No. 880,119. PATENTED FEB. 25, 1908.

M. D. BLAKESLEE.

CAN FEEDING AND RIGHTING MACHINE.

APPLICATION FILED AUG. 24, 1906.

5 SHEETS—SHEET 1.

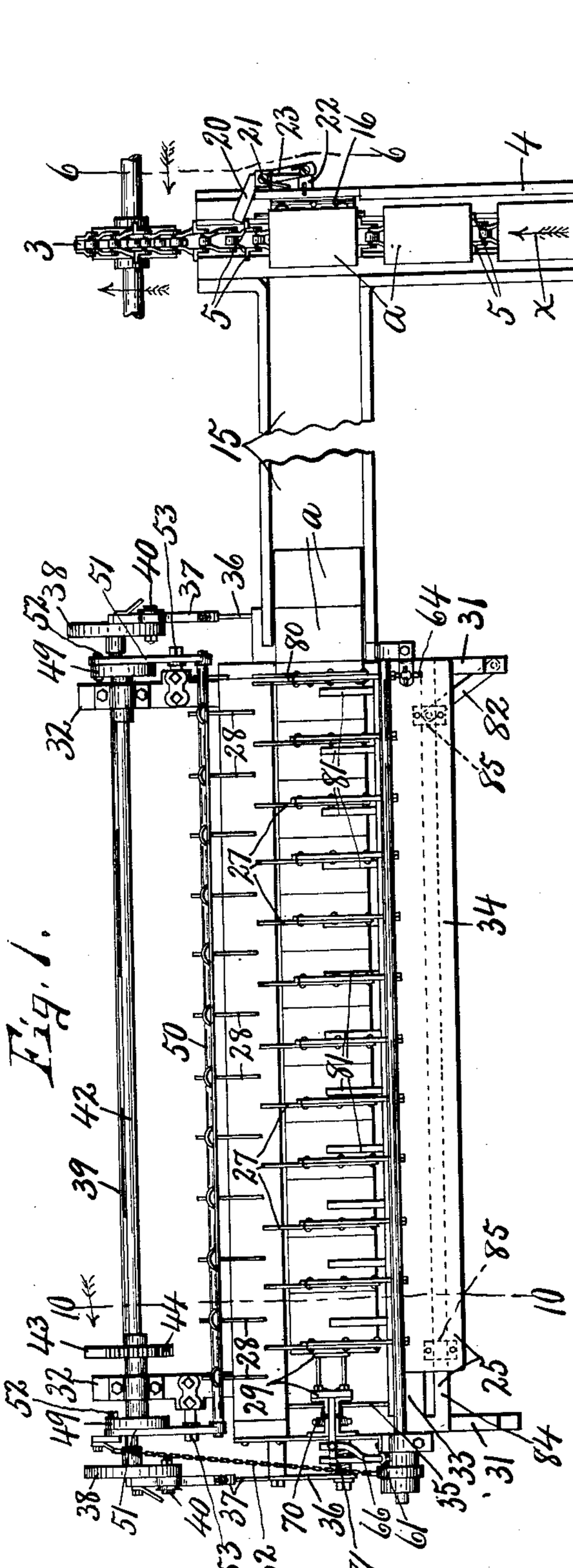

Fig. 1.

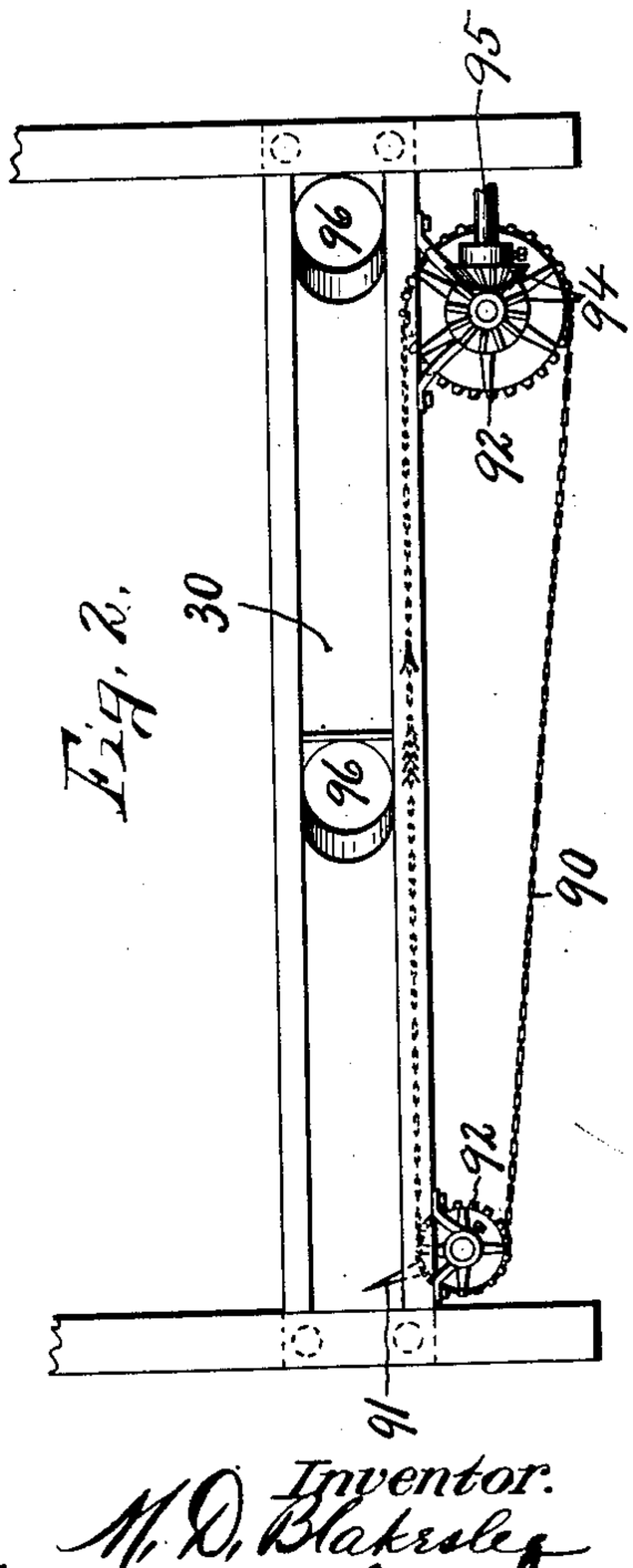

Fig. 2.

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Fig. 3.

