No. 753,824. PATENTED MAR. 1, 1904.

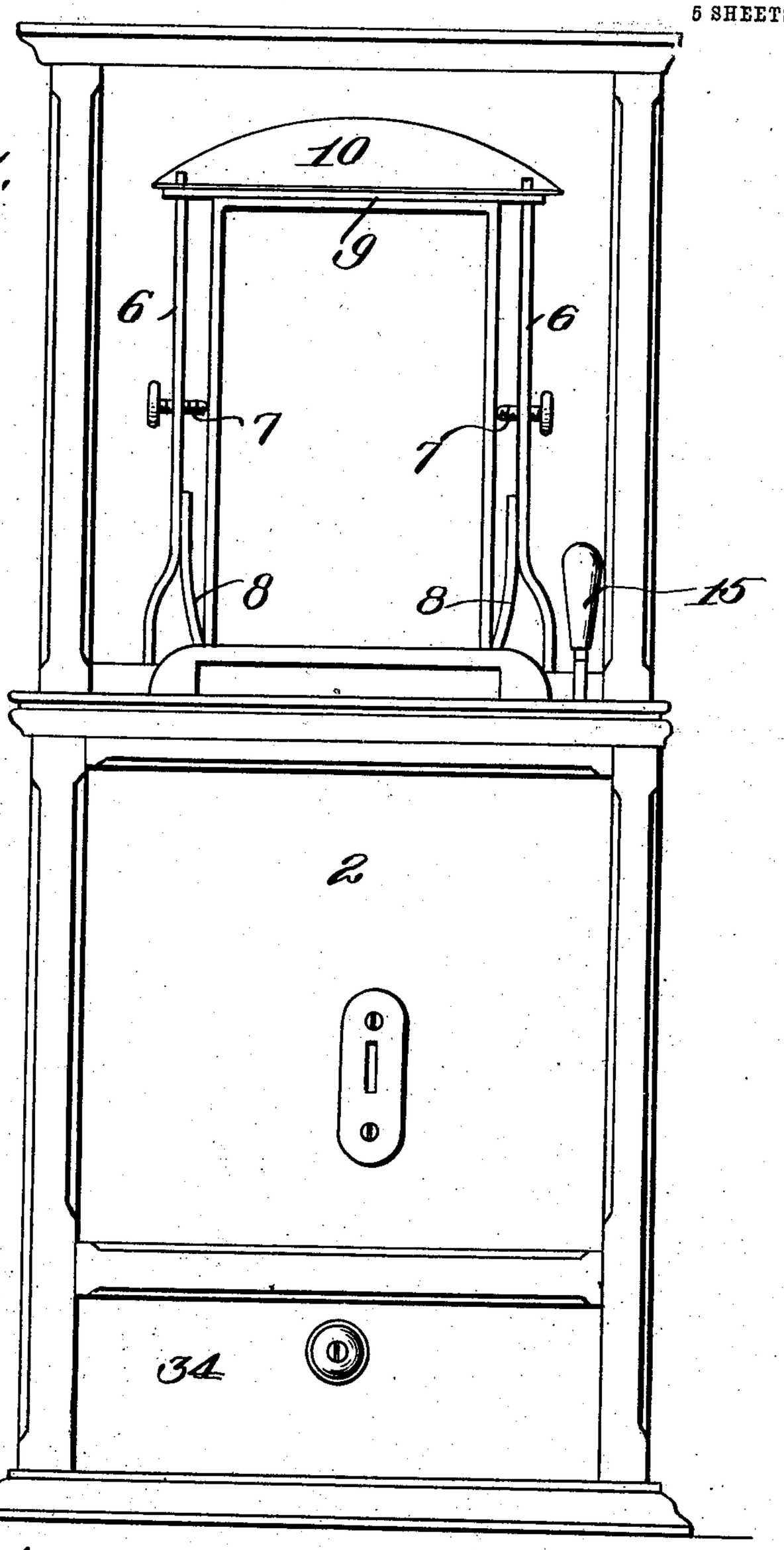
Y. Q. CALDWELL & L. M. MARTIN.

VENDING MACHINE.

APPLICATION FILED JULY 14, 1903.

NO MODEL. 5 SHEETS—SHEET 1.

Fig. 1.



Witnesses:
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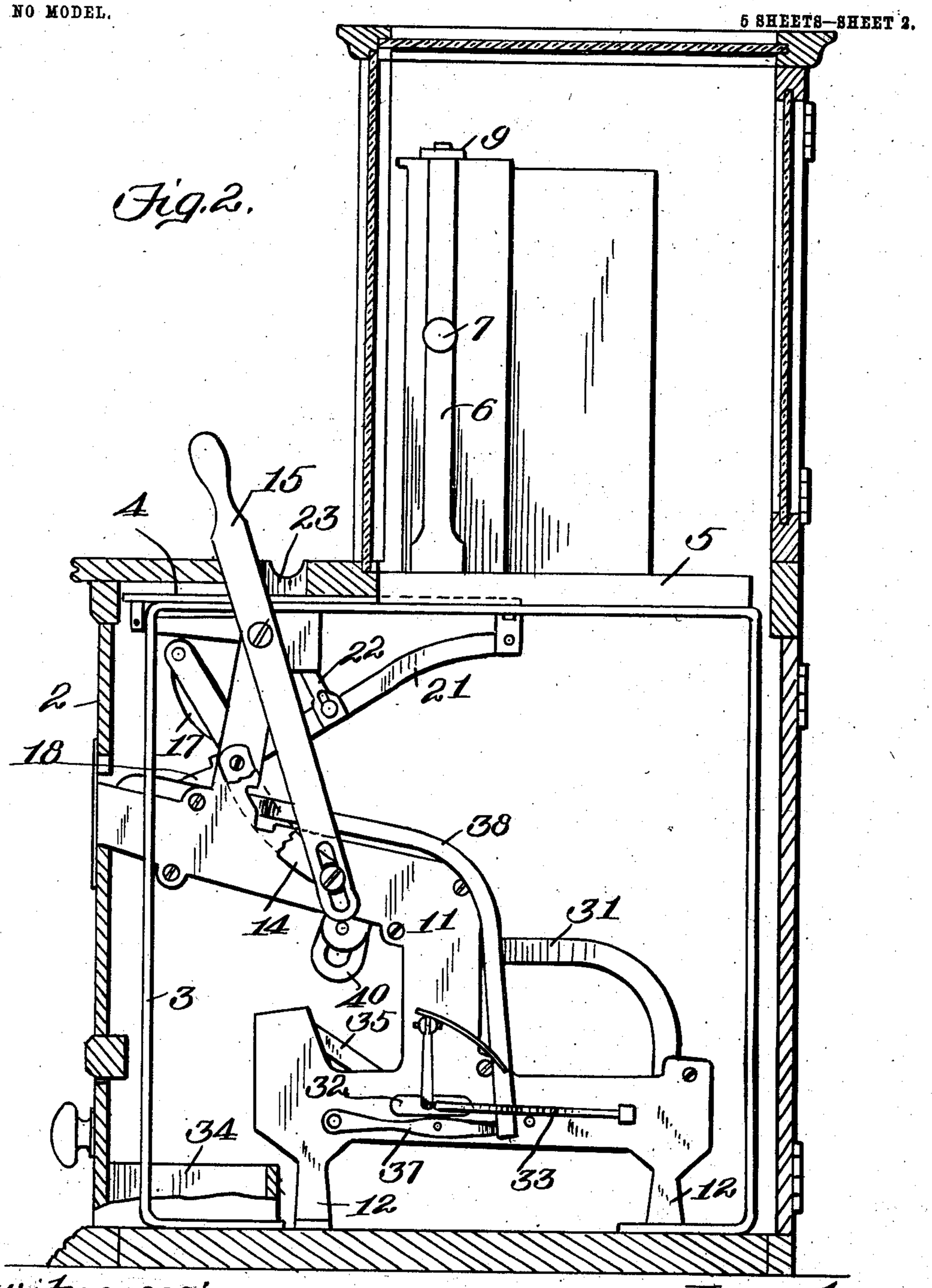
NO MODEL. 5 SHEETS—SHEET 2.

