

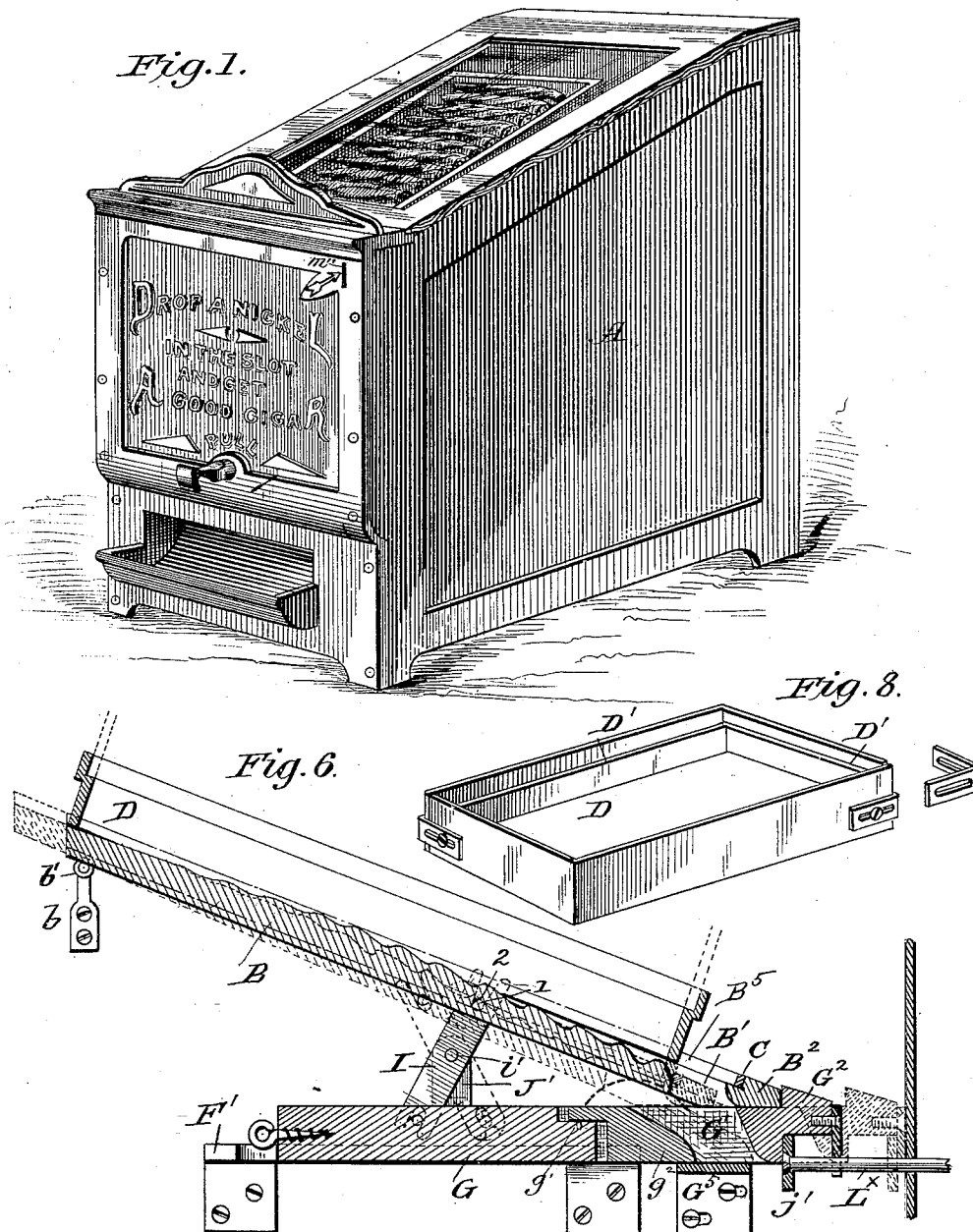
(No Model.)

3 Sheets—Sheet 1.

F. G. DIETERICH.
VENDING MACHINE.

No. 423,034.

Patented Mar. 11, 1890.



WITNESSES:

WITNESSES:
 Leon C. Kemmer
 Amos W. Hart

INVENTOR

Fred G. Dieterich

(No Model.)

