

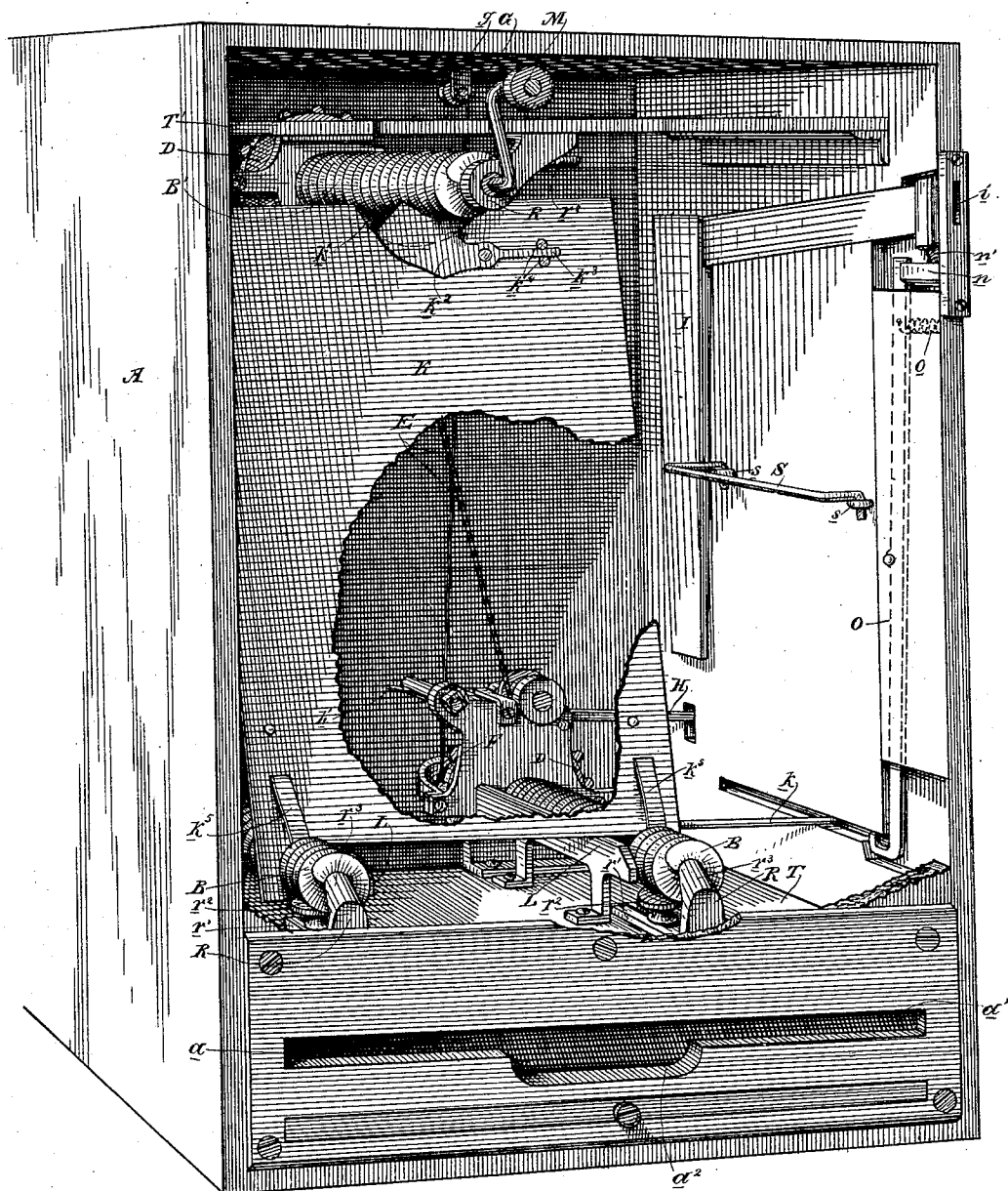
(No Model.)

3 Sheets—Sheet 1.

R. MORAN.
COIN ACTUATED VENDING MACHINE.

No. 472,507.

Patented Apr. 5, 1892.



