

(No Model.)

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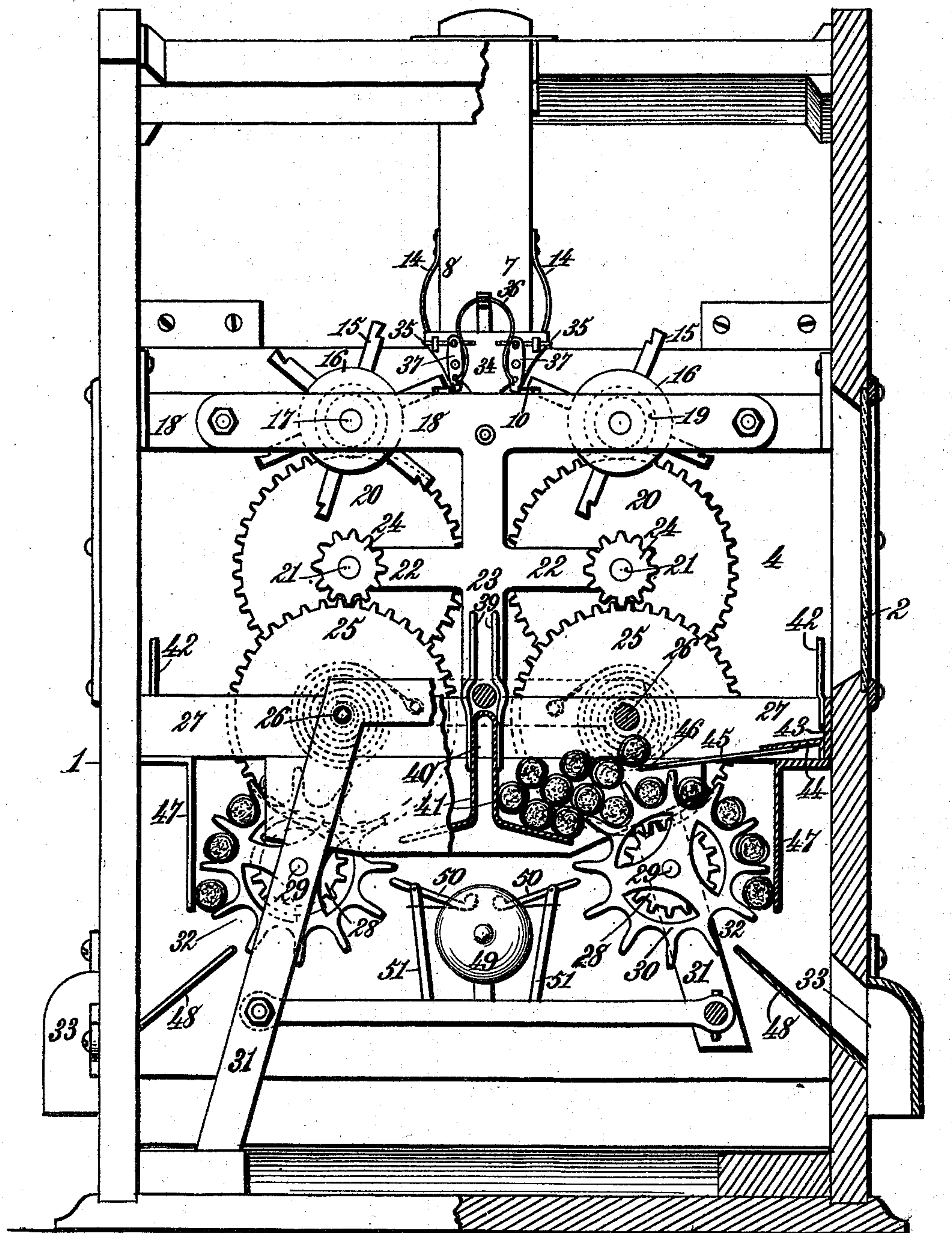
H. L. KIRTLEY.

COIN OPERATED CIGAR VENDING MACHINE.

No. 527,995.

Patented Oct. 23, 1894.

Fig. 1.



Witnesses,
Robert Emmett,
Dennis Sweeney.

Inventor.
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By James L. Norris.
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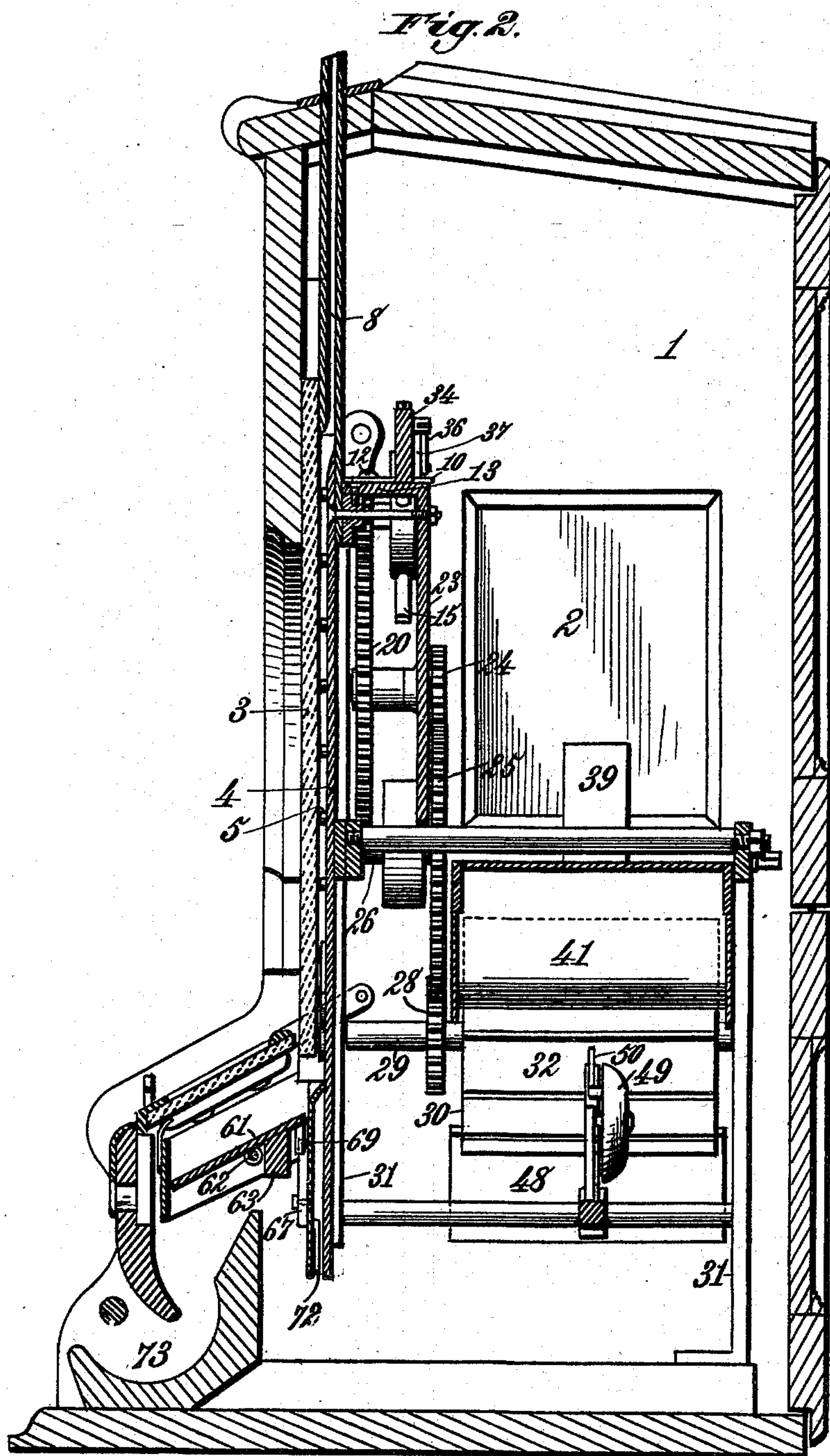
(No Model.)