Fig. 2.



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NO MODEL.

5 SHEETS—SHEET 3.

Fig. 3.

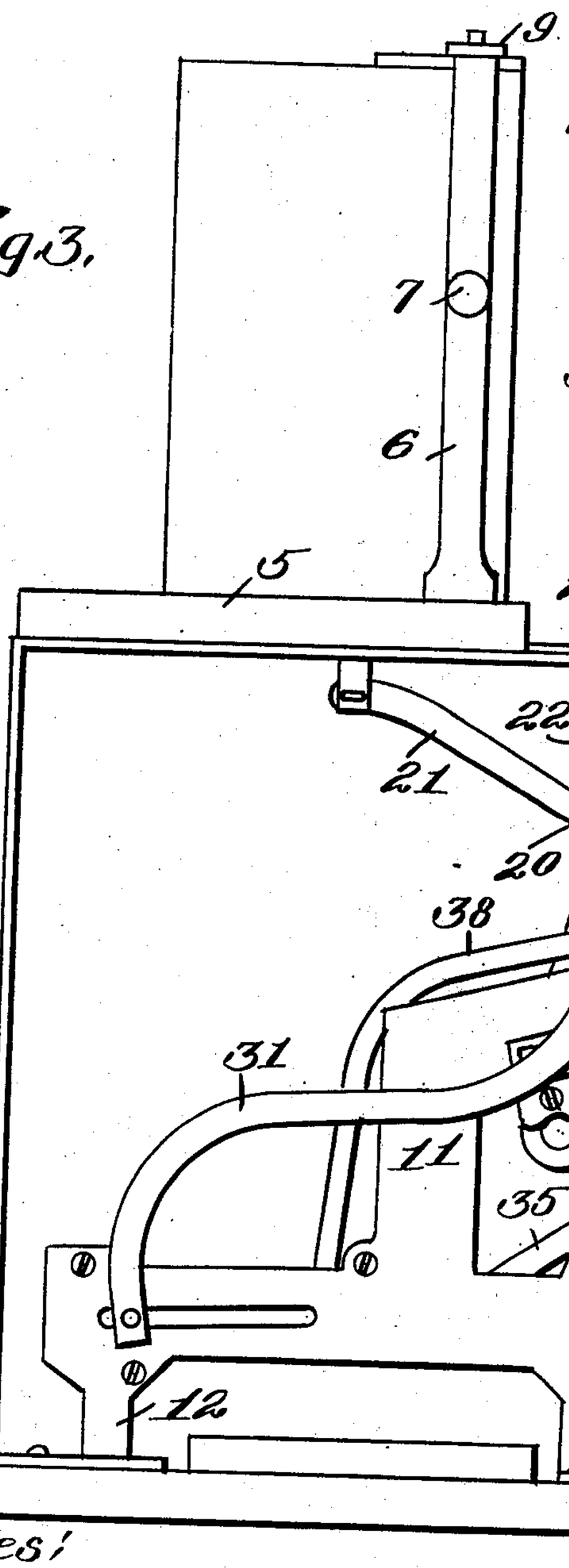

Fig. 4.

