No. 766,716. PATENTED AUG. 2, 1904.

G. W. MacKENZIE.

COIN CONTROLLED VENDING APPARATUS.

APPLICATION FILED JUNE 24, 1903.

NO MODEL. 4 SHEETS—SHEET 1.

Fig. 1.

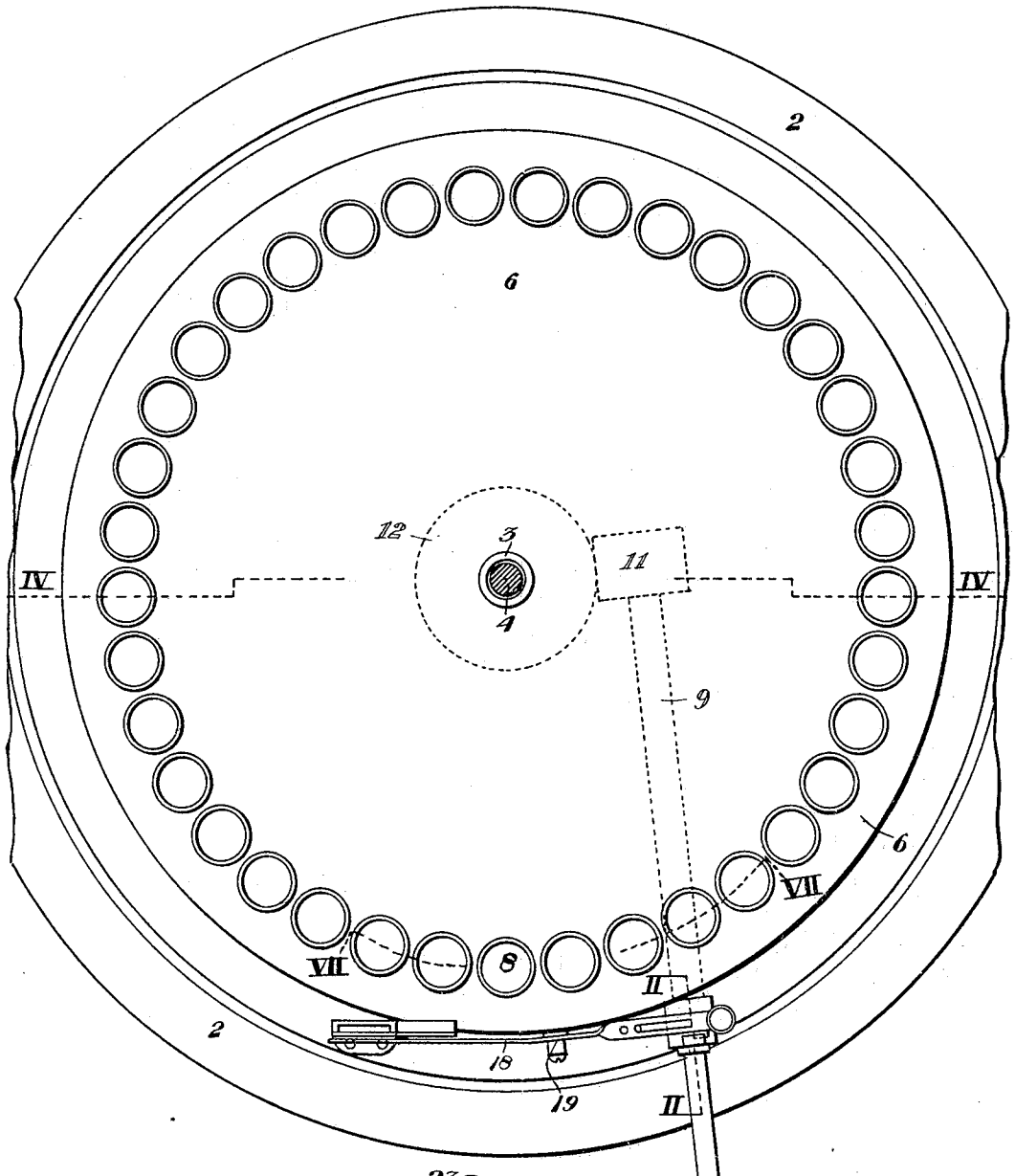
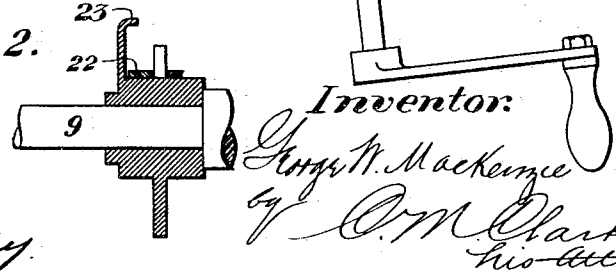


