

No. 751,276.

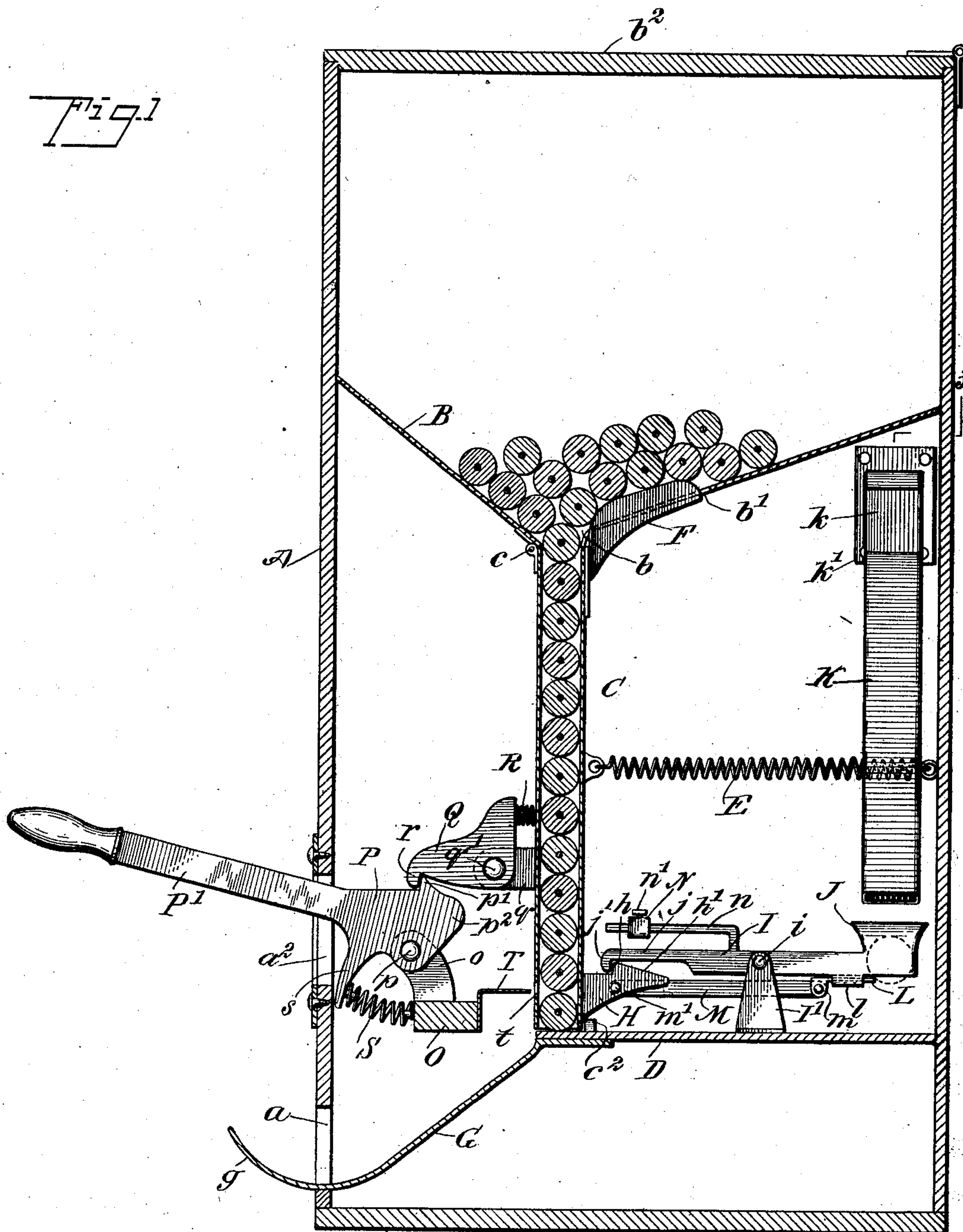
PATENTED FEB. 2, 1904.

W. FORSYTHE.
VENDING MACHINE.

APPLICATION FILED APR. 11, 1903.

NO MODEL.

