

F. L. STRAIGHT.  
 VENDING MACHINE.  
 APPLICATION FILED NOV. 17, 1911.

1,066,162.

Patented July 1, 1913.

4 SHEETS—SHEET 1.

Fig. 1.

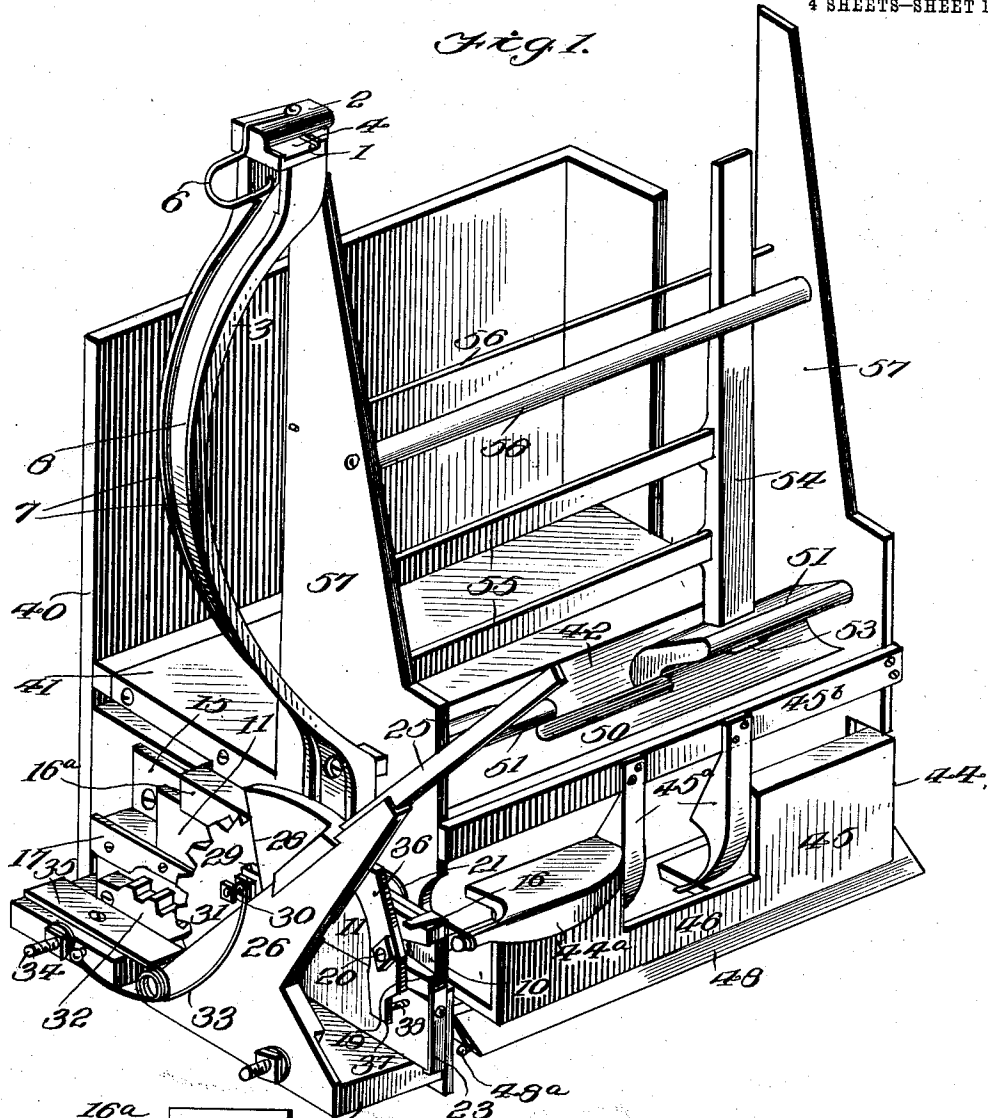
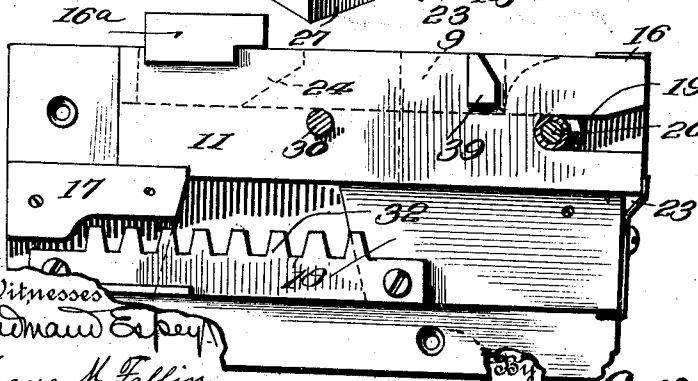


Fig. 9.



