

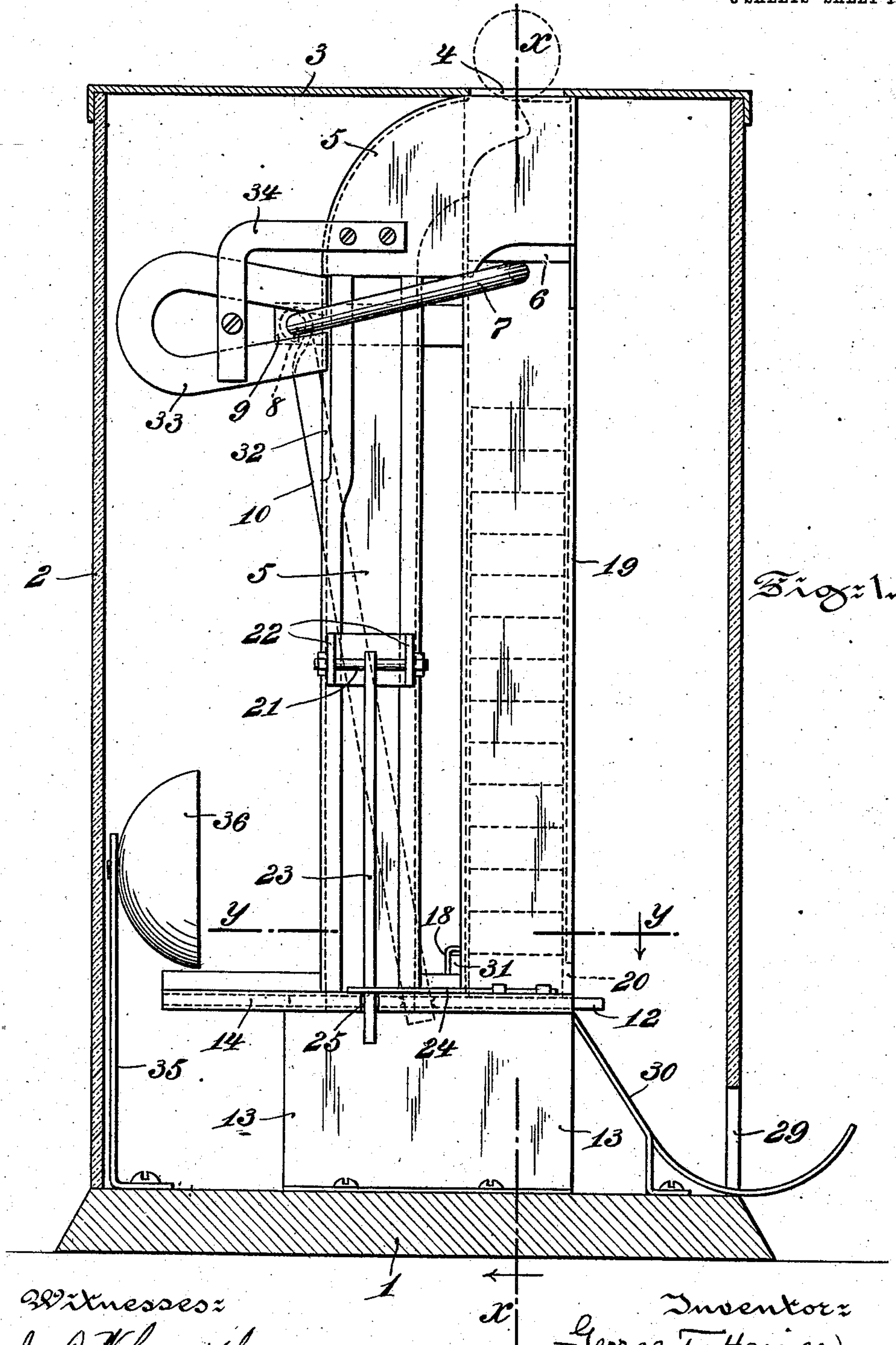
No. 855,054.

PATENTED MAY 28, 1907.

G. T. HAINES.
COIN OPERATED VENDING MACHINE.

APPLICATION FILED MAR. 8, 1906.