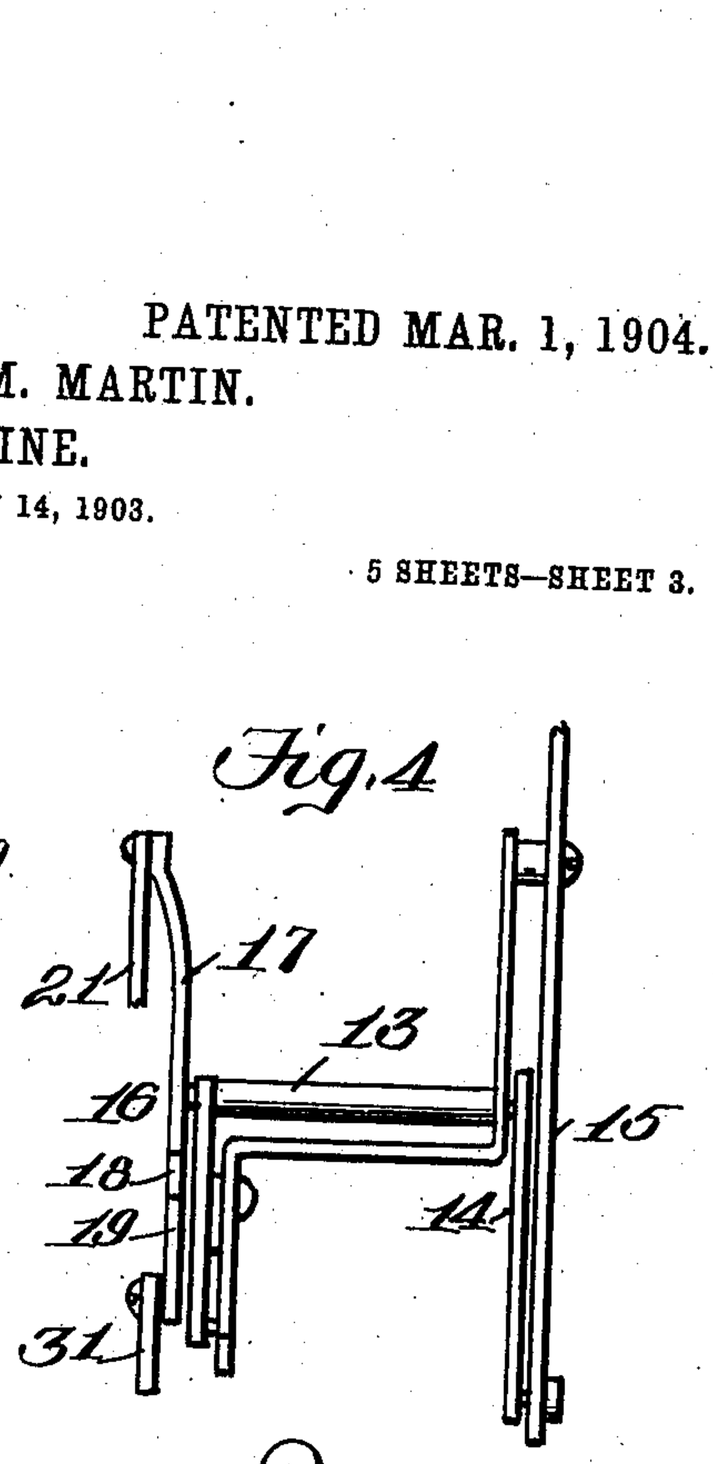

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Fig. 5.