Witnesses,
G. House
H. F. Aschbeck

Fig. 1.

Inventor,
Robert Moran
By Dewey & Co.
attys

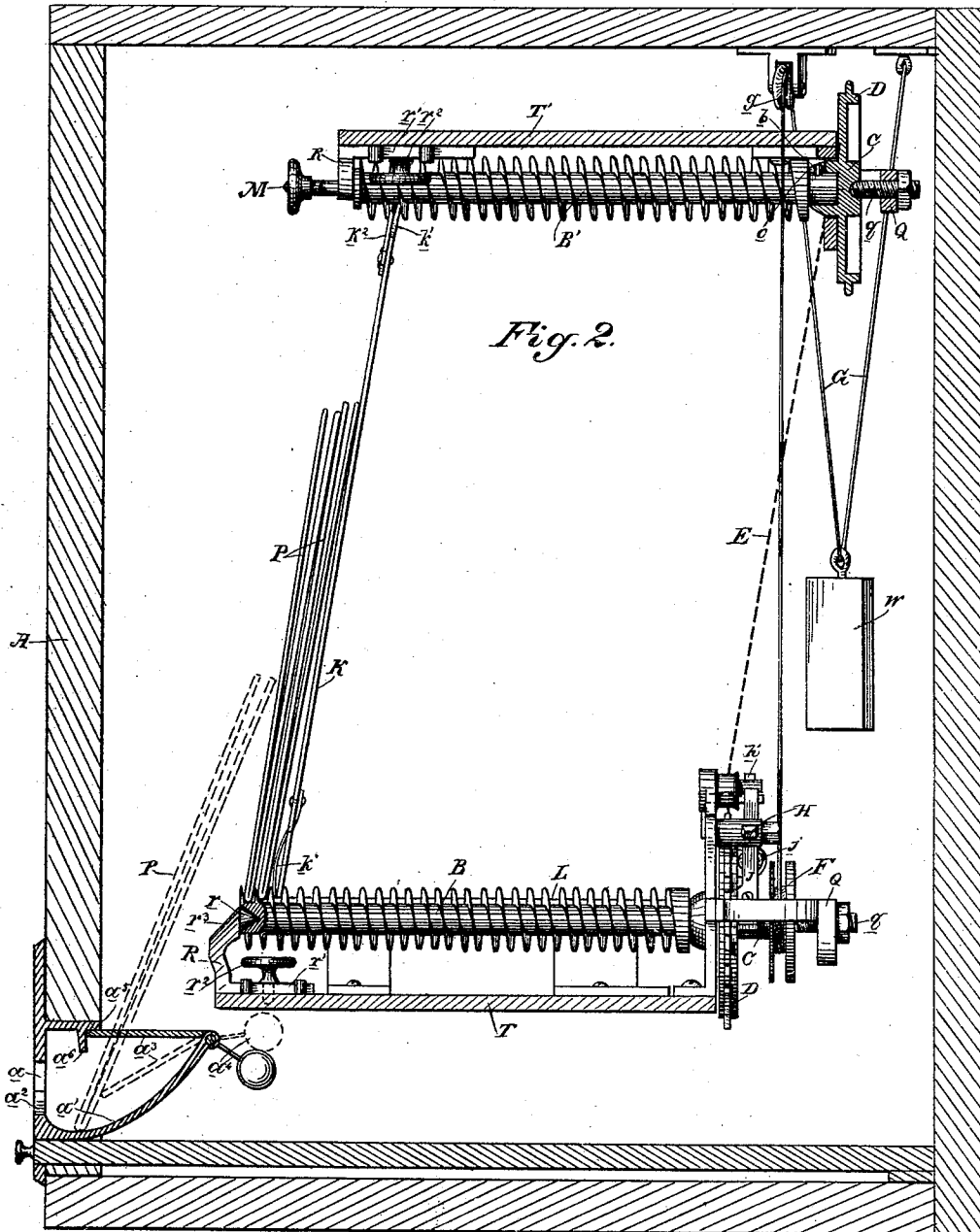
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