3 SHEETS—SHEET 1.



Witnesses:
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Ella M. Ware

Inventor:
George T. Haines,
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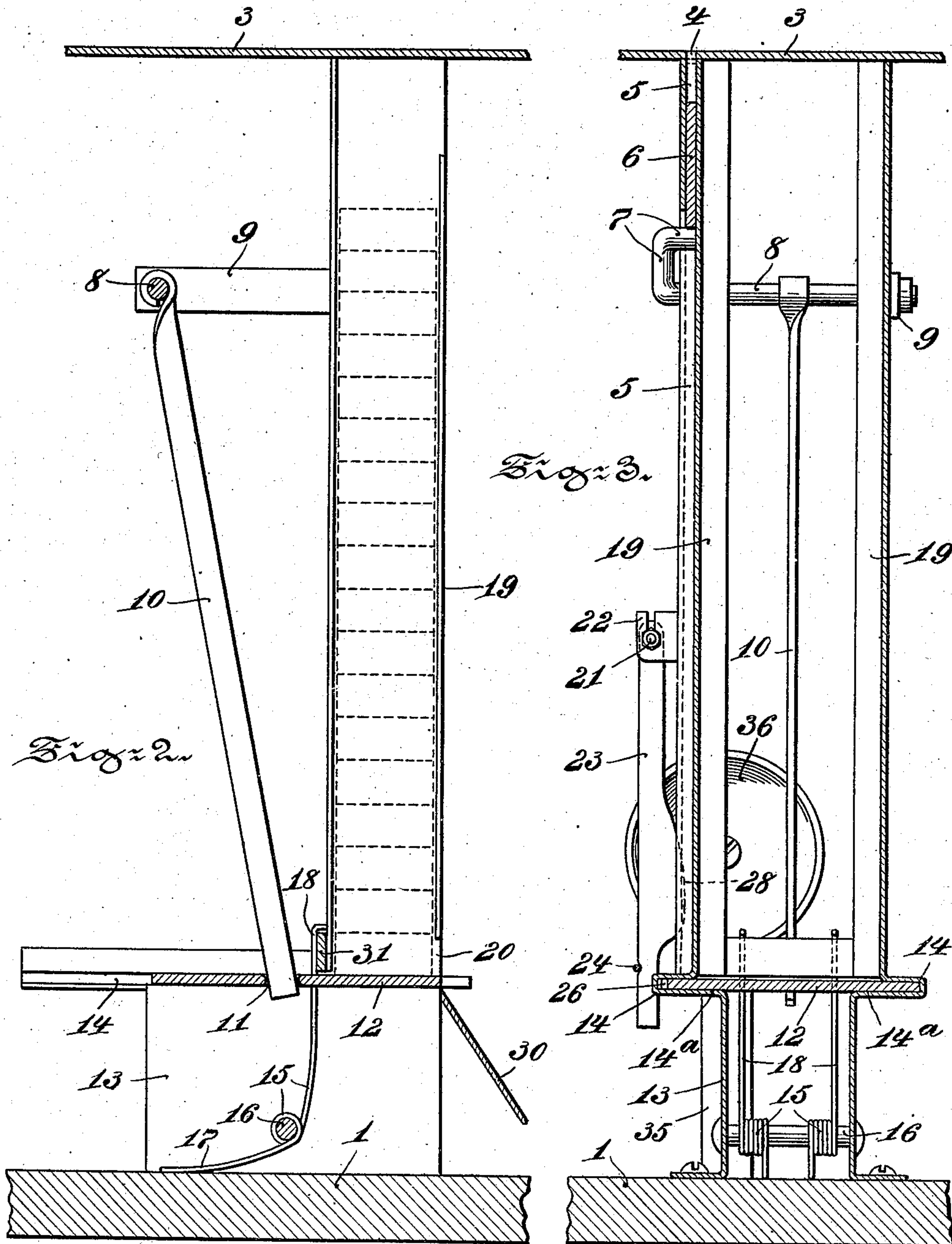
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