Witnesses  
 Herman E. Speer  
 Juana M. Fallin.

Inventor  
 F. L. Straight.

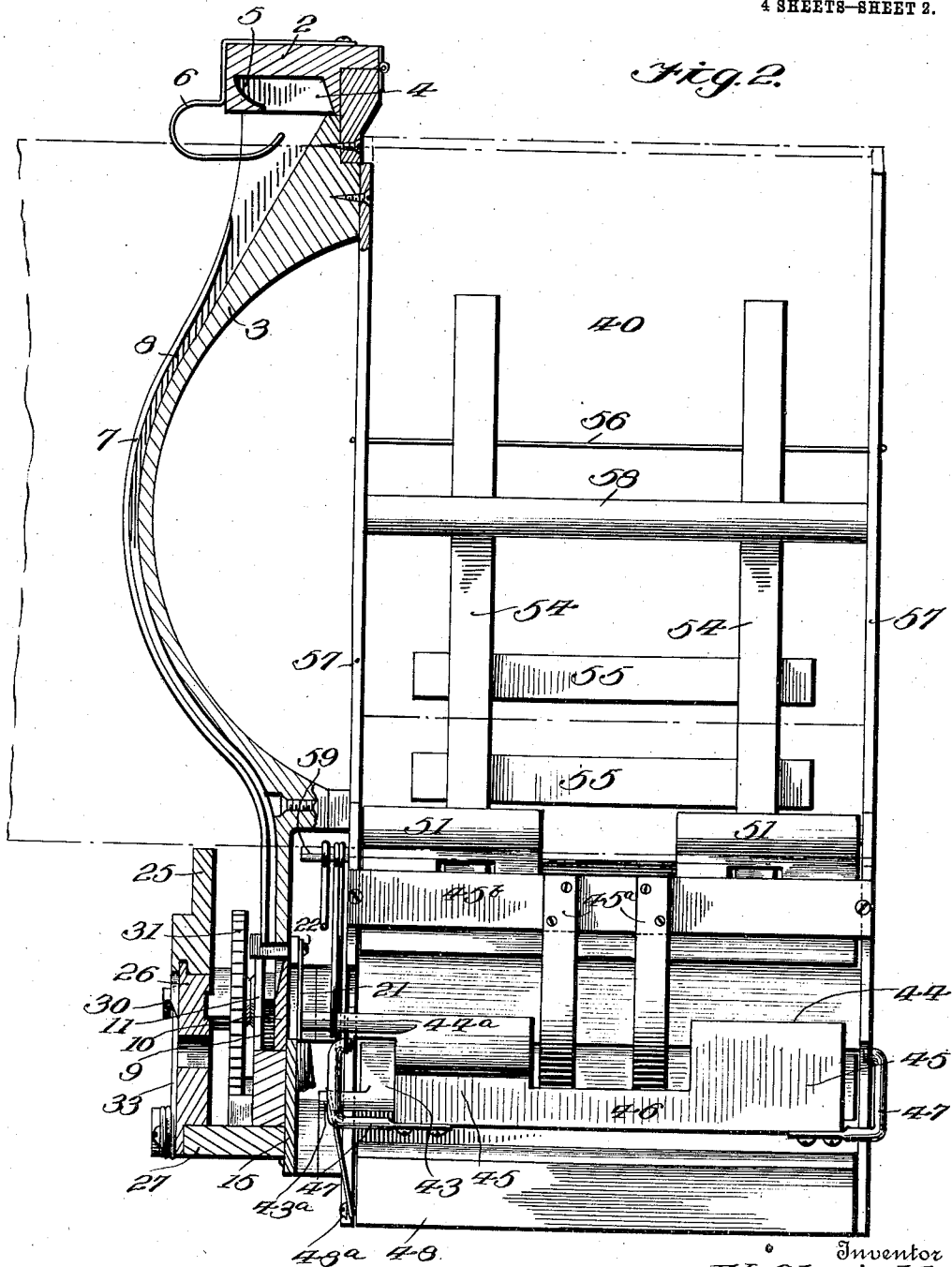
A. M. Macey, Attorney

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4 SHEETS—SHEET 2.



Inventor  
 F. L. Straight.