Fig. 2.



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Inventor:

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NO MODEL. 4 SHEETS—SHEET 2.

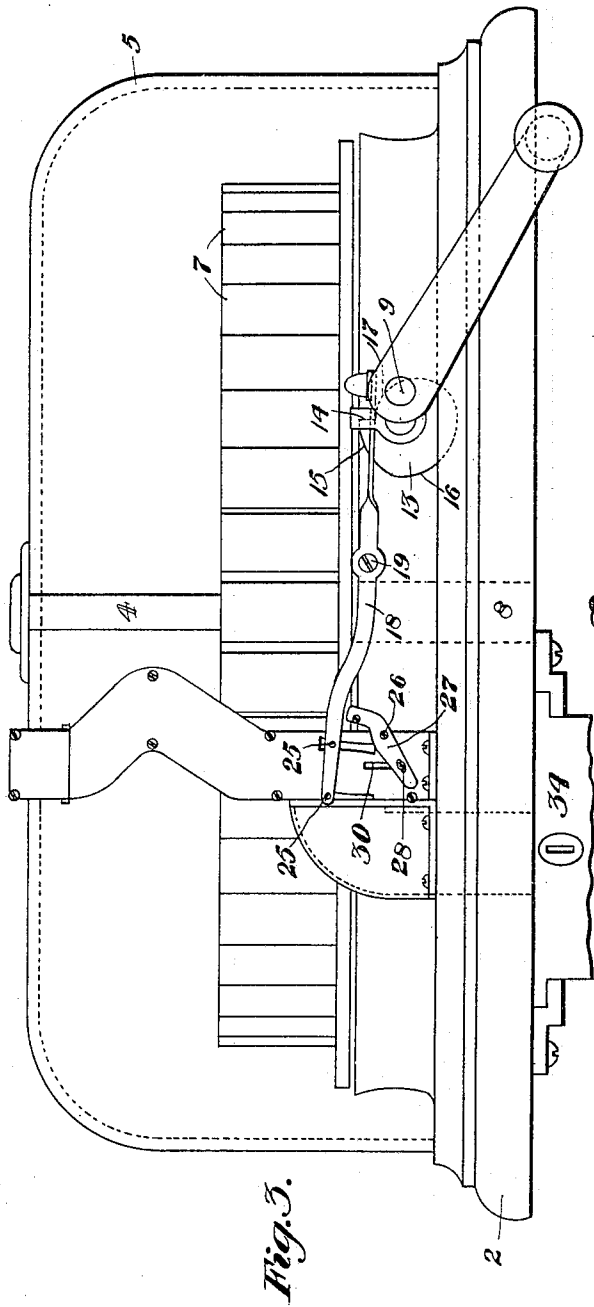


Fig. 3.