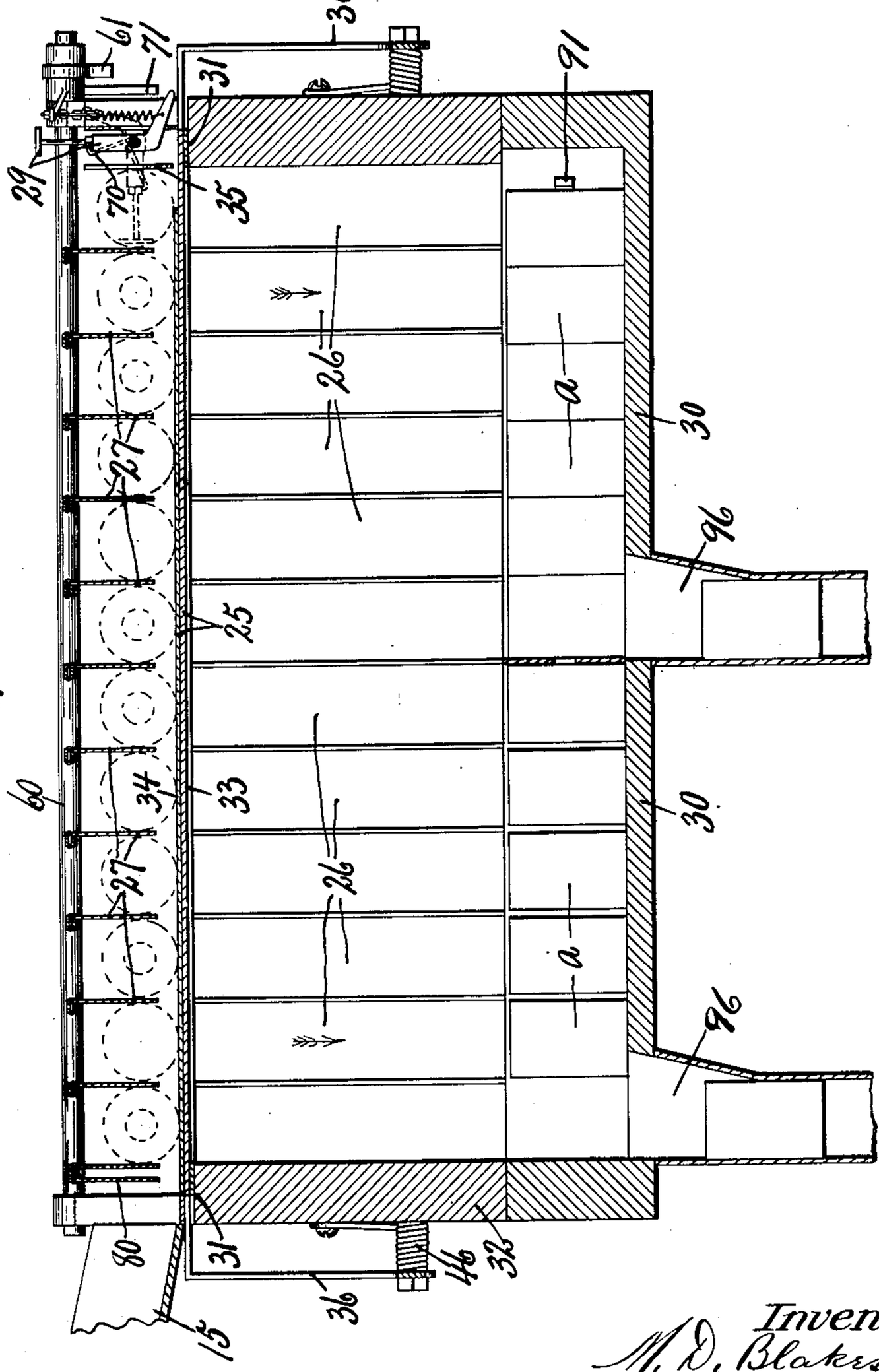

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Fig. 4.