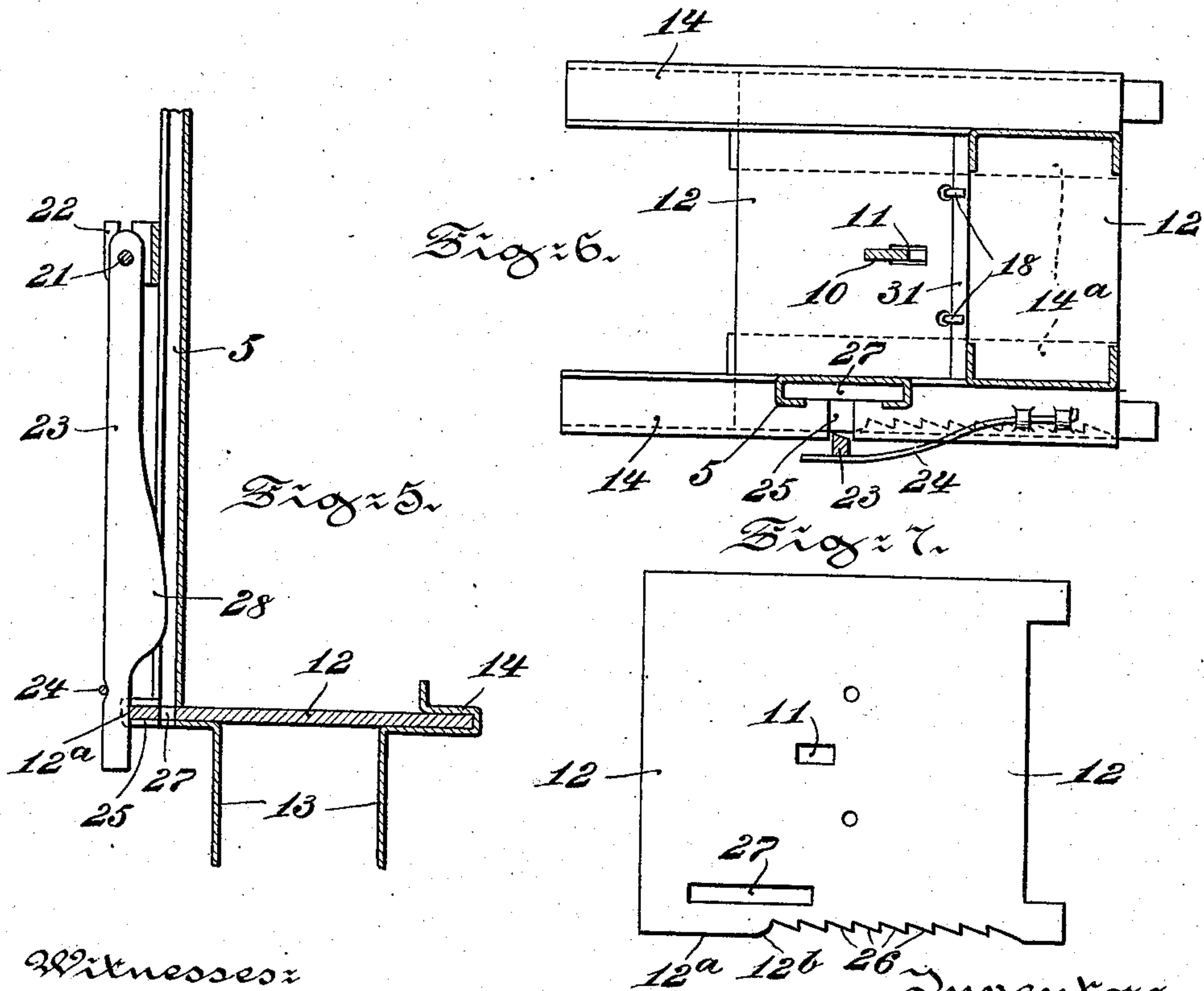
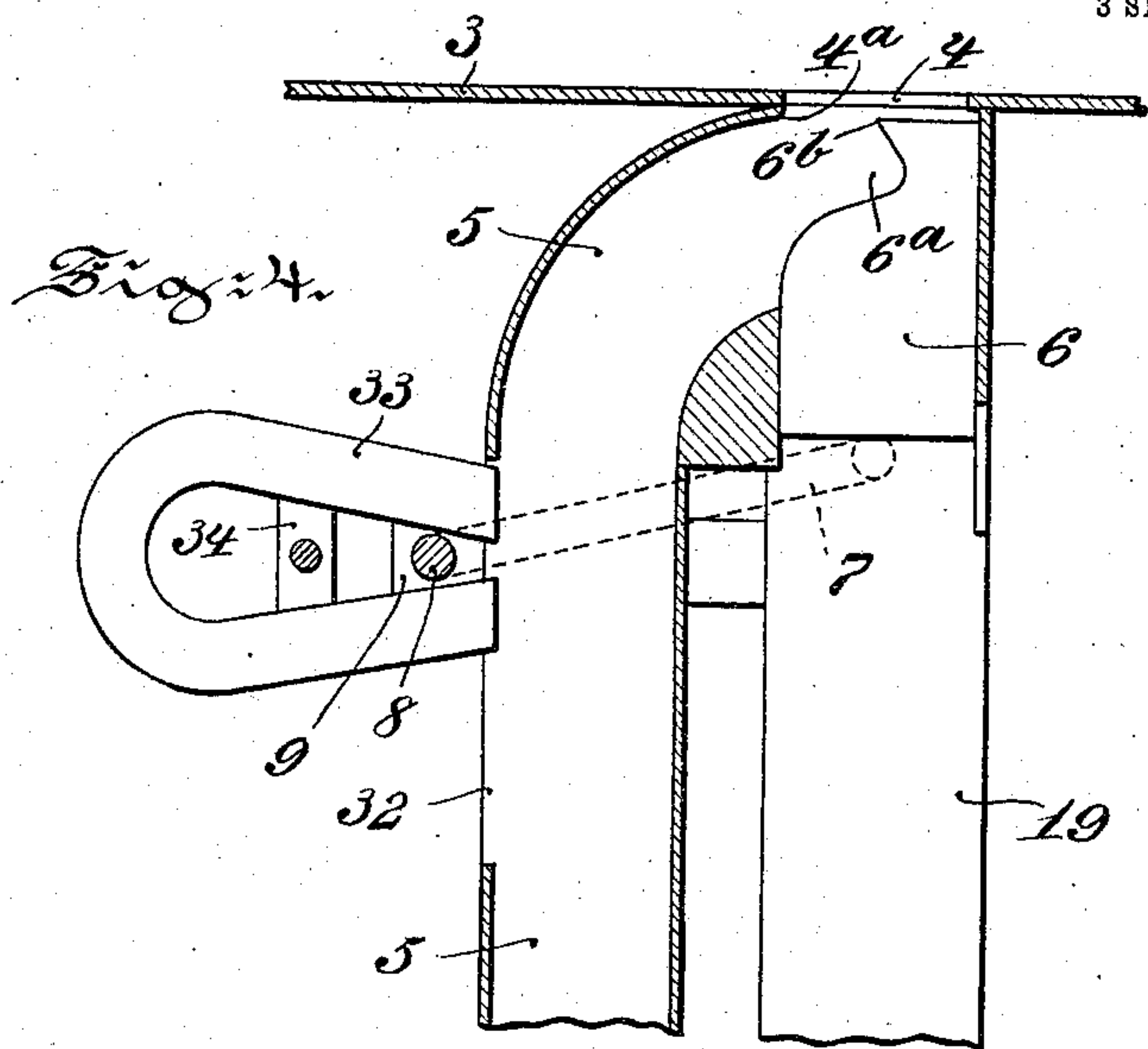
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UNITED STATES PATENT OFFICE.

