

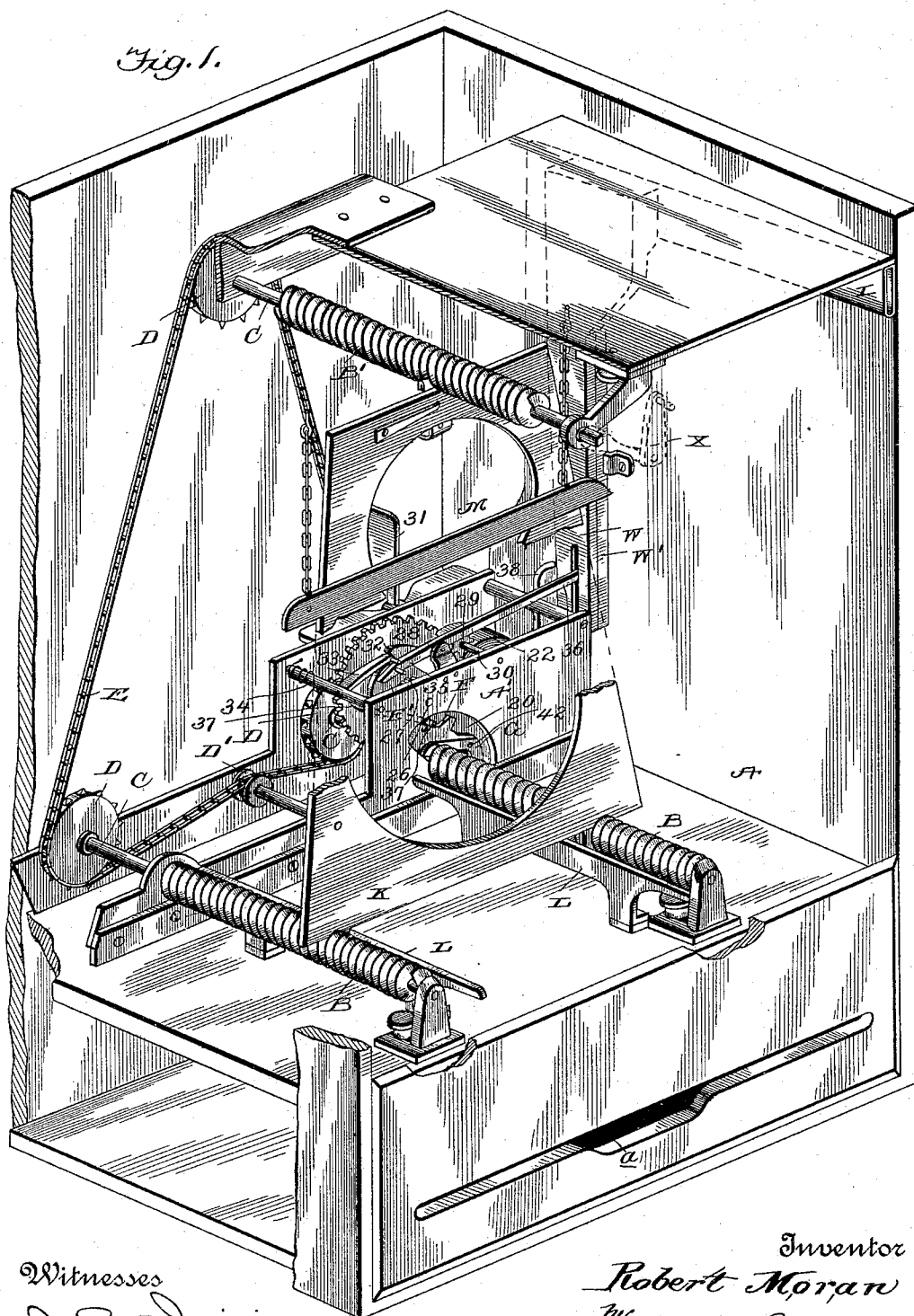
(No Model.)