Witnesses

Edward P. Rea.

Joanna M. Tallin.

By

A. M. Hacy

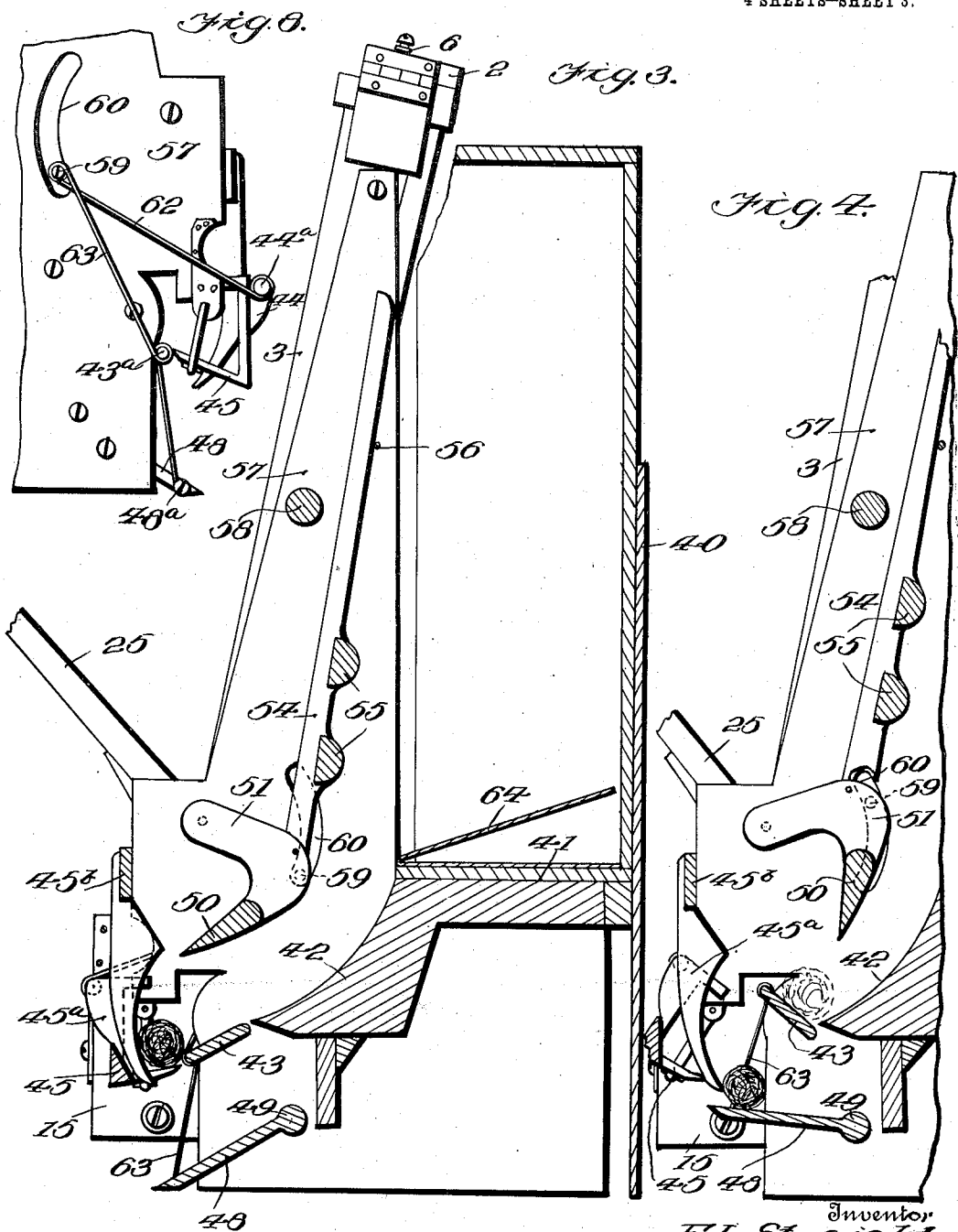
Attorney.

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4 SHEETS—SHEET 3.



Witnesses  
 Edward Espey  
 Juana M. Fallon

34

A. H. Macy, Attorney.

F. L. STRAIGHT.  
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4 SHEETS—SHEET 4.

Fig. 5.

