

(No Model.)

3 Sheets—Sheet 1.

F. G. DIETERICH.
VENDING MACHINE.

No. 423,033.

Patented Mar. 11, 1890.

Fig. 2.

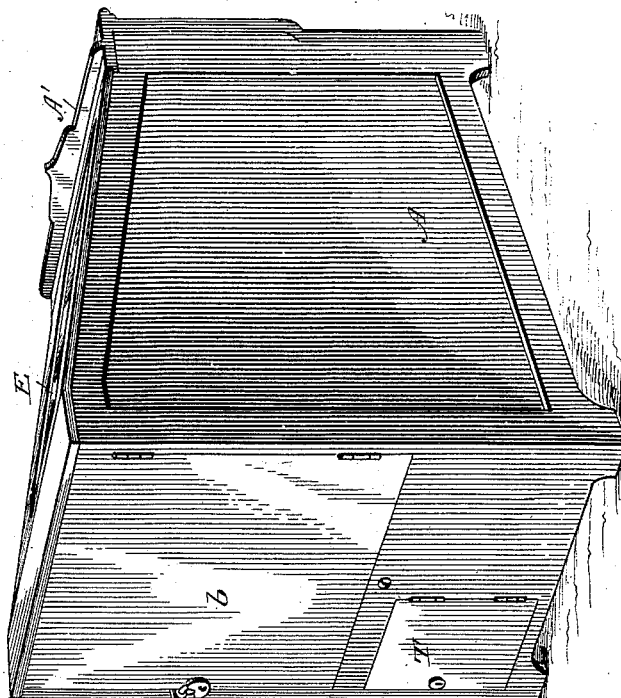
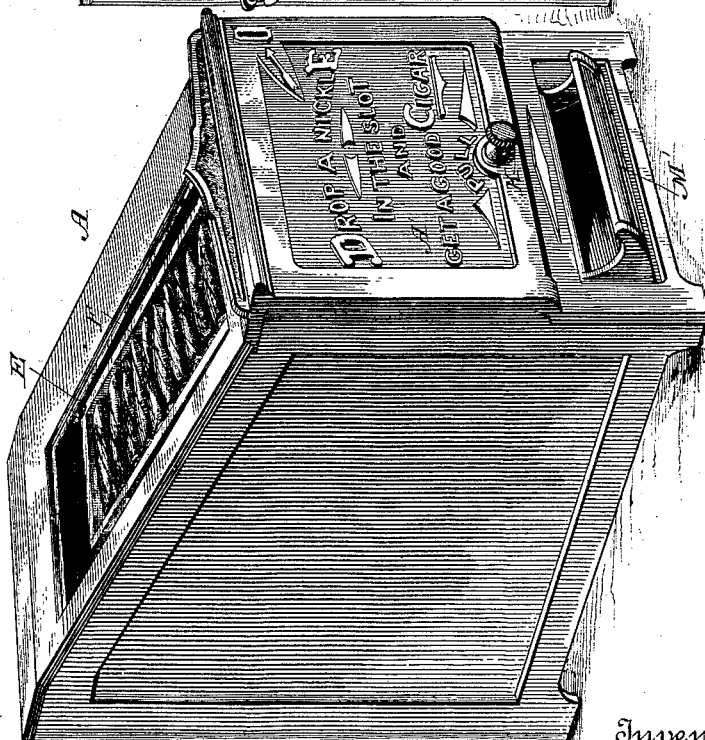


Fig. 1.