5 Sheets—Sheet 2.

H. L. KIRTLEY.
COIN OPERATED CIGAR VENDING MACHINE.

No. 527,995.

Patented Oct. 23, 1894.



Witnesses.
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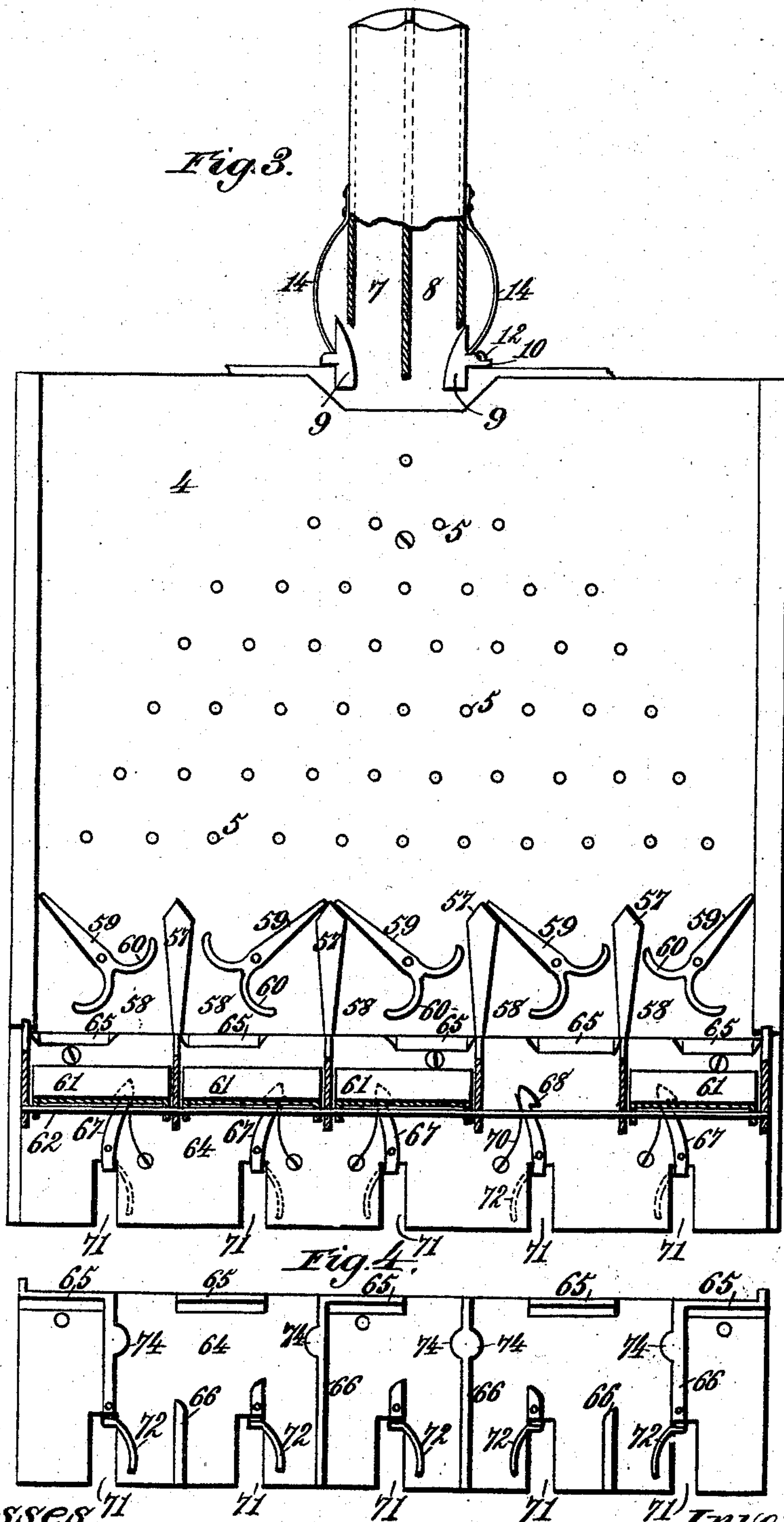
(No Model.)

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H. L. KIRTLEY.
COIN OPERATED CIGAR VENDING MACHINE.

No. 527,995.

Patented Oct. 23, 1894.



Witnesses,
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(No Model.)