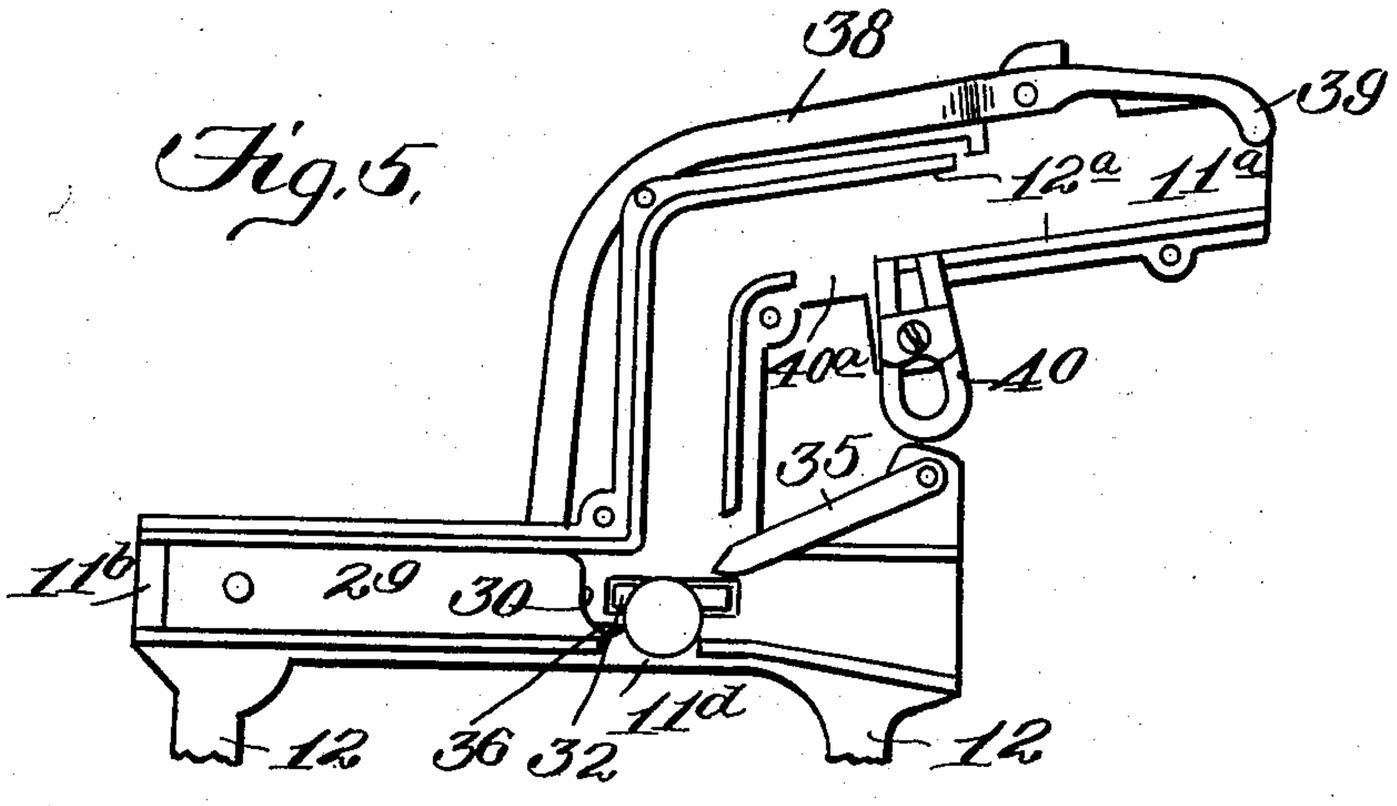


Fig. 6

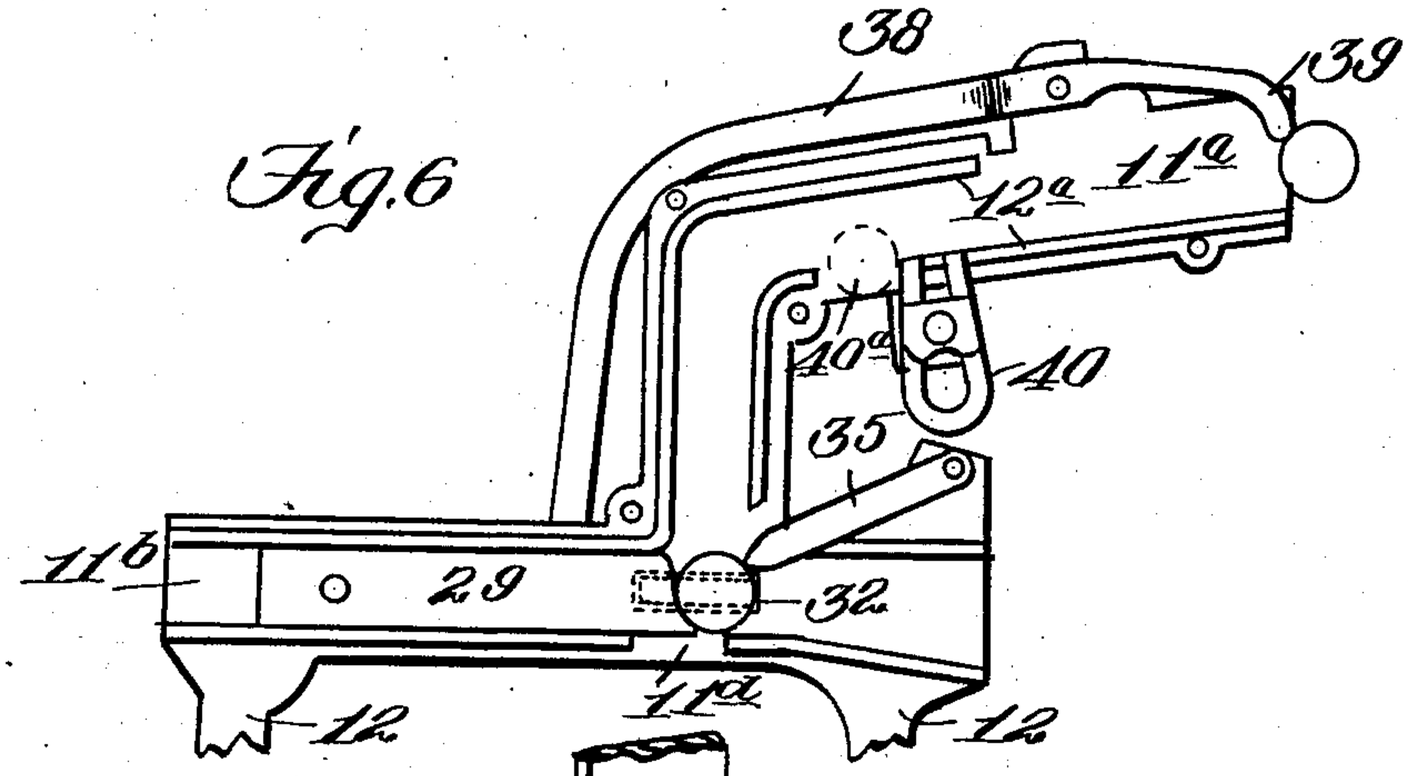
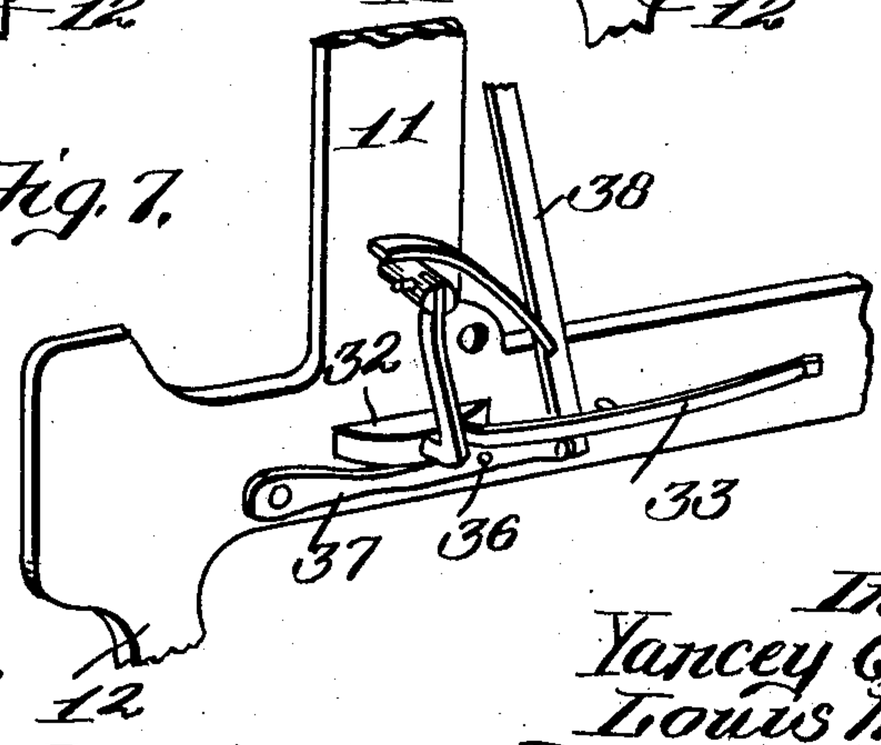


Fig. 7.



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NO MODEL. 5 SHEETS—SHEET 5.

Fig. 8.

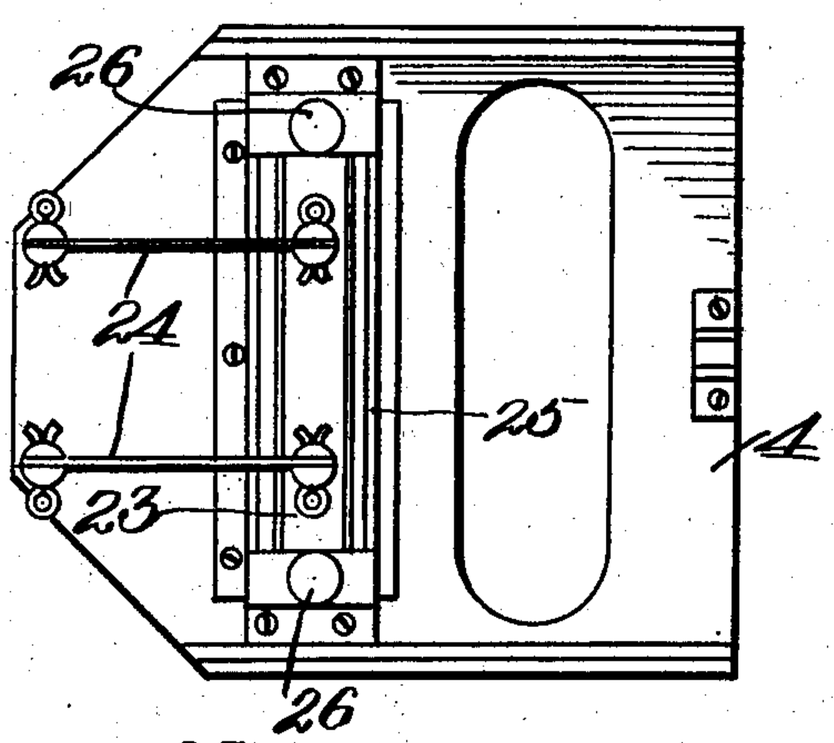


Fig. 9.