GEORGE T. HAINES, OF PHILADELPHIA, PENNSYLVANIA.

COIN-OPERATED VENDING-MACHINE.

No. 855,054.

Specification of Letters Patent.

Patented May 28, 1907.

Application filed March 8, 1906. Serial No. 304,834.

To all whom it may concern:

Be it known that I, GEORGE T. HAINES, a citizen of the United States, and a resident of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Coin-Operated Vending-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, of which—

Figure 1 is a side elevation, the side of the casing being removed. Fig. 2 is a medial vertical section. Fig. 3 is a sectional end elevation, being taken on the line $x-x$, Fig. 1. Fig. 4 is a section of the upper end of the coin-chute and contiguous parts. Fig. 5 is a section of the lower end of the coin-chute, the ejecting plate, and the coin-operated pawl engaging the same. Fig. 6 is a horizontal section as on line $y-y$, Fig. 1. Fig. 7 is a plan view of the ejecting plate.

The object of this invention is to provide a simple and efficient coin-operated apparatus for delivering packages or other articles to be dispensed.

The leading feature of the machine comprises the means whereby the insertion of a coin into the usual coin-slot-way sets mechanism, which, as the coin passes on through the slot-way, is released by the gravity of the coin, and thereby ejects one package or article to be dispensed, from the machine.

Other features of the invention relate to various details, hereinafter pointed out.

In the drawings, 1, is a support upon which the parts are mounted, and inclosed by a suitable casing, 2, the top of which, 3, is provided with a slot, 4, for the insertion of the coin. The slot, 4, communicates with a coin-chute or guide-way, 5, formed of suitable metal. Within the coin-chute or guide-way, 5, and immediately in line with the slot, 4, is a sliding plate, 6, whose upper end is normally adjacent the slot, 4. The lower end of the plate, 6, rests upon, and is pressed outwardly by the free end of an arm, 7, extending from a shaft, 8, which shaft is journaled in suitable brackets, 9. Extending downwardly from and secured to said shaft, 8, is a long arm, 10, whose lower end passes through and engages a slot, 11, in a horizontally disposed plate, 12, which is supported upon a frame, 13, and adapted to slide horizontally in suitable guide-ways, 14, of said frame. This plate, 12, is normally pressed forwardly to the position shown in the drawings, by a

spring or springs, 15. In this instance, I have shown two springs, 15, each coiled around a horizontal bar, 16, extending from the said frame, 13, and said springs having each an arm extension, 17, resting against the upper surface of the support, 1, and also each having an extension, 18, engaging the plate, 12. Overlying the said plate, 12, when the latter is in the normal or forward position, and extending upwardly thereabove, is a chute, 19, charged with packages to be ejected from the apparatus, such as packages of chocolate, chewing-gum or the like. The forward side of the lower end of this chute, 19, is provided with a slot, 20, of such height that, when the lowermost package is resting upon the horizontal plate, 12, the upper edge thereof will be above the top of said slot. But when, as hereinafter described, the column of packages within the chute, 19, is permitted, by the backward movement of the plate, 12, from beneath said column, to descend and rest upon the horizontal, extended floor-portion, 14^a of the guide-ways, the upper edge of the lowermost package will be below the lower end of said slot, 20, thus permitting the ejection of said lowermost package, as hereinafter described.

Extending downwardly from a shaft, 21, journaled in brackets, 22, of the coin-chute, 5, is a bar, 23, constituting a pawl, which, by pressure of a suitable spring, 24, is caused to press against the adjacent edge of the plate 12, a slot-way, 25, being provided in the guide-way, 14, to permit this. The edge of the plate, 12, adjacent the pawl-bar, 23, and forward of the latter, when the plate is in the normal or forwardly extended position, is provided with a series of rack teeth, 26, Fig. 7, which teeth are adapted, when the plate is retracted, as hereinafter set forth, to be engaged by said pawl, and thereby to lock the plate in said retracted position. The plate, 12, is also provided with a slot, 27, which, when in the normal or forward position, registers with the lower end of the coin-chute, 5, for a purpose hereinafter described. Some distance above the plate, 12, the inner edge of the pawl-bar, 23, is provided with a cam-like projection, 28, that extends into the coin-chute, 5, as seen in Figs. 3, and 5, for a purpose hereinafter described.

The lower, forward edge of the casing, 2, is provided with a through slot, 29, Fig. 1, and extending outwardly therethrough, from the forward edge of the frame, 13, is a plate, 30,

which, when the package is ejected from the package chute, 19, guides said package through said slot-way, 29, outside of the casing, 2, where it may be removed by the purchaser.

Having described the principal features of my invention, I shall now proceed to the description of the operation thereof, together with certain details of construction not hereinbefore described.