3 SHEETS—SHEET 1.



WITNESSES:

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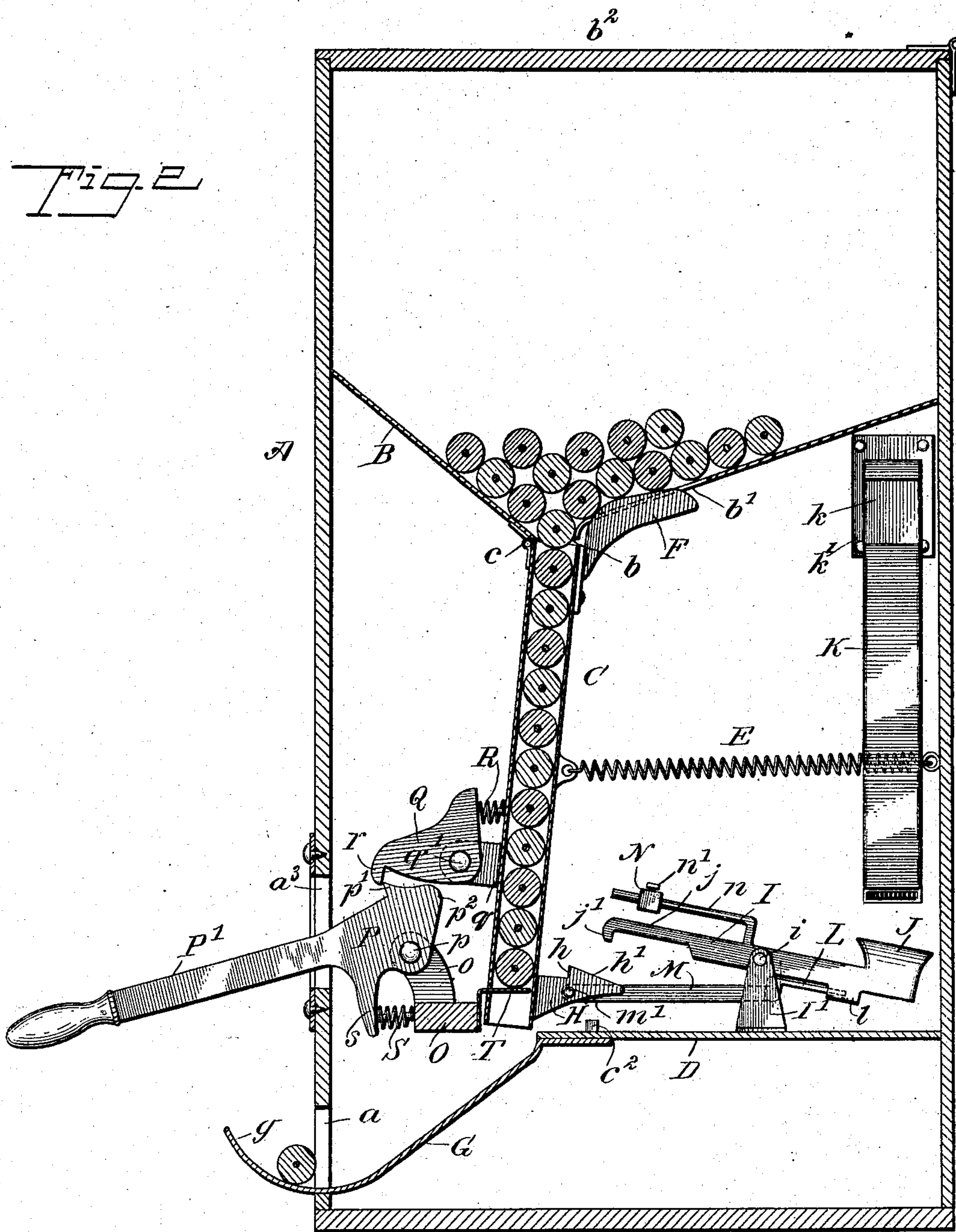
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3 SHEETS—SHEET 2.