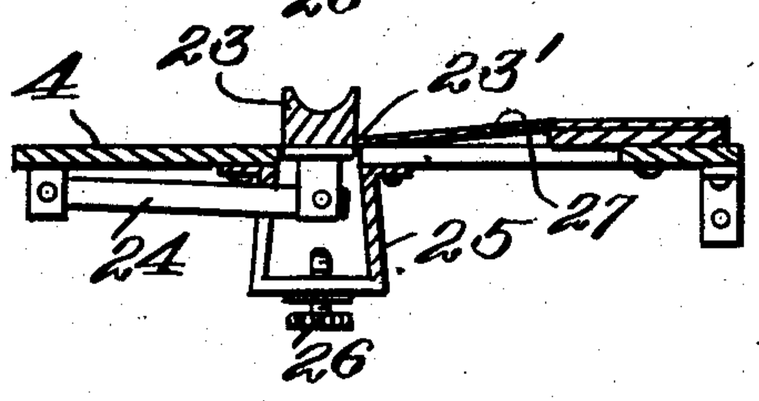
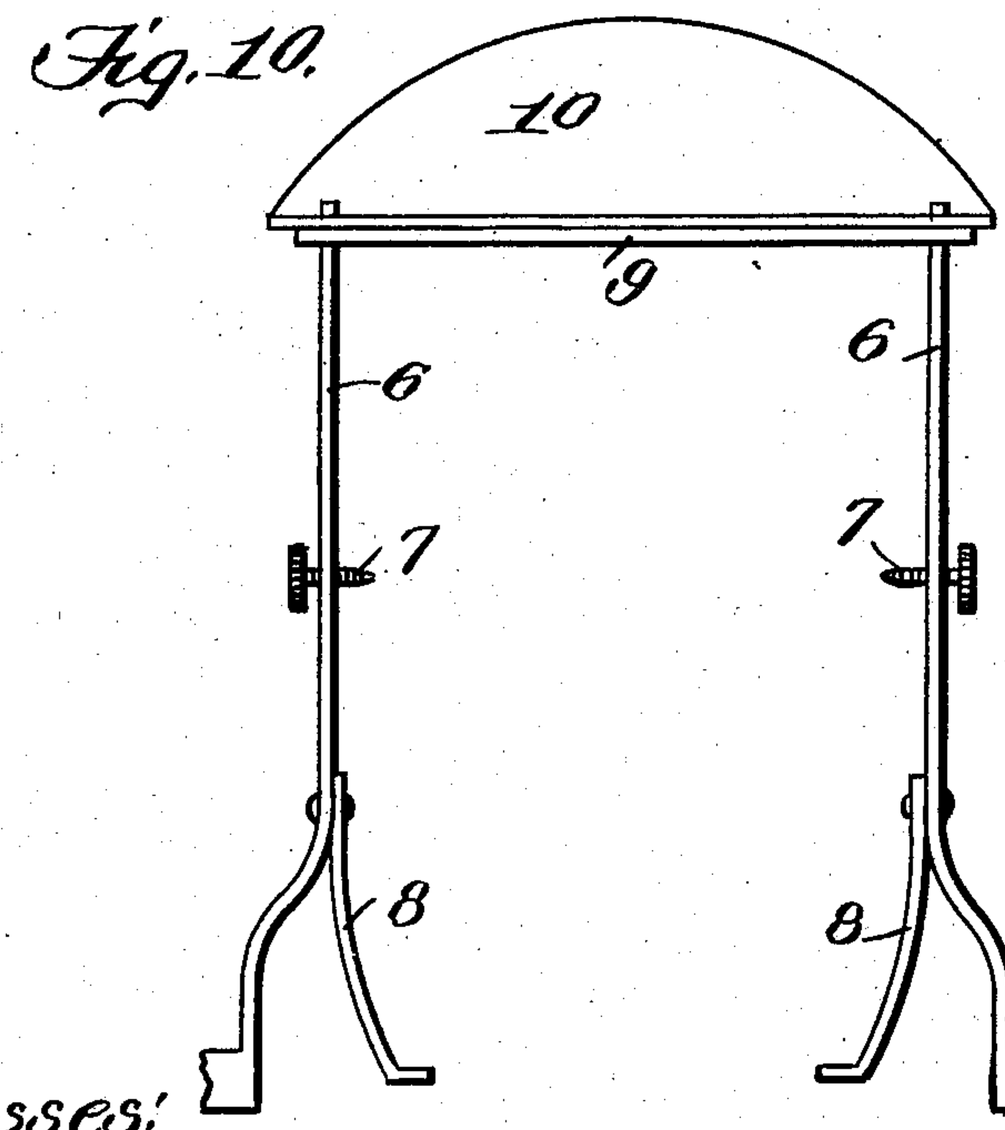


Fig. 10.



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No. 753,824. Patented March 1, 1904.

UNITED STATES PATENT OFFICE.

YANCEY Q. CALDWELL, OF PARIS, AND LOUIS M. MARTIN, OF MARTIN, TENNESSEE, ASSIGNORS OF ONE-THIRD TO FREDERICK G. HARTELL, OF CHICAGO, ILLINOIS.

VENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 753,824, dated March 1, 1904.

Original application filed May 6, 1903, Serial No. 155,897. Divided and this application filed July 14, 1903. Serial No. 165,473.

(No model.)

To all whom it may concern.

Be it known that we, YANCEY Q. CALDWELL, residing at Paris, in the county of Henry, and LOUIS M. MARTIN, residing at Martin, in the county of Weakley, State of Tennessee, citizens of the United States, have invented certain new and useful Improvements in Vending-Machines, of which the following is a specification.

This invention relates to a vending-machine.

The present application is a division of our application, Serial No. 155,897, filed May 6, 1903.

The apparatus is primarily intended for vending cigars, and the check by which the vending mechanism is governed in the present case is a nickel or five-cent piece; but the invention is not limited in either of these respects, for certain features of the apparatus may be used in other connections and the parts may be so organized that an article other than a nickel may be employed for causing the operation of the device.

In the drawings accompanying and forming a part of this specification we have illustrated one simple and convenient adaptation of the apparatus. We desire at this point to state that we do not restrict ourselves to such disclosure, for many variations may be made within the scope of our claims succeeding the following description.

Referring to said drawings, Figure 1 is a front elevation of an apparatus involving our invention. Fig. 2 is a sectional side elevation of the apparatus as seen from the right of Fig. 1. Fig. 3 is a side elevation as seen from the left of Fig. 1, the casing of the apparatus being removed. Fig. 4 is a detail front elevation of certain of the parts inclosed by the lower portion of the casing. Fig. 5 is a side elevation of the coin and plunger receiving channels with one wall of the same removed and showing a nickel in the path of the plunger. Fig. 6 is a similar view showing a lead disk impaled upon a gravity-dog and also representing a washer as being diverted out of the coin channel or runway. This figure also shows a coin in position to operate an actuator for the coin or slug stop. Fig. 7 is a detail view in perspective of the channels and the detent, stop, and coöperative devices. Fig. 8 is a bottom plan view of the slide which carries the receiver for the cigars or other articles of merchandise. Fig. 9 is a longitudinal central sectional elevation of said slide. Fig. 10 is a detail elevation of box-holding means and certain coöperating parts hereinafter more particularly described.

Like characters of reference denote like parts throughout the views.

The different parts of the apparatus are housed within a casing. The casing shown is denoted by 2, it having an enlarged lower part in which the working parts of the apparatus are inclosed and a reduced upper part, the sides, front, and rear of which are made of some transparent material, such as glass, so that in the case of cigars in said upper reduced part revenue officers can readily see into the same to ascertain if the revenue laws have been properly complied with, while prospective purchasers can see the name of the cigar. Other advantages follow this particular structure which we do not deem it necessary to state, as they are clearly obvious. Within the upper part of the casing means are provided for removably sustaining a cigar-box, from which the cigars are successively withdrawn by the check-controlled vending mechanism and delivered to a buyer, as will hereinafter appear.