Witnesses

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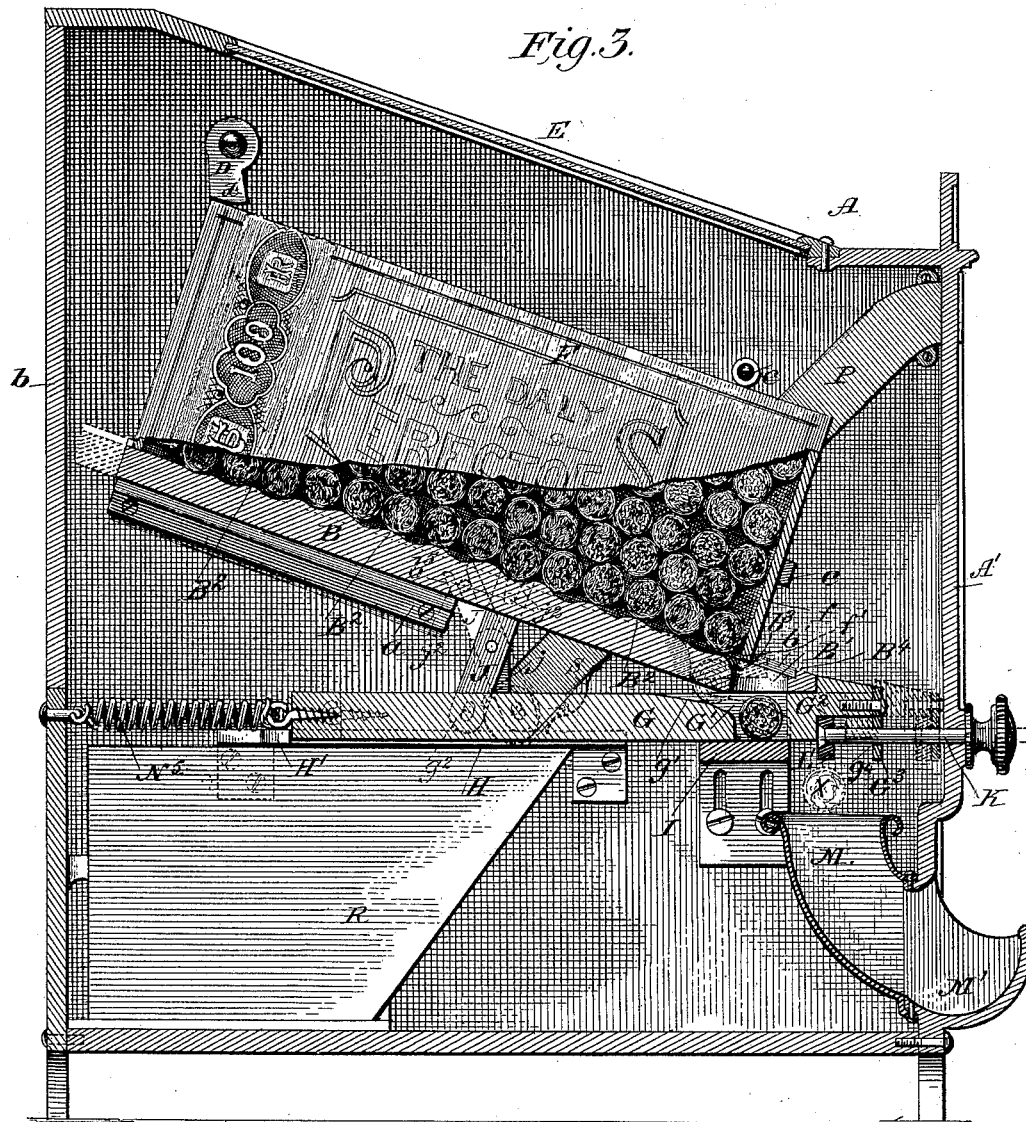
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