The chute, 19, being charged with packages to be vended, and the plate, 12, being in the normal or forward position, its forward portion beneath the lowermost package of the column within the chute, 19, all as shown in the drawings, the operator inserts the coin edgewise into the slot, 4 its lower edge engaging the upper edge of the plate, 6; presses the same downwardly, whereby the said plate, 6, is caused to press downwardly the free end of arm, 7, thereby rotating shaft, 8, and moving backwardly the downwardly extending arm, 10, which, by its engagement with the plate, 12, retracts the same against the stress of springs, 15, to a position where its forward edge is withdrawn from beneath the column of packages within the chute, 19. Whereupon, the said column of packages will descend the distance of the vertical thickness of said plate, and will rest upon the extended floor-portion, 14^a of the guide-ways, 14. When this position is reached, the pawl-bar, 23, is, by its spring, 24, pressed inwardly into engagement with one of the teeth, 26, of the plate, 12, thereby locking the said plate in this retracted position. At the same time, the slot, 27, in the plate, 12, is brought out of registry with the coin-chute, 5.

The upper end of the plate, 6, would usually be made of substantially the form shown in Fig. 4; that is, of a width not so great as that of the slot, 4; and its said upper edge undercut, at 6^a, thereby forming an edge, 6^b. The purpose of this construction is: to insure the passage of the coin into the coin-chute, 5, after it has done its work of retracting the plate, 12, as above described. The action is as follows:—The coin, being inserted in the slot, 4, as it is pressed downwardly against the upper end of the plate, 6, finds a bearing between the edge, 6^b, and the opposite edge, 4^a, of the slot, 4, and when the plate, 6, is approaching its limit of downward movement, in its action of retracting the plate, 12, the coin has moved forwardly on said edges as bearings, to such an extent that the arc of the periphery of the coin above the plate, 6, and between said edges, is less than a semicircle, whereby the coin tends to roll forward into the coin-chute, 5.

The inward movement of the lower end of the pawl-bar, 23, into engagement with the tooth, 26, of the plate, 12, brings the cam-like projection, 28, of the pawl-bar, 23, to a position substantially extending across the

coin-chute 5. The coin now moves downwardly into the coin-chute, 5, and descends, by its gravity, until it engages the inner face of the projection, 28, of the pawl-bar, 23, thereby pressing the same outwardly from its path against the stress of the spring, 24; which action retracts the said pawl-bar, 23, from engagement with the tooth, 26, of the said plate, 12 whereupon the springs, 15, press said plate forwardly, and the forward edge thereof engaging the rear edge of the lowermost package, the same is slid from under the column of packages within the chute, 19, and is ejected onto the plate, 30 which guides the same through the slot, 29, of the casing, 2, to the exterior of said casing, where it is removed by the purchaser.

It will be observed that the edge, 12^a of the plate 12, to the rear of the teeth, 26, is in a plane beyond that of the outer edges of the teeth, and the portion of said edge, 12^a adjacent said teeth is provided with a bevel, 12^b. The object of this construction is as follows:—The coin, having pressed against the projection, 28, of the pawl-bar, 23, and thereby retracted the same from the tooth, 26, is, by the forward pressure of the spring, 24, against said pawl, held between the said projection, 28, and the opposite face of the coin-chute, 5; but as the plate, 12, moves forwardly, the bevel, 12^b, coming against the lower end of the pawl-bar, 23, causes the latter to move farther outwardly, until it rides upon the edge, 12^a, thereby insuring the release of the coin by the pawl-bar, 23. When the plate, 12, has reached the forward position, having ejected a package from the machine, the slot, 27 therethrough, being in registry with the lower end of the coin-chute, 5, the coin drops therethrough, having finished its work.

Extending across the frame, 13, above the plane of the plate, 12, and, in this instance, immediately to the rear of the chute, 19, is a bar, 31, against which, when the plate, 12, is in the farthest forward position, the upper ends of the spring extensions, 18, are adapted to impinge, thus forming a suitable stop for the plate, 12.