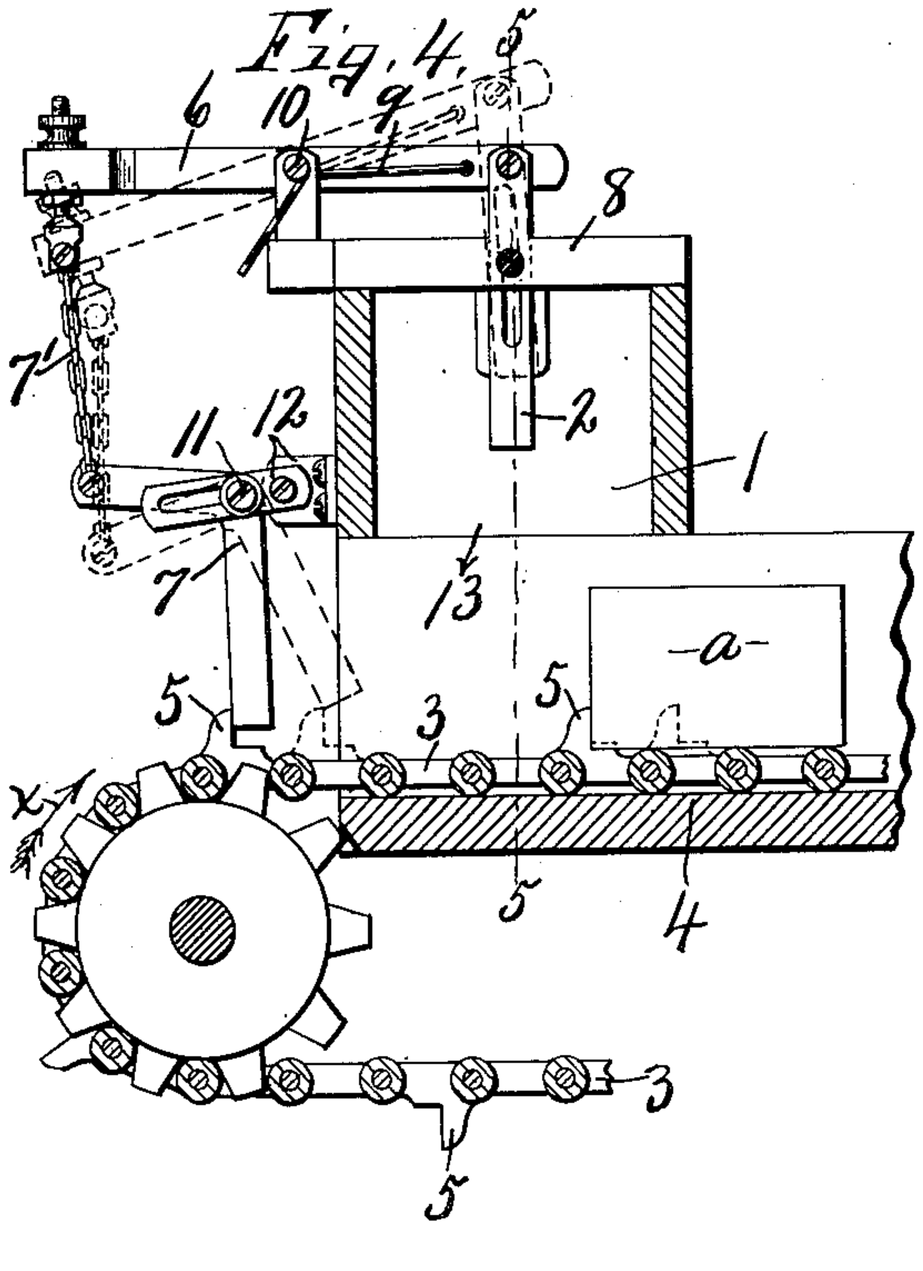


Fig. 5

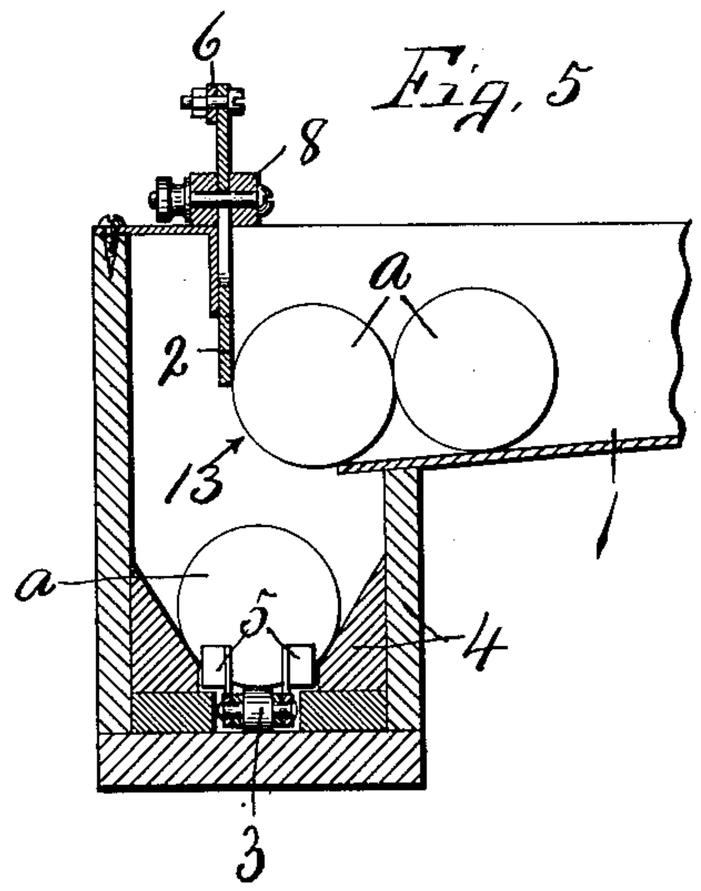


Fig. 6.

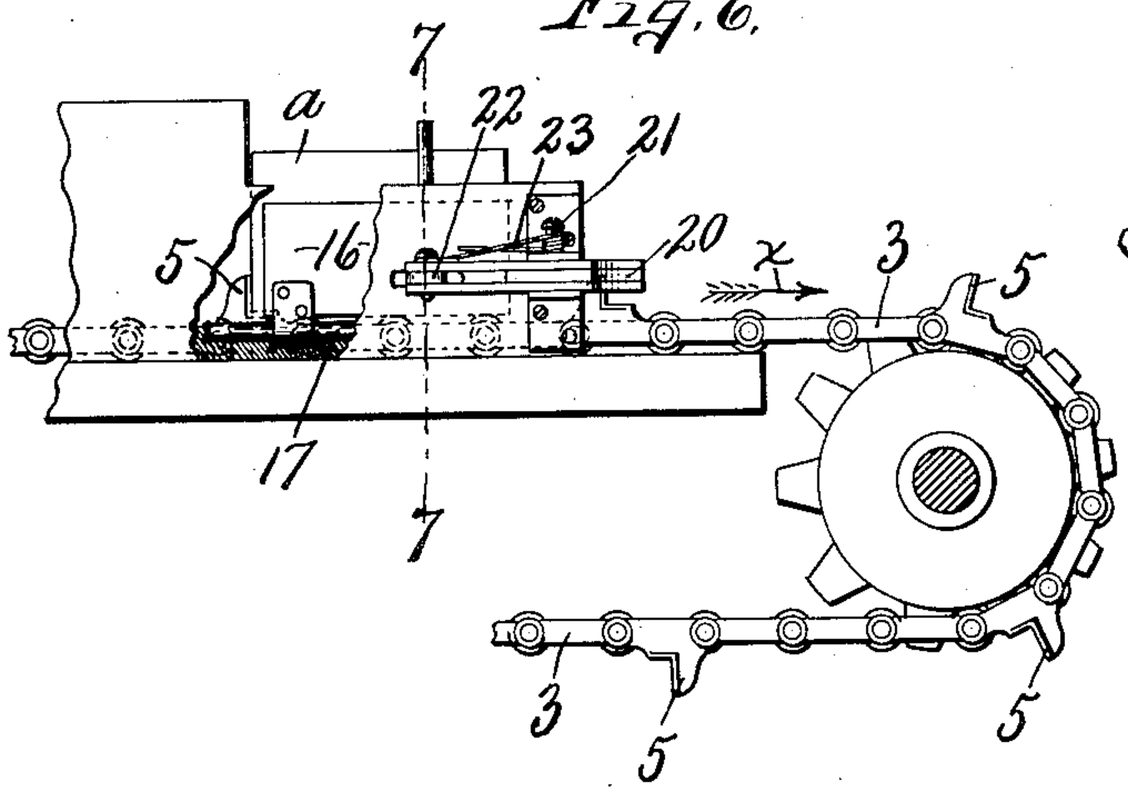
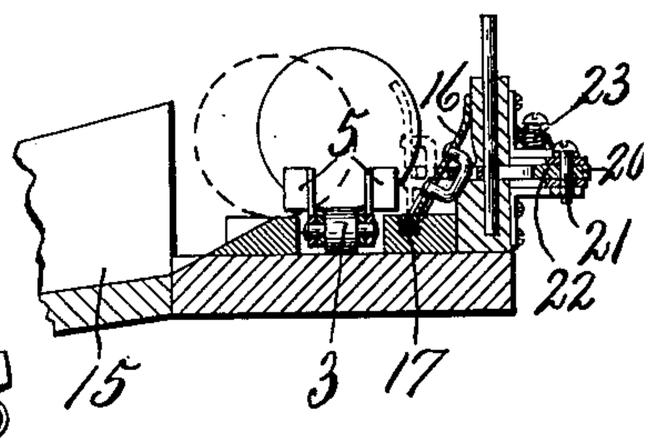


Fig. 7.



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5 SHEETS—SHEET 4.

Fig. 8.