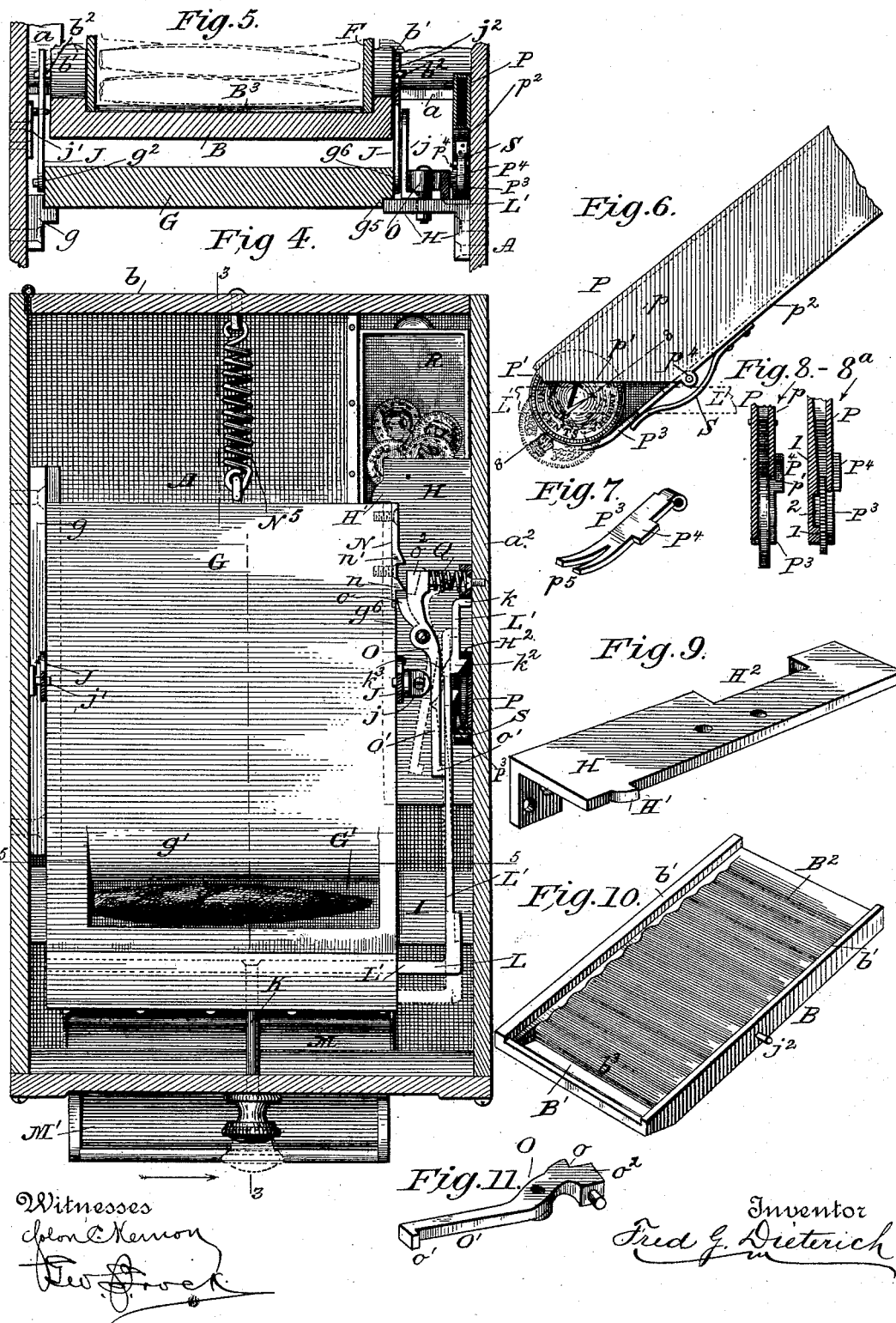
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3 Sheets—Sheet 3.