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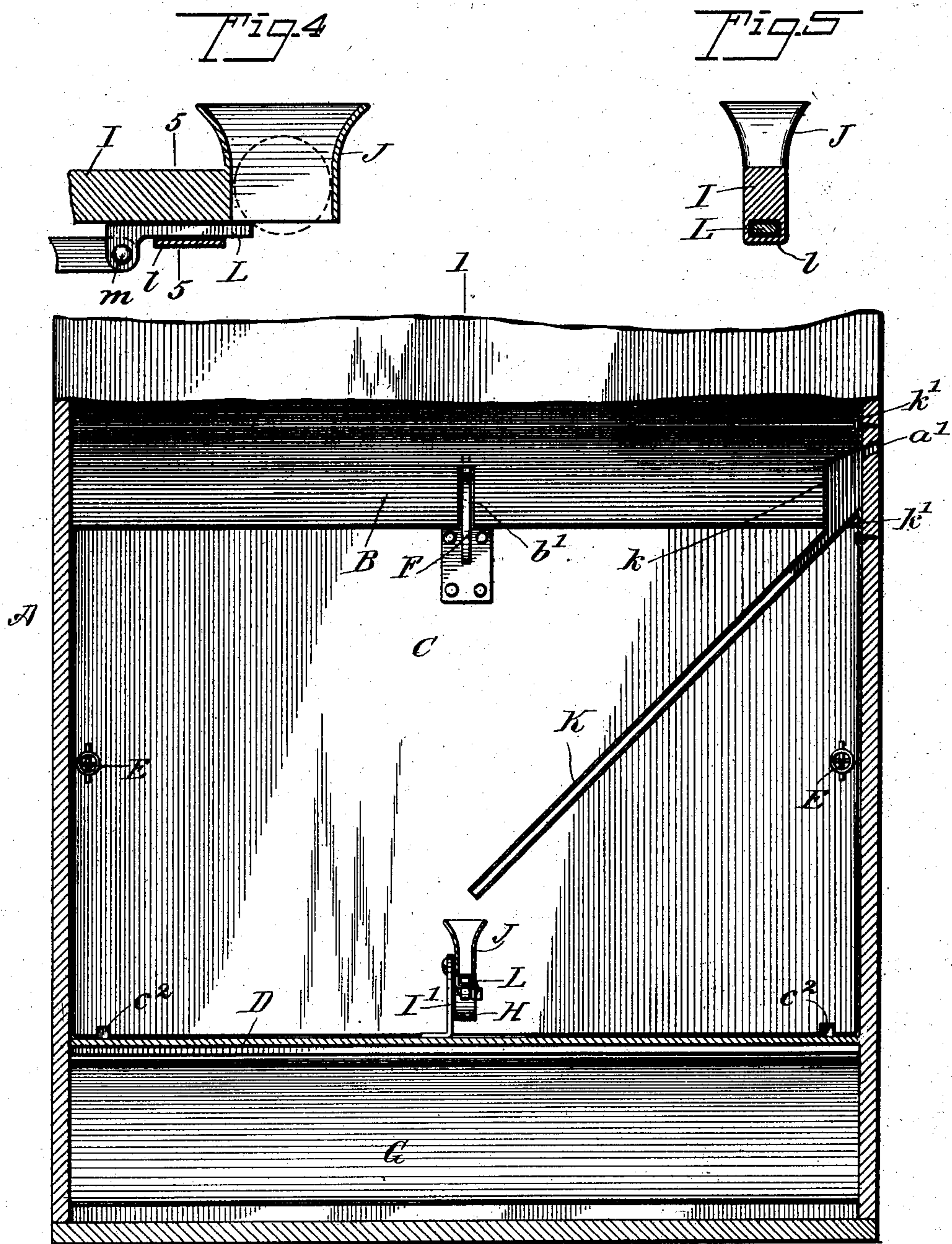
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3 SHEETS—SHEET 3.



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Fig. 3

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UNITED STATES PATENT OFFICE.

WILLIAM FORSYTHE, OF TAMA, IOWA.

VENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 751,276, dated February 2, 1904.

Application filed April 11, 1903. Serial No. 152,121. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM FORSYTHE, a citizen of the United States, and a resident of Tama, in the county of Tama and State of Iowa, have invented a new and Improved Vending-Machine, of which the following is a full, clear, and exact description.

My invention relates to improvements in vending-machines of that class which are to be placed in a condition for operation on the deposit of a predetermined coin or its equivalent in the machine.

One object that I have in view is the provision of a simple and efficient mechanism for vending lead-pencils and any other objects of a similar nature, said vending mechanism being normally and securely locked and adapted when released by the deposit of a coin to be easily operated by an exposed part so as to discharge a pencil or its equivalent.

A further object that I have in view is a novel form of releasing mechanism which can only be actuated by the deposit of a coin or slug of the proper weight and size.