3 Sheets—Sheet 1.

R. MORAN.
COIN ACTUATED VENDING MACHINE.

No. 487,409.

Patented Dec. 6, 1892.



Witnesses
John Davis
Chapman H. Fowler

Inventor
Robert Moran
by *A. H. Evans & Co.*
Attorneys

(No Model.)

3 Sheets—Sheet 2.

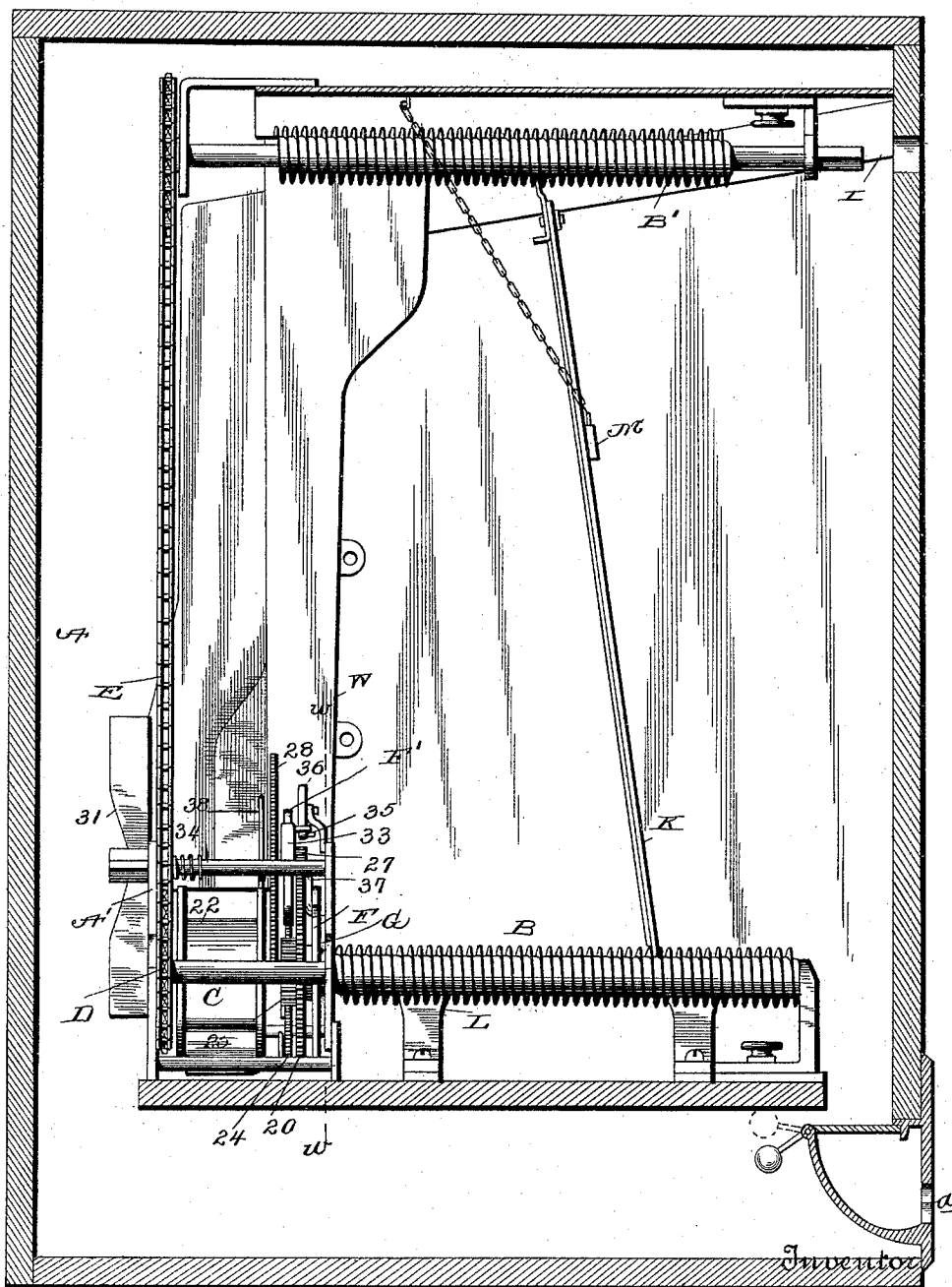
R. MORAN.