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UNITED STATES PATENT OFFICE.

FRED G. DIETERICH, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR
TO JOHN U. O'MEARA, OF SAME PLACE.

VENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 423,033, dated March 11, 1890.

Application filed September 14, 1889. Serial No. 323,898. (No model.)

To all whom it may concern:

Be it known that I, FRED G. DIETERICH, a citizen of the United States, residing at Washington city, in the District of Columbia, have
5 invented certain new and useful Improvements in Vending-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which
10 it appertains to make and use the same.

My invention relates to a vending apparatus more especially designed for the sale of cigars, it being obvious, however, that it may be used for the sale of other articles with but
15 slight alterations without changing the essential parts of the apparatus. As is well known, machines of this class are operated by means of the insertion of a coin, which releases certain locking mechanism, so as to permit the
20 delivery-slide, which brings the article within reach of the purchaser, to be operated. In the general construction of machines of this character they are usually provided with a receiving-hopper which feeds the cigars or
25 other articles to the feed-slide in such a manner that a single cigar will be discharged when the operating-lever or pull-rod is manipulated by the purchaser. This construction is very objectionable—first, because, according to the laws relating to internal revenue, tobacco in any shape can only be sold
30 from the originally-stamped box or package; second, by feeding them through a hopper they become more or less jammed or broken.

Machines have also been patented where the cigars have been placed on a platform within the casing with one end of the box removed, so as to allow the cigars to feed from the box to the delivery apparatus. This
40 character of machines has been found objectionable, because no means are employed whereby the cigars within the box are loosened from their original compactly-pressed state, so they will always feed in place.

The object of my invention is to simplify the construction of such devices, and to produce a machine in which the cigars being sold and the brand thereof will always be in sight of the purchaser, as well also as the
50 revenue-stamp, so the purchaser can readily

see the character of the cigar he is buying, and the inspector of revenues can see at a glance that the law regulating the sale of cigars is being complied with.

It has also for its object to produce a machine which will be cheap as to cost, easy to manipulate, one which will not readily get out of order, and which will be effective for its desired purpose.

To this end my invention consists, first, in
60 arranging an inclined reciprocating support or holder for the cigars to rest on, which is provided with a discharge-opening at one end, arranging said reciprocating support at an angle, and corrugating its upper surface,
65 whereby the cigars will be effectively stirred up without injury thereto at each movement of said support.

It also consists in suitable connections between said reciprocating support and a reciprocating delivery-slide, whereby said support
70 is moved backward to take up a cigar from the merchandise hopper or box as the delivery-slide is pulled outward to discharge a cigar, and whereby said support and slide will
75 have their discharge-openings align when they assume their normal or rest positions; and, finally, my invention consists in the peculiar combination, construction, and arrangement of the several parts, all of which will herein
80 after be fully described in the annexed specification and particularly pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective front view of my
85 improved vending-machine. Fig. 2 is a perspective rear view thereof. Fig. 3 is a central vertical section of the same on the line 3 3, Fig. 4. Fig. 4 is a horizontal section of the machine with the top or cigar-support removed.
90 Fig. 5 is a detail cross-section of the same on the line 5 5, Fig. 4. Figs. 6, 7, 8, and 8^a are detail views of the coin-chute herein-after specifically referred to. Fig. 9 is a detail view of one of the brackets or supports.
95 Fig. 10 is a detail perspective view of the reciprocating cigar-support, and Fig. 11 is a detail view of the trip-lever or locking-pawl.

In the accompanying drawings, A indicates the case of the machine, which may be con-
100

structed of wood or metal or a combination of wood and metal, as I shall in practice construct the front wall A' of a single casting suitably nicked and of appropriate design.

5 Secured to the inner side walls of the case are inclined ways or brackets *a a*, upon which is supported and slides the reciprocating merchandise support or holder B, the form of which is shown in detail in Fig. 10 of the
10 drawings. This support is removable, and when used in connection with the selling of cigars forms the bottom of the cigar-box proper. In the practical adjustment of the same, when it is desired to place it in operative position, it is first removed from the
15 casing through a suitably-arranged door *b* in the rear of the case and placed over the inverted or bottom side of the cigar-box, (the bottom of said box having first been removed.) The said box is then held in position upon the support B between its side
20 guides or ribs *b' b'*, and the box and support then placed in position in the case.

Stop-blocks *c c* are arranged in the casing
25 to limit the forward movement of the box, and a suitable locking-pawl D, provided with a cam-face *d*, engages the rear upper end of box and holds same in position on its support B.

30 The casing A is provided with a glass-covered sight-opening E in its top, whereby the brand and revenue-stamp may be readily seen by the purchaser or other person.