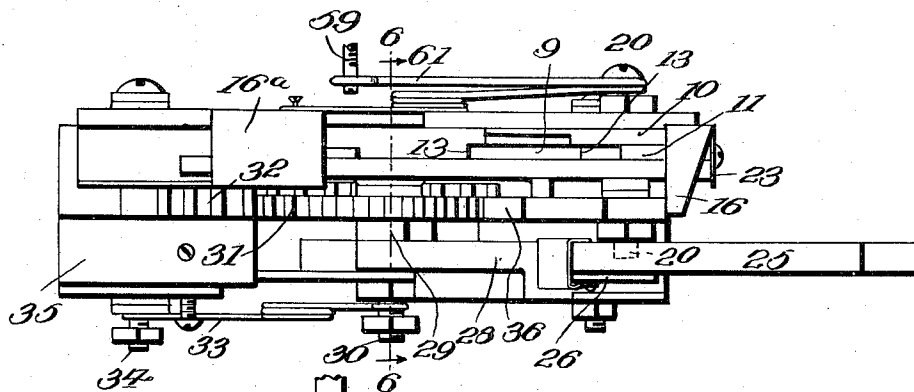


Fig. 6.

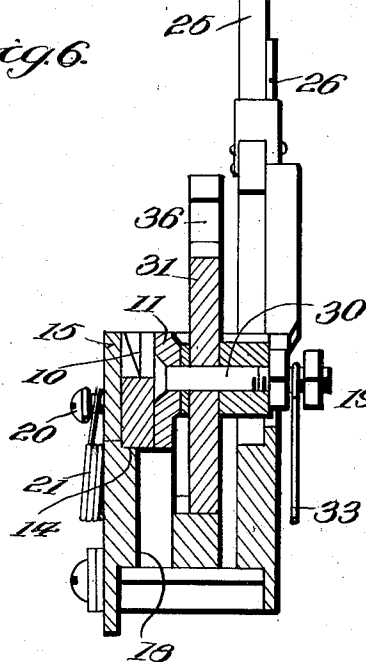
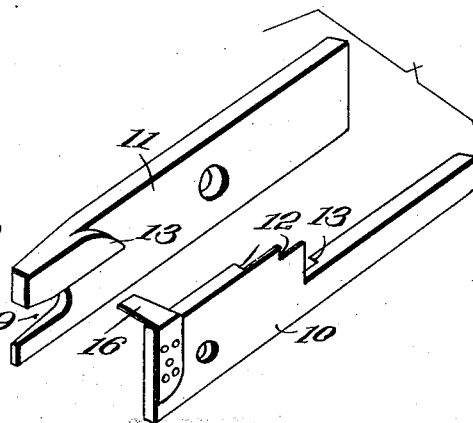


Fig. 7.



Inventor  
F. L. Straight.

Witnesses  
Herman E. Epp  
Jenna M. Fallon.

By

A. H. Tracy, Attorney.

# UNITED STATES PATENT OFFICE.

FREDERICK L. STRAIGHT, OF LOUISIANA, MISSOURI.

## VENDING-MACHINE.

1,066,162.

Specification of Letters Patent.

Patented July 1, 1913.

Application filed November 17, 1911. Serial No. 660,840.

*To all whom it may concern:*

Be it known that I, FREDERICK L. STRAIGHT, citizen of the United States, residing at Louisiana, in the county of Pike and State of Missouri, have invented certain new and useful Improvements in Vending-Machines, of which the following is a specification.

This invention comprehends certain new and useful improvements in coin controlled vending apparatus, and relates particularly to a machine for vending cigars, although it is to be understood that the invention is not limited in this regard, but is equally applicable for other uses.

The invention has for its primary object a simple, durable and efficient construction of apparatus of this character which will be positive in its action and which will handle the cigars without liability of mashing them or breaking the wrappers, the parts of said apparatus being so constructed and arranged that a cigar will only be automatically delivered to the purchaser after the coin inserted in the machine shall have been deposited in its proper receptacle and not susceptible of being reclaimed by the purchaser, which would result in "beating" the machine.

The invention also has for its object, in a machine of this type, an improved construction of delivering mechanism which will properly feed the cigars, one at a time, without any danger of injuring them, as above stated, and which will at every operation of the device roll the cigars remaining in the device so as to insure a proper feed and prevent clogging or crowding.

A further object of the invention is to provide improved means of this character which will vend the cigars from the ordinary cigar box, the same being stood on end in the casing and the parts being preferably so arranged that the actuating mechanism may be viewed at all times, which will not only add a touch of interest to the machine, but also show when the box is empty.