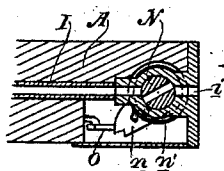
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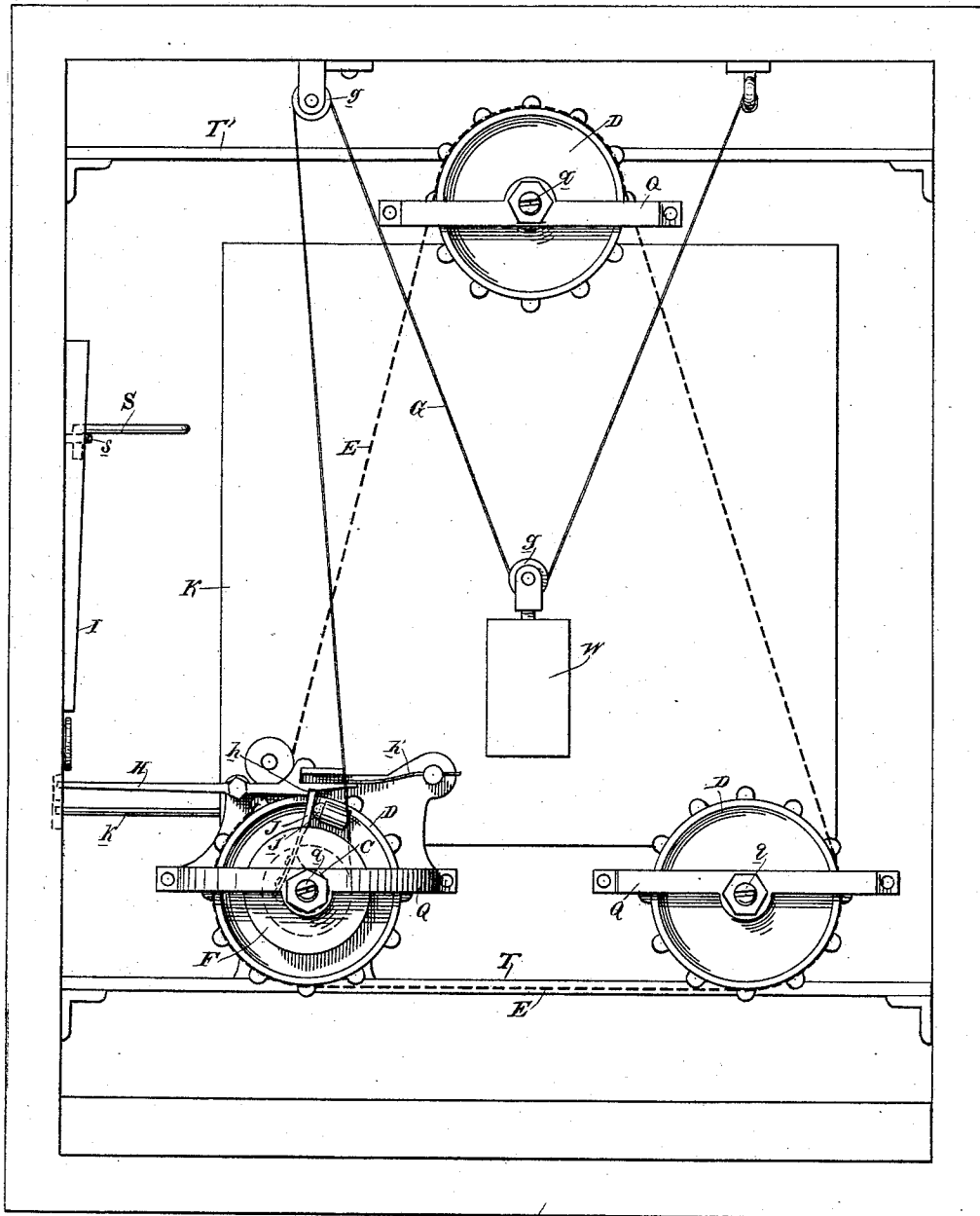