COIN ACTUATED VENDING MACHINE.

No. 487,409.

Patented Dec. 6, 1892.

Fig. 2.



Witnesses

John Linnie
Chapman & Fowler.

Robert Moran
by A. H. Evans & Co
Attorneys

Attorney's

(No Model.)

3 Sheets—Sheet 3.

R. MORAN.
COIN ACTUATED VENDING MACHINE.

No. 487,409.

Patented Dec. 6, 1892.

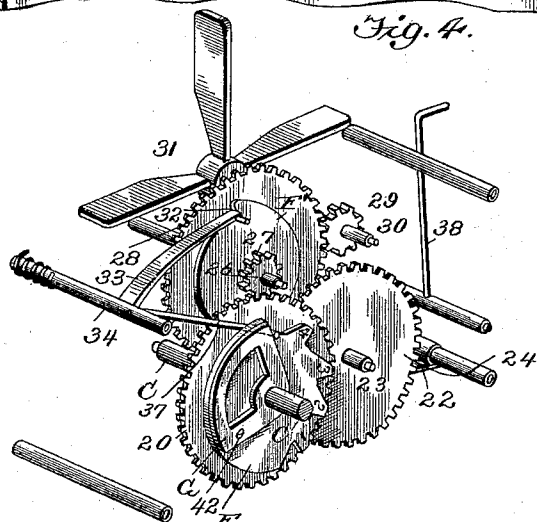
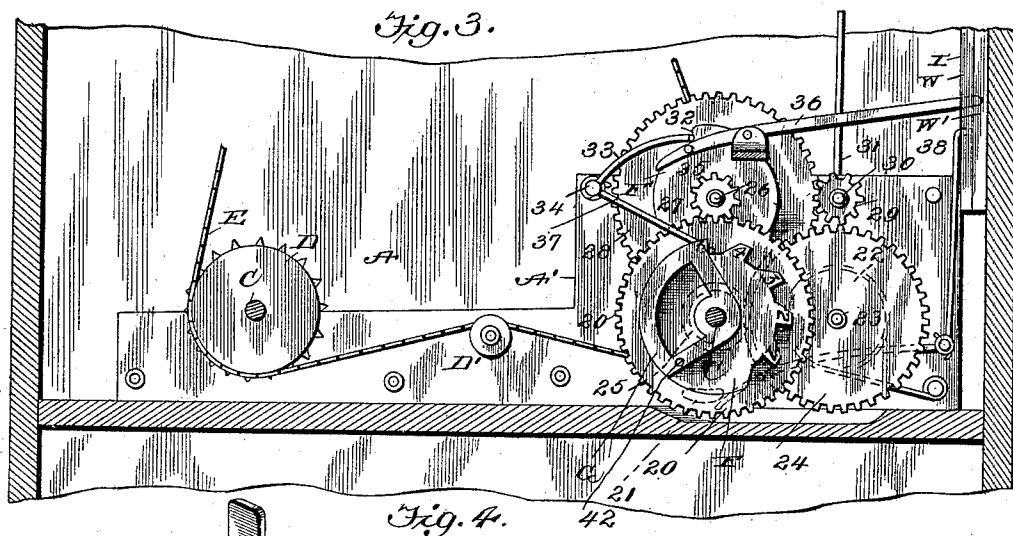


