908.

M. D. BLAKESLEE.
CAN RIGHTING MACHINE.
APPLICATION FILED OCT. 3, 1906.

Fig. 1.

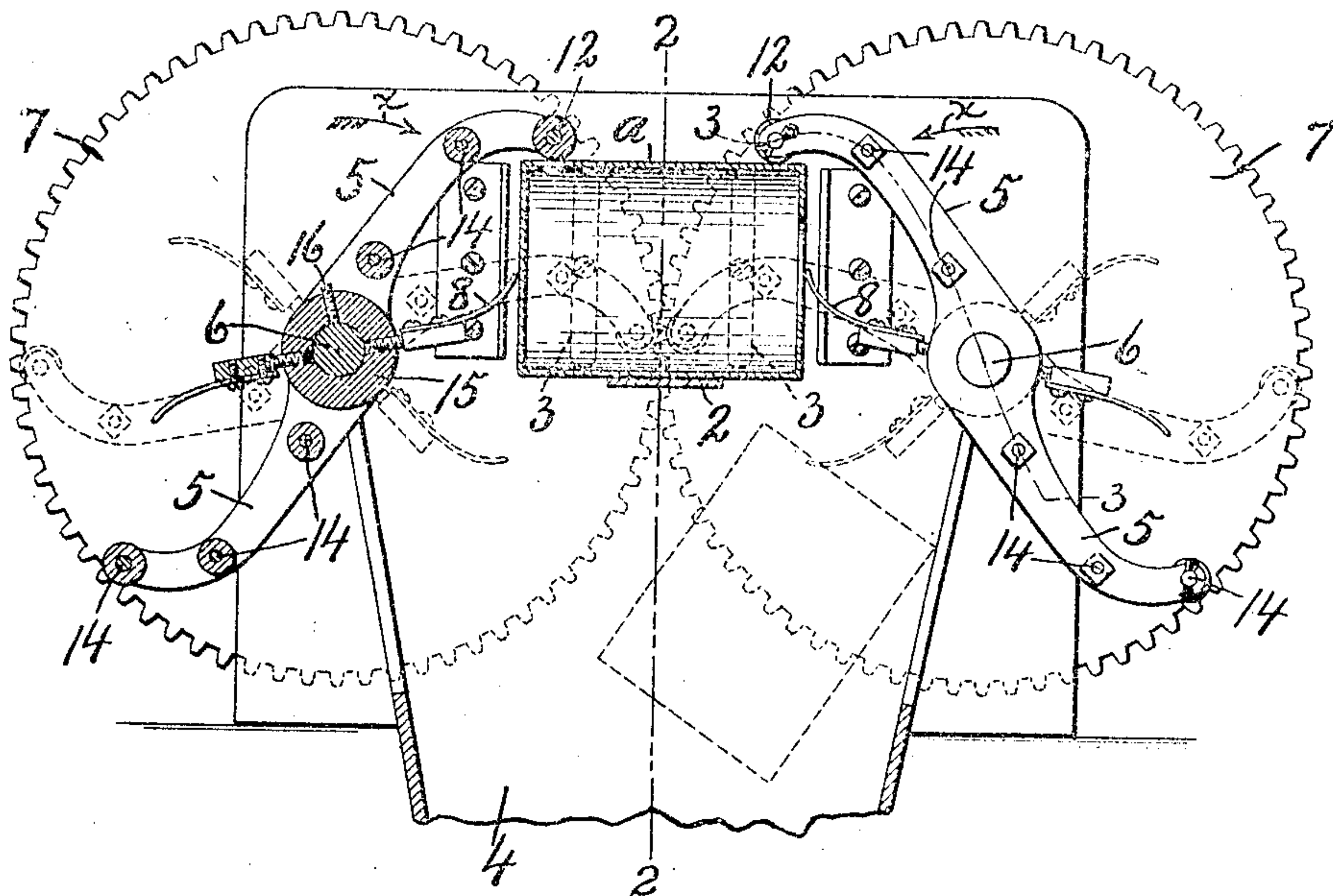


Fig. 2.