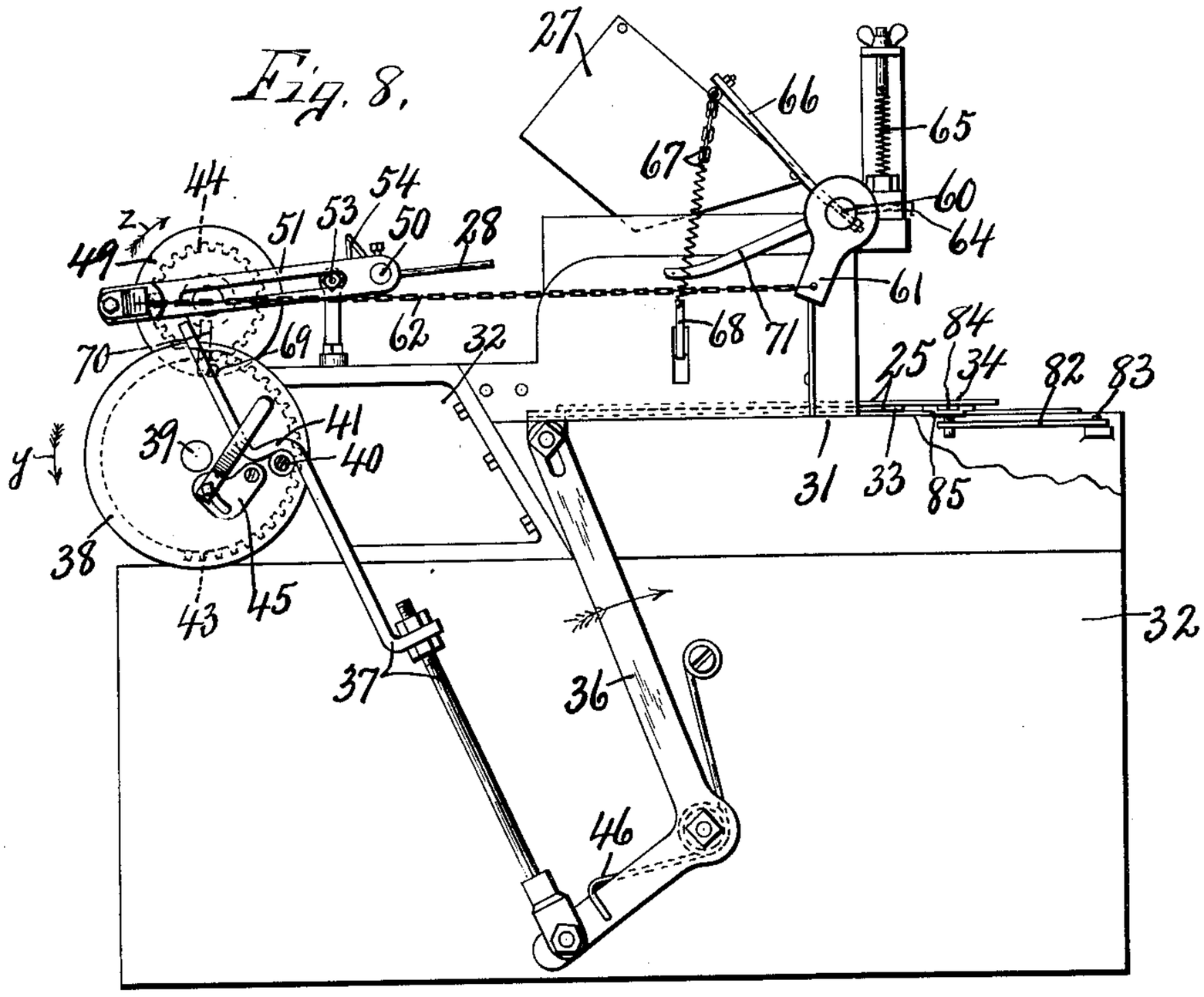
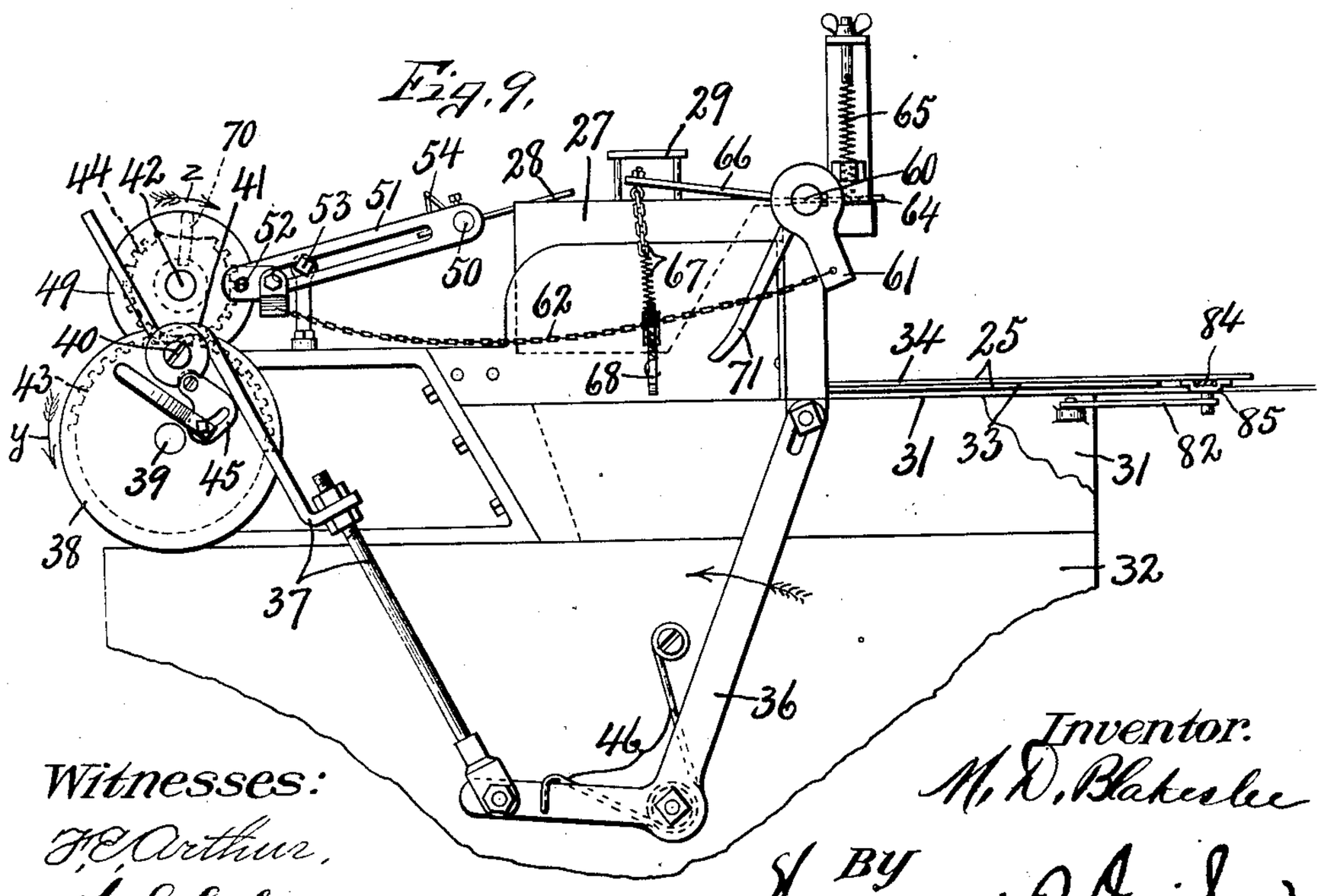


Fig. 9.