Fig. 4.

Witnesses,
J. B. House
H. F. Alscheck

Inventor,
Robert Moran
By Dewey & Co.

UNITED STATES PATENT OFFICE.

ROBERT MORAN, OF SEATTLE, WASHINGTON.

COIN-ACTUATED VENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 472,507, dated April 5, 1892.

Application filed November 11, 1891. Serial No. 411,626. (No model.)

To all whom it may concern:

Be it known that I, ROBERT MORAN, a citizen of the United States, residing at Seattle, King county, State of Washington, have invented an Improvement 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.

My invention 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, 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 horizontal section through the coin-slot. Fig. 4 is a rear view.

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.

Upon one of the shafts C is a winding-drum

F, and upon this is wound a cord G, which passes upwardly over suitable pulleys *g* and suspends a weight W.

H is a pivoted trip-lever, having a catch-shoulder *h* and controlled by a light spring *h'*. The outer end of this lever lies under the lower end of the coin-chute I, whereby the coin dropping upon it will tilt it momentarily.

Upon shaft C is secured a stop J, and in the path of rotation of this stop the catch-shoulder *h* of the trip-lever H lies.

K is a follower-plate. This has its bottom and top fitted into the threads of the screws B B' and lies at a slight backward angle.

L L are fixed rests located beside the feed-screws B.

The operation of the machine is as follows: The papers P are placed with their lower edges supported on rests L L and fitted in the threads of the lower screws B. The body of papers rests against the follower-plate K. The parts are all in a state of rest by reason of the engagement of the stop J with the catch-shoulder *h* of trip-lever H. Now when a coin is dropped through chute I it falls on the end of lever H and tilts it. This relieves the engagement of its shoulder with stop J, and the weight W will then turn all the shafts C and the screws B B' will be revolved. The papers will thus be fed forward, the plate K following them up, and the foremost paper will be dropped off the end of screws B into discharge-slot *a*. Only one paper is thus dropped, for by this time the stop J will have come to fresh engagement with the catch-shoulders *h* of trip-lever H, which has returned to position under the influence of its spring *h'*. The parts are then again in a state of rest and ready for a repetition of the operation. The winding-drum F is of advantage in the connection, because as the cord winds on it its diameter is increased, and therefore the weights act more powerfully at first and gradually decrease in power. This is proper, for then the last paper is discharged with no more force than the first. The weight when run down may be wound up again by a crank M applied to the end of the top screw C. In thus reversing the screws the follower-plate K will be run back to ini-

tial position, ready for the reloading of the machine.

Instead of a weight as the actuating power, I may use a spring-controlled drum or barrel for a power device, and in small or single machines this is to be preferred.

The slot-entrance *i* to the coin-chute is adapted to be automatically closed when the machine is exhausted, as follows: Behind this slot and located in the chute is an oscillatory slotted plug *N*, having a side-projecting controlling catch-arm *n*. The plug is normally held by a spring *n'* in such a position that its slot will be out of line with entrance-slot *i*, and the latter will therefore be closed.

O is a pivoted lever controlled by a spring *o*. Its upper end is adapted to engage the catch-arm *n* of plug *N* and to hold said plug in a position with its slot in line with entrance-slot *i*, and the latter is then open. The lower end of the lever *O* is in the path of a side arm *k* of the follower-plate *K*. Now when the follower-plate reaches its forward limit and the last paper has been discharged its arm *k* comes in contact with lever *O* and swings said lever, so that its upper end releases itself from the catch-arm *n* of plug *N*, whereupon said plug is turned by its spring *n'* to a closed position and no more coins can be deposited in the machine.

The discharge-slot *a* of the case is guarded as follows: Behind this slot is a shallow receptacle *a'*, with a depression *a²* in its front wall for permitting the buyer to insert his fingers and reach the bottom edge of the paper after it has been dropped into the receptacle. To the top of the back wall of the receptacle is pivoted a guard plate or shutter *a³*, which is held up to a closed position by a weighted arm *a⁴*, but can move downwardly under the weight of a paper. The shutter closes against a flange *a⁵*, having a downwardly-projecting lip *a⁶*, which protects its edge and prevents the insertion of an instrument with a view to pulling the shutter down.