Fig. 5

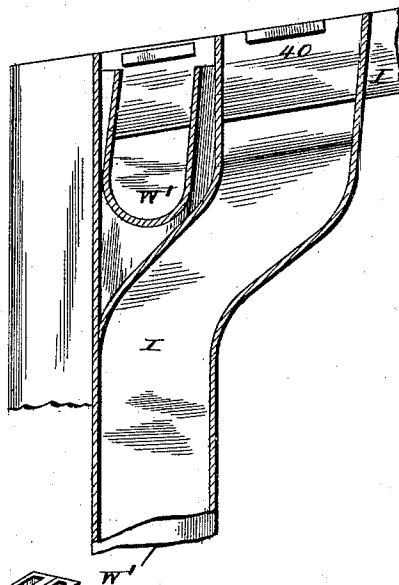


Fig. 6

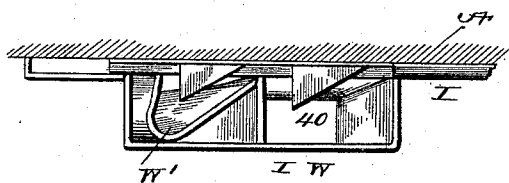
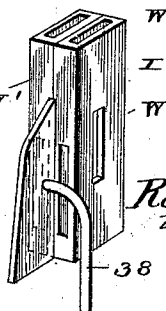


Fig. 7



Witnesses

James Smith
Chapman H. Fowler.

Inventor
Robert Moran,
by
A. H. Evans & Co.
Attorneys

UNITED STATES PATENT OFFICE.

ROBERT MORAN, OF SEATTLE, WASHINGTON.

COIN-ACTUATED VENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 487,409, dated December 6, 1892.

Application filed September 14, 1892. Serial No. 445,858. (No model.)

To all whom it may concern:

Be it known that I, ROBERT MORAN, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Coin-Actuated Vending-Machines; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to the class of coin-actuated machines for vending various articles of merchandise, and particularly for disposing of newspapers, pamphlets, cards, and other similar articles. It is an improvement on my former patent, No. 472,507, dated April 5, 1892; and it consists of the constructions and combinations of devices, which I shall hereinafter fully describe and claim.

The object of my invention is to provide a simple, perfectly-operating, and accurately-delivering machine for vending various articles of merchandise, and particularly newspapers.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a perspective view of my machine, the front being broken away to show the interior mechanism. Fig. 2 is a vertical section of the case, showing the interior parts in side elevation. Fig. 3 is a sectional view on the line *w w* of Fig. 2. Fig. 4 is a perspective of the motor mechanism detached from its case or frame. Figs. 5, 6, and 7 are details to be referred to.

A is a suitable case, having in its front lower portion a discharge-slot *a*, which will be more particularly described hereinafter. In the lower portion of the case are mounted horizontally the feed-screws B B—one on each side. These screws may be made of any suitable material and pitch of thread. For the present purpose they are preferably made of a core or center and a spirally-wound flange forming a thread of sufficient depth to permit and insure a firm engagement of the papers therewith. In the upper central portion of the case is mounted a screw B', corresponding in size and pitch to those below. In the back of the case are three shafts or hubs C, the forward ends of which are connected with the rear ends of the three screws, respectively. Upon these shafts or hubs are the

sprocket-wheels D, around which passes an endless chain E, whereby the screws are connected and are revolved in unison, the said chain passing over a guide-pulley D', interposed between the sprocket-wheels. In the rear portion of the box or case is the motor mechanism for revolving the feed-screws. This mechanism is contained within a suitable case or frame A', and is constructed essentially as follows: Upon the shaft of one of the feed-screws is fixed a disk or wheel F, having its edge provided with any desired number of notches. In the present case I have shown five notches, numbered "1" to "5," inclusive, and indicating pennies. Contiguous to the face of this disk F, and mounted to turn upon the shaft C as an axis, is a cut-off or quadrant G, adapted to be turned about its shaft to cover any one or more of the notches in the disk F, for a purpose hereinafter stated.