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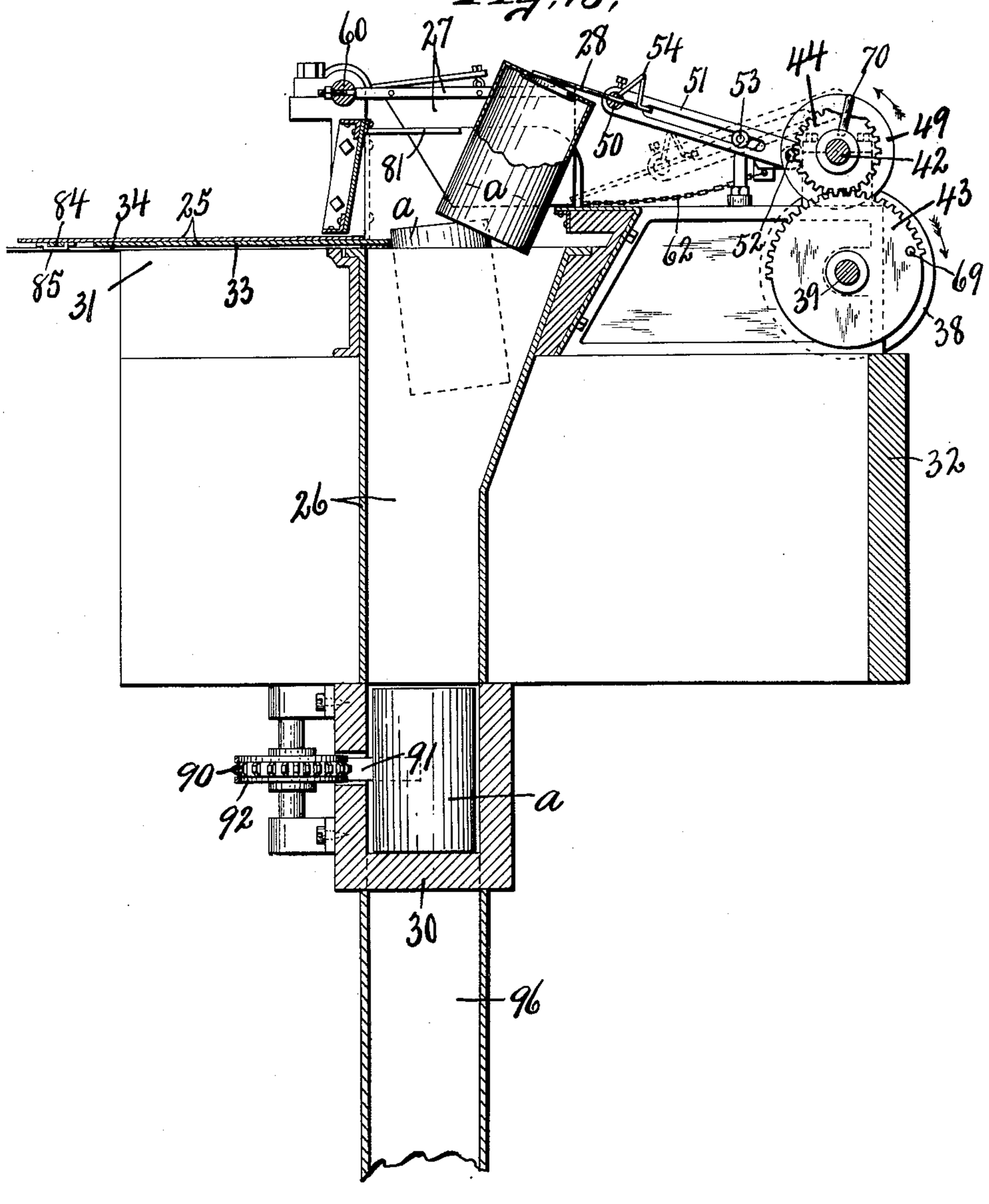
5 SHEETS—SHEET 5.

Fig. 10.



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UNITED STATES PATENT OFFICE.

MERTON D. BLAKESLEE, OF CAZENOVIA, NEW YORK, ASSIGNOR OF ONE-FOURTH TO HENRY BURDEN, SECOND, OF CAZENOVIA, NEW YORK.

CAN FEEDING AND RIGHTING MACHINE.

No. 880,119. Specification of Letters Patent. Patented Feb. 25, 1908.

Application filed August 24, 1906. Serial No. 331,888.

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 Feeding and Righting Machines, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to improvements in can-feeding and righting machines by which the empty cans are conveyed some distance from the source of supply and are automatically deposited upon a suitable supporting bed with their open sides uppermost ready to receive the material with which they are to be filled.

My object is to reduce the labor and cost of supplying cans right side up to the filler by providing automatic mechanism for righting the cans with their open sides at the top while in transit from the source of supply to the filler, thereby enabling the empty cans to be fed by hand, promiscuously into a hopper or chute at the source of supply and obviating the necessity for further attention to the cans while in transit to the filler.

A portion of my present device, relating to the righting of the cans, with their open sides uppermost, is similar to that disclosed in my pending application, Serial No. 303,004, filed February 26, 1906, but involves certain additions and improvements which makes it possible to feed the cans, one by one, from remote parts of the building without the employment of manual labor, except at the receiving station or source of supply where the empty cans are promiscuously, and therefore, rapidly dumped into a suitable hopper or chute leading to the righting mechanism.

The more specific objects of my present invention relate to certain detents and tripping devices whereby the cans may be automatically and successively arranged end to end, or side by side, and caused to travel in different directions before reaching the righting device proper, where they are separated and caused to gravitate right side up upon a suitable support leading to the filler.

Other objects relating to the righting device proper will be brought out in the following description.

In the drawings—Figure 1 is a top plan of my improved can-feeding and righting machine. Fig. 2 is a top plan of the detached supporting bed upon which the cans are finally deposited right side up, showing also the means for feeding said cans from said support. Fig. 3 is an enlarged longitudinal sectional view through the righting device proper, showing the separate chutes through which the cans travel, right side up, upon the underlying support. Fig. 4 is an enlarged sectional view taken on line 4—4, Fig. 1. Fig. 5 is a sectional view taken on line 5—5, Fig. 4. Fig. 6 is an enlarged sectional view taken on line 6—6, Fig. 1. Fig. 7 is a sectional view taken on line 7—7—, Fig. 6. Figs. 8 and 9 are enlarged end views of the righting device proper, showing the separating blades and righting mechanism in different positions. Fig. 10 is an enlarged transverse sectional view taken on line 10—10, Fig. 1.

In this particular device the empty cans are placed promiscuously by hand, upon the upper end of an inclined chute —1— along which they gravitate against a vertically movable stop —2— at the low end of said chute where they are temporarily held before delivery upon an endless conveyer —3—, which, in this instance, travels along the bottom of a guide —4— at substantially right angles to the chute —1— and is provided with upwardly projecting abutments —5— spaced a uniform distance apart somewhat greater than the length of the can, as best seen in Figs. 1, 4 and 5. The lower outlet end of the chute —1— is disposed in a plane a sufficient distance above the conveyer —3— to permit the cans to travel freely thereunder when engaged by the abutments —5—. The detent —2— is movable vertically into and out of the path of the descending cans and is actuated in its vertical movement by means of a lever —6— and bell-crank —7— which is flexibly connected to said lever by a chain or equivalent link —7′. This detent —2— is guided in its vertical movement upon a suitable support —8— and is held in its downward or holding position by means of a spring —9— acting upon one end of the lever —6—, the latter being fulcrumed at —10— to a standard on the support —8—.

The bell-crank —7— constitutes what may be termed a "tripping-pawl" which is adjustably fulcrumed at —11— upon a suitable support —12— and has one of its arms

projecting downwardly into the path of the moving abutments —5—, as best seen in Fig. 4, so that as the conveyer belt is moved in the direction indicated by arrow —*x*—, Fig. 4, the abutments —5— successively engage and rock the lower end of the tripping pawl or bell-crank —7— in the same direction thereby rocking the lever —6— through the medium of a connection —7′— and elevating the detent —2— against the action of the spring —9—. This elevation of the detent —2— allows the advance can engaged therewith to gravitate through an opening 13— in the bottom of the chute —1— and onto the conveyer belt 3— between two adjacent abutments 5—, one of which advances against the end of the can and carries it forwardly from beneath the opening —13— leaving a clear space for the reception of the succeeding can upon the conveyer belt. The tripping pawl —7— is adjusted with reference to the abutments —5— so that it elevates the detent —2— to release the can just after the preceding abutment has passed beyond the opening —13—, permitting the can to fall upon the conveyer slightly in advance of the abutment that last tripped the pawl —7—, which abutment engages the adjacent end of the can and moves it under the opening —13—.