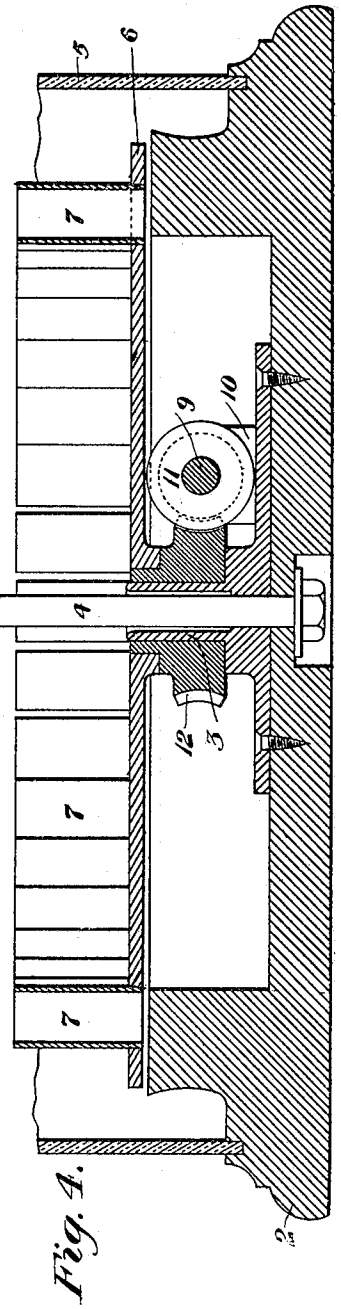


Fig. 4.

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NO MODEL. 4 SHEETS—SHEET 3.

Fig. 5.

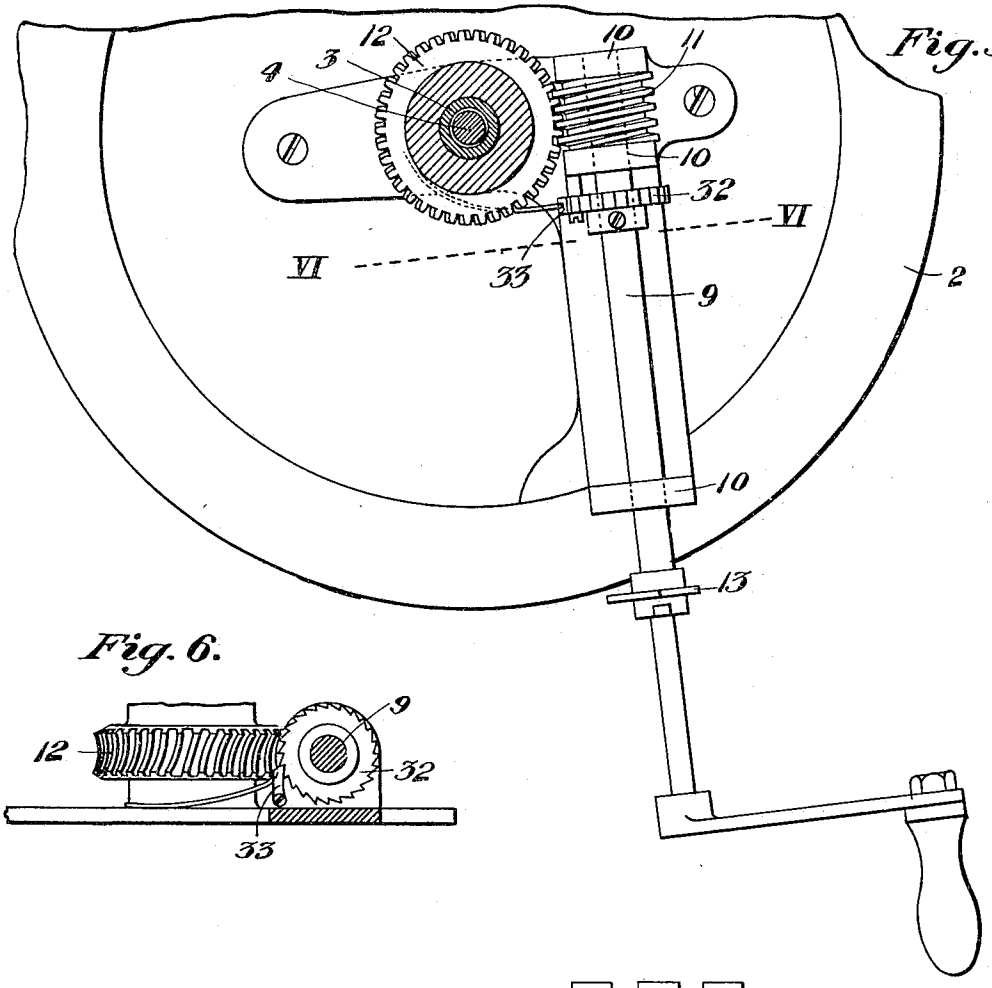
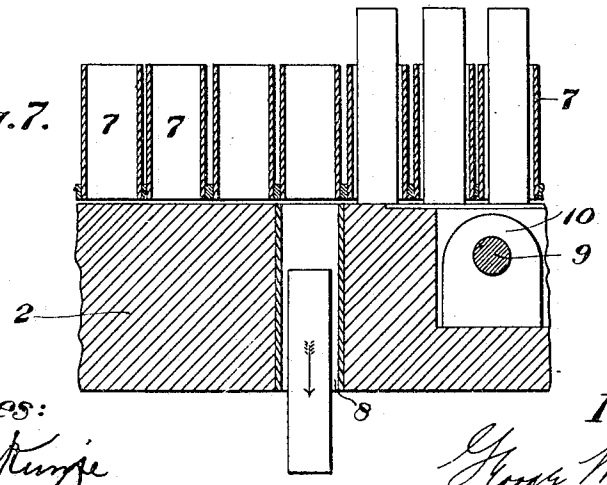