3 Sheets—Sheet 2.

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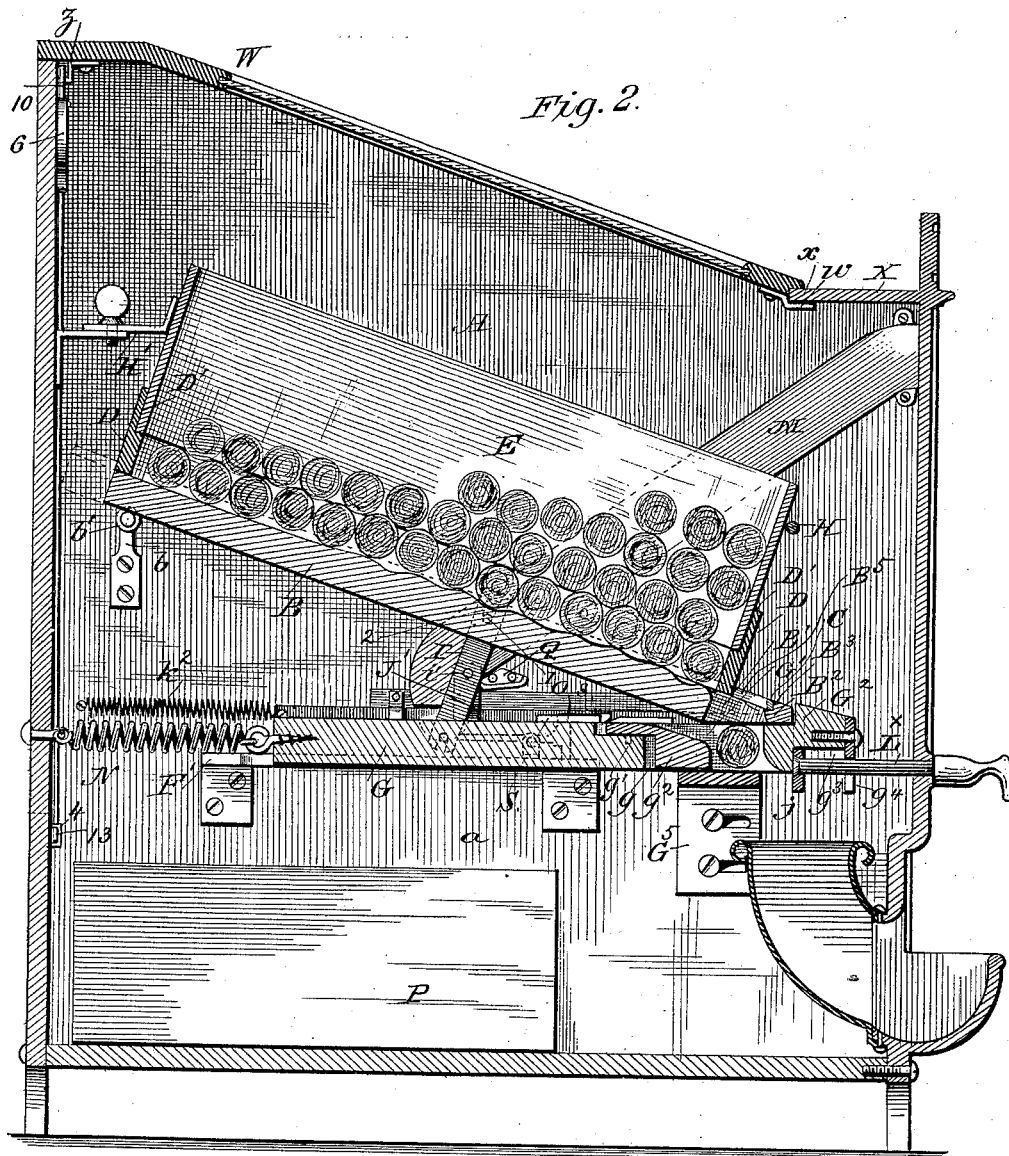
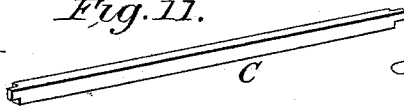


Fig. 11.