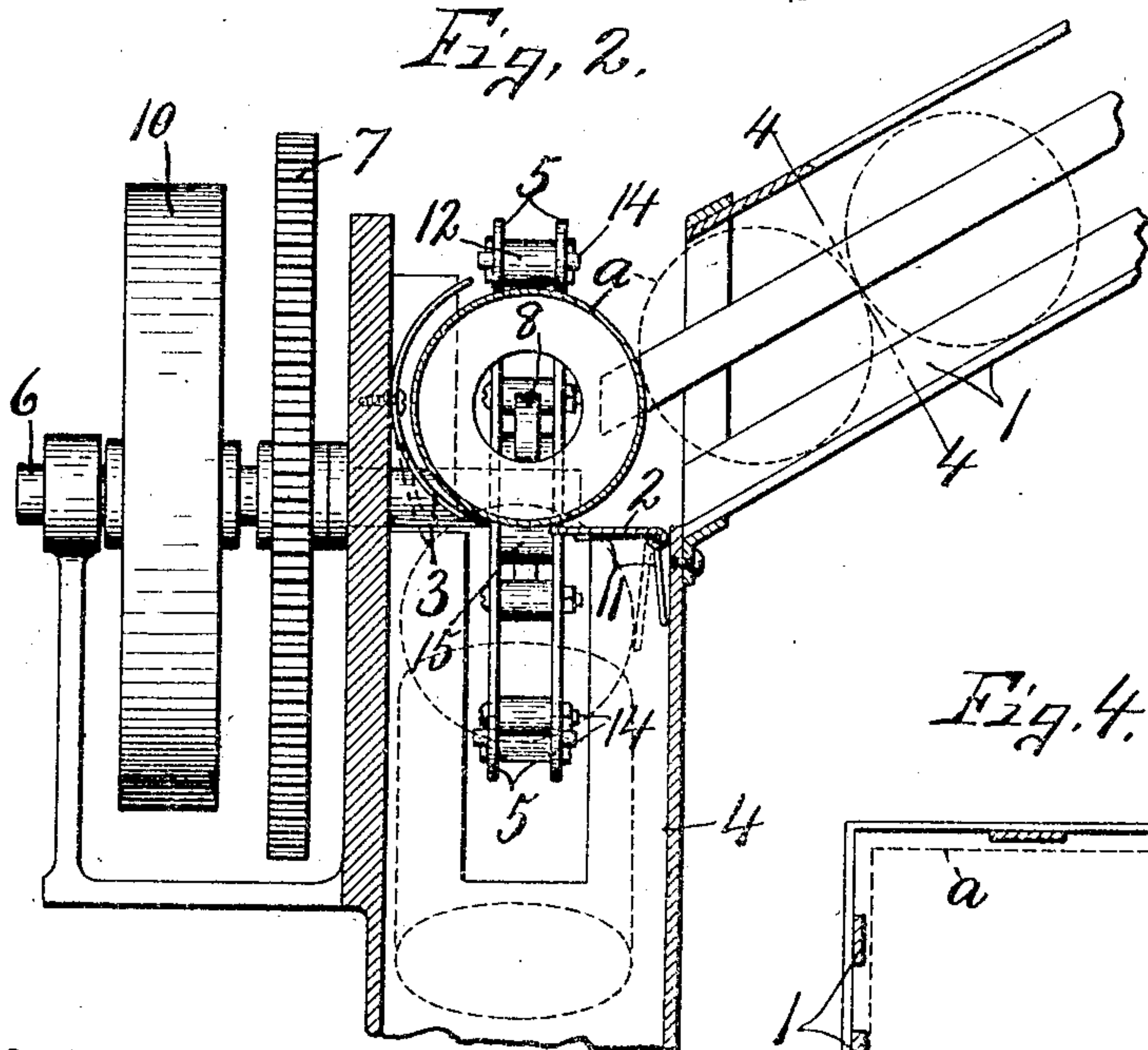


Fig. 3.