Fig. 6.

Fig. 7.



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NO MODEL. 4 SHEETS—SHEET 4.

Fig. 8.

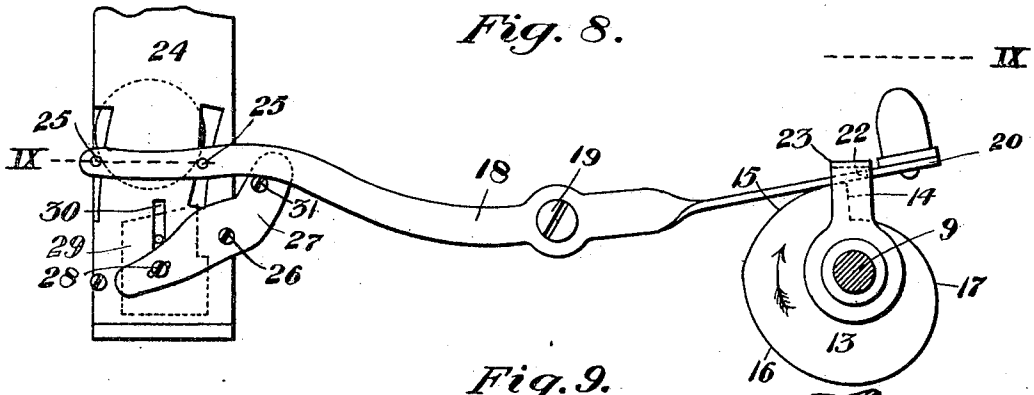


Fig. 9.

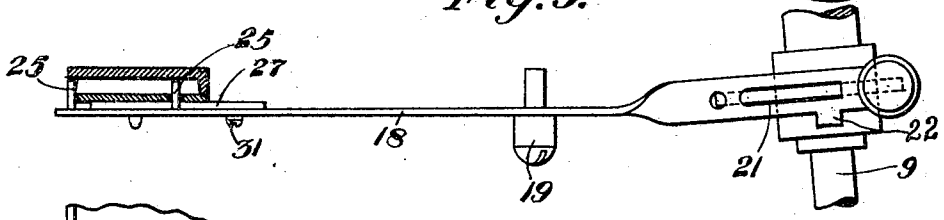


Fig. 10.

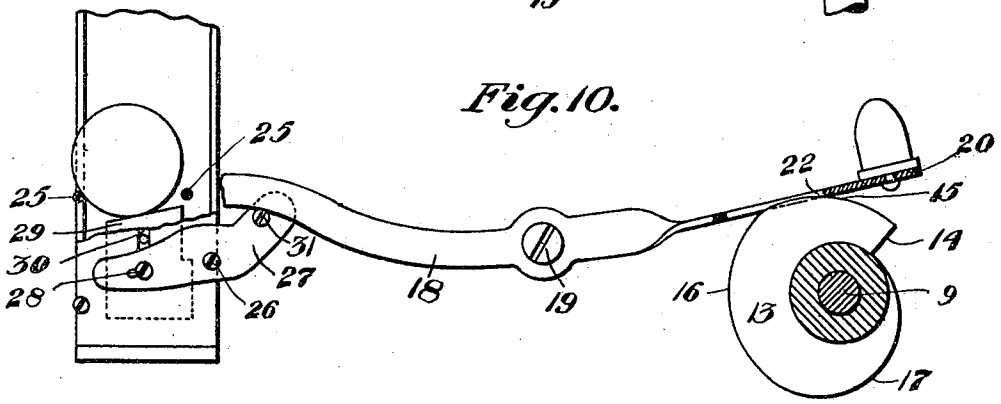


Fig. 11.