Within the lower part of the casing 2 and suitably mounted therein are the substantially yoke-shaped frame members 3, which support some of the parts of the apparatus—for example, the slide 4, which is reciprocative upon the horizontally-alined tops of said frame members, which, it will be observed, are vertically disposed and in parallelism with each other. The slide 4 consists of a plate, which may be in the form of a casting and which is movable back and forth under the cigar-box. The cigar-box is set vertically above the slide with what might be considered its lower end removed or turned back in order to permit the passage of the cigars from the

box into a receiver shiftably carried by said slide, as will hereinafter appear.

Upon the horizontal portions of the frame members 3 are mounted the blocks 5, suitably fastened thereto and from which, upon the inner side thereof, the uprights or standards 6 rise, the cigar-box being fitted between these standards. Set-screws 7 are tapped through the uprights or standards 6 substantially midway of their height, one of them being adapted to bear against one side of the cigar-box, while the other one bears against the opened lid thereof. Slightly-bowed springs, as 8, are fastened at their inner ends to the respective uprights or standards 6 below the set-screws 7 and extend inward and downward from the standards, bearing near their free ends against what might be considered the lower end of the box in order to steady said box. The springs terminate in inwardly-disposed feet, which fit under the lower ends of the slides of the box in order to uphold the same, the open front side of the box fitting against the front glass side of the upper portion of the casing. A cross-bar 9 unites the standards at their tops. Surmounting the cross-bar and suitably attached thereto is a plate 10, which may bear upon its front face any desirable matter—such, for example, as the printed directions for causing the operation of the apparatus. The rear side of the upper glazed portion of the casing is furnished with a door, by which access may be had to the interior of said portion to remove an empty box and then introduce a full one.

In the main portion of the casing 2, below the slide 4, are mounted complemental plates 11, arranged in parallelism and separated a distance slightly in excess of the width of a nickel, which in the present case is the coin that effects the operation of the apparatus. Inclined legs, as 12, depend from the complemental plates 11 and are suitably fastened to the base-piece, which carries the frame members 3. One of the plates 11 has beads 12^a upon the inner face thereof, which with the plates constitute a channel through which the coins or checks are adapted to travel.

A horizontally-disposed rock-shaft 13 is supported by suitable bearings upon the channeled plates 11, it fixedly carrying at its outer end the rock-arm 14, connected by a loose joint, which may be a pin-and-slot one, to the lower end of the hand-lever 15, which lever is fulcrumed between its ends to the outer rock-shaft-carrying bracket. This hand-lever 15 operates the vending mechanism, but is normally locked against movement by check or coin controlled means, as will hereinafter appear, and it extends upward through a slot in the top of the main portion of the casing 2, where its handle is within easy reach of prospective purchasers of cigars. Upon the inner end of the rock-shaft 13 is suitably fastened the spider 16. This spider is shown as having four arms, (denoted, respectively, by 17, 18, 19, and 20.) A link 21 is jointed to the inner end of the slide 4, upon the lower side thereof and to the upper end of the spider-arm 17, said link being downwardly bowed between its ends, so as not to interfere with certain of the parts depending from said slide.

To the outer end of the arm 20 is connected in some suitable manner a lifter 22 for the cigar receiver or carrier 23, which is supported by the horizontally-reciprocative slide 4. The upper end of the lifter or bar 22 is adapted to engage the cigar receiver or carrier 23 upon the under side thereof, approximately centrally between its ends, in order to elevate the said cigar receiver or carrier, as will hereinafter appear.

The cigar receiver or carrier 23 is illustrated as consisting of an elongated block working vertically through a slot or aperture of proper size in the slide 4 and as having a concaved seat or channel in its upper side, into which a cigar is adapted to roll from the cigar-box held between the standards or uprights 6. Guide-links 24, arranged in parallelism with each other, are jointed to the under side of the cigar receiver or carrier 23 and extend forward therefrom and are likewise connected to depending projections upon the forward side of the slide 4. The cigar receiver or carrier 23 works up and down in the guide device 25, which is shown as consisting of a series of walls, disposed approximately rectangularly to each other depending from the slide 4. The front wall of the guide device 25 has vertical slits extending upward from the lower edge thereof and in which the guide-links 24 play. The end walls of the guide device are provided with inwardly-extending flanges having interiorly-threaded perforations to receive the adjusting-screws 26, the upper ends of which bear against the cigar receiver or carrier 23 near its ends when the same is in its lowermost position. By running these screws up or down the vertical stroke of the cigar-receiver may be adjusted in order to adapt the same to receive cigars that vary in diameter.

It will be understood that when the parts are in their normal positions, in which they are locked by coin-controlled means, the cigar receiver or carrier 23 will be in a position with its upper side wall above the corresponding portion of the slide 4, which with the hand-lever are in their extreme advanced positions, and the concaved upper side of said cigar receiver or carrier will be within the slot 23′ in the top of the main portion of the casing, with its upper face substantially flush with the corresponding face of said top. When a coin of the proper kind, which in the present case is a nickel, is introduced into the machine, it operates the coin-controlled means, as will be hereinafter set forth, to effect the release of

the hand-lever 15. When the hand-lever is released, the handle thereof will be grasped and thrust rearward, whereby the spider 16 is rotated. During the rotation of the spider the arm 20 thereof serves, through the intermediate link 21, to move the slide rearward, the spider-arm 20 being simultaneously moved downward. The result will be that the lifter 22 moves away from the cigar receiver or carrier 23, whereby the latter can drop to permit the rearward motion of the slide, the upper edge of said cigar-receiver reaching a point below the slide when the latter occupies its extreme backward position. The slide 4 has to the rear of the slot therein through which the said receiver or carrier works an upwardly and rearwardly inclined portion 27, down which the cigars are adapted to roll one at a time into the concaved seat or channel in the cigar receiver or carrier. When the hand-lever is moved forward, it will, through the intermediate connections, move the slide in a corresponding direction, the lifter 22 by means of the spider-arm 20 on the rearward rotation of the spider being thrust upward, so as to elevate the cigar-receiver, the upper side of which is brought into coincidence with the corresponding portion of the slide just before the latter reaches its extreme advanced position. On the continued motion of the parts the cigar-receiver is moved to its primary position. The forward motion of the slide 4 is a relatively rapid one, so that the cigar from the receiver will be projected through the slot 23′ in the top of the main portion of the casing 2 and on the upper surface of said top, where it may be had by the purchaser.

A weight 28 of suitable efficiency is suspended from the arm 18 of the spider. When a spurious check of a certain kind is introduced into the apparatus, the hand-lever 15 may be operated a certain distance, as will hereinafter appear. The weight is provided to automatically return the spider, and consequently the hand-lever 15, to the initial positions thereof, so that such hand-lever will be in position for operation upon the introduction of a correct coin.