A still further object of the invention is to provide, in a machine of this character, an improved construction of coin controlled mechanism for actuating the ejecting devices, said mechanism being positive in its character and only capable of being worked when a coin of the proper denomination is

inserted into the coin way. And the invention also aims to simplify and otherwise generally improve this class of devices so as to render them more useful and commercially desirable.

With these and other objects in view, as will more fully appear as the description proceeds, the invention consists in certain constructions and arrangements of the parts that I shall hereinafter fully describe and claim.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a perspective view of my improved vending machine; Fig. 2 is an elevation thereof, parts being shown in section; Figs. 3 and 4 are transverse sectional views through the article delivering portion of the apparatus, the parts being shown in two different positions; Fig. 5 is a top plan view of the coin controlled devices; Fig. 6 is a transverse sectional view thereof on the line 6-6 of Fig. 5; Fig. 7 is a detail perspective view of the coin connected slide bars employed; Fig. 8 is a fragmentary side view of the article delivering devices; and Fig. 9 is a longitudinal sectional view through the coin-controlled mechanism, the section being taken substantially just to one side of the relatively movable slide bar hereinafter specifically described.

Corresponding and like parts are designated by the same characters of reference throughout the several views.

The casing of my improved cigar vending machine may be of any desired construction and design, according to the particular requirements of the case, or as judgment or taste may dictate, said casing not being shown in the present instance, as it in itself forms no part of the present invention. It is to be understood, however, that the casing is provided with a suitable opening for the reception of a coin, with a door or panel whereby access may be had to the interior of the casing for inserting cigar boxes therein, and, if desired, also provided at its bottom with a tray upon which the delivered cigars may drop, so as to be removed by the purchaser after the actuation of the apparatus, instead of dropping the cigars directly into the purchaser's hand. All of these parts may be of any desired construction,

and are well understood to those versed in the art to which this invention appertains. Therefore, they are not illustrated.

The embodiment of the invention illustrated in the accompanying drawings shows a coin receiving slot 1, which is formed in a cap 2 which, in the present instance, is hinged to the upper end of a standard 3, said slot leading into an opening 4 formed in said cap, the cap being provided with a ledge 5 at one side of said opening so as to cause the coin inserted therein to tilt and be properly directed into the coin way.

6 designates a hook which is preferably formed of wire and which projects underneath the opening 4 whereby, should a device such as a washer or the like, of a size equal to the diameter of the required coin, be inserted in the slot 1, it will catch on the hook and be prevented from dropping into the coin way. The standard 3 is curved, as shown, and is provided with inturned flanges 7 producing a coin way 8, the lower end of the coin way being reversely curved and leading down to a coin receiving pocket 9. This pocket is formed by an ejector actuating bar 10 and a relatively free bar 11, co-acting therewith, the pocket in the present instance being constituted specifically by a recess 12 formed in the bar 10 and by front and rear shoulders 13 formed on the bars 10 and 11, respectively, the shoulders being engaged by the coin dropping into the pocket, so that it will form a connecting link between the two bars and compel their simultaneous movement. Without the coin, the bar 11 may move freely independently of the bar 10. These bars 10 and 11 are mounted to slide on a bed 14 which is preferably an integral part of a vertically disposed plate 15 guiding the bars on one side, said bars being also guided in their forward and backward movements by upper guides 16, 16<sup>a</sup> and a lower guide 17. The bed 14 is formed with a coin discharge slot 18 by which the coin is permitted to pass, after the backward movement of the bars 10 and 11, so as to be deposited into a suitable receptacle (not shown) for subsequent collection. The bar 10 is formed in its front end with a recess 19 which is designed to receive a transverse pin 20 carried by the bar 11. A spring 21 is secured at one end to the pin 20 and is fastened to the plate 15 at its other end, said spring tending to automatically move the bar 10 forwardly, serving to return said bar to its normal position after each actuation of the device, the bar being limited in this movement by a stop 23 secured to the other end of the bed 14. If desired, a cam 24 may be provided above the upper edge of the bar 10, in line with the pocket 9, said cam being designed to engage the coin in the backward movement of the bars 10 and 11,

so as to compel the coin to drop down through the discharge slot 18.