Back of the disk F and upon the same shaft is a gear-wheel 20, carrying upon its face a cam 21. Within the case or frame A' is a strong spirally-wound spring or other motor 22, which is mounted upon a shaft 23, carrying a gear-wheel 24, which meshes with and drives a pinion 25 on the shaft C, which latter carries the disk F and gear-wheel 20, whereby the sprocket-wheels, endless chain, and feed-screws are set in motion. Upon the counter-shaft 26 is a pinion 27, which meshes with and is driven by the gear-wheel 20. Said shaft 26 also carries a large gear-wheel 28, which in turn meshes with and drives a pinion 29 on the shaft 30, the said shaft carrying at one end a fan 31 for controlling the speed of the motor mechanisms. The counter-shaft 26 also carries a cam-disk or escapement-wheel F', having the shoulder or stop 32, and against the edge of this disk a pawl 33, projecting from a rock-shaft 34, is adapted to normally rest and has its free end extended to one side and adapted to bear upon the inner end or short arm 35 of the pivoted trip-lever 36, suitably supported and having its outer end or long arm entering the coin-chute, so as to be in the path of the descending coin, the said long arm or outer end of the lever being held normally elevated by reason of the pawl 33 bearing upon its rear end. The rock-shaft 34 is also provided with

a second pawl 37, adapted to engage with the notches in the disk F. A second pivotally-secured trip-lever 38 has one end in the coin-chute to temporarily hold the coin, while its opposite end lies in the path of the cam 21 on the gear-wheel 20, whereby during the movement of this gear the cam depresses the inner end of the retaining trip-lever, and thereby lifts its outer end from engagement with the retained coin, so as to permit the latter to fall into its underlying receptacle, as hereinafter more fully set forth. The follower-plate K has its bottom and top fitted into the threads of the feed-screws and lies at a slight backward angle.

L L are fixed rests located alongside of the feed-screws, and M is a bar flexibly suspended from the top of the exterior case and adapted to rest against the upper end of the pile of papers on the follower to prevent the papers falling forward.

The coin-chute I is placed at the side of the case-frame, as in my said former patent, and has its discharge end controlled by the trip-levers before mentioned.

The operation of my machine is substantially as follows: The papers are placed with their lower edges supported upon the rests L and fitted in the threads of the lower screws. The body of papers rests against the follower-plate, and the bar M rests against the upper portions of the papers to hold them from falling forward. These several parts of the machine are at a state of rest by reason of the engagement of the retaining-pawls 33 and 37, engaging, respectively, the shoulder or stop 32 of the cam-disk F' and one of the notches of the disk F. Now when a coin is dropped through the coin-chute it falls upon the end of the trip-lever 36 and its weight lifts the rear or inner end of the lever, and as this end of the lever is immediately under and in contact with the pawl 33 it is manifest that said pawl will be lifted from its contact with the shoulder or stop 32 of the disk F'. The pawl 33 being a part of the rock-shaft 34, and this shaft carrying also the pawl 37, it is manifest that as the pawl 33 is lifted by the trip-lever its movement is communicated through the rock-shaft to lift the pawl 37 out of its engagement with its notch in the disk F. The pawls 33 and 37 and their rock-shafts are to all intents and purposes a pallet, and the disks F and F' are escapement-wheels whereby when the disengagement occurs, as just stated, the train of gearing is set in motion by the expansive force or unwinding of the spring and the desired revoluble motion is given the screws. The papers will thus be fed forward and the machine will continue in motion until the retaining-pawl 37 drops into the succeeding notch, when the motion of the machine is arrested and the parts are in operative position to be tripped and again set in motion by the passage of a coin.

The notched disk F, or "escapement-wheel," as I shall hereinafter term it, is notched with

the number of coins to be deposited before the feed-screw is allowed to make a complete revolution. To make the operation of this wheel clear, I have shown the same provided with five notches; but a greater or lesser number may be used, if desired. If the machine is charged with five-cent newspapers, each notch will represent one penny, and a deposit of each penny will impart a partial revolution to the screws. On the successive deposit of five pennies the screws will have made a complete revolution and the paper will be discharged through the front slot, as in my former patent. Now if the quadrant G is turned upon the shaft C, so as to cover one of the five notches in the escapement-wheel F, the machine will be set to deliver a four-cent paper. If two notches are covered by the quadrant, a three-cent paper is discharged upon the deposit of three pennies. If three notches are covered, a two-cent paper is vended, and if four notches are covered a one-cent paper is vended. Thus I am enabled to set the mechanisms so that the machine may be made to automatically vend papers or articles of different prices.