WITNESSES:
John E. Kemmer
Amos W. Hart



INVENTOR
Fred G. Dieterich

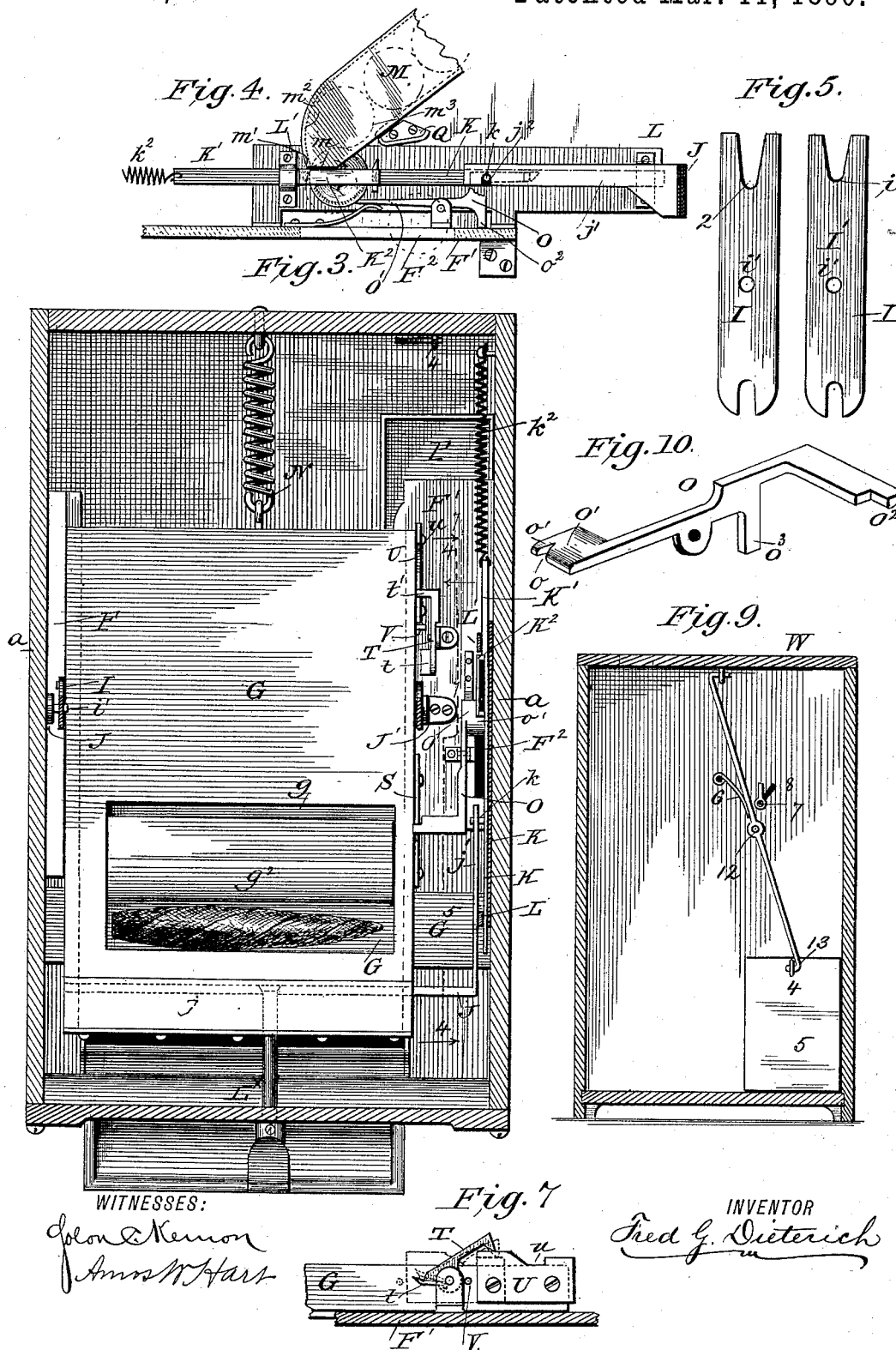
(No Model.)

3 Sheets—Sheet 3.

F. G. DIETERICH.
VENDING MACHINE.

No. 423,034.

Patented Mar. 11, 1890.



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. 423,034, dated March 11, 1890.

Application filed October 30, 1889. Serial No. 323,670. (No model.)

To all whom it may concern:

Be it known that I, FRED G. DIETERICH, residing in the city of Washington and District of Columbia, have invented certain new and useful Improvements in Vending-Machines; of which the following is a specification.

My present invention, which is an improvement on a cigar-vending apparatus invented by me, and for which I filed an application for a patent September 14, 1889, numbered 323,898, has for its object to simplify the construction of such machine and to render the same positive and effective for its desired purpose.

To this end my invention consists, first, in arranging an inclined reciprocating slide or cigar-support which is provided with a discharge-opening, providing a receiver below said opening and arranging said cigar-support so that the discharge end thereof will have a vertical and longitudinal movement, and so as to the more readily lift over a cigar when such cigar is dropped through its discharge-opening onto the said receiver.

It also consists in constructing a coin mechanism, which will be operated by and permit of the discharge of the coin before the cigar is delivered in reach of the purchaser, such coin mechanism being also adapted to admit of a number of coins of the proper size being contained in the chute at one time, so as to admit of a repeated movement of the feed devices equal to the number of such coins in the chute.