The primary actuating element of the device is a push rod 25 which is mounted for a downward and inward movement on a downwardly and rearwardly inclined bracket 26 secured to and forming part of a base 27 connecting said bracket with the vertically disposed plate 15. The push rod 25 is formed at its lower end with a wedge or cam 28 formed with a vertically disposed working face and adapted to act against a collar or block 29 mounted on a transverse spindle 30 which is secured to and projects laterally from the relatively free bar 11. A combined cog and ratchet wheel 31 is journaled on the spindle 30, the cog teeth of said wheel meshing with the teeth of a rack bar 32 formed on or secured to the base 27. A spring 33 is connected at one end to the outer end of the spindle 30 and is fixed to the base 27 at its other end, as indicated at 34, the spring exerting its tension on the spindle to move the same forwardly toward the front of the device, so as to return the wheel 31 and push rod 25 to their normal positions, after actuation. To limit the inward or backward movement of these parts, a stop 35 is secured to the base 27, being designed to engage the working edge of the cam or wedge 28, before mentioned.

A pawl 36 co-acts with the ratchet teeth on the wheel 31. This pawl is pivotally mounted on one end of the pin 20 and is formed with a downwardly projecting foot 37 designed, when the bar 10 is at the forward limit of its movement ready to be actuated, to be engaged by a stud 38, the pawl being thereby held in a substantially vertical and inoperative position out of engagement with the ratchet teeth of the wheel 31. As soon, however, as the bar 10 begins to move inwardly, the pawl will drop into engagement with the ratchet teeth of the wheel 31, the parts being thereby held from a retracting movement until the coin in the pocket 9 has been dropped into the slot 18, at which time the pawl will be engaged by a releasing lug 39 projecting laterally from one side of the bar 11, and the bars 10 and 11 may then be brought back to their normal starting positions by their respective springs 21 and 33. This is an important feature of my apparatus, owing to the fact that, as will be hereinafter more fully explained, the cigar is discharged automatically upon the return movements of the coin controlled devices, and as this arrangement of parts insures that the return movement can not be effected until the coin shall have passed beyond reclamation by the prospective purchaser, all liability of permitting the device to be "worked" by a mere partial movement of the parts, is precluded. This feature also provides against the purchaser securing

more than one cigar for a single coin. In the present instance, the device is intended to be used to vend five-cent cigars, and the pocket 9 and coin way 8 are proportioned accordingly. Should, for instance, a penny be inserted into the coin-way, it will not reach the pocket but will fly out of the coin way at the beginning of the reverse bend thereof, owing to the slightly smaller diameter of the coin.

From as much of the description as has preceded in connection with the correlated views of the accompanying drawings, it will be understood that when a proper coin is inserted into the coin way 8 it will be directed down into the pocket 9, the subsequent inward and downward movement of the push rod 25 causing the wedge 28 thereof to work against the spindle 30 so as to move the bar 11 inwardly and the bar 10 with it, owing to the engagement of the coin between the shoulders 13 of these bars. During this inward movement of the bars, the pawl 36 will successively engage the ratchet teeth of the wheel 31 as the latter rolls along the rack bar 32, and prevent the return movement of the bars until the coin has been dropped into the discharge slot 18, at which time the pawl will be released from the wheel 31, and the bars will be retracted by their springs 21 and 33, the bar 10 being immediately brought back to its initial position as soon as the coin is dropped, and the bar 11 being brought back to its initial position as soon as the operator releases the pressure of his hand or finger from the push rod 25.

Having now described specifically the construction and operation of the coin actuated portion of the apparatus, I shall now proceed to describe the specific parts of the vending or ejecting portion of the apparatus.

The plate 15 is secured in any desired way to one side of a box support 40 formed with a base 41 upon which a cigar box is adapted to rest on end. Leading downwardly and forwardly from the base 41 is a preferably curved runway 42 which leads to a pivoted retarding plate 43 extending across the lower edge of the runway, said retarding plate in turn leading to a cut-off 44 in front of said plate. This cut-off in the present embodiment of the invention, is composed of two angular arms 45 joined together by a connecting bar 46, and swung from angular hangers 47 pivotally suspended from the sides of the box holder 40. In the recess or space between the arms 45 are inwardly curved deflecting fingers 45<sup>a</sup>, the same being secured to and depending from a cross bar 45<sup>b</sup> secured at its ends to the front edges of the sides of the box holder. Underneath the retarding plate 43 and cut-off 44 is a discharge plate 48 pivoted at 49 to swing about a horizontal axis. Above the retarding plate

43, in proper proximity thereto and to the runway 42, is a feed bar 50 which is formed with curved and rounded cranks 51, pivotally connected to the sides of the box holder 40, as at 52. The cranks 51 are formed with slots 53 in which substantially vertical bars 54 are pivotally mounted, said bars extending upwardly as shown and connected to the cross bars 55 formed with rounded inner faces, the upper ends of the bars 54 being designed to rest upon the cross rod 56 secured to the posts 57. The bars 54 are prevented from tilting forwardly by means of a spreader bar 58 secured to said posts, as shown.

