

No. 728,619.

PATENTED MAY 19, 1903.

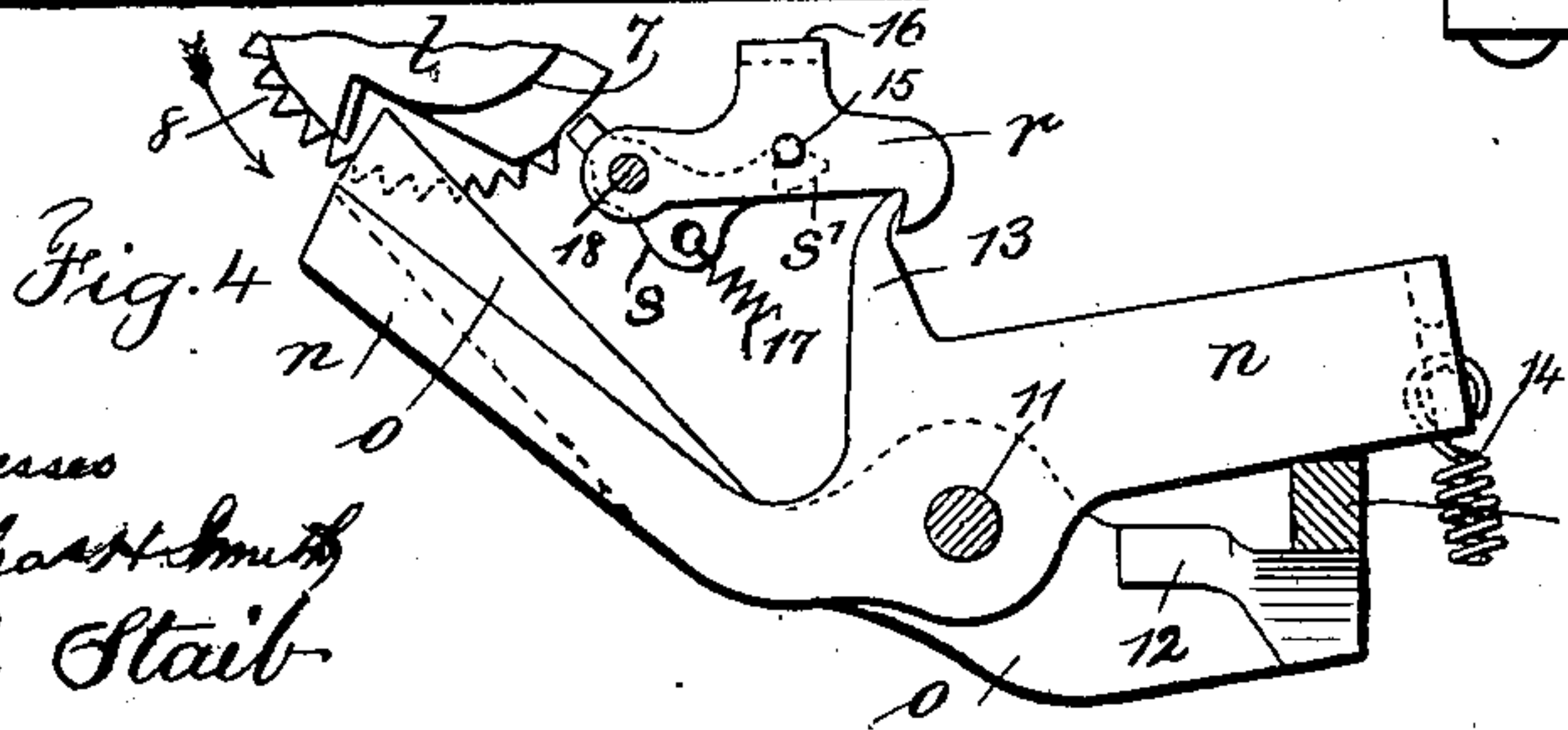