Further objects and advantages of the invention will appear in the course of the subjoined description, and the novelty will be defined by the annexed claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a vertical sectional elevation through a vending-machine constructed in accordance with my invention and showing the parts in their normal locked positions, the plane of the section being indicated by the dotted line 1 1 of Fig. 3. Fig. 2 is a view similar to Fig. 1, showing the parts in the position they assume when the carrier is operated to deliver one of the articles therefrom. Fig. 3 is a vertical section at right angles to Figs. 1 and 2, taken in the plane of the dotted line 3 3 of Fig. 1. Fig. 4 is an enlarged sectional elevation through a part of the coin-actuated releasing mechanism, and Fig. 5 is a transverse section in the plane of the dotted line 5 5 of Fig. 4.

A indicates a casing of any suitable style. Said casing is provided in its front with an

article-delivery slot or opening *a*, and in one side of the casing is a coin-receiving slot *a'*. The casing is, furthermore, provided with a vertical slot *a''* in the front wall thereof and above the article-delivery slot *a*, the last-named slot being arranged in a horizontal position across the lower front part of the casing.

The merchandise to be vended by the machine is contained or stored in a magazine or hopper, (indicated at B in the drawings,) said hopper being suitably provided in the upper part of the casing A, and access to this hopper is obtained by a hinged door or cover *b'*. The hopper or magazine is provided in its bottom with an exit opening or slot *b''*, and the bottom walls of said hopper are inclined, so as to converge toward this opening *b''*, thus allowing the articles contained in the hopper to move by gravity toward the opening and a vertical article-carrier C. This article-carrier is shown in the form of an elongated tube or chute the width of which is equal to the length of the articles, such as pencils, which it is desired to dispense from the machine. The thickness of the carrier tube or chute slightly exceeds the diameter of the articles, and this carrier tube or chute may be of any suitable length, so as to contain a number of the articles, as represented by Figs. 1 and 2. The carrier tube or chute is disposed in a vertical position below the hopper or magazine, and this tube is movable with relation to said hopper and to a stationary plate or platform D, the latter being secured in any appropriate way in the lower part of the casing A. The carrier-chute C may be mounted within the machine-casing in any appropriate way; but, as shown by Figs. 1 and 2, this chute is pivoted or hinged at its upper corner, as at *c*, the hinged connection being provided at the point where the carrier-chute joins with the bottom of the magazine. The carrier-chute is held normally in a vertical position between the magazine B and the platform D by means of a suitable retractor, herein shown as embodied in a coiled spring E, one end of said spring being fastened in a suitable way to the casing, while the other end thereof is attached to the opposite side of the carrier-chute from its hinged

connection *c* with the magazine. The carrier-chute is held by the spring and a coin-released locking mechanism to be hereinafter described, so that its upper end will register with the opening *b'* in the hopper B, thus permitting the articles to pass from the hopper into the carrier-chute. To prevent the articles from lodging or clogging in the magazine, I provide an agitator which is embodied in the form of a plate or web F, the same being fastened to the upper corner of the carrier-chute on the opposite side from the hinge *c*. This agitator extends upwardly from the carrier-chute, and it is movable therewith, said agitator passing freely through a slot *b*, which is provided in the bottom of the magazine, said agitator being also projected into the magazine, so as to engage with the articles contained therein.

The plate or platform D is arranged a suitable distance above the bottom of the casing, and from this platform extends a delivery-chute G, the same being shown as attached to the front edge of the platform and inclined downwardly and forwardly therefrom, so as to pass through the delivery-slot *a*, the lower free edge of this delivery-chute being curved in an upward direction, as at *g*.

The hinged carrier-tube C is provided on its rear side with a jaw H, the same being fixed in any suitable way to said chute at the lower portion thereof and directly above the stationary platform or plate D. This jaw extends rearwardly from the carrier-chute, and the upper face thereof is recessed to form a locking-shoulder *h* at a point intermediate of the jaw, said upper face of the jaw being inclined or beveled at *h'* in a downward and rearward direction. With this jaw on the movable carrier-chute coöperates a locking member I, the same being arranged in a horizontal position in rear of the carrier-chute and fulcrumed at a point intermediate of its length by a pin or bolt *i* to an upstanding bracket I', which is fixed to the plate or platform D. The front end of this lever I is reduced to form a finger *j*, having a beak *j'* disposed in overhanging relation to the jaw H and adapted to engage with the shoulder or ledge *h* of said jaw, whereby the lever may have interlocking engagement with the jaw H for the purpose of preventing the carrier-chute from swinging or turning on its pivot *c*. The opposite or rear end of the locking-lever I is provided with a coin-holder J, which is shown by Figs. 3 and 4 in the form of a cup having a flared upper end, which provides for the easy passage of a coin into the same. This cup-shaped coin-holder may be made in one piece with the locking member or fastened thereto in a suitable way, and said coin-holder is open at its upper and lower ends.