By reference to Fig. 3 it will be observed
35 that the support B is somewhat longer than the box or receptacle F, said extended portion being normally in advance of the front wall *f* of the box. In this portion of the support is formed a feed-opening B', of a size
40 sufficiently large to admit of the easy passage of an ordinary-sized cigar, the rear edge *b³* of said opening being rounded and projecting normally slightly inside the end *f* of the box to facilitate the dropping or rolling of a cigar
45 into said opening when said support is moved backward, in a manner presently described, said movement being only of such a degree as to admit of said support being moved backward to the extent of the width of the opening B.

50 Cigars, as usually placed in their boxes, are pressed tightly in position, and, being usually green when put in the box, they, in their expansion, become so tightly wedged that it is
55 even difficult to remove same by hand. To overcome this serious objection and to provide means for automatically loosening the cigars in the box, I provide the upper face of said support B with transverse corrugations
60 B³, the central portion of said support being convexed longitudinally, as shown in Fig. 3. By this arrangement it will be seen that as the support is reciprocated back and forth the corrugations will not only tend to roll the
65 cigars and move them, but will also, owing to the convexed shape of the center of said support, serve to lift said cigars. The support

is also provided with a stop or projection B⁴, which serves to strike against the front wall *f* of said box on the return movement of said
70 support and give the box a sudden jar.

The aforesaid means for stirring the cigars forms one of the important parts of my invention, and, so far as I know, no means for this purpose have before been employed in
75 machines of this character.

The forward end of the support B, when in normal position, rests upon a horizontally-disposed reciprocating discharge-slide G, which
80 rests at one edge upon a wooden bracket *g*, while its opposite edge is supported upon a suitably-arranged metal bracket H. (Shown in detail in Fig. 9 of the drawings.) This slide is provided with an opening G', arranged
85 transversely thereof, which is of a size sufficient to receive an ordinary-sized cigar, and which, when the said slide is in normal position, registers with discharge-opening B' in the support B, said opening G' being normally over a transversely-arranged and vertically-adjustable bed-plate I, which, in
90 connection with the opening G', forms a pocket to receive a cigar at the return of the support and slide after the sale of a preceding cigar.

The rear wall of the opening G' is inclined
95 rearward, as at *g'*, for the following purpose: When the slide G is being pulled out and the support B travels back and upward, and after the opening thereof has received a cigar
100 and the purchaser releases the pull-rod K, the rear edge of the incline portion of the opening G' will be under said opening B', and as the support moves forward and the slide backward it will be seen that the cigar will by
105 gravity fall downward, while the support will push it forward, thereby forcing said cigar away from the inner lower edge *f'* of the wall *f* of the box, and thereby preventing any possible jam of said cigar against said corner
110 of the box.

To provide a simple means whereby said support and slide are operated to reciprocate in alternate directions, I connect same to links
115 J J, which are centrally pivoted to supports *j j'*, their lower ends engaging the studs *g² g²* on the slide G, while their upper ends are forked at *j² j²* to receive the lugs *b² b²*, projecting from the edges of the support, as shown, said ends being forked to facilitate the removal of said supports when desired. By
120 this arrangement it will be readily understood that as the slide moves forward the support moves backward, and vice versa. The front end of the slide is recessed on its under side
125 at G², and is provided with an overhanging stop-plate G³, provided with an aperture *g⁴*, through which the operating-rod K passes, said rod being connected at its inner end to the cross-bar L' of the operating-lever L, as
130 shown. By this construction it will be seen that as the rod K is pulled outward the bar L' will engage the plate G³ and pull the slide outward to discharge the cigar X into a chute M,

which extends to without the front wall of the case, as M' , in convenient reach of the purchaser.

N^5 denotes a coiled spring which retracts the slide and pulls the several parts back into normal position, the slide engaging a stop H' on the bracket H , as clearly seen in Fig. 4 of the drawings.

By reference to Fig. 5 of the drawings it will be seen that the lower edge of one of the sides of the slide G is recessed, as shown at g^5 , said recess engaging the metal bracket, as shown. The rear end of the upper portion of the side g^6 , which projects above the bracket, is provided with a retaining-plate N , which is provided with two projections or teeth $n n'$. (See Fig. 4.)