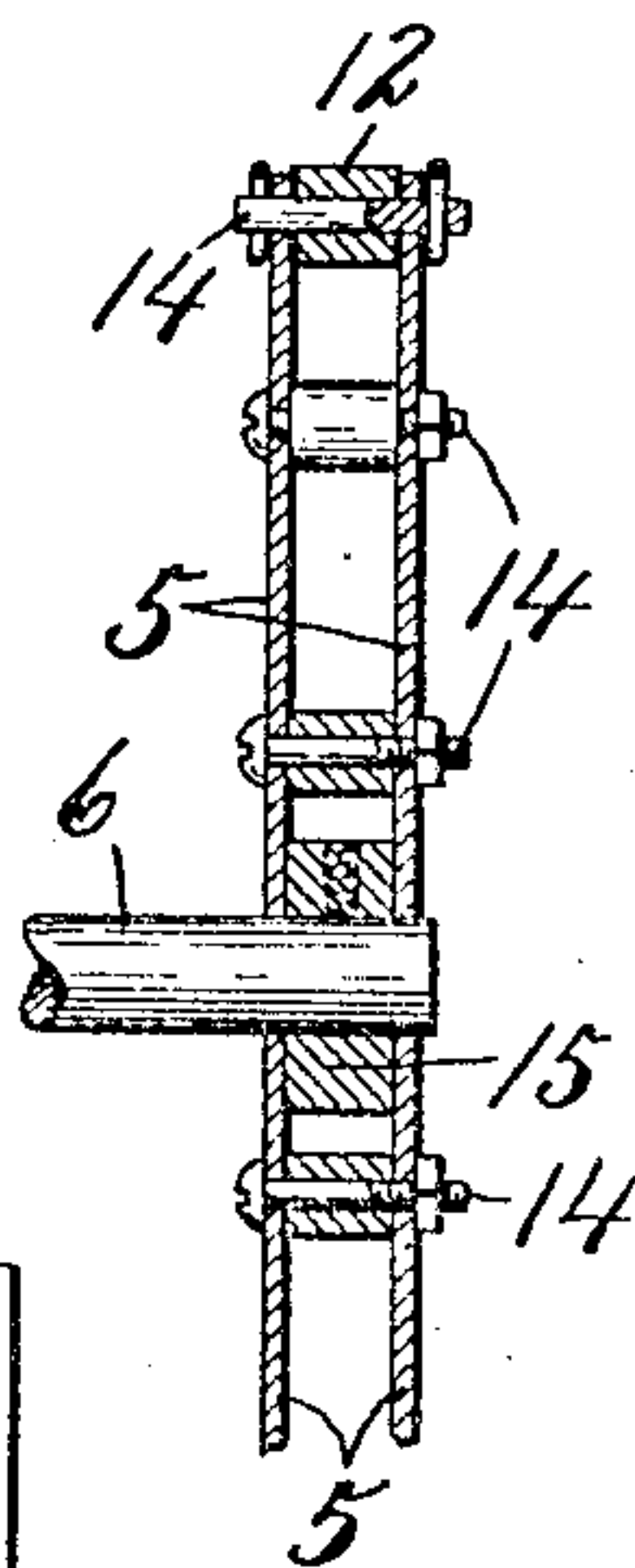
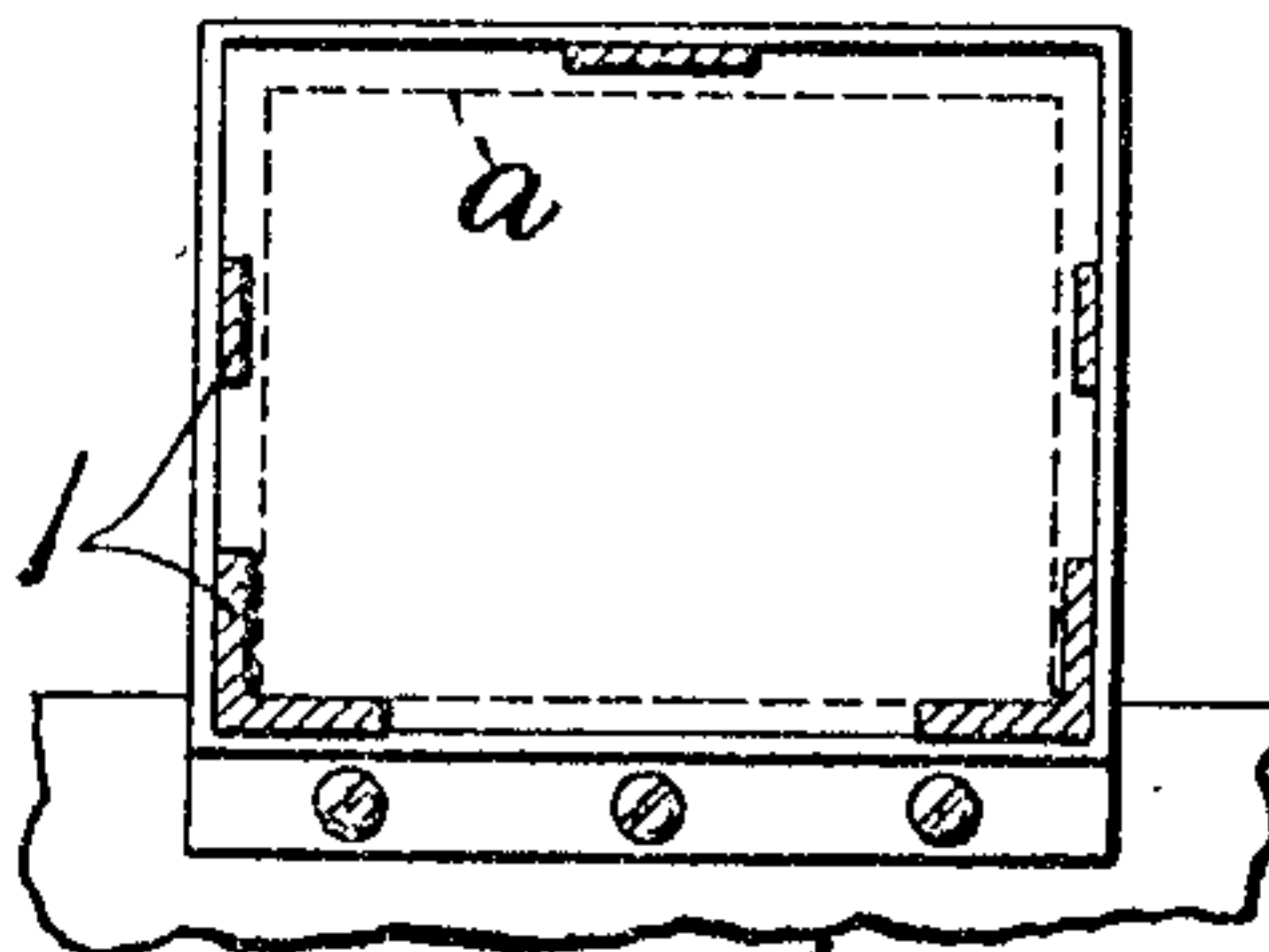