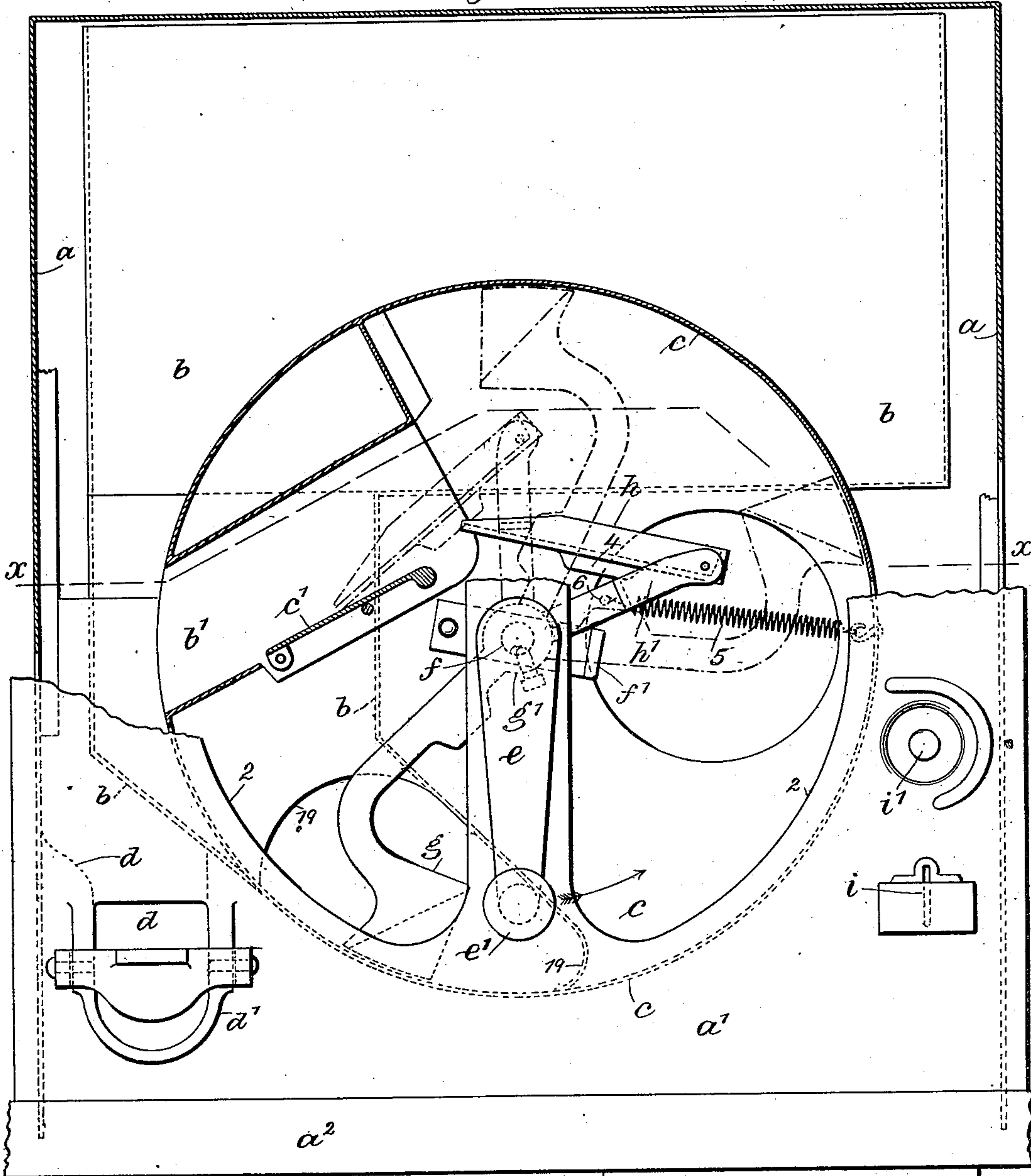
W. W. ROSENFELD.
VENDING MACHINE.