5 Sheets—Sheet 4.

H. L. KIRTLEY.
COIN OPERATED CIGAR VENDING MACHINE.

No. 527,995.

Patented Oct. 23, 1894.

Fig. 5.

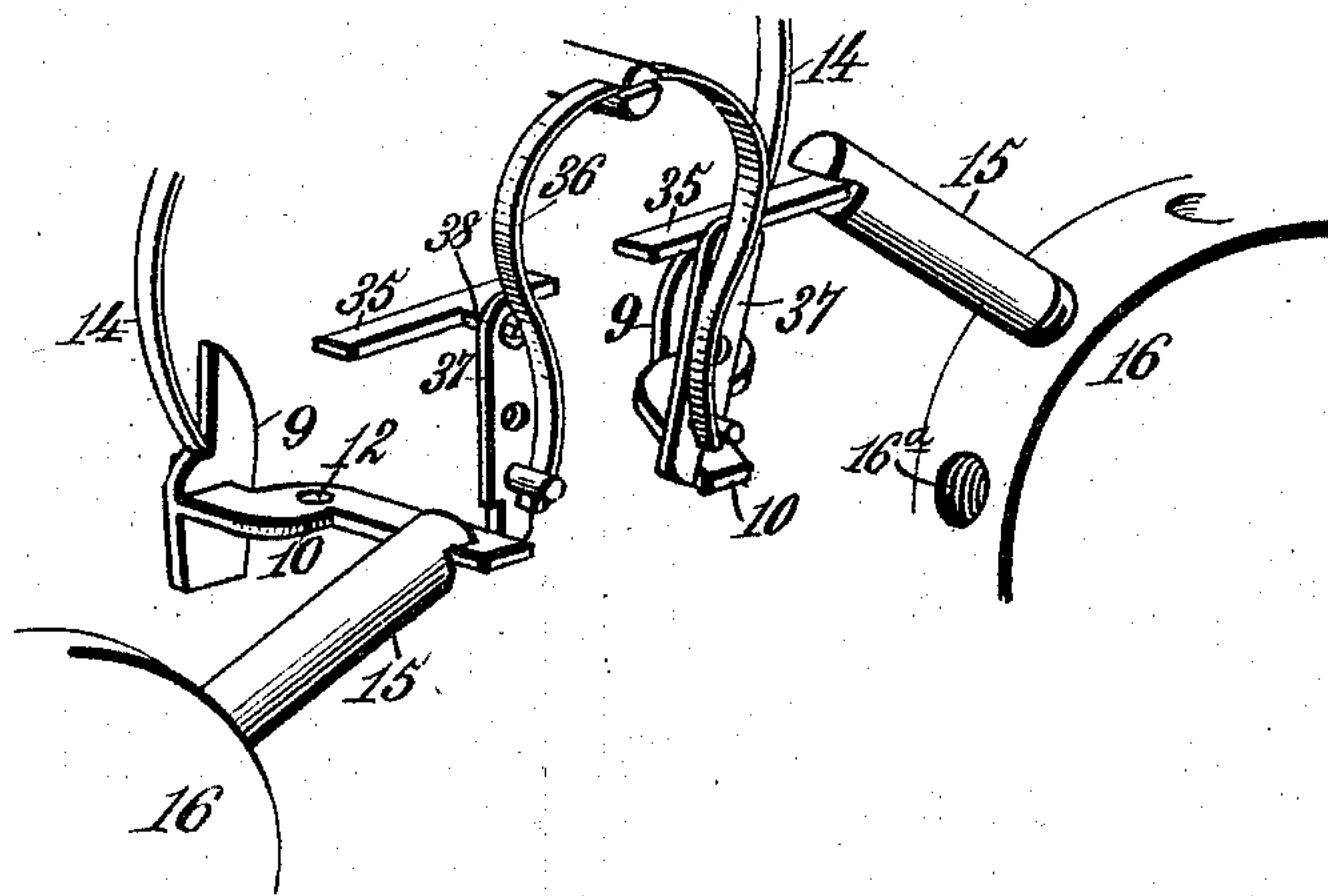


Fig. 6.