Fig. 4.



Witnesses.

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CAN-RIGHTING MACHINE.

No. 876,290.

Specification of Letters Patent.

Patented Jan. 7, 1908.

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To all whom it may concern:

Be it known that I, MERTON D. BLAKESLEE, of Cazenovia, in the county of Madison, in the State of New York, have invented new and useful Improvements in Can-Righting Machines, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to certain improvements in can-feeding and righting machines having the same general object as that set forth in my pending applications No. 303,004, filed February 26, 1906, and 331,888, filed August 24, 1906, except that in the present application I have sought to right the cans through the medium of opposed rotary elements acting directly upon each can to positively feed it right side up into an underlying chute or receptacle from which it may be delivered by gravity or otherwise, upon the bed of a suitable filler, not shown, because the filler forms no part of my present invention.

In other words, my object is to provide a simple, practical and efficient mechanism capable of being manufactured at a minimum cost for feeding the cans right side up, either individually or collectively, into one or more chutes to be delivered to a single or multiple filling machine, by employing a pair of opposed rotary elements acting on each can, whereby I am enabled to increase or diminish the capacity of the righting device by simply adding to or subtracting from the number of can-righting elements on the same supporting shaft and providing separate chutes into which the cans are delivered.

Other objects and uses relating to specific parts of the righting mechanism will be brought out in the following description.

In the drawings—Figure 1 is an elevation, partly in section, of one of my improved can-righting mechanisms showing a can, in section, as about to be operated upon by the rotary righting elements, the latter being shown in dotted lines as advanced to a position for delivering the cans right side up into an underlying chute. Fig. 2 is a sectional view taken on line 2—2, Fig. 1, showing in addition thereto the race-way along which the cans are fed by gravity to the rotary righting elements. Fig. 3 is a longitudinal sectional view of one of the rotary can-righting arms taken on line 3—3, Fig. 1. Fig. 4 is a trans-

verse sectional view of the race-way taken on line 4—4, Fig. 2.