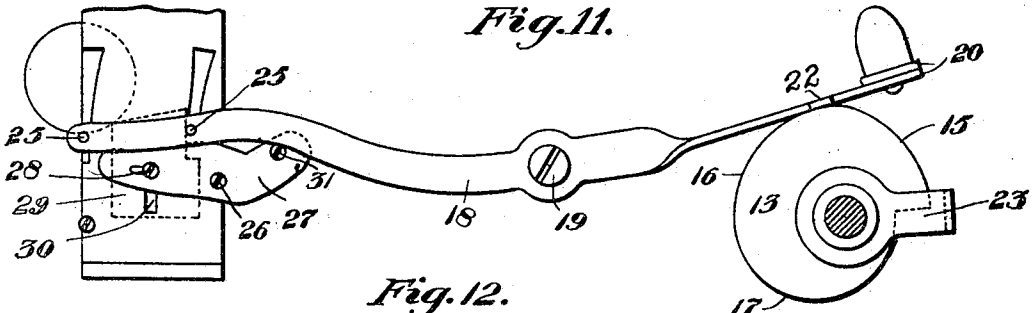
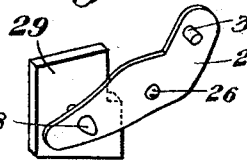


Fig. 12.



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No. 766,716. Patented August 2, 1904.

UNITED STATES PATENT OFFICE.

GEORGE W. MACKENZIE, OF BEAVER, PENNSYLVANIA.

COIN-CONTROLLED VENDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 766,716, dated August 2, 1904.

Application filed June 24, 1903. Serial No. 162,862. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. MACKENZIE, a citizen of the United States, residing at Beaver, in the county of Beaver and State of Pennsylvania, have invented certain new and useful Improvements in Coin-Controlled Vending Apparatus, of which the following is a specification, reference being had therein to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan view of my improved coin-controlled vending apparatus. Fig. 2 is a sectional detail view on the line II II of Fig. 1. Fig. 3 is a front elevation thereof. Fig. 4 is a vertical cross-sectional view on the line IV IV of Fig. 1. Fig. 5 is a plan view of the mechanism for rotating the carrier. Fig. 6 is a vertical sectional view indicated by the line VI VI of Fig. 5. Fig. 7 is a detail sectional view indicated by the line VII VII of Fig. 1. Fig. 8 is a detail view, in front elevation, of the coin-controlled locking mechanism, showing the operation of the turning-stem. Fig. 9 is a horizontal sectional view thereof indicated on the line IX IX of Fig. 8. Figs. 10 and 11 are views similar to Fig. 8, but showing successive steps of the operation. Fig. 12 is a detail isometric view, detached, of the coin-discharging mechanism.

My invention relates to automatic vending apparatus wherein a rotating carrier is provided with pockets, cavities, or chambers adapted to hold or contain the articles to be vended and is intermittently operated by a coin-controlled turning-stem, so as to bring each chamber and its contents into register with the outlet-opening, through which the article may be discharged by gravity or removed by hand.

In the preferred form of my invention the carrier is mounted so as to rotate in a horizontal plane, although it may be mounted to rotate in a vertical plane by proper rearrangement of the controlling and actuating mechanism, and I do not desire to be limited to the horizontal arrangement of the carrier. Similar mechanism is shown and described in another application, filed June 24, 1903, Serial No. 162,861.