It also consists in constructing the feed-slides so their discharge-openings can be adjusted so as to admit of a larger or smaller cigar being used in the same machine without the necessity of materially changing the construction thereof; and, finally, it consists in sundry novel arrangements and peculiar combination of parts, whereby the machine is rendered the more effective and positive in its operation, all of which will hereinafter 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 view of my improved cigar-selling machine. Fig. 2 is a central vertical longitudinal section thereof.

Fig. 3 is a horizontal section of the machine with the top or cigar-support removed. Fig. 4 is a sectional elevation of the same on the line 4 4, Fig. 3. Fig. 5 is a detail view hereinafter referred to. Fig. 6 is a view on an enlarged scale of the feed-slides, their movement being illustrated in dotted lines. Fig. 7 is a detail view illustrating the gravity tripper or detent. Fig. 8 is a view illustrating the supplementary goods-receptacle or cigar-box receiver. Fig. 9 illustrates the locking device I employ to lock the top and the coin-receptacle door. Fig. 10 is a detail view of the locking-pawl, and Fig. 11 a detail view hereinafter referred to.

In the accompanying drawings, A indicates the case of the machine, which is constructed of wood, with a metal front suitably nicked and of appropriate design.

B denotes the merchandise holder or support, which in practice I form of wood, and which is provided with a transversely-corrugated top, and which is removable and forms the bottom of the box when adjusted in a manner clearly set forth in my other application referred to. In said application I describe said support as reciprocating longitudinally at an incline, being supported upon suitably-arranged brackets disposed at the proper incline. In this instance I also dispose the said holder B at an incline, but support the rear end of said holder on brackets *b b*, projected from the sides of the case, such brackets being provided with suitable friction-rollers *b' b'*, as shown. The lower portion of the holder B is provided with lateral studs 1 1, which rest in the seat in the seats 2 2 of the forked ends I' of the swinging links I, said links being pivotally hung upon brackets J J', secured one J upon the side of the case A, the other J' to a bracket E, fixedly secured to the case A for a purpose presently explained.

G denotes the discharge-slide, which rests upon, longitudinally reciprocates thereon, and is guided by the brackets F and F', fixedly secured to the inner side walls *a a* of the casing. This slide is provided with an opening G', arranged transversely thereof, which is adapted to receive a cigar when discharged through the feed-opening B' of the holder B. To admit of said opening being adjusted so

as to admit of the machine operating different-sized cigars, I make the inner or rear wall g of said opening movable, such construction consisting of making the opening G' somewhat elongated and arranged with a detachable rear wall g^2 , the upper face being inclined rearward in a manner similar to that shown in my other application referred to, the ends of said section being made to overlap the sides of the opening G' and secured by screws or dowels $g' g'$. As an additional means for adjusting discharge-opening G' so that the delivery-slide will discharge the cigar at the proper time, I make the temporary support G^5 adjustable transversely instead of vertically, as in my previous application.

The opening G' is normally directly under the discharge-opening B' of the support B , such opening being normally disposed to the outside of the front wall of the cigar-box or goods-receptacle, the front edge of said opening ending at a nose-piece B^2 , formed on the end of the support B , which normally abuts a projecting portion G^2 on the end of the slide G .

In the present invention I make the opening B' in support B slightly larger than the largest ordinary-sized cigar, and provide the front wall of said opening with sockets B^3 , into which may be easily fitted different-sized splints or space-blocks C , by means of which the size of the opening B' may be varied, as desired, one of such splints being shown in detail in Fig. 11 of the drawings.

In my previous application I described the merchandise-holder B as being so arranged as to hold between its side flanges $B^5 B^5$ cigar-boxes of various sizes.

I find from practical experience that when the detachable corrugated holder B is fitted to a bottomless cigar-box and the cover thereof removed, and said parts are placed into position in the machine, the corrugated bottom B will bulge up the cigars and cause the top row of cigars to roll over the top of the box, making it necessary in the practical operation of the machine that one row of such cigars be removed before placing the machine in position for selling. To overcome this objection, I provide a rectangular skeleton box D , having one of its sides and ends made adjustable, which is of sufficient depth to hold a row of cigars in place, the upper edges of which are formed with rabbets D' , adapted to receive and hold the lower ends of the cigar-box proper. By this construction it will be observed that after the bottom of the cigar-box is removed I place the supplemental box D over said end and then place the holder B over the open bottom of the supplemental box D . Now, as the several parts are inverted, it will be seen that the cigars in the box will fall onto the bottom B and become thereby loosened, and at the same time allow the upper row of such cigars to fall below the upper edge of the box, thereby preventing any of said cigars jumping over

the upper portion of the front end of the box when the cover is removed, and also avoiding the necessity of removing any of the cigars from their original package.