The degree and time of movement of the tripping pawl —7— are regulated so that as soon as the detent —2— is elevated sufficiently, the abutment which engages the lower end of the tripping pawl —7— will have been moved by and out of the path of said pawl, permitting the detent and its actuating pawl to be rocked to their normal positions by the action of the spring —9— upon the lever —6—.

It is now obvious that the cans, as —*a*—, roll in succession down the inclined chute —1— and are deposited, one by one, upon the conveyer belt —3— which carries them forward in similar succession end to end along the guide —4— from which they are automatically discharged laterally into the upper end of a second inclined chute —15— which is located a predetermined distance from the outlet of the chute —1—. This second chute —15— opens into one side of the guide —4—, and directly opposite this opening is placed an oscillatory gate or sweep —16— which is hinged at —17— to the bottom of the guide —4— at one side of the path of movement of the cans opposite to that from which the chute —15— leads, said gate or sweep being actuated intermittingly or as the cans are successively presented to or alined with the adjacent end of th echute —15 to force the cans successively into said chute along which they gravitate to the righting device presently described.

The action of the gate or sweep —16— is controlled by a trigger —20— which is pivoted at —21— to a bracket on the guide —4— and has one end projecting into the path of and adapted to be successively engaged by the abutments —5 while its other end is connected by a link —22— to the gate —16—. The trigger —20— is adjusted so that as each can is brought into alinement with the gate —16— and adjacent open end of the chute —15— it is engaged and tripped by the preceding abutment —5, thereby operating said gate inwardly against the action of a spring —23— to force the adjacent can into the open end of the chute —15— along which it gravitates to the righting device previously mentioned. The trigger —20— and its actuating abutment are so related that as soon as the can is discharged by the gate —16— into the chute 15—the trigger is moved out of the path of its operating abutment, and together with the gate, is returned to its normal position by the spring —23— ready to divert the succeeding can from the guide —4— into the chute 15—. The cans are thus successively discharged side by side into the chute 15— along which they roll by gravity to the righting device.

Certain parts of the righting device are described in my pending application previously referred to, the essential elements of which consist of a horizontal can-supporting bed —25— which receives the cans from the lower end of the chute —15—and is movable back and forth across the open upper ends of a series of separate vertical can chutes —26—, a series of vertically movable blades —27— for separating the cans and alining them with their respective chutes —26—; and a series of can righting fingers —28— movable back and forth and vertically to enter and lift the open sides of the cans which may face the fingers to cause said cans to be precipitated right side up into their respective chutes —26—. The gravity of the cans causes them to roll against one another down the inclined chute —15— and upon the sliding bed —25— until the first advancing can encounters a vertically movable stop —29— at the opposite end of the bed —25—, as best seen in Fig. 1. The movement of the blades —27—, stop —29— and fingers —28— are synchronized in such manner that when the stop —29— is in its operative position for limiting the forward movement of the cans, the blades are raised above the path of movement of said cans and the fingers —28— are drawn back to their extreme positions away from the adjacent end of said cans, but immediately upon the elevation of the stop —29— to allow the cans to advance a further limited distance the blades —27— are caused to automatically descend between the cans to separate them and hold them in vertical alinement with their respective underlying

chutes, and at the same time the fingers —28— are caused to advance toward the adjacent ends of the cans so that if the open sides of said cans are presented to the fingers the latter will enter a slight distance into the can openings, thereby holding and slightly elevating the open end, during which operation, the sliding bottom —25— is withdrawn from under the cans allowing them to precipitate right side up into their respective chutes and upon an underlying bed —30 in position to be conveyed to a filler or other machine, not necessary to herein illustrate or describe. The can supporting bed —25— is mounted at its ends upon suitable guides —31— of the main supporting-frame —32— and consist essentially of a bottom plate —33— and a top plate —34, which latter is movable upon the upper surface of the lower plate —33—, and will be hereafter termed the agitator-plate, the object of which is to feed the cans forwardly a limited distance after the stop —29— has been elevated, or until the first advancing can is brought against a fixed limiting stop —35—, as best seen in Figs. 1 and 3. When the cans are brought to this position by their own gravity aided by the action of the agitator-plate —33 their meeting faces are disposed in nearly vertical alinement with the separating blades —27— so that during the descent of the latter they readily enter between the contiguous faces of the cans, thereby separating them one from the other and holding them in vertical alinement with their respective chutes —26— during the action of the righting fingers —28— and until the bottom —25— is withdrawn from under the cans.

The movement of the can-supporting bed —25— is also synchronized with the action of the separating blades —27—, as will be clearly brought out in the following description—: It is now apparent that the bed-plate —25— forms a continuation of the chute —15—. The lower plate —33— is actuated back and forth by means of bell-crank levers —36— located at opposite sides of the machine and actuated in one direction by links —37— and rotary disks —38— which are mounted upon a continuously rotating driving shaft —39— and are provided with studs —40— adapted to engage an offset —41— on the link —37—. Rotary motion is imparted from the driving-shaft —39— to a parallel shaft —42— through the medium gears —43— and —44— secured respectively to the shafts —39— and 42. The gear —43— is substantially twice the pitch of the gear —42— with which it meshes and has practically one-half of its teeth removed so that while the shaft —42 is rotated at substantially twice the speed of the driving shaft —39— it only makes one revolution at each complete revolution of the gear —43— and remains at rest during one-half of each revolution of the driving shaft for a purpose presently described.

As best seen in Fig. 8, the offset portion —41— of the link —37— normally lies in the path of the stud —40— so as to engage and lift the link —37— during substantially one-fourth of the revolution of the shaft —39—, thereby operating the levers —36— and bed-plates —25— connected thereto from their normal closed positions shown in Fig. 8 to their open position shown in Fig. 9. As the disks —38— continue to rotate the links —37— are forced out of operative connection with their respective studs —40— with suitable strips —45— which are adjustably mounted upon disks —38—, the object of such adjustment of the tripping devices —45— being to regulate the time of release or disengagement of the links —37— from the studs —40— and consequent return of the levers —36— and bed-plates —25— to their normal closed position, as effected by suitable retracting springs —46—. During the half revolution of the driving shaft —39— when the driven shaft is at rest, the sliding bed —25 is normally closed; the blades —37— are normally elevated above the path of the cans and the fingers —28— are normally drawn back to their extreme rearward positions, the action of the blades —27— and fingers —28— being primarily controlled by disks —49— on the driven shaft —42— in the manner presently described. The fingers —28— are slidably mounted in a rod or shaft —50— extending from side to side of the machine and having its ends rigidly secured in suitable rock-arms —51— having their rear ends pivotally connected at —52— to the disks —49—. The intermediate portions of the arms —51— are slotted to receive fixed fulcrums —53— which are mounted upon the main supporting frame —32— between the rod or bar —50— and driven shaft —42—, these fulcrums being located in a plane nearly co-incident with the direct line drawn between the axis of the driven shaft —42— and center of the cans when resting upon the bed-plate —25—.