A coin is adapted to be deposited in the slot *a'* of the casing A, and with this slot communicates an inclined coin-tube K, said tube ex-

tending inwardly from one side of the casing and overhanging the coin-holder J, as shown by Fig. 3. The upper portion of the coin-tube K is enlarged to form an angular mouth *k*, which is flanged, as at *k'*, and is adapted to be secured in a suitable way to the casing. This offset or angular mouth of the coin-tube is fastened to the casing in a way to make the slot *a'* communicate directly therewith, and this construction brings the passage of the coin-tube K out of alinement directly with the coin-slot *a'*, thus preventing the introduction of a wire or other instrument into the casing in a way to operate the locking-lever I for the purpose of releasing the same from engagement with the carrier-chute C.

A coin or slug deposited in the holder J on the locking-lever I is prevented from falling or dropping through the coin-holder in the normal position of the parts by a cut-off or valve L, the same being shown by Figs. 1, 2, and 4 in the form of a plate which is slidably confined in a guide or loop *l* on the under side of the lever. This cut-off L is pivoted at *m* to the rear end of a link or pitman M, the latter being arranged in a horizontal position below the lever I and having its forward end pivoted at *m'* to the locking-jaw H. In the normal position of the movable carrier-chute C and its jaw H the link M holds the cut-off plate L part way across the lower open end of the coin-holder J, (see Fig. 4,) thus preventing the coin from passing through said holder; but when the carrier-chute and the jaw are moved in a forward direction and to the position represented by Fig. 2 the jaw pulls on the link M and the latter moves the cut-off L forwardly, thus withdrawing the cut-off from the path of the coin and allowing the latter to drop from the holder J onto the platform D or into a suitable receptacle. (Not shown.)

The lever I of the coin-actuated locking device is normally depressed by the inertia of a counterpoise N, which is adapted to be clamped adjustably on an arm *n*, attached to a part of the lever I, said counterpoise being held in a predetermined position on said arm by a binding-screw *n'*. The counterpoise is of sufficient weight to depress the beak-formed end of the lever I against the weight of the coin-holder J; but when a coin of proper weight and denomination is deposited in this coin-holder it overcomes the inertia of the weight and tilts the lever to the inclined position shown by Fig. 2, thus withdrawing the beak *j'* from engagement with the shoulder *h* of the jaw H and releasing the carrier-chute C from the restraint of the locking-lever.

The means for actuating the carrier-chute will now be described, the same being shown more clearly by Figs. 1 and 2. A horizontal rail O is secured in a suitable way within the lower part of the casing about on a level with the plate D and in front of the carrier-chute

C. This rail is provided with an upstanding post *o*, on which is fulcrumed the cam-shaped head *P* of a lever *P'*, the latter passing loosely through the slot *a*² in the casing. This lever-head *P* is fulcrumed on the post *o* by a pin or bolt *p*, and said lever-head is provided on its upper side with a shoulder *p'* and with a cam-surface *p*². On the front side of the carrier-chute is a lug *q*, on which is pivoted at *q'* a latch *Q*. This latch is provided at its free end with a lip *r*, and said latch is pressed in a downward direction by a spring *R*, so that the lip *r* will engage with the shoulder *p'* of the lever-head *P*. The lever *P'* has a depending finger *s*, which is engaged by a pressure-spring *S*, the latter being confined on the stationary rail *O*, said spring serving to normally hold the lever *P'* in a raised position and the shoulder *p'* of said lever-head engaging with the lip *r* of the latch *Q*.

The carrier-chute *C* is provided in its front side and near its lower end with a slot *t*, through which is adapted to pass a valve-plate *T*, which is shown by Figs. 1 and 2 as being fixed to the rail *O* in a position to lie in the path of the carrier-chute on the forward movement thereof. This valve-plate is adapted to enter the carrier-chute when the same is drawn in a forward direction by the action of the lever *P'*, whereby the valve-plate enters the carrier-chute at a point above the lowermost article which is to be delivered and arrests the descent of the remaining articles contained in said chute. It is evident that the valve-plate may be adjusted in such relation to the carrier-chute as to deliver more than one article; but this position of the valve-plate may be readily changed by a skilled mechanic.