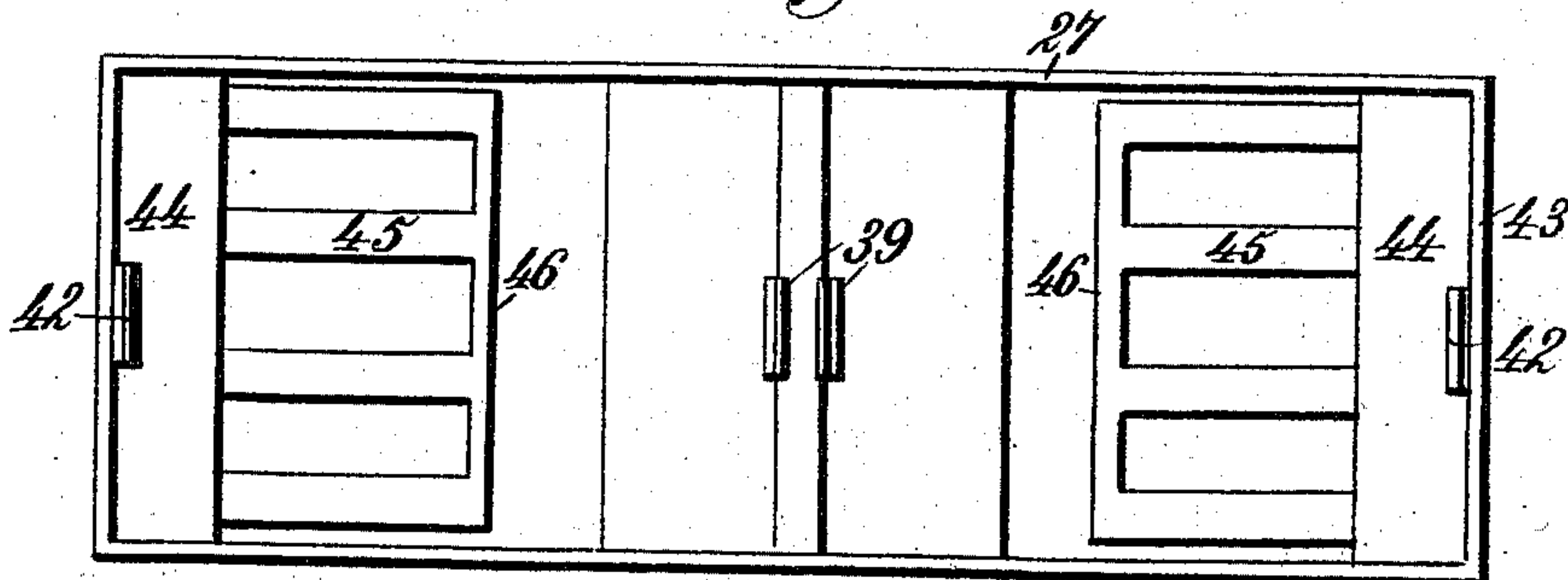
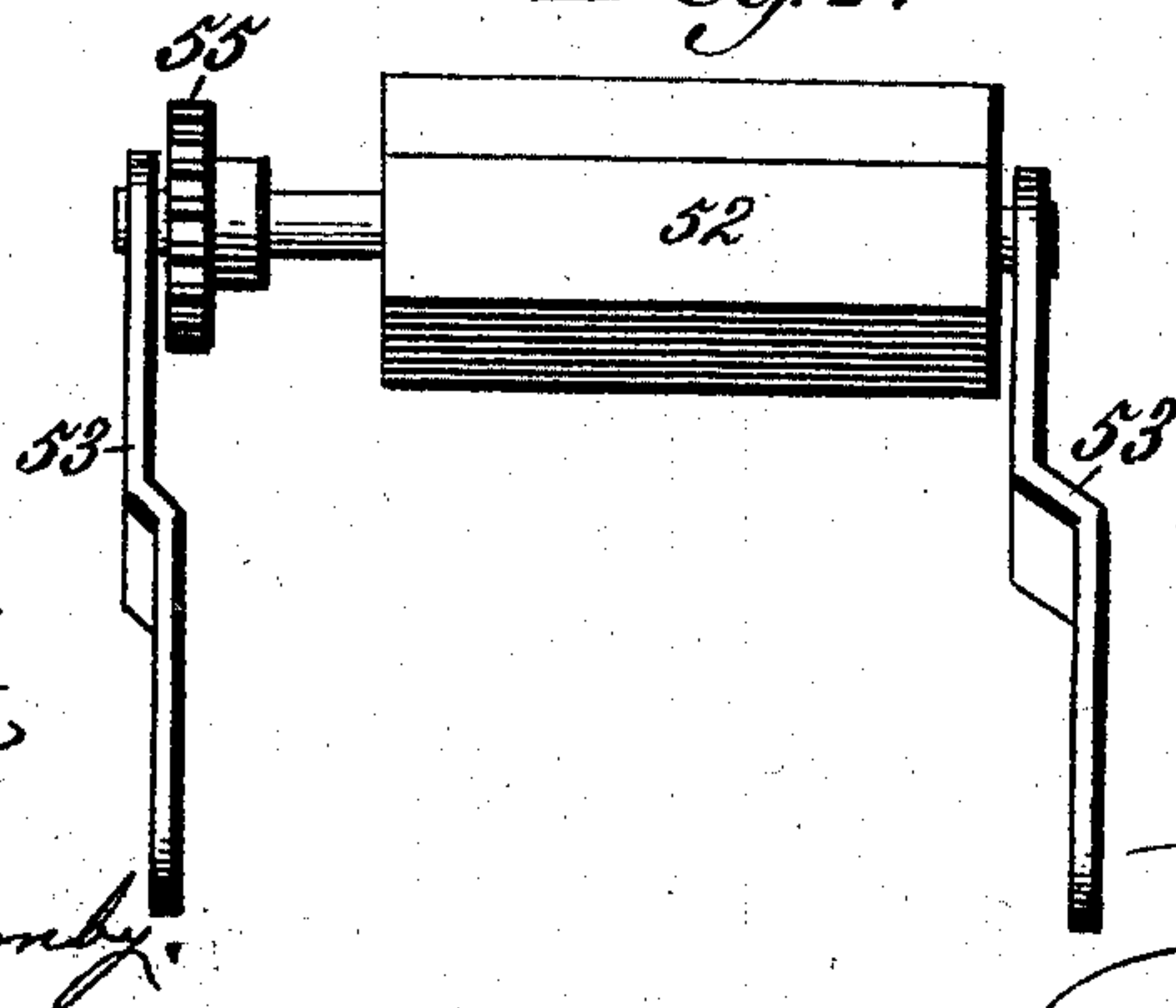


Fig. 7.



Witnesses.
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Dennis Sundry,

Inventor:
Harry L. Kirtley,
By *James L. Norris,*
Atty.

(No Model.)