A very desirable feature about this machine is that upon uncovering the five notches in the escapement-wheel a vendee may deposit five pennies or a five-cent piece, and either of which deposits will insure the delivering of a five-cent paper. This is accomplished upon the deposit of a nickel as follows: The nickel is dropped into the same coin-slot and when it runs down it is switched off by a cam or lug 40 (see Figs. 5, 6, and 7) into a separate division W of the chute, and falling upon the lever 36 trips the same, so that its opposite end lifts the pawl 33 from its engagement with the escapement-wheel F. In place of the nickel falling into its receptacle immediately upon tripping the lever it is held upon the end of the lever and within the tube by the retaining trip-lever 38, partially closing the discharge-passage of the chute. Thus the trip-lever 36 is held depressed and the pawls 33 and 37 elevated and out of engagement with their escapement-wheels until all of the uncovered notches have passed the end of their engaging stop or pawl 37. The screws are therefore given one complete revolution, and just before the completion of their movement the cam 21 on the gear-wheel 20 contacts with the end of the trip-lever 38, which lies in its path and depresses said end, thereby lifting the opposite end away from the discharge end of the coin-chute and permitting the heretofore-confined coin to drop out and into its receptacle. As soon as the weight of the coin is removed from the trip-lever 36 the retaining-pawls 33 and 37 drop into operative contact with their escapement-wheels and check the further movement of the screws and their power devices. When pennies are dropped into the coin-opening, they pass down their passage W' into the tube, and after tripping the lever 36 they immediately escape by

the end of the retaining trip-lever 38, the pawls being disengaged from their escapement-wheels only a short period, or until the wheels have made a partial revolution equal to the distance between two notches.

The spring whose power is relied upon to operate the machine is wound from the upper screw, the end of whose shaft is adapted to receive a socketed handle-piece X, whereby upon turning this shaft the upper sprocket-wheel operates the chain, which in turn operates the train of gearing shown and winds the spring.

The coin-passage is so arranged that spurious coins or dummies and coins smaller than a penny pass through and out at the rear or inner end without entering the coin-chute and operating the machinery, and finally pass into a tube and receptacle arranged to receive them.

The quadrant which controls the notches in the escapement-wheel F may be held at any desired position by means of a pin or set-screw 42, and the machine may be set with two notches of this wheel F exposed for a two-cent morning paper, and then be changed to close all but one notch to vend a one-cent afternoon paper, or may be set to uncover all of the notches, whereby a paper is sold whose price in cents equals the combined number of notches exposed or uncovered.

It is obvious that instead of using a spring-power I may employ a weight, as in my former patent. In fact I do not limit myself to any particular form of motive-power, but show and describe a spring-power as a convenient method of operating the mechanisms disclosed. I also do not limit the machine to vending newspapers, as many articles of merchandise may be likewise vended by the same mechanisms without departing from the spirit of my invention.

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

1. In a vending-machine in which the power mechanism is set in motion by the passage of a coin, a wheel or disk on the feeding device, having exposed stops upon its surface, the number of which corresponds with the full value of the article to be vended, a pawl engaging said stops, a cut-off for covering one or more of said stops to correspond with the change in value of the article to be vended, and a mechanism depending for its operation upon the deposit of a coin in the machine for releasing the wheel or disk and allowing it to be turned until arrested by the next exposed stop being engaged.

2. In a vending-machine in which the power mechanism is set in motion by the passage of a coin, a device carried by the feeding mechanism, having stops equivalent to the full number of movements necessary to impart a full movement to the feeding device, a pawl engaging said stops, and a means whereby one or more of said stops may be cut off or

covered to increase the distance between successive exposed stops, thereby increasing the extent of rotation of the feeding devices to correspond with the value of the coin deposited and article to be vended.