Referring now to the drawings, 2 represents the base of the apparatus, made of wood or other suitable material and preferably circular in form. At the center of the base is mounted a vertical bearing-stem 3, rigidly secured in any suitable support or made integral with a flanged base-plate, as clearly shown in Fig. 4. The stem 3 is preferably hollow, so as to conveniently permit of the passage through it of a central stem 4, by which an outer surrounding cover 5, of glass or metal, may be secured to the base, thus entirely surrounding the rotating carrier and the controlling mechanism, but provided with an opening through which the coin-slot may project, as clearly shown in Fig. 3.

Rotatably mounted upon the stem 3 is the carrying-plate 6, the lower surface of which is closely adjacent to the upper surface of the base 2, the plate 6 being provided with a concentric series of pockets or chambers 7, which may be circular in form, as shown in Fig. 1, or of any desired cross-section, according to the articles to be carried thereby. The base is provided at any convenient location, but preferably at the front, with an opening 8, with which opening each of the chambers 7 is adapted to come into register and over which each chamber will stop at the completion of the turning operation, so as to allow the contents of the chamber to fall freely down through the opening 8 into the hand of the operator or into any suitable receptacle suitably arranged to receive the article.

The carrier is rotated by means of a turning-stem 9, mounted in suitable bearings 10 in the base and provided with a worm-wheel 11, adapted to intermesh with a worm-gear 12, secured to or made integral with the plate 6 and journaled around the central stem 3. The proportions of the worm-gear are such that one complete revolution of the shaft or stem 9 will result in rotating the carrier a distance equal to the distance between the centers of the two adjacent chambers, so as to positively bring each successive chamber to a position of rest over the delivery-opening 8 at the end of each operation. This is conveniently provided for by making the number of the teeth of the worm-gear 12 equal to the number of chambers in the carrier and

conforming the proportions of the driving-worm 11 correspondingly. The turning of the carrier by the stem 9 is controlled by the action of a coin acting by gravity through a pivoted lever adapted to engage and release a locking-abutment secured to the stem 9.

13 is a cam mounted on the stem 9, provided with an abutment or shoulder 14, a gradually-rising periphery 15, a concentric edge of uniform radius 16, and an inwardly-tapering portion 17, terminating at the base of the shoulder 14.

18 is a lever pivotally mounted at 19 to the base and provided with a terminal 20, having a slot 21, adapted to embrace the comparatively narrow cam and to engage by the outer terminal of the slot the shoulder 14 in normal position, so as to prevent the turning of the stem in the direction of the arrow. The weight of the lever and its pivotal bearing is so arranged that its heaviest slotted end will fall by gravity over the cam, as shown in Fig. 3, thereby positively locking the stem against rotation until the slotted end is raised by the counterweighting action of the coin falling upon the other end, as shown in Fig. 8.

The slotted end of the lever is provided with a projecting ear or lug 22, and the stem or the cam is provided with an upwardly and inwardly extending flange or limiting-abutment 23, by which excessive upward movement of the slotted end of the lever is prevented, so that upon dropping a coin through the coin-slot its weight will merely raise the slotted end of the lever out of engagement with shoulder 14 and no more, further operation of the lever being performed by the positive engagement with it beyond the slot-terminal by the raising portion 15 of the cam.

24 is a coin-slot projecting out through the cover 5 and provided with a crooked or bent portion, so as to prevent the insertion of a wire or other instrument, the slot being suitably arranged with relation to the lever to provide for their coöperation.

The lever 18 is provided at its outer end with pins 25 25, extending inwardly through slotted openings in the front wall of the coin-slot and across its interior and adapted to receive and support a coin, the space between the pins being such that the body portion of the coin may extend downwardly between the pins.

Pivoted at 26 on the front of the coin-slot is a lever 27, having a slotted engagement with a pin 28, secured to a coin-lifter 29 and projecting out through a slot 30 in the front wall of the coin-slot. A similar guiding-pin or other device projects outwardly through the back wall at a higher or lower level, so as to maintain the coin-lifter in vertical alinement, or any other suitable guiding devices may be employed. The other end of the lever 27 beyond the pivot is provided with a pin 31 or other suitable bearing device, against which the lever 18 will bear in its downward travel under the weight of the coin, while further downward movement of the lever will result in further lowering the coin-bearing pins 25 and in raising the coin-lifter 29 between them, thus discharging it outwardly through the open edge of the slot, as shown in Fig. 11. After being so discharged the coin will pass downwardly through any suitable guiding device on the base into a drawer or receptacle 34, arranged below the base and preferably provided with a lock.