In order to readily insert and remove the follower-plate *K* from the threads of the screws *B* and *B'*, I cut a recess or notch *k'* in its top edge. In this is fitted a swinging plate *k²*, having a pivoted handle *k³*, adapted to be engaged between two small studs *k⁴*. Upon inserting the follower the plate *k²* is lowered, and when the follower has reached its proper position with relation to the threads of the upper screw *B'* the plate *k²* is raised to engagement with said threads and held therein by its handle *k³*, fitting between studs *k⁴*.

In order to prevent any of the papers from getting down into the same thread of screws *B* in which the follower-plate *K* is fitted, I have a spring-plate *k⁵* fitted to the back of the lower portion of the follower-plate and passing forwardly through an opening therein. The lower edge of this spring-plate fits in and fills up the thread in which the follower-plate rests.

In order to provide for the ready removal

of the screws and the substitution of others of different pitch for different sizes of articles to be vended I have the following construction: The shafts *C* of the several sprocket-pulleys *D* in practice constitute their hubs. These hubs on their outer ends are supported upon pointed bearing pins or bolts *g*, mounted in brackets *Q*. The inner ends of these hubs are made conical and hollow and fit freely in sockets in the inner sides of the brackets. The pointed pins pass through into the hollow inner ends of the hubs. The inner ends of the screws are provided with key-pins *b*, which engage key-slots *c* in the inner ends of hubs *C*, and said inner ends of the screws enter the hollow inner ends of the hubs and are supported upon the pointed ends of pins *g*. The effect of this construction is to connect the screws with the sprocket-pulley hubs, and both are journaled and supported upon the pins *g* and not directly upon the brackets *Q*. This reduces the friction and at the same time furnishes a support for the sprocket-pulleys when the screws are removed. The outer ends of the screws are supported and journaled upon conically-pointed bearings *r*, formed on brackets *R*, having slotted feet *r'*, which fit over set-screws *r²*. By tightening these screws the brackets are held in place. By loosening them the brackets may be readily withdrawn, thus freeing the outer ends of the feed-screws, which may then be removed from their inner end bearings. The tops of brackets *R* are downwardly inclined, as shown at *r³*, to facilitate the drop of the foremost paper, and the front ends of the rests *L L* are likewise inclined for the same purpose.

S is a side guard-rail for the ends of the papers to hold them well in position. It consists of a removable bail providing for the substitution of another of different width for different papers. It is merely dropped into perforated bearings *s*, from which it can easily be removed.

T is the lower plate upon which the lower screws and connected parts are mounted, and *T'* is the upper plate for the upper screw and connections.

In order to prevent the jar of the contact of stop *J* with catch-shoulder *h*, I make the stop of a springy character and back it up by a buffer or cushion *j*, which receives and modifies the shock.

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

1. In a coin-actuated vending-machine, the combination of upper and lower horizontally-disposed revoluble screws, between which the articles to be vended are supported and by which said articles are held in an upright position, and a mechanism depending for its operation upon the deposit of a coin in the machine for revolving said screws, whereby the articles are advanced to their discharge, substantially as herein described.

2. In a coin-actuated vending-machine, the

combination of two or more revoluble screws supporting between them the articles to be vended, said articles fitting their edges between the threads of said screws, and a power device depending for its operation on the deposit of a coin in the machine for revolving said screws, whereby the articles are advanced to their discharge, substantially as herein described.

3. In a coin-actuated vending-machine, the combination of separated screws, between the threads of which the articles to be vended are fitted, connections between said screws, whereby they operate in unison, a power device applied to one of said screws, and a controlling mechanism operated by the deposit of a coin in the machine for starting and stopping the power device, substantially as herein described.

4. In a coin-actuated vending-machine, the combination of revoluble screws, between the threads of which the articles to be vended are fitted and supported at opposite sides, a follower-plate fitted to said screws for supporting said articles and accompanying them in their advance, a power device to revolve said screws, and a controlling mechanism operated by the deposit of a coin in the machine for starting and stopping the power device, substantially as herein described.

5. In a coin-actuated vending-machine, the combination of the revoluble screws, between the threads of which the articles to be vended are fitted and supported at opposite sides, and the parallel rests L L beside said screws for supporting the lower edges of the articles, substantially as herein described.