3. In a vending-machine in which the power mechanism is set in motion by the passage of a coin, a device carried by the feeding mechanism, having stops on its surface, a means for covering a part of or all of said stops, and a pawl engaging said stops, whereby a full movement of the feeding devices is obtained upon the deposit of one coin of predetermined value or is dependent upon the deposit of a number of coins of lesser value equivalent to the number of stops exposed.

4. In a vending-machine having horizontal revoluble feeding-screws between the threads of which the articles to be vended are fitted, an escapement-wheel on the shaft of one of said screws, having notches in its edge, the number of which is equivalent to the full value of the articles vended, a pawl normally in engagement with the wheel, and a pivoted trip-lever having one end arranged in the path of the coin and the other end connected with the pawl, whereby the passage of the coin depresses the lever and raises the pawl out of contact with the wheel and permits the latter to be revolved a distance equivalent to the space between two adjacent notches.

5. In a vending-machine in which the power mechanism is set in motion by the passage of a coin, a means for holding the power mechanism normally at rest, a trip-lever having one end in the coin-chute in the path of the coin and its opposite end in contact with the devices for controlling the power devices to release said devices and set the power mechanism in motion, and a means for temporarily suspending the coin upon the trip-lever during the complete movement of the feeding devices and then automatically releasing the coin.

6. In a vending-machine in which the power mechanism is set in motion by the passage of a coin, a disk or escapement-wheel on the feeding devices, having stops on its surfaces, each of which denotes a coin of small value and whose combined number is equivalent to the full value of the article vended, a pawl normally in contact with said stops to hold the disk and power devices at rest, and a pivoted trip-lever having one end in the path of the coin and the other end adapted to lift the pawl out of contact with its engaged stop, but allowing it to engage the succeeding stop to check the power mechanism, whereby the full movement of the feeding devices is dependent upon the number and value of the coins deposited and the number of stops with which the pawl engages.

7. In a vending-machine in which the power mechanism is set in motion by the passage of a coin, the feeding devices, a disk or escapement-wheel on the feeding devices, having its surfaces formed or provided with stops, each

of which denotes a component of a coin of the full value of the article vended, a pawl engaging said stops to check the power devices, whereby a partial movement only is given the feeding devices, and a trip-lever having one end in the path of the coins to be tripped thereby and its opposite end connected with the pawl, whereby upon the deposit of each component coin the pawl is lifted out of contact with its engaging stop and is adapted to engage the succeeding stop to check the feeding devices and power mechanism.

8. In a vending-machine in which the power devices are set in motion by the passage of a coin, a disk or escapement-wheel connected with the feeding devices and having stops upon its surface, the number of which is dependent upon the number of coins of small value whose combined values equal the value of the article vended, a cut-off for covering any one or more of said stops, and a mechanism for periodically releasing the power devices upon the deposit of each fractional coin and permitting the feeding devices to make a partial movement equivalent to the distance between two adjoining exposed stops, whereby the combined movements necessary to produce a full movement of the feeding devices to discharge the vended article is equal to the number of stops exposed and fractional coins deposited.

9. In a vending-machine in which the power mechanism and feeding devices are set in motion by the deposit of a coin, a disk or escapement-wheel connected with the feeding devices and having stops on its surface, each of which represents a fraction of the full value of the article vended, a retaining and releasing mechanism actuated by the trip-lever of the machine for starting and stopping the power devices upon the deposit of coins representing fractions of the value of the article vended, and a means for holding the trip-lever depressed and the starting and stopping devices out of contact with the power devices upon the deposit of a single coin of the full value of the article vended, whereby the article is advanced to its discharge upon the deposit of a plurality of coins whose combined value equals the value of the article or upon the deposit of a single coin of the full value of said article.