In order to actuate the parts just described, one of the cranks 51 is formed with a wrist pin 59 projecting outwardly through a preferably curved slot 60 formed in the adjoining post 57, the protruding end of said wrist pin being secured to a pitman 61 which is carried by the pin 20 of the ejector actuating bar 10. A link rod 62 is also connected at one end to a wrist pin 59 and at its other end to the lateral extension 44<sup>a</sup> of the cut-off 44. A link rod 63 is also connected at one end to the wrist pin 59, the last named link rod being connected to lateral extensions 43<sup>a</sup> and 48<sup>a</sup> formed on the retarding and discharge plates, respectively. It will thus be understood that when the pitman 61 is moved inwardly by the inward movement of the coin actuated bars 10 and 11, before described, the feed bar 50 will be swung inwardly and upwardly, the frame constituted by the bars 54 and 55 will be moved outwardly, the retarding plate 43 will also be moved outwardly, as will also be the discharge plate 48, while the cut-off 44 will be swung outwardly, that is, toward the operator, so as to permit the cigar which has been resting upon said cut-off, to roll therefrom onto the discharge plate 48, this upward movement of the retarding plate 43 preventing any but the single cigar that has been resting upon the cut-off 44 from passing down into said discharge plate. Upon the return movement of the bars 10 and 11, after the coin has passed down into the discharge slot 18, a reverse movement of the ejecting devices will be effected, the discharge plates swung downwardly so as to permit the cigar to roll onto the tray or into the hand of the purchaser, and the cut-off 44 moved inwardly to receive thereon a cigar which has been passed thereto by the return and downward movement of the retarding plate 43. During this movement of the parts the feed bar 50 and curved and rounded cranks 51 thereof will roll over the cigars to properly align or distribute them on the runway, while the vertical reciprocating movement of the bars 54 and connected cross bars 55 will hold the cigars remaining in the box, and maintain them in properly

loose condition and prevent clogging or crowding.

To assist in maintaining the proper feed of the cigars, I preferably employ an inclined fillet 64 which is inserted in the lower end of the box after a few cigars have been removed therefrom and disposed on the runway, said inclined fillet preferably possessing a weak spring action so that it will automatically expand and increase the inclination toward the vertical as the supply of cigars becomes exhausted.

From the foregoing description in connection with the accompanying drawings, the operation of my improved cigar vending machine will be apparent, as the operations of the different elements of the apparatus have been described along with the description of their construction and relative arrangement. It may be added, however, that in the principal use of the device, the box is stood on end in the box holder 40, with the open front facing the operator, after a few of the cigars have been removed therefrom, and inserted on the runway, so as to make room for the fillet 64 and otherwise to prepare the apparatus for actual operation. When a coin is inserted into the coin way it will fall into the pocket 9 and a subsequent movement of the push rod 25 will move the bars 10 and 11 inwardly and at the same time swing the feed bar inwardly and upwardly, the retarding plate outwardly, the discharge plate 48 outwardly, and the cut-off 44 outwardly, so as to permit the cigar thereon to roll off onto the discharge plate 28; and as soon as the coin has been dropped into the slot 15 the bar 10 will be returned by its spring 21 and the cigar will be permitted to roll off of the discharge plate 48, all of the vending devices being automatically brought back to their initial positions, ready for a subsequent operation.

While the accompanying drawings disclose what I believe to be the preferred embodiment of my invention, it is to be understood that the invention is not limited thereto, but that various changes may be made in the construction, arrangement and proportions of the parts without departing from the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim is:

1. In coin actuating apparatus, an ejector actuating bar, a longitudinally movable actuating bar extending parallel to the ejector actuating bar, both of said bars being slidably mounted for movement in one plane and said bars together forming a pocket for the reception of a coin, a slide-way extending at an angle to the line of movement of the actuating bar, a stud projecting from the actuating bar, a member slidable on said

slide-way and having a straight face extending at right angles to the line of movement of the actuating bar and engaging the said stud thereon and an actuating plunger projecting from said member.

2. An apparatus of the character described, including an ejector actuating element and a relatively free moving element, together forming a pocket for the reception of a coin whereby the movement of the latter element will then move the former element, article delivering devices operable by said ejector actuating mechanism, means for moving the freely movable element, a wheel movable with said last-named element and compelled to roll therewith, a pawl carried by the other element, means whereby the pawl will engage said wheel to prevent the return movement of the elements until a predetermined point in their opposite movements, and means for automatically releasing said pawl from said wheel when such point is reached.