APPLICATION FILED DEC. 30, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.



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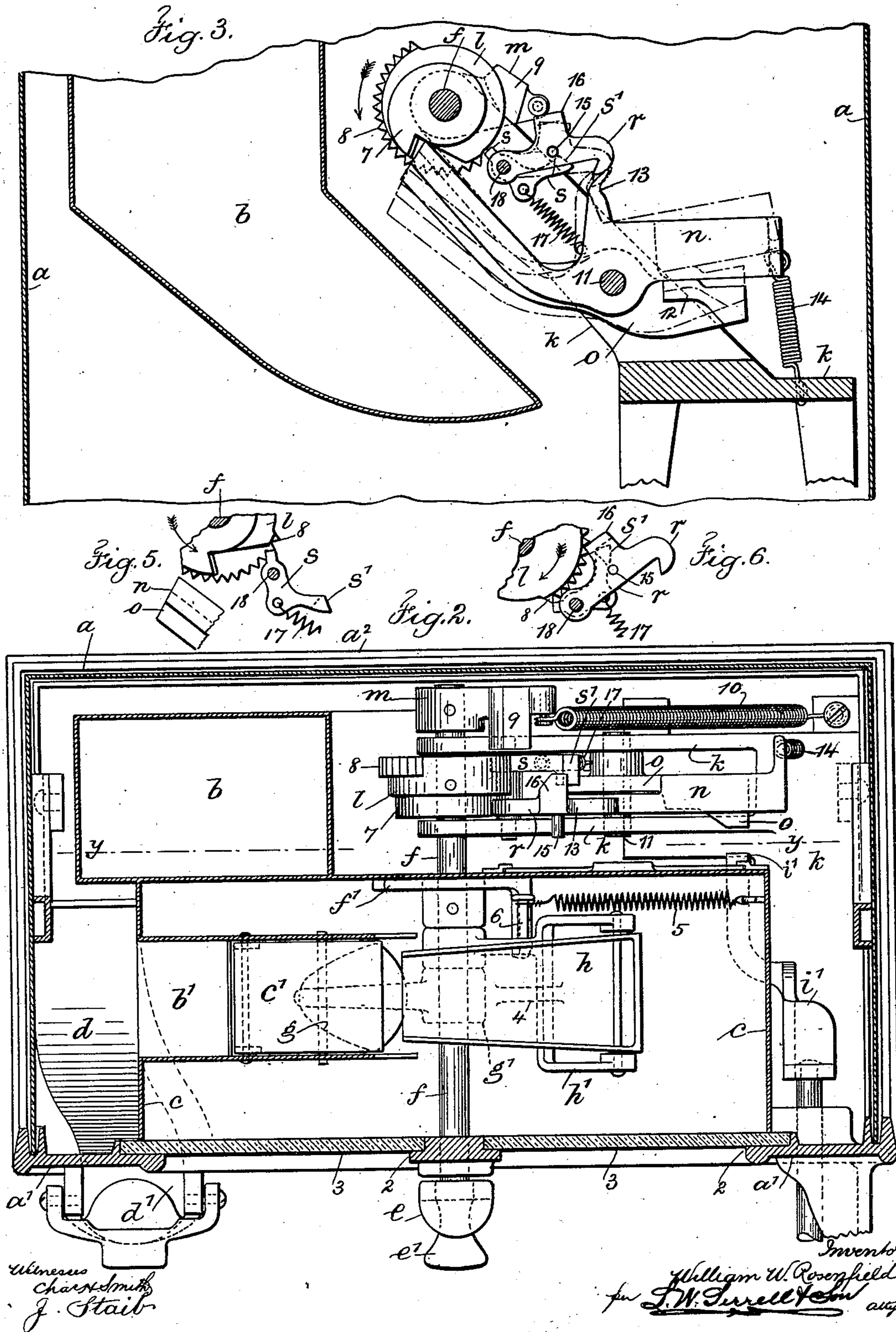
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2 SHEETS—SHEET 2.



UNITED STATES PATENT OFFICE.

WILLIAM W. ROSENFELD, OF NEW YORK, N. Y.

VENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 728,619, dated May 19, 1903.

Application filed December 30, 1902, Serial No. 137,116. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. ROSENFELD, a citizen of the United States, residing in the borough of Manhattan, city, county, and State of New York, have invented an Improvement in Vending-Machines, of which the following is a specification.

My invention relates to a coin-released manually-operated vending-machine for small articles of merchandise, such as candies, and in predetermined quantities, with the object of simplifying the construction of such devices, making more positive the operation of the parts, and preventing fraudulent use or repetitions.