The complemental plates 11 comprise an upper or obtuse-angular portion and a lower or horizontal portion in order to provide for a main channel or runway 11^a for the coins, which is formed by said obtuse-angular portions, and an auxiliary channel 11^b, which is transverse to the vertical portion of the coin-runway and which is formed by the horizontal portions of said plates. The upper branch of the main channel or coin-runway 11^a is at a comparatively steep inclination to thereby cause the rapid passage of the coins therethrough. In the horizontal channel 11^b is a reciprocative plunger 29, which is shown as consisting or a plate having a concavity 30 at its forward end, into which a check of the correct diameter is adapted to be seated as said plunger is advanced. The plunger is guided during its stroke by the superposed beads forming the upper and lower walls of the channel 11^b and is pivotally connected near its rear end to the lower end of the link 31, shown as being of compound curvilinear form. The pivot which unites the slide and link has a movement in a longitudinal slot in one of the plates 11. The upper or outer end of the link 31 is jointed to the spider-arm 19, whereby the plunger will be advanced upon the rotation of the spider by and on the working movement of the hand-lever 15 when said lever is released by the proper coin. In the bottom of the channel 11^b, in which the plunger 29 works, and in coincidence with the vertical portion of the coin channel or runway 11^a is a slot 11^d, which is of slightly greater length than the diameter of a nickel, for a reason that will hereinafter appear.

We provide a detent for normally preventing the movement of the plunger 29, as in case the plunger could have a full stroke the surreptitious removal of the cigars would follow, such detent being in position to be operated by a nickel to release the plunger. The detent is denoted by 32, and it has a relatively long arm pivotally suspended from a lug upon one of the plates 11 and provided with a working portion adapted to project through a slot in the plate which supports the same. It will be understood that the working or locking portion of the detent is within the path of the coins as they leave the runway 11^a. When the coins strike the working or locking portion of the detent, they thrust the same outward, thereby moving said working or locking portion out of the path of the plunger 29 to release the latter. The pendent detent is held normally in position to block the movement of the plunger by a light spring 33, fastened at one end to the plate 11, which carries said detent, and bears at its other end against the working or locking portion of the detent to thereby hold the same normally in the channel 11^b. After the coin has passed out of contact with the detent the latter will be returned to its initial position by the spring 33.

It will be assumed that a nickel has passed from the coin-runway and has shifted the detent 32 out of the path of the plunger. After doing this such nickel will rest upon a stop, as will hereinafter appear, in line horizontally with the concaved front end of the plunger. With the nickel in such position the hand-lever 15 may be operated its full stroke by a purchaser, so as to move the cigar receiver or carrier 23 first into and out of its cigar-receiving position. As the plunger advances it will eject the coin from the front end of the plunger-receiving channel 11^b and into a drawer 34, carried by the front wall of the casing and normally under lock and key, the front end of the channel being downwardly inclined to

facilitate the gravitation of the coin therefrom. The entering end of the coin-runway 11^a registers with a slot in the front wall of the casing 2, through which a coin is initially passed by a prospective purchaser in order to enter said coin-runway, and thereby effect the operation of vending mechanism to secure a cigar.

It is found that in cigar-vending machines unscrupulous persons frequently introduce lead disks of the size of a nickel with the object of securing the operation of the apparatus; but we provide means, as will now appear, for preventing such results.

Upon the upper rear side of the transverse or plunger-receiving channel 11^b is pivoted the gravity-dog 35, the free end of which is pointed or toothed and arranged in the path of the coins or disks as they are advanced by the plunger 29. The pointed or toothed end of this dog will penetrate or enter a lead disk, but cannot do so with a nickel, owing to the hardness of the latter. When a nickel is in horizontal line with the concavity 30 and when the plunger is advanced, such coin will be seated in said concavity 30 after the plunger has moved a short distance, so that the periphery of such nickel will engage the pointed end of the gravity-dog 35 and will lift said dog, whereby the plunger can have a complete stroke to insure the operation of the vending mechanism. When, however, a lead disk is in the path of the plunger and the plunger is advanced, the lead disk will be carried by said plunger against the pointed end of the dog 35, so that such pointed end will penetrate the disk, and consequently prevent the full stroke of the plunger and the operation of the vending mechanism. We provide means, as will now appear, for effecting the release of a lead disk after its penetration by the gravity-dog 35 in order that the machine may be subsequently operated by a nickel. The nickels and disks as they leave the coin-runway fall upon a pin 36, projecting inward into the plunger-receiving channel 11^b from a spring-arm 37, fastened at one end upon the plate 11, which carries the detent 32, the pin being located near the free end of said spring-arm and being held in its working position by the automatic action of said spring-arm. Of course when a lead disk is penetrated by the gravity-dog 35 it will rest upon the pin 36. When, however, said pin is carried from under the disk, the latter will drop and will pass through the slot 11^d and on the bottom of the casing, the hand-lever 15 in the meantime having been returned to its normal position by the weight 28. The pin constitutes a suitable stop for holding the nickels or lead disks in the path of the plunger 29. The movement of said pin or stop 36 in a direction to free the lead disks is secured by carrying the free portion of the spring-arm 37 outward, and this in the present instance is obtained by a coin-operated actuator or lever, as 38. This lever 38 is shown as being of approximately elbow form, the long arm thereof being fulcrumed between ears upon the upper sides of the plates 11, while the short arm thereof is adapted to engage an outwardly-beveled portion or face at the free end of the spring-arm 37. The free end of the long arm of the lever 38 is disposed at the upper side of the entering end of the coin-runway 11^a, and it has a depending projection 39, adapted to be operated by the coins or disks. When a check or disk enters the runway, its periphery will engage the projection 39 and will raise the long arm of the elbow-lever 38, the consequence being that the short arm of said lever is moved forward and against the beveled portion of the spring-arm 37 to thereby move said spring-arm outward and carry the pin or stud from under a lead disk which may have been impaled upon the dog 35, whereby such lead disk will be free to fall through the slot 11^d. The instant that the coin passes off the projection 39 the long arm of the angle or elbow-lever will drop to its initial position, so that the short arm thereof will be carried out of contact with the spring-arm 37 to permit the latter and hence the pin 36 to resume their primary positions to arrest the nickels or similarly-shaped lead disks. Of course the insertion of a lead disk will operate the lever 38 to effect the release of a previously-inserted disk; but the instant that the second lead disk is carried against the point or tooth of the dog 35 in the manner hereinbefore described it will be impaled thereby, so that the use of two lead disks in succession cannot bring about the operation of the apparatus. Only a nickel will secure such operation.