The cans are placed promiscuously in and are fed by gravity along an inclined chute—1—upon a yielding platform—2—and against a suitable spring abutment—3—, where they are temporarily held directly over the upper open end of a vertical chute—4— between two opposite rotary can-feeding arms—5—. These arms are, in this instance, rigidly secured to parallel shafts—6— at opposite sides of the path of movement of the cans, as *a*—, and are connected for simultaneous rotation by intermeshing gears—7— for rotating the shaft—6— and can-feeding arms—5— in the direction indicated by arrows—*x*—. I preferably provide each shaft—6— with a pair of diametrically opposite radial arms—5— so as to feed and right one can at each half revolution of the shaft, although it is evident that a still greater number of feeding arms may be employed so long as sufficient clearance is left between their outer ends to permit the reception of the cans between them, or I may in some instances, provide each shaft with a single arm—5— so as to feed a can from the support—2— into the chute—4— at each revolution.

The cans—*a*— are temporarily held in a horizontal position by the platform—2— and abutment—3— with their ends facing the opposite shafts—6— so that the cans rest substantially midway between said shafts with ample clearance at the ends for the operation of suitable righting fingers—8— which rotate with their respective shafts—6—, one of the fingers being adapted to enter the open side of the can which may be registered therewith so that as the can is fed downwardly by the arms—5— its open end will be temporarily suspended upon the adjacent finger—8— until the opposite end drops by gravity downward into the chute—4—, whereupon the continued movement of the finger which suspends the can causes it to be withdrawn from the open end of said can, allowing the latter to fall right side up, or bottom downward into the delivery chute 4. One of the shafts—6— is provided with a pulley—10— which may be connected to any available source of power, not shown, the other shaft being driven by the intermeshing gears—7—

which are of uniform pitch to give the same relative speed of motion to both of the shafts —6— and their can-feeding elements —5—. One of the arms on one shaft co-acts with one of the arms on the other shaft to engage the top of the can and feed it downwardly against the retracting action of the platform —2— and spring abutment —3—, thereby depressing the platform —2— against the action of its retracting spring, as —11—, to the position shown by dotted lines in Fig. 2, and similarly depressing the lower side of the spring abutments —3— rearwardly, as shown by dotted lines.

As the cans are fed from the chute —1— upon the platform —2— and against the yielding abutment —3— they are brought within the path of movement of the outer end of the co-acting arms —5— which are arched toward each other and are provided with suitable contact rollers 12— to engage the upper side of the can along which the rollers move toward each other and toward the center of the can as the co-acting arms descend to force the can into the chute —4—. Each arm —5— is provided with a co-acting righting finger —8— rotating therewith and arranged in such relation to the outer end of said arm as to engage or enter the center of the end of the can when the outer end of the arm —5— engages the top face of the can. It is obvious that as the cans are fed by hand promiscuously into and gravitate along the chute —1— onto the platform —2— the open ends or tops of some of the cans will face in one direction toward one of the arms —5— and its co-acting righting finger —8—, while the open ends of other cans will face in the opposite direction, or toward the opposite feeding arm —5— and its righting finger —8—. These righting fingers —8— are preferably made of comparatively light spring metal sufficiently small to enter the openings in the ends of the cans and their outer ends are preferably curved opposite to their direction of rotation so that as one advances against the bottom or closed side of the can it will spring back or force the can endwise so that the opposite finger will enter the open end of the can, and as the arms —5— force the can downwardly the open end of the latter will be caught upon and temporarily suspended by the finger which enters the same so that as soon as the can is depressed and passes beneath the yielding platform —2—, its closed end will naturally gravitate downwardly, while its open end will be held uppermost by the adjacent finger —8— until the latter finger is withdrawn from the can by its continued movement, leaving the can to drop right side up into the chute —4—. It is now clear that each can in succession is operated upon simultaneously by two of the opposite arms —5—

and their co-acting fingers —8—, the arms —5— serving to engage and depress the cans into the chute —4— at the same time that the fingers —8— act upon opposite ends of the cans, one of said fingers entering the open side of the can which may face that way, while the other finger presses against the bottom of the can to hold the latter upon the first named finger during its descent until the can is finally released by both fingers and automatically drops right side up into the chute —4—.

The arms —5— preferably consist of a pair of sheet metal plates which are frictionally clamped by bolts —14— against opposite ends of a collar or hub —15— which is adjustably secured to the shaft —6— by set screw —16— so that the collar may be adjusted circumferentially independently of the arms —5— by loosening the clamping bolts —14— to permit the independent adjustment of the fingers —8— relatively to the arms —5—, said fingers being secured to the collar —15—. Or by loosening the set screw —16— of either of the collars —15— such collar may be adjusted axially or circumferentially to adjust its arms —5— relatively to those of the other collar to cause them to travel in the same vertical plane and to engage the upper face of the can at the same time.