3. In apparatus of the character described, including an injector actuating element and a relatively free moving element, together forming a pocket for the reception of a coin whereby the movement of the latter element will then move the former element, article delivering devices operable by said ejector actuating element, means for moving the freely moving element, a wheel movable with said last-named element and compelled to roll therewith, a pawl carried by the other element, means whereby the pawl will engage said wheel to prevent the return movement of the elements until a predetermined point in their opposite movements, and means carried by the ejector actuating element adapted to release the pawl from the wheel automatically when such point is reached so as to permit the automatic return of the ejector actuating element.

4. An apparatus of the character described, including an ejector actuating bar and a freely movable bar, together forming a pocket for the reception of a coin, whereby upon the introduction of a coin therein the movement of the freely moving bar will be accompanied by the movement of the ejector actuating bar, article delivering devices operable by said ejector actuating bar upon the return movement thereof, a combined cog and ratchet wheel carried by the freely moving bar, means for actuating said freely moving bar, a relatively stationary bar with which the cog teeth of said bar engage, a pawl carried by the ejector actuating bar and normally held out of contact with the ratchet teeth of said wheel, means for permitting said pawl to drop into engagement with the ratchet teeth of said wheel upon the simultaneous movement of said bars in one direction, and a lug carried by the freely moving bar and adapted to engage said pawl to re-

lease it from the ratchet teeth whereby to permit the ejector actuating bar to have a return movement at a predetermined point in the said simultaneous movement of the said bars.

5. An apparatus of the character described, including an ejector actuating bar and a freely moving bar, together forming a pocket for the introduction of a coin whereby upon such introduction the movement imparted to the freely moving bar will be accompanied by a corresponding movement of the ejector actuating bar, article delivering devices operable by said last-named bar, a combined cog and ratchet wheel, a spindle secured to the freely moving bar and upon which said wheel is adapted to turn, a push rod provided with a wedge adapted to engage said spindle to move said bar upon the inward movement of the push rod, a relatively stationary rack bar with which the cog teeth of said wheel mesh, means tending to return the ejector actuating bar to its initial position, means tending to return the other bar to its initial position, a pawl carried by said ejector actuating bar and normally held, in the initial position of said bar, out of engagement with the ratchet teeth of said wheel, and arranged to automatically fall into engagement with said teeth in the initial portion of the simultaneous movement of said bars, and a lug carried by the freely moving bar and adapted to release the pawl from said ratchet teeth at a predetermined point in such movement.

6. An apparatus of the character described, including an ejector actuating bar and a freely moving bar, together forming a pocket for the introduction of a coin, whereby upon such introduction a movement imparted in one direction to the freely moving bar will be accompanied by a corresponding movement of the ejector actuating bar, article delivering devices operable by said last named bar, a spindle connected to the freely moving bar, a combined cog and ratchet wheel mounted on said spindle, a

relatively stationary rack bar with which the cog teeth of said wheel mesh, independent means for returning said bars to their initial position, a pin projecting laterally from the ejector actuating bar through the other bar, a gravity actuated pawl mounted on said pin and provided with a downwardly projecting foot, a relatively stationary stud adapted to engage said pawl to hold it, in one position of said bars, out of engagement with the ratchet teeth of said wheel, and permitting it to fall into engagement with said teeth, at the beginning of the simultaneous movement of said bars in the other direction, and means for automatically releasing said pawl from said ratchet teeth upon the arrival of said bars at a predetermined position in such movement.

7. In actuating mechanism for vending machines, an ejector actuating bar, a bar extending parallel thereto, both of said bars being slidably mounted for movement in one plane, said bars together forming a pocket for the reception of a coin, a stud operatively carried by the second named bar and a spring acting to force the second named bar to its initial position, a guide-way extending at an inclination to the plane of movement of the second named bar, an actuating member having a slide engaging said guideway, said actuating member including an operating handle and a wedge engaging said stud, a pawl carried by the ejector actuating bar and operatively engaging the second named bar upon an ejector actuating movement, and means for automatically releasing said pawl from its engagement upon the arrival of said bars at a predetermined position in the actuating movement.

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

FREDERICK L. STRAIGHT. [L. S.]

Witnesses:

CARSON STAGGS,  
JAMES P. FLINT.