Pivottally supported on the bracket H is a horizontally-disposed stop-pawl or locking-lever O , the forward end of which is formed with a projecting detent o , which normally extends in the path of the tooth n of the retaining-plate N . The forward end o' of this locking-pawl is projected forward of the coin-chute P and extends parallel to the rearward extension L' of the pull-rod K , the forward end of said lever being provided with a lateral projection o' , which normally bears against the said extension L' , as shown.

Q denotes a spring which bears against the head o^2 of the lever O and holds the same normally in a locked position.

The pull-rod K , which is most clearly illustrated in Fig. 4 of the drawings, is provided with a rearward extension L' , said extension being formed of spring metal, the inner end being projected laterally, as at k , which bears against the side wall a^2 of the casing, forming a guide and support for said extension, as shown. It will be observed by reference to Fig. 4 of the drawings that the said extension L' is disposed to travel in front of and across the lower front face of the coin-chute P . It will also be seen that I provide the inner face of the extension at the front, where it engages the said chute, with a laterally outwardly extending cam projection k^2 , and its outer face with a projection k^3 , which engages the forward end O' of the locking-lever O , for a purpose presently explained.

It is well known that heretofore in coin-actuated machines the coin usually in falling actuates a gravity-pawl to release the delivery-slide. In some cases the coin is used to form the connection between the slides to permit them to operate. For this purpose I employ a coin-chute P , (most clearly illustrated in Figs. 6, 7, and 8,) which is provided at its lower end with a contracted mouth P' , which projects through an opening H^3 in the bracket H , and which in the present instance is of such a width as to retain a coin of the size of a five-cent piece, but presents a clear passage for a coin of smaller dimensions. The front face p of the chute is cut away, as at p' , thereby permitting the major portion of one face of the coin to appear, said portion

being so arranged as to be in the path of the cam portion k^2 when the rod K is pulled outward.

To securely hold the said coin in position and yet provide simple means whereby said coin may be readily discharged into a suitable drawer or money-box R , I form the side wall p^2 of said contracted mouth into a pivoted leaf P^3 , which is pivoted at p^4 to the side walls of the chute, and is securely held in a closed position by a suitable leaf-spring S .

By reference to Fig. 7 it will be observed that I provide the lower end of the leaf P^3 with a slot p^5 of graduated width, which forms an additional means of permitting a coin smaller than a five-cent piece to fall through the width of said slot, however not permitting the passage of the five-cent piece. This leaf P^3 is also provided with a wing P^4 , which projects beyond the free face of the coin.

By reference to the drawings it will be observed that the teeth $n n'$ are of a length equal to the thickness of the coin, and that the cam projection is also of a size equal to the thickness of said coin. It will thus be seen that if there is no coin in the lower end of the chute a pull on the rod would cause the cam projection to pass across the front face of the chute without affecting the locking-lever at all; but when a coin of the required thickness—as, for instance, a five-cent piece—is in position the cam projection would, when the rod is pulled out, engage the coin, and be thereby sprung backward until its end travels on the front face of the coin, as shown in dotted lines, Fig. 4, which in its movement would cause its projection k^3 to engage the arm O' of the lever O and throw it out of locked position, (see dotted lines, Fig. 4,) and thereby permit the delivery-slide to be operated. This construction of the locking mechanism forms still another safety against operating with a coin of less denomination—as, for instance, a cent. Should a cent by some accident be caught at the mouth of the chute, it could not (owing to its thickness being less than that of the five-cent piece and the length of the tooth n) throw the lever O entirely out of locked position when the rod K is pulled slightly forward.

When it is desired to operate the machine by a coin of less width than a five-cent piece—as, for instance, a dime—without changing the construction of the locking-lever and plate, I form the lower end of the chute with an enlargement, as shown at 1, Fig. 8³, and recess said enlargement at 2 to permit the cam projection K^2 to pass thereacross when a coin is not in place. In this construction I also omit the slot in the bottom of the pivoted leaf and contract the mouth of the chute to hold a dime in position. By this construction it will be seen that the combined thickness of the chute-wall and the dime will be equal to that of the five-cent piece and the length of the tooth n , and that when the rod K is pulled out its cam projection will oper-

ate over the dime in a manner similar to its operation over the five-cent piece.