In carrying out my invention I provide a case advantageously of metal and preferably including a hopper for receiving the articles, a retaining-case, a discharge-aperture and delivery-receptacle, a coin device, and a push-bar. The operative mechanism comprises a scoop mounted upon a shaft and a crank and handle manually operated, a gravity-chute receiving the goods from the scoop and delivering the same upon a swinging platform, from which they pass to the discharge-aperture and delivery-receptacle. I employ devices holding these parts in a normally inoperative position except when a coin is inserted and the push-bar actuated so as to release said parts and permit of their manual operation. These latter parts are supported by a frame and comprise a hub on the main shaft, having cam portions and ratchet-teeth, a crank on the main shaft, a spring for imparting a return movement, rocker-arms, a dog and a pawl pivoted within the frame, the rocker-arms engaging the hub upon the main shaft, one of said rocker-arms being engaged by the dog and the pawl engaging the teeth of the hub in opposite directions, all of which parts and movements are hereinafter more particularly described.

In the drawings, Figure 1 is a front elevation and partial vertical section showing particularly the parts operated by the handle upon the main shaft. Fig. 2 is a sectional plan at line *xx* of Fig. 1, representing the various parts of my invention. Fig. 3 is a vertical section at *yy*, Fig. 2, through the case and an elevation of the devices actuated by the insertion of the coin and movement of

the push-bar for releasing the hand-operated mechanism. Fig. 4 is a detached elevation of the devices shown in Fig. 3 in the position to which the same are brought by the operation of the push-bar. Fig. 5 is an elevation illustrating the relation of the hub upon the main shaft and the ratchet-teeth thereof with the pawl; and Fig. 6 is a similar elevation of the same parts, together with the dog, in the opposite position of said parts and with the return movement.

The case *a* is advantageously of heavy sheet metal, is provided with a front portion *a'* upon a suitable base *a''*, the front portion having an aperture 2 of circular form, in which is mounted a glass or glasses 3, the front portion preferably having a vertical central bridge, which assists in forming a bearing for the main shaft. This case is provided with a hopper *b*, into which the candies or other goods are to be placed. From the lower portion of the hopper said goods pass through an opening 19 into the retaining-case *c*, which is of circular form and is at one side provided with a discharge-aperture *b'*, between the side walls of which is a swinging platform *c'*, and beneath the delivery edge of which discharge-aperture *b'* there is a delivery-receptacle *d*, discharging through the case into a cup portion *d'*.

i represents a coin-slot and coin device, and *i'* a push-bar, and beneath the base or foundation *a'* of the case a lock-drawer is shown as advantageously employed for receiving the money; but this and the coin-slot and coin device, as well as the push-bar, form no necessary part of my present invention. The swinging platform *c'* is, as shown in Fig. 1, pivoted at the lower end and supported upon a cross-bar between the sides of the discharge-receptacle *b'*, and while this platform receives the goods and forms a practical continuation of the discharge-aperture *b'* for a gravity delivery the said platform is adapted in the event of the case being overturned to swing up and close off the discharge-aperture, as in this event the free end will strike the top of said aperture, and as the platform is of a width corresponding with the aperture the same will be entirely closed off to prevent the escape of the goods.

The shaft *f* passes through the center of

the machine. On the outer end of the shaft and outside of the case is a crank *e* and handle *e'*, by which the shaft may be rotated. Inside the case there is a scoop *g*, formed at the end of an arm, which arm is integral with a hub *g'*, mounted upon the shaft *f*. A set-screw passes through this hub and into a recess in the shaft, which recess is a little longer circumferentially than required, so as to permit of a slight freedom in the movement of the scoop device with reference to the shaft. A gravity-chute *h* is at one end pivoted to a yoke *h'*, and said chute is made with a rib 4, adapted to rest upon the said yoke, and this is provided with an arm extending to a hub upon the shaft *f*, and there is a bracket-arm *f'* secured to a part of the case and through which the shaft passes, and this bracket-arm at its free end comes beneath the arm of the yoke, so as to hold said parts in a normal position of rest.

A spring 5, secured at one end to the retaining-case, is at the other end secured to a pin 6, connected to and projecting from the bar of the yoke *h'*, and as the yoke *h'* is loosely pivoted upon the shaft the tendency of this spring is to hold the same with force in the position shown in Figs. 1 and 2, where the arm of the yoke rests upon the bracket-arm *f'*, and between the bracket-arm and the hub of yoke I prefer to secure to the shaft *f* a spacing-hub. (Shown in Fig. 2.)