5 Sheets—Sheet 5.

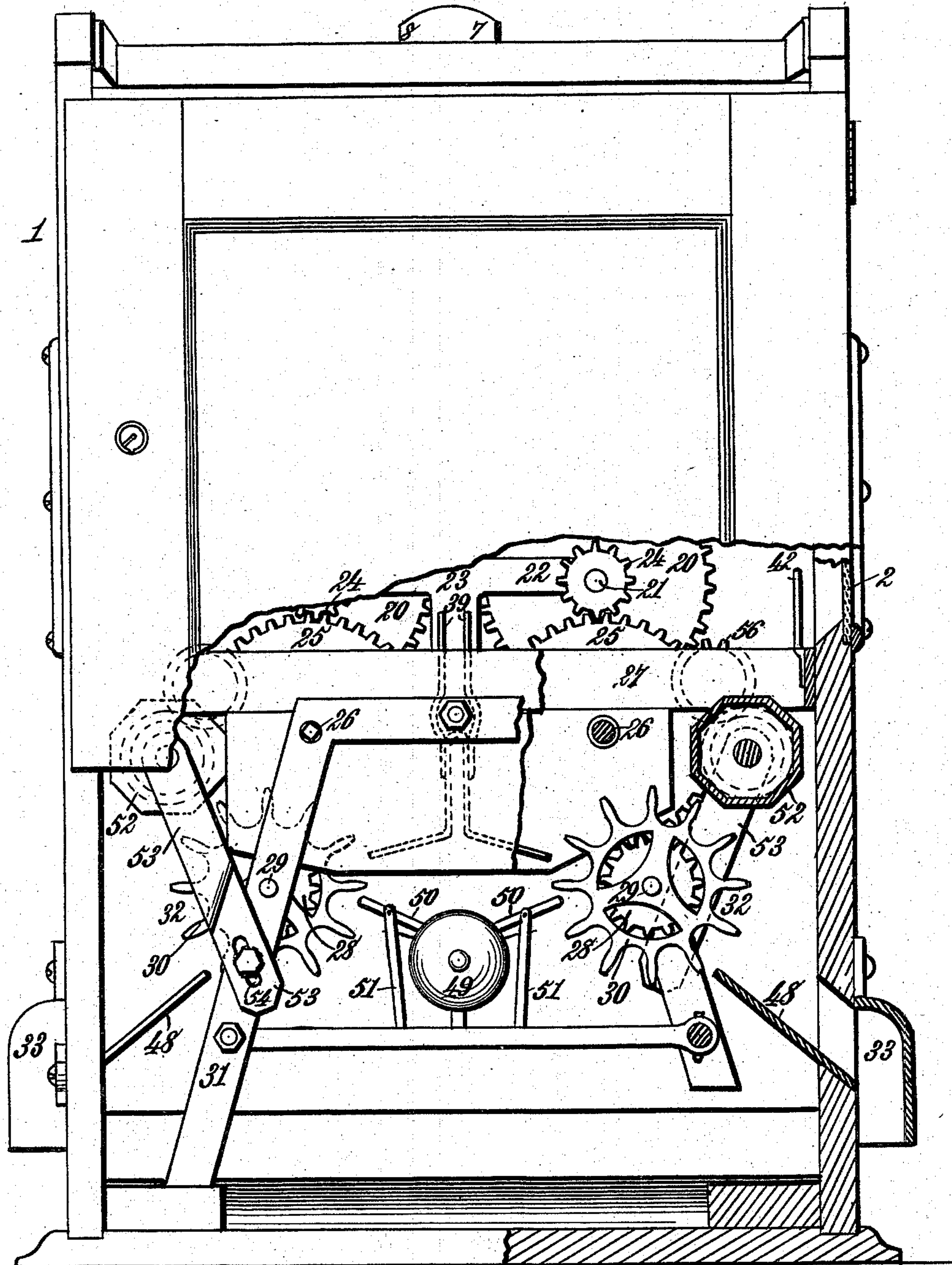
H. L. KIRTLEY.

COIN OPERATED CIGAR VENDING MACHINE.

No. 527,995.

Patented Oct. 23, 1894.

Fig. 8.



Witnesses:
Robert Everett,
Lennie Sundry.

Inventor:
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By James L. Norris,
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UNITED STATES PATENT OFFICE.

HARRY L. KIRTLEY, OF HUNTINGTON, WEST VIRGINIA, ASSIGNOR TO
ROBERT E. VICKERS AND FRANKLIN L. DOOLITTLE, OF SAME PLACE,
AND JOHN F. KIRTLEY, OF SCAREY, WEST VIRGINIA.

COIN-OPERATED CIGAR-VENDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 527,995, dated October 23, 1894.

Application filed July 28, 1894. Serial No. 518,868. (No model.)

To all whom it may concern:

Be it known that I, HARRY L. KIRTLEY, a citizen of the United States, residing at Huntington, in the county of Cabell and State of West Virginia, have invented new and useful Improvements in Coin-Operated Cigar-Vending Machines, of which the following is a specification.

My invention relates to coin-operated, cigar-vending machines of the type shown and described in an application for Letters-Patent of the United States filed by me upon the 19th day of June, 1894, Serial No. 515,050.

It is the purpose of my present invention to improve the construction and simplify the operation of these machines, to provide means whereby the proprietors, or lessees, of the same may be able to know, with certainty, the exact number of cigars sold by said machines and to ascertain this information at any moment by the operation of devices of the simplest and least expensive character, without employing complicated and costly registering mechanism, and to make effectual provision against all contingencies whereby the machine can be defrauded, either by accident, or intention.

It is a further purpose of my invention to combine with a cigar-vending machine a simple and positively operating safety-attachment, whereby the introduction of a battered, or bogus coin, of such form that it chokes in the coin-chute at the point where it trips the releasing latch, shall cause the permanent stoppage of the machine, without delivering any cigar, thereby preventing fraud and avoiding the delivery of a number of cigars in succession; the safety-attachment performing all the functions of a coin-gage and of an automatic safety-stop.

It is my further purpose, in this connection to so construct said safety-attachment that it shall control the fractional revolution of the actuating gearing and cause it to be responsive to the introduction of one coin, or of a plurality of coins, according to the price of the cigar to be sold, thus rendering the machine convertible without the use of interchangeable gearing. In this connection, my

invention also includes the provision of a gong or bell and its combination with the delivery mechanism in such manner that it shall sound upon the introduction of the coin required to cover the full price of the cigar sold, thus defeating attempts to defraud the machine by claiming that the required price has been inserted but no cigar delivered.

It is my further purpose to provide a simple construction and combination of parts whereby every alternate coin inserted in and passing through the slot-way or slot-ways shall be discharged into a separate, locked compartment in the rear, while the remainder of the coins shall be distributed by chance among a series of trays, or pans, pivoted in front of the locked coin-compartment, any one of which pans may be dumped by any single coin entering the locked coin compartment, the contents of the dumped pan being dropped where they are accessible to the customer. My invention comprises, in this connection, the provision of a double series of coin channels, arranged in the same vertical plane with the space through which the coins are shunted by the pins, half of said channels conducting the coins to the locked coin compartment and the other half guiding the coins entering them into contact with the latch levers which release the coin-pans; the latter series of channels being provided with simple means whereby the chances that any coin will pursue such a path as to dump one of said pans are so far diminished as to render the tax upon the machine reasonable in amount.

Finally it is the purpose of my invention to combine with the delivery mechanism means whereby the cigars, emptied from the box upon the delivery-drum, shall be prevented from crowding into its pockets and thereby becoming crushed, or injured, besides impeding, or arresting, the operation of the machine. In this connection, the invention also comprises means of simple character whereby the cigars shall be caused to enter the pockets on the ascending sides of the delivery-drums, only, and whereby cigars of unusually large size may be carried by the said drums without being crushed, or injured.