As before stated, the operation of releasing the coin and feeding out the cigar is done at one pull outward upon the rod K. The said parts are, however, so constructed that the beginning of the pull upon the rod releases the locking devices, and the remainder of its pull operates to discharge a cigar, the entire pull upon the rod, however, being the distance of less than the width of two cigars.

By reference to Fig. 3 it will be seen that normally there is a space between the cross-bar of the rod and the overhanging plate G³ of less than the width of a cigar. This permits the forward movement of said rod K to release the locking-lever before it engages the delivery-slide.

To prevent any one "beating" the machine by allowing the slide and rod to recede slowly to a point just in advance of its locking-point, I provide the second tooth *n'*, which will engage the locking-lever before the parts can recede far enough to permit the support to take up another cigar from the box. When the pull-rod K has been drawn out to its full extent, the cam projection *k*² will have passed over the coin and engaged the wing P⁴ of the leaf P³ and swung it on its pivot, thereby opening the mouth of the chute P and allowing the coin to fall into the coin-receptacle, the extension then springing back to its normal position and the lever being pressed over against the plate N by the spring Q to engage the locking-teeth, as described.

A suitable door T is provided at the rear of the machine for the ready withdrawal of the coin-box.

By arranging the plate I adjustably the same can be readily lowered when it is desired to change the support B and slide G to feed two cigars at one time, such constructions being readily made without changing the material parts of the machine.

From the foregoing description, taken in connection with the drawings, the advantages of my invention will be readily understood. It will be seen that the pull-rod has at its utmost but a limited amount of movement, and that by the constructions shown the several parts are so arranged that they can be cheaply made, quickly adjusted, and the danger of their getting out of order is reduced to a minimum.

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

1. In a vending-machine, the combination, with the casing, guides or brackets secured therein, a longitudinally-movable delivery-slide, and intermediate connecting devices projecting upward from said delivery-slide, of a detachable longitudinally-movable merchandise-holder disposed above said delivery-slide, one end adapted to be supported on said slide, its other end supported on the aforesaid

bracket and having a connection with said intermediate devices, said devices consisting of centrally-pivoted links, whereby the movement of the slide in one direction will move the merchandise-holder in an opposite direction, substantially as and for the purpose described.

2. The combination, with the discharging-slide, of a merchandise-holder longitudinally movable over said slide, a receptacle held on said holder, such holder being provided with a discharge-opening normally disposed to the front edge of the receptacle, said holder adapted to be moved longitudinally under said receptacle, whereby the feed-opening will be moved inward and permit the cigar or other article to be discharged through said holder onto the delivery-slide, and means for operating the said holder, substantially as and for the purpose specified.

3. The combination, with a horizontally-disposed and longitudinally-movable delivery-slide, of a diagonally-disposed merchandise-holder provided with a discharge-opening at its lower ends supported over said horizontal slide, the centrally-pivoted links connected at their lower ends to the delivery-slide and at their upper ends to the merchandise-holder, and means for operating said slide, substantially as described.

4. The combination, with the horizontally-disposed delivery-slide provided with a discharge-outlet, of the longitudinally-movable merchandise-holder located above said slide, the merchandise box or receptacle supported thereon, said holder provided with a feed-opening normally disposed outside of the front end of said box and registering with the discharge-opening in said slide, said holder provided with a projection on its outer end adapted to strike the box on its rearward movement and thereby agitate its contents, and the intermediate pivoted links connected to said slide and holder for communicating reverse longitudinal motions thereto, substantially as and for the purpose described.

5. In a vending-machine, the combination, with the horizontally-reciprocating discharge mechanism, of the longitudinally-movable merchandise-holder provided with transverse corrugations on its upper face, said holder disposed diagonally above said discharge mechanism and provided with a feed-opening at its lower end communicating with said discharge mechanism, substantially as shown, and for the purpose described.