Outside of the retaining-case *c* and between the same and the outer case *a* and secured to the base *a'* is a frame *k*, having two rising arms or parts, through which one end of the main shaft *f* passes, said end being journaled in said frame. I provide a hub *l*, pinned to the shaft *f* between the parts of the frame. This hub is a composite structure formed on one side with cam portions 7 and on the other side with ratchet-teeth 8, and on said shaft *f*, outside of said frame *k*, is a crank *m*, also keyed to the shaft and having a stop-lug 9, adapted to bear on the edge of the frame *k*, and I provide a spring 10 (shown only in Fig. 2) at one end connected to said crank and at the other end to the base *a'*, and a part of said crank-hub may be advantageously grooved, so as to receive the convolutions of the spring 10 when the same is under tension.

I provide two short shafts 11 and 18 in the frame *k*. Mounted on the shaft 11 are rocker-arms *n* *o*, the arm *n* having a tooth 13 and being heaviest at the right-hand end and having a spring 14 connected thereto at one end and at the other end to the frame *k*. The left-hand end of this rocker-arm is at its free end engaged by the notch of the cam-surface of the hub *l*. The rocker-arm *o* is heaviest at the left-hand end, which end is also engaged by the cam-notch of the hub *l*, and the right-hand end of the arm *o* has an inclined portion and an adjacent lug 12, which projects beneath the rocker-arm *n*, so that the action of the spring 14 is to normally hold the right-hand ends of both rocker-arms *n* and

o down and the left-hand ends up in engagement with the cam-notch of the hub *l*. The inclined portion of the rocker-arm *o* provides for the insertion between the right-hand ends of the rocker-arms of a device adapted to separate them, such as the push-bar *i'*.

Pivoted on the shaft 18 is a dog *r* and a pawl *s*. The dog *r* is provided with a hook end to engage the tooth 13 of the rocker-arm *n* with a pin 15 from one side of the dog adapted to rest upon the surface of the frame *k* and with a lug 16 projecting from the other side of the dog *r*. The pawl *s* has a square-ended tooth adapted to engage the ratchet-teeth 8 of the hub *l* and an opposite end *s'*, having a sidewise lug or projection, and a spring 17 is at one end connected to said pawl and at the other end to the frame *k*.

The operation of the device is as follows: A coin is passed into the coin-slot *i* and into a coin-actuated device, which by its construction permits of the release and operation of the push-bar *i'*. The inner end of this bar *i'* with its inward movement passes up the incline of the rocker-arm *o* and raises the rocker-arm *n*. This throws the tooth 13 beneath the hook end of the dog *r* into the position Fig. 4, in which the rocker-arm *n* is held up at the right-hand end and forced down at the left-hand end, so that this latter end is out of engagement with the cam of the hub *l*; but, as shown in Fig. 4, the end of the push-bar is between the rocker-arms, and the rocker-arm *o* is held down at the right-hand end and the left-hand end is held up still in engagement with the cam of the hub *l*, so that while in the normal rest position of the parts, Fig. 3, it is impossible to turn the shaft *f* by the crank *e* and handle *e'* it is still in the position Fig. 4 also impossible to turn said parts. However, upon the return of said push-bar *i'* to the normal position, Fig. 2, the rocker-arm *o* is released and its left-hand end falls by gravity to the position shown by dotted lines in Fig. 3, thus releasing the hub *l*, so that the shaft *f* may now be turned by the crank *e* and handle *e'* by hand. This movement swings the scoop *g* and by it a predetermined quantity of the goods in the retaining-case *c*, and when said scoop *g* rises to the first of the dotted positions shown in Fig. 1 a rib provided on the advancing edge of the arm thereof strikes upon the under side of the yoke *h'*, and the further movement of the scoop also moves the yoke and the gravity-chute *h* against the action of the spring 5. As these parts progress with their movements the free end of the chute *h* passes over the surface of the swinging platform *c'* and rests thereon, and the scoop rising above the chute delivers its contents of goods upon the chute and the same descend the chute by gravity to and over the platform *c'* and down the discharge-aperture *b'* into the delivery-receptacle *d'* and therefrom into the cup portion *d'*, where the goods may be taken away by hand. With this movement the