The invention consists to the several ends specified in the novel features of construction and in the parts and combinations of parts hereinafter fully described and then particularly pointed out and defined in the claims which conclude this specification.

To enable those skilled in the art to fully understand and to make and use my said invention, I will now proceed to describe said invention in detail, reference being had, for this purpose, to the accompanying drawings, in which—

Figure 1, is a sectional elevation, the point of view being at the rear of the machine, and the rear wall of the casing being removed to show the interior. Fig. 2, is a vertical section of the machine, taken from front to rear, in a central line. Fig. 3, is a front elevation of the same, the front wall of the casing being removed, together with the parts in front of said wall, excepting the coin-pans, to show the coin-operated dumping devices and the different paths pursued by the coins entering the machine. Fig. 4, is a rear elevation of the plate lying below the glass front, showing the coin-operated ends of the levers tripping the pans. Fig. 5, is a detail perspective of the coin-operated releasing devices, together with part of the safety-attachment. Fig. 6, is a detail plan view showing the supports for the cigar-boxes over the delivery-drums. Fig. 7, is a detail view of one of the devices for clearing the delivery-drums and preventing the cigars from choking its pockets. Fig. 8, is a rear elevation of the wall of the casing being broken away to show the interior.

The reference-numeral 1, in said drawings, indicates the machine-casing, or housing, which is preferably constructed of wood and glass, though any suitable material may be substituted for the wood. The general form is subject to considerable variation, but is essentially rectangular, with a slight projection in front, at the lower portion, to accommodate the coin-pans. The side-walls of the machine are provided with transparent panes 2, to enable the internal revenue officials to make inspection, and the front wall is formed, in part, of a strong glass plate 3, to expose the plate 4, behind and in parallelism with said glass plate and provided with pins 5, which shunt the coins descending between the parallel plates in various directions and thereby distribute half of them to the several coin-pans. The coins enter the space between said plates through two separate coin-chutes 7 and 8, placed side by side, and as they traverse said chutes, they operate the releasing devices, whereby the delivery-mechanism is permitted to operate. Up to the point where the coin engages the releasing devices, the mechanism is not substantially different from that shown and described in my pending application, above mentioned.

Projecting through a slot in the wall of each coin-chute, is a tripping cam 9, the curved edge of which lies in the path of the

edge of the coin as it descends. This cam forms part of a latch-lever 10, having a fulcrum 12 upon a central support 13. From its fulcrum the lever extends rearward and is normally held by a light spring 14 in the path of stop-arms 15, which radiate from the periphery of a disk 16. As the releasing and delivery mechanism is in duplicate for the two coin-chutes, it is only necessary to describe one series of mechanical parts immediately connected thereto.

Each disk is on a shaft 17, having journal support in two parallel, horizontal bars 18, forming part of the interior frame of the machine. They are arranged on opposite sides of the central vertical line of the machine, and the stop-arms 15 are of such length that their ends, which are notched for the purpose, will engage the latch-levers 10 when the latter are in their normal position, but will pass them when said levers are displaced by the coin impinging upon the tripping-cam 9. Upon the shaft of each disk 16 is a spur-gear 19, meshing with a larger gear 20, beneath the latter being carried by a shaft 21. The shafts of the gears 20 are supported in the ends of horizontal cross-arms 22, projecting on opposite sides of central, vertical bars 23, forming part of the interior frame. Upon said shafts 21 are also mounted small spur-gears 24, meshing with larger spur-gears 25, beneath them, the latter gears being on shafts 26, journaled in the front and rear bars of a rectangular frame 27. The gears 25 mesh with smaller gears 28, on shafts 29 which carry the cigar delivering drums 30. These drum shafts are arranged on opposite sides of the central vertical line of the machine, in inclined braces 31, supported on the floor of the casing and bolted at their upper ends to the rectangular frame 27. Each delivery drum is provided with a series of pockets 32 for the cigars, which discharge into delivery chutes 33.

The gearing between the delivery-drums and the shafts of the stop-disks 16 is so proportioned that a half revolution of either stop disk will cause the delivery-drum geared with it to revolve far enough to discharge a single cigar. Each train of gearing is driven by a spring 26^a on the shaft 26.

The latch-levers 10 being drawn, by the passage of the coin, from engagement with the ends of the stop-arms 15, are snapped back to normal position to engage the next stop-arm 15. In case, however, that a coin should choke upon engaging the tripping cam 9, the machine would continue in operation and would discharge cigars until the mechanism was stopped, or the supply exhausted. To defeat attempts to defraud the machine by introducing coins of such shape as to choke on the tripping-cams, as well as to avoid loss which might be produced accidentally and without any fraudulent intent on the part of the purchaser, I provide the following safety attachment.

Between the two latch levers and upon the support 13 is a housing 34, within which are arranged two horizontally sliding catch-plates 35, normally thrown in and away from the disks 16, by a spring 36. These catch-plates are drawn in by levers 37, fulcrumed between their ends, their upper extremities pivotally connected to fingers 38 on the catch-plates and their lower ends bearing against the edges of the latch levers 10. When the latter are drawn by the coin out of engagement with the stop arms 15, the catch plates, are thrown out and their ends lie for an instant in the path of the ends of the stop-arms 15.

If the coin passes freely and normally, the catch-plate is retracted so quickly that the stop arm misses it, but if the coin sticks, preventing the instantaneous return of the latch lever to place, the stop arm 9 is arrested by the end of the catch-plate, as seen in Fig. 5, and the machine stops, being arrested before a cigar is delivered. The person in charge of the machine must open the casing and remove the choked coin before its automatic operation can be resumed.

The stop-arms 15, carried by the disks 16, also serve another important function, since by varying their number either side of the machine may be used to sell cigars costing ten, fifteen, twenty, or twenty-five cents each, or, in short, any price which is a multiple of five, the nickel cigar being the cheapest, and the nickel being adopted, therefore, as the unit of price.