Backward movement of the stem 9 is positively prevented by means of a ratchet-wheel 32 secured thereon and a spring-controlled pawl 33, as clearly shown in Figs. 5 and 6 and as will be readily understood without further description.

The operation is as follows: The chamber 7 having been charged with the articles to be vended—as, for instance, shoe-laces, chewing-gum, or any other suitable merchandise—and a coin of the proper denomination having been deposited in the slot, so as to raise the slotted end of the lever out of engagement of shoulder 14, the stem 9 may be freely turned by the crank and by its movement will bring the rising portion 15 of the cam 13 underneath the outer end of the lever, throwing the inner end down, lowering the coin, and at the same time by bearing against the pin 31 raising the coin-lifter and discharging the coin upwardly and outwardly from between the pins, as already described. The operation is then continued until by the worm-gearing the next adjacent chamber 7 is brought into register with the opening 18, when the article will fall downwardly therefrom, as clearly shown in Fig. 7. At the same time the shoulder 14 will be again positively engaged by the slotted extremity of lever 18, said lever having dropped by gravity down the diminishing face 17 of the cam due to its gravity after having been released from the weight of the coin.

The coin-controlled mechanism may be applied to other devices than a rotatable carrier, so as to control the operation of the turning-stem, while the carrier itself may be widely varied and provided with chambers or compartments of different kinds or with supporting devices, as hooks, or of other design without departing from my invention.

It will be understood that changes and variations may be made in the design, proportions, arrangement, or other details of construction by the skilled mechanic without departing from my invention, and all such are to be considered as within the scope of the following claims.

What I claim is—

1. In a coin-controlled vending apparatus, the combination with a rotatable shaft provided with a locking-abutment; of a coin-controlled lever provided with a portion adapted

to engage said abutment, and an independently-pivoted coin-lifting lever having a bearing portion adapted to be actuated by the coin-controlled lever, substantially as set forth.

2. In a coin-controlled vending apparatus, the combination with a rotatable shaft provided with a locking-abutment; of a coin-controlled lever provided with a portion adapted to engage said abutment, a coin-lifter, and an independently-pivoted lever connected with the coin-lifter and having a bearing portion adapted to be actuated by the coin-controlled lever, substantially as set forth.

3. In a coin-controlled vending apparatus, the combination with a rotatable shaft provided with a locking-abutment; of a coin-controlled lever having coin-arresting portions and provided with a portion adapted to engage said abutment, a coin-chute provided with a lateral opening, a coin-lifter, and an independently-pivoted lever connected with said lifter and having a bearing portion adapted to be actuated by the coin-controlled lever, substantially as set forth.

4. In a coin-controlled vending apparatus, the combination with a rotatable shaft provided with a cam terminating in a locking-abutment; of a pivoted lever having a terminal adapted to engage said cam and abutment, an opposite terminal provided with coin-arresting portions, a coin-lifter, and a pivoted arm in engagement therewith having a bearing portion adapted to be actuated by the lever, substantially as set forth.

5. In a coin-controlled vending apparatus, the combination with a rotatable shaft in operative engagement with a pivoted carrier, and having a narrow cam terminating in a locking-abutment; of a coin-chute, a pivoted controlling-lever having pins projecting into the chute adapted to engage the edge of the coin, a coin-lifter, a pivoted lever connected therewith and having a bearing portion adapted to be engaged by the controlling-lever, said controlling-lever having a terminal adapted to engage the cam and abutment, substantially as set forth.

6. In a coin-controlled vending apparatus, the combination with a rotatable shaft provided with a coin, a locking-abutment, and a limiting-abutment; of a coin-controlled lever having coin-arresting devices and a terminal adapted to engage said cam and abutments, a coin-chute, a coin-lifter, and a relatively stationary pivoted lever connected with the coin-lifter and having a bearing portion adapted to be actuated by the coin-controlled lever, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE W. MacKENZIE.

Witnesses:
CHRISTOPHER FUHRMAN,
SAMUEL J. FISHER.