crank *m* turns with the shaft, straining the spring 10. The hub *l* rotates with the shaft in the direction of the arrow, Fig. 5, swinging the pawl *s* upon its shaft 18 as the same is struck by the first tooth of the ratchet, so that the ratchet-teeth of the hub engage the pawl in the position Fig. 5. It will be seen at a glance that this position of the ratchet-teeth and the pawl prevents any backward movement of the parts and compels the entire movement to be made. At the end of the movement the pawl runs off the pawl-teeth and the spring 17 returns the pawl *s* to the position Fig. 3. The spring 10 also comes in evidence at the end of the stroke to effect the return movement of the parts. In this return movement the crank *m* and the hub *l*, with the shaft *f*, are moved in the direction of the arrow, Fig. 6, and with this movement the pawl *s* by engagement of the ratchet-teeth 8 is brought into the opposite position, so that its end *s'* is elevated and strikes the lug 16 of the dog *r*, raises the dog *r*, and un-hooks the tooth 13 of the rocker-arm *n*, so that said rocker-arm is brought down by the spring 14 until its left-hand end rests upon the cam-surface of the hub.

From the position Fig. 6 it will be noticed that here also a reverse movement is prevented and a complete return movement compelled, because while the tooth of the pawl engages the ratchet-teeth of the hub it is only possible to move it in one direction. At the end of the return movement the left-hand ends of the rocker-arms *n* *o* fall into the cam-notch and the parts are again locked. The pawl *s* is returned to the position Fig. 3, ready to repeat the operations, and the dog *r* descends by gravity, its hook end resting on the back face of the tooth 13, also ready to repeat the operations hereinbefore described. To further actuate the mechanism, it is not only necessary to insert another coin, but to fully actuate the push-bar, and while the parts remain in this position it is also impossible to move the shaft *f* by the crank and handle *e e'*, and consequently impossible to remove any of the small articles or candies from the receptacle. After the rocker-arm *n* is engaged by the tooth 13 and the push-bar *i'* removed and the machine started the rocker-arm *o* hangs by gravity in the position shown by dotted lines, Fig. 3, directly in the path of the push-bar *i'*, thus preventing any false or trick movements with reference to the apparatus or movements of the coin.

I do not herein limit myself to the use of the spring 10, for while the same is desirable yet the shaft *f* and connected parts can be returned by hand to their original position. In my application for Letters Patent for improvement in coin-operated machines filed May 21, 1902, Serial No. 108,307, I have shown and described the coin device and push-bar preferably employed with the structure of my present invention.

I claim as my invention—

1. In a vending-machine, the combination with a push-bar, of a retaining-case, a main shaft, a device mounted upon the main shaft for raising a predetermined quantity of goods, means for delivering said predetermined quantity of goods, a device for locking said shaft and devices in a predetermined position, and which devices are released by the operation of the push-bar, and devices coacting with said latter devices for preventing fraudulent use or repetitions.

2. In a vending-machine, the combination with a push-bar, of a manually-operated central shaft, devices mounted on said shaft and operated thereby for holding and for delivering predetermined quantities of goods, a hub upon said shaft constructed with a cam portion and ratchet-teeth, devices for engaging the said hub and locking the same in position to prevent fraudulent use and repetitions, and which devices are released by the action of the push-bar, and means for returning the parts to a normal position.

3. In a vending-machine, the combination with a push-bar, of a manually-operated central shaft, devices mounted on said shaft and operated thereby for holding and for delivering predetermined quantities of goods, a hub upon said shaft constructed with a cam portion and ratchet-teeth, a crank also secured to said shaft and a spring engaging the same for effecting the return movement and devices coacting with the cam and ratchet-teeth of the said hub for preventing fraudulent use or repetitions, and which devices are released by the complete movement of the push-bar and the continuous movement of the manually-operated parts.