It is now evident that when the disks —49— are rotated from their normal or starting positions, in the direction indicated by arrow —*x*—, the rear ends of the arms —51— are elevated and carried forward, thereby depressing the fingers —28—, and at the same time forcing them forwardly into engagement with the adjacent ends of the cans, and as the disks —49— continue to rotate through the first half revolution, throwing the fingers —28— from their extreme rearward to the extreme forward positions, the fingers which engage the closed ends of the cans will be forced back through the rod —50— against the action of their retracting springs —54—, while the open ends of the

cans which face the fingers will be entered by such fingers and will thereby be elevated or tilted upwardly during the next quarter revolution of the disks —49—, at which time the cans entered by their respective fingers will be brought nearly to an upright position, right side up, or with their open sides at the top so that as the can supporting-bed —25— is withdrawn from one of the cans those having their closed ends facing the fingers will gradually tilt bottom downward upon the receding edge of said bed and fall right side up into their respective chutes —26—, while those cans into the open ends of which the fingers —28— have been forced will simply be held with their open sides uppermost until the supporting table is entirely withdrawn from under the same. During the last one-quarter revolution of the disks —49—, during which time the can-supporting bed —25— is completely open the fingers —28— are withdrawn from the open ends of the cans which they are holding, thereby releasing such cans and allowing them to fall by gravity right side up into their respective chutes —26—.

The blades —27— are arranged side by side a predetermined distance apart substantially equal to the diameter of the can and are secured at one end to a rock-shaft —60— having a radially projecting arm —61— which is connected by a chain or other flexible connection —62— to one or the arms —51— near its connection with the disk 49—, said rock-shaft —60— being provided with an additional arm —64—, which is connected to a spring —65— for aiding and accelerating the descent of the blades —27— between the cans. The flexible connection —62— is so adjusted that when the disk —49— is in its normal or starting position, as seen in Fig. 8, the arm —51— is drawn to its extreme rearward position, thereby tightening the cable —62— and rocking the arm —61— and shaft —60—, and elevating the blades —27— to their extreme up-positions against the action of the spring —65—. These blades —27— and fingers —28— remain in their normal positions, shown in Fig. 8, during practically half of a revolution of the driving shaft —39— and its disks —38—, or while the can supporting bed —25— is closed across the open upper ends of the chutes —26—, thereby allowing a free passage for the cans across and upon said bed. While these parts just described are in their normal position the stop —29— is rocked to its operative position by an arm —66— on the rock-shaft —60—, said arm being connected by a yielding flexible connection —67— to one end of a lever —68— upon which the stop —29— is mounted.

The gear —43 is provided with a pin —69— adapted to engage a radially projecting pin —70— on the gear —44— at about the same time that the stud or shoulder —40— is brought into lifting engagement with the offset —41— of the link —37— so that after each interval of rest of the gear —44— and its driving shaft —42— the disks —49— begin to rotate at about the same time that the stud —40— engages the offset —41— of the link —37— causing simultaneous action of the can-supporting bed —25—; blades —27—; fingers —28—, and stop —29—; that is, immediately upon the initial forward movement of the fingers —28— the cable —26— is slackened, allowing the stop —29— to be immediately thrown upwardly by a retracting spring —70— aided by an arm —71— on the rock-shaft —60—, which arm engages and depresses the outer end of the lever —68— upon which the stop is mounted. This tripping of the stop —29— allows the cans to move a slight distance further against the stop —35— in position to receive between them the blades —27— which are now released and descend by gravity aided by the spring 65, thereby separating and alining the cans with their respective chutes —26—. During this upward movement of the stop and downward movement of the blades the can-supporting bed —25— is being drawn backwardly by the lever —36— and the fingers 28— are being advanced against the adjacent ends of the cans. These cans normally rest upon the bed-plates —25— directly above their respective chutes, and it is obvious that when the bed-plate is withdrawn from under the cans those having their closed ends facing the fingers —28— will tilt bottom downwardly upon the receding edge of the plate —25— and fall right side up into their respective chutes, while those having their open sides facing said fingers are entered by said fingers, as best seen in Fig. 10, thereby temporarily supporting and elevating the open ends of the cans during the recession of the bed —25—, and as soon as said bed has receded sufficiently to allow the latter cans to drop into their respective chutes the fingers —28— are withdrawn from the open ends of the cans, thereby releasing the latter allowing them to fall right side up into their respective chutes.

The fingers —28— are all guided in suitable apertures in the bar —50— and are normally projected outwardly by comparatively light springs —54— so that those fingers which engage the closed end of the cans are forced backwardly against the action of their springs —54— although the frictional contact of the fingers with the closed ends of the cans is insufficient to prevent the free gravitation of said closed ends downwardly into the chutes. This operation of righting the cans by the fingers —28— takes place while the supporting-bed —25— is being withdrawn from its normal closed to

its open position, as shown in Fig. 10, that is, the fingers —28— are moved from their extreme rearward to their extreme forward positions during a quarter turn of the disks —38—, or rather from the time that the studs —40— engage the offset —41—, until the interlocking connection between said stud and link —37— is broken by the trip —45—, at which time the can-supporting bed is instantly returned to its closed position by the retracting spring —46—. It is obvious that under this action of the can supporting bed and tripping fingers the cans are instantly precipitated into their respective chutes even before the supporting bed is withdrawn to its limit so that the cans which formerly rested upon the bed are all precipitated into their respective chutes before the return of the supporting bed to its closed position ready to receive another series of cans.

While the can supporting bed is open the blades 27— are down and in order that the cans in the inclined chute 15— may be temporarily held back while the bed —25— is open, I provide the rock-shaft —60— with a stopblade 80— near the discharge end of the chute 15— and against which the cans rolling down said chute abut when the blades 29— are down.

In order to prevent the upward displacement or buckling of the cans while rolling along and upon the bed —25— I provide a series of horizontal stop fingers or presser-bars —81— which are secured to a fixed portion of the frame —32—, as best seen in Figs. 1 and 10. I preferably provide one of these fingers for each can and arrange them directly over the path of said cans when rolling against the abutment —29—.

The supplemental bed-plate —34— has a horizontal vibratory or oscillatory movement which is brought about by means of a link —82— having one end pivotally connected to a plate —34— and its other end pivotally attached at —83— to the main supporting frame —32— so that as the main bed-plate —33— is reciprocated back and forth across the upper ends of the chutes —26— the supplemental plate —34— which frictionally engages the top face of the main plate —33— is similarly moved back and forth and is at the same time moved endwise by the link —82— to shift the cans which rest thereon toward the stop —35—. This auxiliary or supplemental plate —34— has sliding interlocking connection with the main supporting bed —33— by means of a bar —84— and clips —85—, as best seen in Figs. 8, 9 and 10, the bar —84— forming a part of the plate —33—, and also forming a guide for the longitudinal movement of the plate —34— upon the plate —33—.

The operation, briefly described is as follows: The cans are fed promiscuously into the chute —1— along which they roll by gravity and are automatically deposited end to end upon the traveling carrier —3— by which they are conveyed to the second inclined chute 15— into which they are automatically discharged in succession, and along which they roll by gravity upon the supporting bed —25— until the first advancing can engages the stop —29—. During this feeding of the cans upon the bed —25— the blades —27— are, of course, elevated and the selecting fingers —28— withdrawn to their extreme rearward position, these parts remaining in such positions during practically a half revolution of the disks —38— and driving shaft —39—, thus allowing ample time for the cans to accumulate upon the bed —25—, whereupon the stud —40— engaging the link 37 operates the levers —36— to throw the can supporting bed —25— forwardly to uncover the chutes —26—, and at the same time the stop —29— is elevated to allow the cans to move against the stop —35— and the blades —27— are then released by the advance movement of the arms 51— and fingers —28—, allowing the blades —27— to descend into and hold the cans in registration with their underlying chutes, the stop-blade —80— serving to temporarily check the further movement of the cans from the chute 15— onto the receding bed. As the can supporting bed 25— is continuous it is withdrawn from under the cans those having their closed ends facing the fingers —28— tilt bottom down over the receding edge of the bed into their respective chutes while those which have their open ends facing the fingers 28— are entered by said fingers and the open ends are elevated by the continued rocking movement of the arms —51—, causing said cans to be tilted bottom downward and to fall into this position into their respective chutes. The support —30 is provided with one or more openings —96— into which the cans are successively fed by fingers 91— on an endless belt —90— which is mounted upon sprocket wheels —92— and is driven by suitable gears —94— and a driving shaft —95—, as best seen in Fig. 2.