10. In a vending-machine having revoluble screws between the threads of which the articles to be vended are fitted, a disk or escapement-wheel on the axis of one of the screws, having its edge notched to represent fractional parts of the full value of the article vended, a motor and a train of gearing connected therewith, a cam-wheel actuated by said gearing and having a stop or shoulder, a pivoted trip-lever having one end in the path of the coin, and a rock-shaft with its pawls, one of said pawls being in normal engagement with the trip-lever and the shoulder or stop of the cam-wheel and the other pawl being in contact with the notches of the escape-

ment-wheel, whereby the deposit of the coin lifts both pawls out of contact with their stops and sets the power and feeding devices in motion.

11. In a vending-machine having revoluble feed-screws between the threads of which the articles to be vended are fitted, the disk or escapement-wheel on the axis of one of the feed-screws, having its surface formed with stops representing fractions of the value of the article vended, a quadrant or cut-off for covering one or more of said notches to correspond with the change in value of the article vended, a pivoted trip-lever actuated by the passage of the coin, and a pawl engaging said notched escapement-wheel and actuated by the trip-lever to start and stop the power devices and feed-screws.

12. In a vending-machine having revoluble screws between the threads of which the articles to be vended are fitted, the disk or escapement-wheel on the axis of one of said screws and having its edge notched to represent fractions of the full value of the article vended, a revoluble quadrant or disk on the feed-screw and operating against the face of the escapement-wheel to cover all or a part of its notches, a means for holding the quadrant in position, a power device for operating the feed-screw, a pawl engaging the notches of the escapement-wheel, and a trip-lever actuated by the coin and having one end connected with the pawl and operating it, substantially as herein described.

13. In a vending-machine having the revoluble feed-screws between the threads of which the articles to be vended are fitted, a motor mechanism and train of gearing for operating the screws, a coin-chute with independent passages for coins of different values, a trip-lever having one end in the path of the coins from both passages, a lever partially closing the discharge of the coins, so as to permit the escape of coins of lesser value, but to temporarily hold the coins of greater value suspended upon the trip-lever, whereby the power devices and feed-screws are released and kept in motion during the period of suspension of said coin, and a cam in the train of gearing for operating against the retaining-lever to cause it to uncover the coin-discharge and release the suspended coin and enable the trip-lever to resume its normal position.

14. In a vending-machine having revoluble feed-screws between the threads of which the articles to be vended are fitted, a notched disk or escapement-wheel on the axis of one of the feed-screws, a quadrant or cut-off controlling said notches, a spring-motor and a train of gearing operated thereby and including the gear-wheel 20 on the axis of the feed-screw and provided with a cam, the cam-wheel F' on a counter-shaft in said train of gearing, a rock-shaft having pawls engaging, respectively, the cam-wheel and escapement-wheel for controlling the power and feeding

devices, a pivoted trip-lever for actuating the rock-shaft, having one end in the path of the coins, and a second lever controlling the discharge of the coins of predetermined value, said lever being in the path of and actuated by the cam, substantially as and for the purposes described.

15. In a vending-machine, the upper and lower revoluble feed-screws, the follower engaging the threads thereof and supporting the articles to be vended, a loosely-suspended bar for retaining the upper ends of the articles against the follower and prevent their falling forward, the sprocket-wheel and chain, and a power device for operating the same, substantially as herein described.

16. In a vending-machine, the upper and lower screws having sprocket-wheels on their inner ends, the endless chains, the guide-pulley therefor, and a spring-power device connected with one of the lower feed-screws, said upper screw having its shaft or outer end adapted to receive a socketed handle-piece,

whereby the spring-power device may be wound, substantially as herein described. 25

17. In a vending-machine, the combination of the power and feeding devices, a coin-chute having separate passages for coins of different values, a cam at the entrance to each of the coin-passages for separating the coins and directing them into their passages, a trip-lever in the path of the coins of lesser value and actuated thereby to start the feeding mechanism in motion, and a second lever closing the discharge of the chute for the coins of greater value and actuated at predetermined times by the power mechanism, whereby the coins of greater value are temporarily held within their passage during the movements of the feeding devices, substantially as herein described. 30 35 40

ROBERT MORAN.

Witnesses:

J. W. CROW,
EDWARD MORAN, Jr.