To prevent fraudulent use of iron or steel slugs, in imitation of coins, in the machine, I would provide, the rear of the coin-chute, 5, adjacent the upper portion thereof, with a slot, 32, adjacent which extends a magnet, 33, supported on a suitable bracket, 34. And, supported on a bracket, 35, rising from the base, 1, is a gong, 36.

If an iron or steel imitation coin be inserted in the slot, 4; after retracting the plate, 12, and passing downwardly into the chute, 5, it will be drawn outwardly by the magnet, 33, and the resultant of said outward and downward movement of the iron coin will cause the same to pass outwardly from the coin-chute, 5, through the slot, 32, and in its

further descent it will strike the gong, 36, indicating that a spurious coin has been placed in the machine. Of course, the spurious coin having retracted the plate, 12; when the next good coin is inserted in the slot, 4, it will immediately descend into the chute, 5, and by engagement with the projection, 28, of the pawl-bar, 23, will release said plate, 12, causing the ejection of a package in the usual manner.

I do not wish to be understood as limiting myself to the construction shown in the drawings, as the same may be considerably modified without departing from the essentials of my invention. I further remark, that the number of packages ejected at each operation of the machine can, of course, be regulated by the relative vertical height thereof, and of the plate, 12 and the slot, 20.

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

1. In a coin-controlled vending machine, the combination of the package-containing chute, the horizontally slidable plate constituting the bottom of said chute when in the forward position, a support below said plate for supporting the packages within said package-containing chute when said plate is retracted, means for yieldingly maintaining said plate in forward position, a coin-chute, means actuated by the insertion of a coin into the coin-chute, for withdrawing said plate from beneath said package-containing chute, means for automatically locking said plate in said retracted position, together with means actuated by the coin for partially releasing said locking means and retaining the coin in the chute and so permitting the plate to be automatically returned to the forward position, and to thereby eject a package from the bottom of said column, and means to completely release the locking means to discharge the coin from the coin-chute, substantially as set forth.

2. In a coin-controlled vending machine, the combination of the package-containing chute, the horizontally slidable plate constituting the bottom of said chute when in the forward position, means for yieldingly maintaining said plate in said forward position, a support below said plate for supporting the packages within said package-containing chute when the said plate is retracted, a coin-chute, the pivoted arm having the part extending into said coin-chute to be actuated by the insertion of the coin therein, the downwardly extending arm whose upper end is connected with said first mentioned arm, and whose lower end engages said plate, means for automatically locking said plate in said retracted position, together with means actuated by the coin for partially releasing said locking means and retaining the coin in the chute, and so permitting the plate to be

automatically returned to the forward position, and to thereby eject a package from the bottom of said column, and means to completely release the locking means to discharge the coin from the coin-chute, substantially as set forth.

3. In a coin-controlled vending machine, the combination with a casing having a coin-slot of the package-containing chute, the horizontally slidable plate constituting the bottom of said chute when in the forward position, a support below said plate for supporting the packages within said package-containing chute, when said plate is retracted, means for yieldingly maintaining said plate in forward position, a coin-chute communicating with said coin-slot, the slidable plate extending across the mouth of said coin-chute, and in line with said coin-slot, and whose upper edge partially closes the slot against the insertion of a coin in the normal position of the parts, the pivoted arm whose free end extends beneath and supports said last mentioned plate, the downwardly extending arm connected with said pivoted arm, and whose lower end engages said horizontal plate, means for automatically locking said horizontal plate in said retracted position, together with means actuated by coin for releasing said locking means, and so permitting the plate to be automatically returned to the forward position, and to thereby eject a package from the bottom of said column, substantially as set forth.

4. In a coin-controlled vending machine, the combination of the package-containing chute, the horizontally slidable plate constituting the bottom of the said chute when in the forward position, a support below said plate for supporting the packages within said package-containing chute, when said plate is retracted, means for yieldingly maintaining said plate in forward position, a coin-chute, the vertical, slidable plate extending across the entrance end of said coin chute, and having its upper end of less width than that of the coin-chute, and undercut, forming an edge, means for connecting said last mentioned plate with the said horizontal plate, whereby downward pressure upon said vertical plate will withdraw said horizontal plate from beneath the package-containing chute, means for automatically locking said horizontal plate in said retracted position, together with means actuated by the coin for releasing said locking means, and so permitting the plate to be automatically returned to the forward position, and to thereby eject a package from the bottom of said package-containing chute, substantially as set forth.