What I claim is:

1. In a can-feeding and righting machine, two opposite rotary can-feeding elements, means to feed the cans into the path of said elements, each element having associated therewith a can-righting finger adapted to enter the open end of the can which may face that way, and to temporarily suspend said can while said elements are forcing the cans downwardly, whereby the can is caused to tilt by gravity, bottom downward upon the finger which temporarily supports its open end, the continued rotation of said elements withdrawing the supporting finger from the can after the latter is righted.

2. In a can-righting machine, two rotary elements moving toward and from each other, means for feeding the cans one by one between the approaching sides of said elements and fingers on said elements each adapted to enter the open end of the can and to support said open end uppermost while the opposite end tilts downwardly.

3. In a can-feeding and righting machine, two rotary elements revolving about separate axes and each having a righting finger, and means to feed the cans, one by one, with the centers of their ends in registration with the adjacent ends of the moving fingers, one of the fingers entering the open end of the can which faces it whereby the open end of the can is held while the opposite end or bottom is free to gravitate downwardly.

4. In a can-righting machine, two opposite revolving elements arranged side by side on separate parallel axes and having can-righting fingers moving toward each other to engage opposite ends of the cans, and means to feed the cans between the fingers with their ends facing said fingers, whereby one of the fingers is caused to enter the open end of the can.

5. In a can-feeding can and righting machine, oppositely arranged can-righting fingers rotating about separate parallel axes and having their ends approaching each other during rotation a distance less than the length of the can between its ends, and means to feed the cans, one by one, between and with their ends facing said approaching fingers.

6. In a can-righting machine, a race-way along which the cans are fed, oppositely arranged fingers rotating about separate parallel axes at opposite sides of the path of movement of the cans and approaching each other during their rotation a distance less than the distance between the opposite ends of the can whereby one of the fingers engages the center of the bottom of the can, and the other finger enters the open end or top of the can to temporarily support said open end while the bottom gravitates downwardly.

7. In a can-feeding and righting machine, a yielding support, means for feeding the cans, one by one, upon the support, opposite fingers rotating upon axes at opposite sides of the support and approaching each other during rotation a distance less than the length of the can, whereby one of the fingers is caused to engage the bottom of the can and the other finger is caused to enter the open end of said can, and means acting upon the can to depress said can and its support until the can is free from the support, the finger entering the open end of the can serving to temporarily hold said open end while the opposite or closed end gravitates downwardly.

8. In a can-feeding and righting machine, a yielding support and retracting means therefor, means to feed the cans, one by one, upon said support, opposite arms rotating on separate axes at opposite sides of the sup-

port to engage said cans and depress the support until the can is freed therefrom, and opposite means each adapted to enter the open end of the can to temporarily support said open end after the can is freed from the support, whereby the can is caused to right itself, the continued movement of the righting means freeing the can therefrom.

9. In a righting device for cans, a pair of opposite can righting fingers revolving on separate parallel axes, means to feed the cans, one by one, between the fingers during rotation whereby one of the fingers is caused to enter the open end of the can and to sustain said open end of the can, while the opposite end gravitates downwardly and means moving in synchrony with said fingers to force the can downwardly.

10. In a machine for feeding and righting cans, two rotary can-feeding elements revolving on separate parallel axes, said elements having opposite righting fingers moving toward each other to enter the open end of the can, and means for feeding the cans, one by one, between said fingers, and in the path of movement of said elements.

11. In a can-righting machine, two parallel shafts geared together to rotate in unison at the same rate of speed, a self-retracting yielding support between the shafts, means to feed the cans, one by one, upon said support, can-righting fingers each mounted upon and rotating with one of the shafts and adapted to enter the open end of the can and means acting upon the can to depress the support and thereby free the can therefrom.

12. In a can-feeding and righting machine, a self-retracting yielding support, means to feed the cans, one by one, upon said support, separate rotary shafts at opposite sides of the support, means to drive said shafts at a uniform speed, means for feeding the cans from said support, and further means for righting the cans while being forced from the support.

In witness whereof I have hereunto set my hand this 27th day of September 1906.

MERTON D. BLAKESLEE.

Witnesses:

H. E. CHASE,

C. M. McCORMACK.