4. The combination in a vending-machine with a manually-operated central shaft, of a retaining-case having a portion of circular form having a discharge-aperture, a scoop device mounted upon said shaft and adapted to swing within the said case and to raise in its movement predetermined quantities of goods, a yoke mounted upon said shaft, a stop for determining the movement thereof in one direction, and a spring for returning the same to a normal position, a gravity-chute pivoted at one end to said yoke and moving therewith and which yoke and chute are actuated with the progressive forward movement of the scoop, substantially as set forth.

5. The combination in a vending-machine with a manually-operated central shaft, of a retaining-case having a portion of circular form having a discharge-aperture, a scoop device mounted upon said shaft and adapted to swing within the said case and to raise in its movement predetermined quantities of goods, a yoke mounted upon said shaft, a stop for determining the movement thereof in one direction, and a spring for returning the same to a normal position, a gravity-chute pivoted at one end to said yoke and moving therewith, and which yoke and chute are actuated with the progressive forward move-

ment of the scoop, a device for locking and holding said manually-operated shaft and the parts mounted thereon, and a device for releasing said locking means to permit said parts to be operated.

6. In a vending-machine, a suitable retaining-case, a hopper for supplying the same, an inclined discharge-aperture, a swinging platform in said aperture adapted when the device is turned over to close off the same, and a delivery-receptacle from which the goods, passing through said discharge-aperture are removed by hand, substantially as set forth.

7. In a vending-machine, a suitable retaining-case, a hopper for supplying the same, an inclined discharge-aperture, a swinging platform in said aperture adapted when the device is turned over to close off the same, a delivery-receptacle from which the goods passing through said discharge-aperture are removed by hand, a manually-operated shaft passing centrally through said retaining-case, a scoop at the end of an arm mounted upon said shaft and adapted to swing through a portion of said case for removing a predetermined quantity of goods, a gravity-chute engaged and moved by said scoop in the path of its movement and upon which the goods from the scoop are delivered to be in turn delivered upon the platform and through the discharge-aperture into the delivery-receptacle, and a spring for returning the gravity-chute to a normal position, and a supporting device therefor.

8. In a vending-machine, the combination with a suitable retaining-case, a hopper for receiving goods and delivering the same to the case, an inclined discharge-aperture, and a delivery-receptacle, of a swinging platform within the discharge-aperture adapted to close off the same upon overturning the case, a manually-operated shaft passing centrally through said retaining-case and bearings therefor, a scoop upon the end of an arm mounted upon said shaft, a bracket-arm through which said shaft passes secured to the case, a yoke having an arm bearing upon said bracket-arm in a state of rest, and a hub loosely mounted upon said shaft, a spring for retaining the yoke in a normal position, a gravity-chute pivoted at one end to said yoke and having a rib on the under surface thereof resting upon said yoke, and a rib upon the arm of the scoop adapted with the movement of the scoop to come in contact with the yoke to move the same away from the bracket-arm and against the action of the spring and to move the free end of the gravity-chute over upon the swinging platform, so that the goods raised by the scoop are first delivered upon the chute and then upon the platform for discharge through the inclined aperture, the said spring with the return movement bringing back the yoke and the gravity-chute to their support upon the bracket-arm, substantially as set forth.

9. In a vending-machine, the combination

with manually-operated devices for delivering goods from a receptacle and a released push-bar, of a pair of rocker-arms, a support-frame, a common shaft for the rocker-arms, a spring for normally holding one of said rocker-arms, a projection from the other rocker-arm engaged by the before-named rocker-arm whereby both rocker-arms are held in a predetermined position and may be separated by the action of the push-bar, a device upon the shaft of the manually-operated structure engaged and held by said rocker-arms, a device for holding one of said rocker-arms in a tilted position in which the other rocker-arm is released and may tilt by gravity upon the removal of the push-bar.

10. In a vending-machine, the combination with manually-operated devices for delivering goods from a receptacle and a released push-bar, of a pair of rocker-arms, a support-frame, a common shaft for the rocker-arms, a spring for normally holding one of said rocker-arms, a projection from the other rocker-arm engaged by the before-named rocker-arm whereby both rocker-arms are held in a predetermined position and may be separated by the action of the push-bar, a device upon the shaft of the manually-operated structure engaged and held by said rocker-arms, a device for holding one of said rocker-arms in a tilted position in which the other rocker-arm is released and may tilt by gravity upon the removal of the push-bar, and a spring-actuated device put under tension by the movement of the manually-operated shaft in one direction and adapted to return said parts to a normal position in the opposite direction.