5. In a coin-controlled vending machine, the combination of the package-containing chute, the horizontally slidable plate constituting the bottom of said chute when in the forward position, a support below said

plate for supporting the packages within said package-containing chute when said plate is retracted, means for yieldingly maintaining said plate in forward position, a coin-chute, means actuated by the insertion of a coin into the coin-chute, for withdrawing said plate from beneath said package-containing chute, the teeth on the edge of said plate, the spring controlled pawl, adapted to engage one of the said teeth when the plate is retracted to lock said pawl in retracted position, a part on said pawl extending into the coin-chute in the path of the coin, whereby impingement of the coin thereon partially releases said pawl from engagement with the said teeth but retains the coin in the chute, and means to completely release said pawl to discharge the coin from the coin-chute, substantially as set forth.

6. In a coin-controlled vending machine, the combination of the package-containing chute, the horizontally slidable plate constituting the bottom of said chute when in forward position, a support below said plate for supporting the packages within said package-containing chute when the said plate is retracted, means for yieldingly maintaining said plate in forward position, a coin-chute, means actuated by the insertion of a coin into the coin-chute, for withdrawing said plate from beneath said package-containing chute, the teeth on the edge of said plate, the portion of the edge of said plate to the rear of said teeth being in a plane beyond that of the outer edges of said teeth, the spring-controlled pawl adapted to engage one of the said teeth when the plate is retracted, and to ride on said outwardly extending edge of said plate when the latter is in forward position, a part on said pawl extending into the coin-chute in the path of the coin, whereby impingement of the coin thereon releases said pawl from engagement with said teeth, substantially as set forth.

7. In a coin controlled vending machine, the combination of the package-containing chute, the horizontally slidable plate constituting the bottom of said chute when in the forward position, a support below said plate for supporting the packages within said package-containing chute, when said plate is retracted, means for yieldingly maintaining said plate in forward position, a coin-chute, means actuated by the insertion of a coin into the coin-chute, for withdrawing the said plate from beneath said package-containing chute, means for automatically locking said plate in said retracted position, together with means actuated by the coin for releasing said locking means, and so permitting the plate to

be automatically returned to the forward position, and to thereby eject a package from the bottom of said column, said plate being provided with a coin-slot in registry with the lower end of the coin-chute when the said plate is in the forward position, substantially as set forth.

8. In a coin-controlled vending machine, the combination of the package-containing chute, the horizontally slidable plate constituting the bottom of said chute when in the forward position, a support below said plate for supporting the packages within said package-containing chute when said plate is retracted, means for yieldingly maintaining said plate in forward position, a coin-chute, means actuated by the insertion of a coin into the coin-chute, for withdrawing said plate from beneath said package-containing chute, the teeth on the edge of said plate, the spring-controlled pawl, adapted to engage one of the said teeth when the plate is retracted, a part on said pawl extending into the coin-chute in the path of the coin, whereby impingement of the coin thereon releases said pawl from engagement with the said teeth, said plate being provided with a coin-slot in registry with the lower end of the coin-chute when said plate is in the forward position, substantially as set forth.

9. In a coin-controlled vending machine, the combination of the package-containing chute, the horizontally slidable plate constituting the bottom of said chute when in the forward position, a support below said plate for supporting the packages within said package-containing chute when said plate is retracted, means for yieldingly maintaining said plate in forward position, a coin-chute, means actuated by the insertion of a coin into said coin-chute, for withdrawing said plate from beneath said package-containing chute, means for automatically locking said plate in said retracted position, together with means actuated by the coin for partially releasing the said locking means and retaining the coin in the chute, and so permitting the plate to be automatically returned to the forward position, and to thereby eject a package from the bottom of said column, means to completely release the locking means to discharge the coin from the coin-chute, and a stop limiting the forward movement of said plate, substantially as set forth.

In testimony whereof, I have hereunto affixed my signature.

GEORGE T. HAINES.

Witnesses:

WALTER C. PUSEY,
WM. H. SMITH.