6. In a vending-machine, a longitudinally-movable merchandise-holder having its upper face convexed longitudinally and provided with transverse corrugations or ribs on said face, substantially as and for the purpose described.

7. The combination, with a longitudinally-movable merchandise-holder and means for agitating the same and the merchandise box or receptacle supported thereon, of the stops *c c*, for holding the box in position, and the

locking-pawl D, provided with a cam-face i , to engage the upper edge of said box, substantially as and for the purpose described.

8. In a vending-machine, a merchandise holder or support consisting of a body or block having longitudinal flanges or ribs for holding the merchandise-box from lateral movement, a discharge-opening in one end, said opening normally disposed beyond the front wall of the box and adapted to receive a cigar or other article when moved back under said articles, and means for reciprocating said holder, substantially as and for the purpose described.

9. The combination, with the merchandise-holder provided with an aperture, as B' , normally disposed beyond the front wall of the merchandise-box, a discharge-slide provided with an aperture G' , normally registering with said aperture B' in the holder, a transverse support arranged below said aperture G' for temporarily supporting the cigar, a discharge-chute extended to without the casing, and a connection between said holder and slide, whereby the opening in the holder is adjusted back to take up a cigar as the slide is pulled forward to discharge a cigar into said chute, substantially as shown and described.

10. The combination, with a longitudinally-reciprocating merchandise-holder provided with a discharge feed-opening, as B' , of the longitudinally-reciprocating discharge-slide provided with an opening, as G' , normally registering with the opening B' , and a rest, as I , disposed beneath said opening G' , said opening having a rearwardly-inclined upper edge, substantially as and for the purpose described.

11. The combination, with the feeding and discharging devices, an operating-rod, as K L , provided with a spring-metal extension L' , having a cam projection, and locking mechanism intermediate said extension and the discharge devices, of a coin-chute arranged to locate the coin with its thickness in the path of the coin projection of the extension L' , whereby said extension is moved to release the said locking mechanism, substantially as and for the purpose described.

12. The combination, with merchandise feeding and discharging mechanism, the locking mechanism connected with the discharge-slide, and a coin-chute, of the pull-rod K , provided with a transverse bar L , adapted to engage the discharge-slide, a

spring-metal extension L' , provided with a cam projection k^2 , said extension operating intermediate the locking mechanism and coin-chute, said extension adapted when a coin is in the chute to first engage the coin with its cam projection and release the locking devices on the first portion of its pull and to operate the discharge and feed devices on the remainder of its stroke, substantially as and for the purposes set forth.

13. The combination, with the discharge-slide, the operating-rod provided with a yielding extension, as L' , having a cam projection k^2 , and the locking devices intermediate said extension and the slide, said devices unlocked by the outward movement of said extension, of the coin-chute P , provided with a contracted mouth, having one face open to leave a portion of the coin-face free, said face being in the path of the movement of the cam k^2 , substantially as and for the purpose described.

14. The combination, with discharge-levers and the operating-rod K , provided with a yielding extension, as L' , having a cam projection k^2 , of the coin-chute provided with a recessed portion, as 2, adapted to allow the passage of the cam projection when a coin is not in position, substantially as and for the purpose described.

15. In a vending-machine, essentially as described, a coin-chute having a contracted mouth, the supporting-edge thereof formed of a spring-actuated pivoted leaf, said leaf provided at its lower edge with a slot of graduated width, substantially as and for the purpose described.

16. In a vending-machine, essentially as described, the combination, with the discharge-slide provided with the lock-plate N , having teeth nn' , and the pull-rod K , having a coin-operated extension, as L' , of the locking-lever O , provided with a detent at its forward end adapted to engage either of the teeth nn' , a forward extension normally engaging the extension L' , said lever thrown out of locked position by the backward movement of the extension L' , and means for throwing said lever back into normal position, substantially as shown and described.

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

FRED G. DIETERICH.

Witnesses:

CHAS. A. PETTIT,

SOLON C. KEMON.