What I claim is:

1. In a can-righting machine, an inclined chute along which the cans are adapted to roll, a carrier running transversely of and in proximity to the low end of said chute and receiving the cans therefrom, a detent at the low end of the chute for temporarily holding the cans in said chute, means actuated by the carrier for tripping the detent, automatic means actuated by the carrier for removing the cans one by one therefrom as they are brought to a predetermined position, and a can righting device for receiving the cans from the carrier and arranging them right side up.

2. In a can-righting machine, a can chute having an outlet, a movable detent in the path of the cans near the outlet, a conveyer for receiving the cans from said outlet, means actuated by the conveyer for tripping the detent to permit the cans to gravitate in succession onto the conveyer, means actuated by the conveyer for automatically forcing the cans therefrom when brought to a predetermined position, and a can-righting mechanism receiving said cans from the conveyer and arranging them right side up with their open ends at the top.

3. In a can-righting machine, an inclined can-chute having an outlet, a detent projecting into the chute in the path of the cans near the outlet, a conveyer traveling under the outlet, means actuated by the conveyer for tripping the detent at regular intervals to allow the cans to gravitate one by one onto the conveyer, means for automatically forcing the cans, one by one, from the conveyer when brought to a predetermined position, a can-righting mechanism and means for receiving the cans from the conveyer and carrying them to the righting device.

4. In a can-righting machine, a can chute having an outlet at its low end, a conveyer adapted to receive the cans discharged through said outlet, and to arrange them end to end thereon, a detent movable into and out of the path of the cans at the outlet, abutments on the conveyer for engaging the ends of the cans and feeding them endwise, and means actuated by said abutments for tripping the detent at regular intervals.

5. In a can feeding and righting machine, an inclined chute having an outlet at its lower end, a conveyer traveling under the low end of the chute for receiving the cans and conveying them away from said chute, means at the low end of the chute and actuated by the conveyer for feeding the cans one by one from the chute onto the conveyer, a swinging gate actuated by the conveyer for forcing the cans laterally from said conveyer as they are successively presented thereto, and a can righting mechanism receiving the cans as they are successively discharged from the conveyer by said gate.

6. In a can feeding and righting machine, an inclined chute along which the cans are adapted to roll, a carrier running transversely of and in proximity to the low side of the chute and receiving the cans therefrom, a detent at the low end of the chute for temporarily holding the cans in said chute, means actuated by the carrier for tripping the detent whereby the cans are fed one by one upon the conveyer, an inclined chute leading laterally from one side of the conveyer, a swinging gate in line with the open end of the latter chute but at the opposite side of the conveyer for forcing the cans one by one from the conveyer in the latter chute as they are successively presented to the gate, means on the conveyer for actuating said gate, and a can righting mechanism receiving the cans from the last named chute.

7. In a can-righting machine, an inclined chute, means to feed the cans successively to the chute, and additional means actuated by the can-feeding means for forcing the cans into the chute as they are successively presented to the second named means, and a can-righting device for receiving the cans from said chute and arranging their open ends uppermost.

8. In a can-righting machine, an endless carrier for feeding a series of cans successively in one direction, a chute leading from one side of the conveyer, a swinging gate movable transversely of the path of movement of the conveyer for forcing the cans into said chute, means actuated by said conveyer for operating the gate, and additional means for receiving the cans from the chute and arranging them with their open ends uppermost.

9. In a can-righting machine, an endless carrier having abutments thereon spaced a uniform distance apart for engaging the cans and feeding them successively in one direction, means actuated by said abutment for forcing the cans one by one from the conveyer as they are successively presented at a given point, and additional means for receiving the can which are forced from the conveyer and arranging them with their open ends uppermost.

10. In a can-righting machine, an endless conveyer having a series of abutments spaced a uniform distance apart for engaging the ends of the cans and feeding them successively in one direction, a gate movable transversely across the upper face of the conveyer for forcing the cans therefrom when presented at a given point in the line of travel of said conveyer, means actuated by said abutments for operating said gate, an inclined chute leading laterally from the conveyer at the side of the conveyer opposite the gate, and a can-righting mechanism receiving the cans from the chute and arranging them with their open ends uppermost.

11. In a can-righting machine, a series of upright can chutes, a can supporting bed movable across the upper open ends of said chutes, and having an independent vibratory movement, means to actuate said bed, additional means to right the cans with their open ends uppermost while the can supporting bed is being withdrawn from the upper ends of the chutes whereby said cans are allowed to fall bottom downward into their respective chutes.

12. In a can-righting machine, a series of can-chutes arranged side by side, a can-sup-

porting bed movable back and forth across the open ends of said chutes, means for actuating said bed, additional means to feed the cans upon the bed when covering the open ends of the chutes, stop fingers overhanging the bed to prevent upward displacement of the cans, and means for causing said cans to gravitate bottom downward into their respective chutes.

13. In a can-righting machine, a series of upright can chutes arranged side by side, a can supporting bed covering the upper ends of the chutes, means to feed a predetermined number of cans upon the bed directly over the chutes, a vertically movable stop engaging the first advancing cans as they travel across the bed, means for withdrawing the can supporting bed from under the cans, additional means for elevating the stop at about the same time that the bed begins to be withdrawn, a series of supporting blades and means for forcing them between the cans immediately upon the elevation of the stop, a series of fingers and means for actuating the same to cause said fingers to engage one end of the cans and to enter those having their open ends facing the fingers, and means for elevating the fingers after engaging the cans, whereby those having their open ends facing the fingers are tilted right side up and allowed to drop by gravity onto their respective chutes, while those having their closed ends facing the fingers tilt by gravity upon the receding edge of the supporting bed and fall right side up into their respective chutes.

14. In a can righting machine, a series of can chutes, a can supporting bed covering said chutes, means to feed the cans upon the bed in vertical alinement with their respective chutes, means to move the bed to one side of the chutes from under the cans whereby the cans having their closed ends facing in one direction are caused to gravitate bottom downward into the chutes, and additional means at the opposite side of the chutes for engaging and elevating the open ends of the cans to allow them to drop bottom downward into their respective chutes.

15. In a can righting machine, a can supporting bed and a series of underlying can chutes, said bed having a supplemental plate movable back and forth and laterally, means for feeding the cans upon the supplemental plate; additional means for moving the bed in one direction at one side of the chutes to permit the cans having their closed ends facing in the opposite direction to fall by gravity bottom downward into the chutes, and a series of yielding fingers at the opposite side of the chutes adapted to enter the adjacent open ends of the cans and to elevate them so as to cause them to fall bottom downward into the chutes, and means for actuating said fingers.

In witness whereof I have hereunto set my hand this 13th day of August 1906.

MERTON D. BLAKESLEE.

Witnesses:
H. E. CHASE,
MILDRED M. NOTT.