11. In a vending-machine, the combination with manually-operated devices for delivering goods from a receptacle, and a released push-bar, of a hub on the main shaft of the manually-operated devices and which hub is formed with cam portions and with ratchet-teeth having equal surface inclinations, means engaging the cam portions of said hub and locking the parts, and which means are actuated by the movement of the push-bar to unlock said parts, a spring-actuated pawl adapted with the rotation of the said shaft and hub to engage the teeth of the ratchet during its respective movements in opposite directions so as to prevent repeating movements and to make it necessary to complete a full movement of the mechanism.

12. In a vending-machine, the combination with manually-operated devices for delivering goods from a receptacle, and a released push-bar, of a hub on the main shaft of the manually-operated devices, and which hub is formed with cam portions and with ratchet-teeth having equal surface inclinations, means engaging the cam portions of said hub and locking the parts, and which means are actuated by the movement of the push-bar to unlock said parts, a spring-actuated pawl adapted with the return of the said shaft and

hub to engage the teeth of the ratchet during its respective movements in opposite directions so as to prevent repeating movements and to make it necessary to complete a full movement of the mechanism, and a device for holding in a tilted position a part of said locking mechanism and which device is actuated by the spring-actuated pawl upon the reversal and return movement of the parts for releasing the locking devices.

13. In a vending-machine, the combination with manually-operated devices for delivering goods from a receptacle and a released push-bar, of a frame comprising a base and arm portions through which the main shaft of the manually-operated device passes at one end and is journaled, two short shafts mounted in said frame, rocker-arms mounted upon one of said shafts, means for controlling the movements of one rocker-arm by the other, a spring for controlling the movement of the other rocker-arm, a tooth on the latter rocker-arm and a dog pivoted to the other shaft in said frame and adapted to engage said tooth, a spring-actuated pawl pivoted to the latter short shaft and having a part adapted to engage a part of said dog, a hub on the main shaft of the manually-operated device having a cam-notch adapted to be engaged by the ends of the rocker-arms and thereby held in position, and ratchet-teeth on said hub engaged by said spring-actuated pawl, and a crank on the end of said main shaft and a spring connected therewith and to the base of the machine for returning the parts to a normal position.

14. In a vending-machine, the combination with manually-operated delivery devices including a main shaft, of a hub on said main shaft having cam portions, rocker-arms *n* and *o* and a short shaft for supporting the same, each rocker-arm at one end being constructed to engage the cam-notch of said hub and lock said hub in position and so hold the manually-

operated devices, a lug 12 on the rocker-arm *o* underrunning the rocker-arm *n* and an inclined portion adjacent to the lug 12 and on the end of the rocker-arm *o*, a tooth 13 formed with and rising from the rocker-arm *n* at about the central portion, a spring for holding the rocker-arm *n* and by the lug 12 the rocker-arm *o* in a position in which the aforesaid hub is held and its movement prevented, a released push-bar adapted to contact with the inclined portion of the rocker-arm *o* and pass between the said rocker-arms raising the rocker-arm *n*, a dog for engaging the tooth 13 of the rocker-arm *n* and holding the same in its raised or tilted position whereby its opposite end is released from said hub and when the push-bar is withdrawn the rocker-arm *o* is free to swing or tilt by gravity and fully release the aforesaid hub, substantially as set forth.

15. In a vending-machine, the combination with manually-operated devices for delivering goods from a receptacle and a released push-bar, of a pair of rocker-arms, a support-frame, a common shaft for the rocker-arms, a spring for normally holding one of said rocker-arms, a projection from the other rocker-arm engaged by the before-named rocker-arm whereby both rocker-arms are held in a predetermined position and may be separated by the action of the push-bar, a device upon the shaft of the manually-operated structure engaged and held by said rocker-arms, a device for holding one of said rocker-arms in a tilted position in which the other rocker-arm is released and may tilt by gravity upon the removal of the push-bar.

Signed by me this 24th day of December, 1902.

WM. W. ROSENFELD.

Witnesses:

GEO. P. PINCKNEY,
S. T. HAVILAND.