The operation of the apparatus may be described, briefly, as follows: Assuming that the apparatus is loaded or charged and that the parts are in the positions shown in Fig. 1, the purchaser drops a coin of the proper size, weight, and denomination in the slot *a'*, which coin passes through the tube *K* and drops into the holder *J*, so as to engage with the cut-off *L*. The weight of the coin in said holder overcomes the counterpoise, and the lever *I* is tilted to the position shown by Fig. 2, thus releasing its beak from the jaw. The operator now depresses the lever *P'*, which turns on the axis *p* and causes the shoulder *p'* to act against the lip *r* of the latch *Q*, thus drawing the carrier-chute *C* in a forward direction against the energy of the spring *E* and making said chute take the position shown by Fig. 2. This forward movement of the chute brings its lower end beyond the edge of the plate *D*, so that the lowermost article in said chute will drop upon the delivery-chute *G*, along which it rolls to a point outside of the casing and until arrested by the upturned lip *g*. On the forward movement of the chute *C* the valve-plate *T* enters the lower end of said chute and prevents more than one article from

dropping therefrom. The depression of the lever *P'* turns the head *P* to a position wherein the cam-surface *p*² will ride against the latch *Q*, thus lifting the latch *Q* for the lip *r* to lie out of the path of the shoulder *p'*, whereby the lever may be operated the full distance to move the carrier-chute *C* to a position clear beyond the edge of the plate *D*. When the lever *P'* is released, the spring *S* returns it to the normal raised position, and the latch *Q* is adapted to yield to the movement of the shoulder *p'*, thus again engaging the latch with the lever-head, when the parts are restored to normal. The disengagement of the latch *Q* from the lever-head allows the spring *E* to return the carrier-chute *C* to a vertical position over the plate *D*, and the jaw *H* is thus again engaged with the beak *j'* of the lever *I*, whereby the carrier-chute is locked in its vertical position. The restoration of the carrier-chute to its normal position withdraws the valve-plate *T* from said chute and allows the articles contained in said chute to drop therein for the lowermost article to rest upon the plate *D*, thus placing the machine in condition for renewed operation.

Although I have shown and described the machine as adapted for vending pencils, it will be understood that the machine by properly changing the sizes and proportions of some of its parts may be used for vending different kinds of merchandise.

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

1. A vending-machine having a magazine, a carrier tube or chute in communication with said magazine, a locking mechanism for normally holding said carrier tube or chute from movement, means for closing said chute in the normal locked position thereof, and means for positively moving said carrier tube or chute when free from the restraint of said locking mechanism, said tube or chute being movable relative to the magazine and the closing means therefor.

2. A vending-machine having a magazine, a carrier tube or chute hinged to and depending from said magazine, a locking mechanism for said carrier tube or chute, means for closing the lower portion of said chute in the normal locked position thereof, means for operating said carrier-tube, and means for returning said carrier-tube to normal position, said chute being movable by the operating means relative to the closing means for opening an article-delivery passage through the chute.

3. A vending-machine having a magazine, a carrier tube or chute hinged thereto, an agitator device controllable by said carrier tube or chute and operable in said magazine, a locking mechanism for said tube or chute, and manually-operable means for moving the chute on the release of the locking mechanism.

4. A vending-machine having a magazine provided in its bottom with a slot, a movable

carrier tube or chute normally communicating with said magazine, an agitator-plate movable with said carrier tube or chute and projecting through the slot in said magazine, a locking mechanism for said tube or chute, and manually-operable means for moving the chute on the release of the locking mechanism.

5 5. A vending-machine having a movable carrier-tube, a locking mechanism therefor, an
10 operating-lever, and a latch carried by said carrier-tube and arranged for interlocking engagement with said lever.

6. A vending-machine having a movable carrier tube or chute, a locking mechanism there-
15 for, a spring-actuated latch mounted on said carrier-chute, and a lever having a shouldered cam-shaped head in operative relation to said latch.

20 7. In a vending-machine, the combination with a magazine, of a movable chute, an operating-lever therefor, and a latch carried by

the chute, said latch and lever having mutual interlocking relation in the normal position of the chute and adapted to be separated on the movement of the chute to its delivery 25 position.

8. In a vending-machine, the combination with a magazine, of a movable chute, an operating-lever therefor, and a yieldable latch carried by the chute and normally interlocking 30 with the lever, said latch and the lever being separable on the movement of the chute to its delivery position and the latch being yieldable to the return of the lever to its normal position. 35

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, April 6, 1903.

WILLIAM FORSYTHE.

Witnesses:

J. A. ROACH,
G. T. STRITE.