In case of the breakage of the detent 32 or the failure of its spring 33 to move the same into the working position thereof the dog 35 will constitute an effective locking device for preventing a full stroke of the plunger 29 unless a nickel be seated in the concaved end of said plunger.

The pin 36 is located just above the slot 11^d. The distance between said pin and the rear wall of the slot is greater than the diameter of a penny or a coin of smaller diameter, so that such penny or coin of smaller diameter will pass through the opening between said pin and said rear wall. Such opening, however, is of less length than the diameter of a nickel, whereby the latter will be arrested by the pin or stop.

As will now appear, we provide means for preventing the operation of the coin-controlled mechanism by steel washers.

One of the plates 11 is apertured near the entering end of the coin-runway to receive the poles or branches of a horseshoe-magnet 40, which is suitably insulated from said plates.

These poles at their upper ends are fitted in a longitudinal slot 40ª in the bottom of the inclined portion of the coin-runway, near the entering end thereof, and the forward pole is substantially in the plane of said bottom, while the other pole extends a slight distance above said plane. The nickels or lead disks of course will not be attracted by the magnet, but the steel washers will and will be momentarily retarded by the higher pole of said magnet and will thereafter fall through the rear portion of said slot 40ª.

We have described in detail certain parts arranged in certain ways to secure certain results; but of course the invention is not limited to such parts nor to the arrangement thereof in the manner set forth.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In an apparatus of the class described, the combination of a rotary member and a manually-operable device for actuating the same, a reciprocative device, connections between the reciprocative device and the rotary member for actuating said reciprocative device, a receiver for an article carried by said reciprocative device, means for supporting the receptacle containing such articles in position to cause an article to enter the receiver during the time said reciprocative device is in its backward position, and means actuated by said rotary member for operating the receiver relatively to said reciprocative device.

2. In an apparatus of the class described, the combination of a rotary member and a manually-operable device for actuating the same, a reciprocative device, connections between the reciprocatory device and the rotary member for actuating said reciprocatory device, a receiver for an article carried by said reciprocatory device, means for supporting a receptacle containing such articles in position to cause an article to enter the receiver during the time the reciprocatory device is in its backward position, means actuated by said rotary member for operating the receiver in an upward direction relatively to the reciprocatory device, and a casing inclosing said parts provided with an upper glazed portion in which the receptacle-supporting means are housed, and an enlarged lower portion having a slot in which said receiver fits when in its advanced position.

3. In an apparatus of the class described, the combination of a rotary member and a manually-operable device for actuating the same, a reciprocative device, connections between the reciprocative device and the rotary member for actuating said reciprocative device, a receiver for an article carried by said reciprocative device, means for supporting a receptacle containing such articles in position to cause an article to enter the receiver during the time said reciprocative device is in its backward position, means actuated by said rotary member for operating the receiver relatively to said reciprocative device, and means coöperative with said rotary member for automatically imparting a return movement to the same when the said manually-operable device has turned the rotary member for a portion of its forward movement.

4. In an apparatus of the class described, the combination of a rotary member and a manually-operable device for actuating the same, a reciprocative device, connections between the reciprocative device and the rotary member for actuating said reciprocative device, a receiver for an article carried by said reciprocative device, means for supporting the receptacle containing such articles in position to cause an article to enter the receiver during the time said reciprocative device is in its backward position, means actuated by said rotary member for operating the receiver relatively to said reciprocative device, and a weight suspended from the rotary member for automatically imparting a return movement to the same after the manually-operable device has moved the same for a portion of its forward motion.

5. In an apparatus of the class described, the combination of a rotary spider, a shaft to which the spider is secured, a manually-operable lever operatively connected with the shaft for rotating the same, a slide, a receiver for an article carried by the slide, connections between the slide and one arm of the spider for reciprocating said slide upon the rotation of the spider, a device connected with another arm of the spider for lifting the receiver relatively to the slide during the rearward motion of said slide, and means for supporting a receptacle containing articles in position to cause an article to enter the receiver when the same is in its elevated position.

6. In an apparatus of the class described, the combination of a rotary spider, a shaft to which the spider is secured, a manually-operable lever operatively connected with the shaft for rotating the same, a slide, a receiver for an article carried by the slide, connections between the slide and one arm of the spider for reciprocating said slide upon the rotation of the spider, a device connected with another arm of the spider for lifting the receiver relatively to the slide during the rearward motion of said slide, means for supporting a receptacle containing articles in position to cause an article to enter the receiver when the same is in its elevated position, and a weight suspended from an arm of the spider.

7. In an apparatus of the class described, the combination of a rotary member and a manually-operable device for operating the same, a slide, connections between the slide and the rotary member for reciprocating said slide, a

receiver for an article carried by said slide, a pair of standards situated above the slide, set-screws tapped through the standards for engaging a box between said standards, springs fastened to the inner sides of the standards and adapted to bear against the box, and means actuated by said rotary member for operating the receiver relatively to the slide to move said receiver into position to receive an article from said box.

8. In an apparatus of the class described, the combination of a rotary member and a manually-operable device for actuating the same, connections between the slide and the rotary member for reciprocating said slide, a receiver for an article carried by the slide, the latter having a slot through which the slide is adapted to work and an outwardly and rearwardly inclined face to the rear of the slot, means for supporting a receptacle containing such articles in position to cause an article to enter the receiver when the slide is in its backward position, and means actuated by said rotary member for operating the receiver relatively to the slide.

9. In an apparatus of the class described, the combination of a rotary member and a manually-operable device for actuating the same, connections between the slide and the rotary member for reciprocating said slide, a receiver for an article carried by the slide, the latter having a slot through which the slide is adapted to work and an outwardly and rearwardly inclined face to the rear of the slot, means for supporting a receptacle containing such articles in position to cause an article to enter the receiver when the slide is in its backward position, means actuated by said rotary member for operating the receiver relatively to the slide, and means for adjusting the movement of said receiver.

10. In an apparatus of the class described, the combination of a rotary member, and a manually-operable device for actuating the same, a slide, connections between the slide and the rotary member for reciprocating said slide, a gravity-receiver for an article carried by the slide, a lifter for said receiver actuated by said rotary member, and means for supporting a receptacle containing articles in position to cause an article to enter the receiver when the slide is in its backward position.

11. In an apparatus of the class described, the combination of a rotary member and a manually-operable device for actuating the same, a slide, connections between the slide and the rotary member for reciprocating said slide, a gravity-receiver for an article carried by the slide, a lifter for said receiver actuated by said rotary member, means for supporting a receptacle containing articles in position to cause an article to enter the receiver when the slide is in its backward position, a guide device for the receiver depending from the slide, and adjustable screws supported by said guide device and adapted to engage the receiver when the same is in its lowermost position.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

YANCEY Q. CALDWELL.
LOUIS M. MARTIN.

Witnesses:
A. B. MITCHUM,
W. N. BARHAM.