The machine being geared, in each train, to operate the delivery-drum in such manner as to discharge a cigar at each, complete, half-revolution of the disk 16 in the same train of gearing, it is evident that, by providing said disk with two stop-arms 15, placed diametrically opposite each other, the drum released by said arms will move, at each operation, far enough to discharge a cigar from one of its pockets into the delivery-chute 33.

If two additional stop-arms 15 be mounted on said disk at equal intervals, as shown at the right hand of Fig. 1, then the first coin that passes through the coin-chute will give the disk only one quarter of a revolution and to complete the half revolution of said disk a second coin must be inserted, whereon a ten cent cigar will be dropped by the drum. In the same manner, by providing the disk with six arms, as at the left hand of Fig. 1, three successive actions of the disk will be necessary to enable it to make the required half-revolution and thus three nickels must be inserted to obtain a fifteen cent cigar. Eight stop-arms will enable the machine to sell a twenty cent cigar and ten arms will operate the disk for cigars selling at twenty-five cents each. In this manner cigars may be sold by the machine at any price which is a multiple of five. In order to render the machine responsive, on either side, to any required price, the stop-arms 15 are screw threaded at their ends and the disks 16 are

provided with a series of threaded openings 16^a, (Fig. 5) whereby the arms can be attached, and detached, and their number varied as required.

The cigars are taken by the machine directly from the box, the end of the latter being removed, or cut away in part, and the boxes placed in the machine, with the open ends downward, above the delivery-drums. Over each of the latter a space is provided which I term a feed-room. These spaces are defined by the lateral walls of the casing 1 and by two vertical plates 39 (Fig. 1) between which a sufficient interval is left to insert the adjacent walls of the cigar boxes, the edges of said walls resting on a central brace 40 lying between the plates 39. Below this brace two parallel plates 41 drop to a point above the axes of the delivery-drums, and are thence extended toward said axes nearly to the peripheries of the drums so that they have a downward inclination.

Upon the side-walls of the casing 1 are brackets 42, which support the opposite edges of the cigar-boxes, and beneath the brackets, and forming a support for them, are wall-plates 43, having inclined strips 44, upon which are mounted elastic floor strips 45. These strips extend, with a moderate inclination downward, just over and a little beyond the highest portions of the delivery-drums. The pockets in these drums which are exposed are thus upon the ascending sides of the drums, where the cigars accumulate by their own gravity. The free ends of the floor-strips 45 are united by a continuous strip 46. This construction prevents the cigars from crowding and clogging the pockets of the drum, and the elasticity of the floor-strips 45 permits the passage of large cigars, as the drum turns, without crushing, or injuring them. Beneath the wall-plates 43 are guard-plates 47, which retain the cigars in the pockets of the delivery-drum until the necessary movement of the latter is made when the cigar drops upon an inclined plate 48, which conducts it to the delivery-chute 33.

Between the two delivery-drums 30 is placed a gong, or bell, 49, which is sounded by two independent, spring-pressed hammers 50, pivotally mounted on rigid arms 51. The ends of the hammer arms extend toward the drums and terminate at such points that they are engaged by the ribs which separate the pockets of said drums. This engagement takes place just prior to the completion of each movement made by either delivery-drum, and the rib passes off and releases the hammer-arm as said movement is completed, so that the gong is sounded and the cigar delivered simultaneously, or practically so. By this means any attempt to defraud by claiming that the full price has been deposited, but no cigar delivered, may be defeated, for unless the bell sounds the delivery-drum has not been turned far enough to drop a cigar, whence it is safe to conclude that either no

money has been paid, or only part of the complete number of coins has been inserted in the slot.

In place of the elastic floor-strips 45, I may
 5 substitute the clearing cylinders 52. Shown
 in Fig. 8. These cylinders are preferably octagonal, in form, though I may construct them, in cross-section, in the form of any regular polygon. I prefer the octagonal shape be-
 10 cause it gives the angles sufficient prominence and yet preserves such obtuseness that the cigars are not injured. The shafts carrying these cylinders are supported in the ends of bars 53 bolted to the inclined braces 31. The
 15 bolts attaching said bars lie in slots 54 in the lower ends of the bars so that the latter may be adjusted both pivotally and longitudinally. Gears 55 on the ends of the shafts of said cylinders 52 are driven by intermediates 56
 20 meshing with the gears 25. The relative size of gears 55 and intermediates 56 is such that the cylinders 52 are revolved at three times the number of the revolutions of the delivery-cylinders and in an opposite direction.
 25 The salient angles of the cylinders pass very near the edges of the ribs lying between the pockets of the delivery drums and prevent choking of the pockets and injury to the cigars.
 30 Upon the plate 4, between which and the glass plate 3 the coins pass and beneath the alternating series of pins 5, are arranged a series of projecting ribs 57, standing vertically and dividing the lower part of the plate
 35 4 into five spaces, or passages 58, of equal width. Between these ribs, upon central pivots, are mounted an equal number of spilling-bars 59, the lower portions thereof being divided and curved in opposite directions.
 40 The other part of each arm extends above the pivotal point and the two parts above and below are so adjusted in weight that they substantially balance each other, whereby the bar will remain in any position given it.
 45 The width of the passages 58 and the length of the curved arms 60, are such that when the spilling bar stands vertically, a coin cannot pass down on either side without being caught by the curved arm 60 on the same side. The
 50 coin is partly arrested by said arm, as the bar turns under its weight, and when this movement is completed the coin rolls off the arm and falls, the pivoted bars 59 determining upon which side of the passage 58 the
 55 coin shall fall.

Beneath the series of passages 58 is arranged a series of coin-pans 61, each having an inclined bottom, beneath which is the pivotal support 62. In rear of the latter each
 60 pan is provided with a weight 63, which will hold the empty pan in the position shown in Fig. 2. In this position the rearward edges of the pans which are in reality, nothing but flat plates, of such width that said edges extend from side to side of the passage 58, are
 65 caused to lie close to a vertical plate 64, lying in the same vertical plane with the glass

plate 3. The upper edge of this plate lies above the rear edges of the pans and is provided, at intervals with lips 65, bent rearwardly so as to lie close to the front face of the plate 4. The remaining portions of the edge of said wall are unchanged in form and lie in the same vertical plane with the glass plate 3. The length and arrangement of the lips 65 are such that they extend over half the width of the passages 58, while the unchanged portions of the edge of the plate 64 extend over the remaining half. It is evident, therefore, that a coin falling on one side of the central vertical line of any one of the passages 58 will be caught by the coin-pan being deflected therein by the lip 65, while a coin descending upon the other side of said line will pass between the wall 64 and the plate 4, which extend downward nearly to the floor of the casing.