6. In a coin-actuated vending-machine, the combination of the separated lower screws, between the threads of which the articles to be vended are fitted, the upper screw, connections by which said screws are revolved in unison, and the follower-plate behind and supporting the articles to be vended and having its lower edge fitted between the threads of the lower screws and its upper edge fitted to the threads of the upper screw, substantially as herein described.

7. In a coin-actuated vending-machine, the combination of the lower screws, between the threads of which the articles to be vended are fitted, the upper screw, connections for revolving said screws in unison, the follower-plate fitted to said screws above and below and supporting the articles to be vended, a power device applied to one of said screws, and a controlling mechanism operated by the deposit of a coin for starting and stopping the power device, substantially as herein described.

8. In a coin-actuated vending-machine, the combination of a feed-screw, between the threads of which the articles to be vended are fitted, a power device applied to the rear end of said screw for rotating it, a stop on the shaft of the feed-screw and rotatable with said shaft, a pivoted trip-lever having a shoulder engaged by said stop, whereby the movement of the screw is arrested, and a coin-chute adapted to discharge upon the outer end of the lever to release the shoulder thereof from engagement with the stop, substantially as herein described.

9. In a coin-actuated vending-machine, the combination of a feed-screw, between the threads of which the articles to be vended are fitted, a shaft upon which the screw is carried, a hub at the inner end of the shaft, a winding-drum also on said shaft, a cord leading from said drum and having a weight upon its outer end, whereby the shaft is rotated, a stop J, secured to and rotating with the shaft, a pivoted trip-lever having a shoulder in the path of the rotatable stop for arresting the movement of the latter and of the shaft, and a coin-chute adapted to direct a coin upon the outer end of the lever to operate it and release the stop, substantially as herein described.

10. In a coin-actuated vending-machine, the combination of the coin-chute having an entrance-slot, means for automatically closing said slot when the machine is exhausted, consisting of the oscillatory plug in said chute behind the entrance-slot and having a slot made through it, a catch-arm projecting from the side of the plug, a spring engaging the plug to hold the slot out of line with the entrance-slot, whereby the latter is closed, a pivoted lever engaging and tripping said catch-arm, and the follower-plate within the machine having a side arm for operating the lever, substantially as herein described.

11. In a coin-actuated vending-machine, the combination of the feed-screw, into the threads of which the articles to be vended are placed, means for operating the screw, the discharge-slot contiguous to the discharge end of the screw having the receptacle behind it, and the downwardly-swinging plate or shutter over the top of said receptacle, substantially as herein described.

12. In a coin-actuated vending-machine, the combination of the feed-screw and its operative mechanism, the discharge-slot having the receptacle behind it, the automatically-swinging shutter or plate above said receptacle and contiguous to the discharge end of the screw, and the flange with its guard-lip for protecting said shutter or plate, substantially as herein described.

13. In a coin-actuated vending-machine, the combination of the upper and lower horizontally-disposed revoluble screws and means for operating the same, and a follower-plate having spring-plates at its opposite ends fitted between the threads of the screws, whereby the plate is moved forward, substantially as herein described.

14. In a coin-actuated vending-machine, the feed-screws thereof, in combination with sprocket-pulleys having the hubs C, with which the inner ends of the screws are removably connected, the brackets Q, in which the

inner ends of the wheel-hubs are fitted, and the pointed bearing-pins mounted in said brackets and passing through the sprocket-wheel hubs into the ends of the screws, substantially as herein described.

15. In a coin-actuated vending-machine, the feed-screws having a removable connection at their inner ends, in combination with the removable brackets R at their outer ends, said brackets having the pointed bearings and slotted feet, and the set-screws over which said feet are fitted, substantially as herein described.

16. In a coin-actuated vending-machine, the combination of the feed-screw, the revolving spring-stop connected therewith, the trip-lever having the catch-shoulder with which the stop engages, and the buffer or cushion behind the stop to take up the jar of contact, substantially as herein described.

In witness whereof I have hereunto set my hand.

ROBERT MORAN.

Witnesses:

S. H. NOURSE,

H. F. ASCHECK.