Each coin, as it descends, after being shunted from side to side by the pins 5, traverses one side or the other of one of the passages 58 and leaves the spilling-bar 59 in the position which it is caused to assume by the weight of the coin on one of the curved arms 60. The next coin which happens to descend in the upper part of the same passage 58 will strike the spilling bar and be deflected until it is caught by the curved arm 60 on the other side of the spilling-bar, which will be turned until the coin is dropped, leaving the bar inclined until the next coin descends. Thus every other coin will be caught by one of the coin-pans while the remainder will pass between the wall 64 and plate 4 and descend.

Upon the face of the plate 64 which lies adjacent to the plate 4, are a series of ribs 66, lying substantially in line with the ribs 57. Upon the outer, or front face of said plate are pivoted a series of latch-levers 67, having hooked ends 68 which engage catches 69 on the pans, the latch-levers being thrown into engagement by the light springs 70, and their hooked ends being beveled so that they are retracted by the catches 69, as the pans turn under the impulse of their weights 63. Below their fulcrums the latch-levers 67 are bent rearward and pass through slots 71 in the plate 64, upon the rearward side of which, between said plate and the plate 4, said levers are curved to one side and downward, forming coin-operated ends 72. The arrangement of parts is such that these curved ends lie upon one side of the central, vertical lines dividing the passages 58, and upon that side on which the coins descend between the plates 4 and 64. A descending coin passing between the curved end 72 of one of said latch-levers and the adjacent rib 66, would trip the latch-lever and, were there coins enough in the pan 61 to overbalance the weight 63, the pan would be dumped and the coins in it would be dropped in a trough 73, where they would be accessible. In order to prevent every other coin paid in from dumping one of the coin-pans 61, and to reduce the number having

such action to about one in twenty-five or thirty, I mount lugs 74 on the ribs 66 (Fig. 5) by which the coin will in most cases be thrown or shunted upon the other side of the curved end 72, where it will merely roll into the coin compartment of the machine.

What I claim is—

1. In a coin operated cigar vending machine, the combination with the delivery mechanism and with a stop-disk having stop-arms on its periphery, of a coin-operated latch lever one end of which normally lies in the path of said arms, a sliding catch-plate normally withdrawn from said path and a lever connecting said coin-operated latch-lever and catch-plate, substantially as described.

2. In a coin-operated cigar vending machine, the combination with a coin-operated latch-lever, of a disk having stop-arms released and arrested thereby, a sliding catch-plate moved by the releasing movement of said latch-lever into the path of the stop-arms, a lever by which movement is communicated from the latch lever to the catch-plate and a spring to retract said catch-plate, substantially as described.

3. In a coin-operated cigar vending machine, the combination with a coin-operated device by which the mechanism is released and arrested, of a safety stop for arresting the machine moved into position by the coin operated release device and retracted after the coin has passed said device and a lever between the latter and the safety-stop, said lever having a fulcrum between its ends, substantially as described.

4. In a coin-operated cigar vending machine, the combination with a coin-operated latch-lever, of a disk geared to the automatic train and provided with stop-arms adapted to engage said latch-lever after making a fractional revolution, a sliding catch-plate arranged in the plane of rotation of said stop-arms, and a lever having a fulcrum between its ends by which movement is communicated from the latch-lever to the catch-plate, substantially as described.

5. In a coin-operated cigar vending machine, the combination with a spring returned latch-lever which releases and arrests the automatic train, of a disk geared to said train and having a series of equidistant, radiating stop-arms adapted to engage said latch-lever, a spring retracted sliding catch-plate adapted to be projected into the path of said stop-arms, a lever having a fulcrum between its ends by which movement is communicated from the latch-lever to said catch-plate and a spring engaging said lever to retract the catch-plate, substantially as described.

6. In a coin-operated cigar vending ma-

chine, the combination with the automatic train, of a spring returned latch-lever to release and arrest the train, a disk geared to the train and having a series of equi-distant, peripheral threaded openings adapted to receive a variable number of stop-arms which engage and are released by the latch-lever, a spring-retracted sliding catch-plate adapted to be projected into the path of the stop-arms, and a lever by which movement is communicated to said catch-plate from the latch-lever, substantially as described.

7. In a coin-operated cigar vending machine, the combination with an automatic train of gearing operating the cigar delivering mechanism, of a disk geared to said train, a spring returned latch-lever adapted to release and arrest said train, and a series of stop-arms having threaded ends screwed into threaded openings in the periphery of said disk at equal intervals to engage the latch-lever, the number of said arms being variable by increasing or diminishing the number and re-arranging them to preserve equal intervals of separation, to adapt the mechanism to the sale of cigars at different prices, substantially as described.

8. In a coin-operated, cigar-vending machine, the combination with one or more coin-chutes of parallel plates having coin-shunting pins, a series of spilling-bars centrally pivoted in vertical coin-passages beneath the pins, a series of coin-pans pivoted beneath said spilling-bars, their rear edges lying close to a plate which forms a continuation of one of the parallel plates, its edge being provided with lips, at intervals, which are inclined against the other parallel plate, said lips extending over half of each vertical coin-passage and lying beneath the spilling-bars and a series of latch-levers fastening the pans and having curved, coin-operated ends lying in passages beneath the pans and separated from each other by ribs, said passages being provided with lugs to shunt the coins into alternating coin-passages, substantially as described.

9. In a coin-operated, cigar-vending machine, the combination with a cigar-delivering drum, of a clearing-cylinder of regular, polygonal form, arranged above and a little to one side of said drum and geared to revolve in the opposite direction, and at higher speed, substantially as described.

In testimony whereof I have hereunto set my hand and affixed my seal in presence of two subscribing witnesses.

HARRY L. KIRTLEY. [L. S.]

Witnesses:

THOS. A. GREEN,
JAMES L. NORRIS.