By making the supplemental box D adjustable it can be used in connection with cigar-boxes of varied sizes. To hold the said boxes D and E in position, I provide a stop-bar H , arranged at the front end of the boxes, and an adjustable stop H' , secured to the rear wall of the casing, and which is adjusted to engage the back end of the box E , as clearly shown in the drawings.

In the present invention I employ the spring N for bringing the feed-slides back to their normal position, and I also arrange the connecting-links $I I$ in a manner similar to those shown in my other application, with this exception, viz: In said application I merely utilize said links as a means for obtaining the reverse motions to the slides; but in this case the forked ends of said links form the bearings for the lower end of the merchandise-holder.

In Fig. 5 I have shown a pair of such links $I I$, one of which I , has its bearing-point i arranged a greater distance from its pivot-point i' than the other. By having links whose bearings are different, admits (when it is desired to work a larger or smaller cigar) of changing the links, which can be readily removed. It will thus be seen that if the machine has been set to sell a medium-sized cigar, and it is desired to sell a larger one, that by removing the short links and adjusting the long links in place thereof a greater throw in the arc of a circle is obtained for the lower or feed-opening end of the goods-holder. This adjustment is very simple, and can be accomplished in a moment's time.

In my other application I employ an operating slide-bar which is connected with the delivery mechanism in such a manner as to have a limited free and independent movement before it operates on the delivery mechanism. In this case the operating slide-bar operates in substantially the same manner; but the arrangement of such bar and its connection with the coin-chute and the delivery mechanism is such that its free movement will first cause the positive tripping of the locking-pawl before it engages the independent discharge mechanism, and in engaging said mechanism and continuing the movement of said slide to its extent it (the slide) will cause the coin to be discharged into a receptacle in advance of the discharge of the cigar or other article.

In the construction shown I form the offset g^3 in the front end of the discharge-slide and secure the depending or contact plate g^4 to the said end, as shown.

J denotes the operating-bar, which is formed of the transverse portion j , which operates in the offset g^3 in a manner similar to that described in my other application. I provide the said part j with a rearwardly-projecting

portion j' , which may be formed integral with the operating slide-bar K proper; or it may be detachably connected therewith by providing a slot j^2 , which is slipped over the stud k on the bar, thereby admitting of the ready detachment of the parts when desired. The bar K freely moves horizontally, being guided by the straps L L', the rear end thereof being extended, as at K', said end having connected therewith a retractile spring k^2 , which retracts the bar K to its normal position. The bar K plays just below the discharge-opening m of the coin-chute M, which extends diagonally upward to the front wall of the machine, as shown, communicating with the slot m' , through which the coins are inserted by the purchaser. At the front, just below the coin-chute discharge, I provide the bar K with a chamber-like portion K^2 , which embraces the coin when in place in a manner presently explained, said portion K^2 being guided and held in proper position on its return movement by engaging the strap or bracket L', as shown.

O denotes the locking-pawl, (shown in detail in Fig. 10,) which may operate by gravity or by spring-pressure, as shown. This pawl is horizontally pivoted upon the bracket F', and is provided at its rear end with a lateral projection O', which projects in the path of the descending coin, and which is so adjusted that its portion o' , in connection with the edge m' of the chute, will arrest and hold a coin of the proper size, (a 5-cent nickel,) while a coin of smaller diameter will pass by and discharge through an elongated opening F² in the bracket F' into a suitable receptacle P. To hold the end O' in proper position, I provide the front part of the pawl with a foot-piece O³, which rests on the bracket F', as shown. To prevent the coin in its descent striking the pawl O with too much force, I construct the lower end of the chute so that the coin strikes against an inward curved part m^2 , from whence it will fall in place, as before stated.

By reference to the drawings it will be observed that when the coin is down in position on the pawl, the body portion thereof is embraced by the portion K^2 of the operating slide-bar K.

To admit of a piece of tin or other metal of the same diameter as a nickel, but not of the same thickness, passing directly past the pawl O, I provide its lateral member O' with a notched end o , as shown.

Disposed at the inner end m^3 of the chute I secure an abutment Q, which projects laterally from the side of the casing a distance equal to the width of the slide-bar K and the nickel.

By reference to Fig. 4 it will be seen that the said abutment is so arranged that when a coin of the proper size is in place the outward independent movement of the bar K will bring the coin to bear with its upper edge against the abutment, and thereby cause

its lower end to depress the rear end of the pawl and cause its front end to rise from contact with the locking-plate S on the delivery-slide. At this point the cross-bar j of the operating-slide engages and pulls outward the said delivery-slide, and at the same time pulls the coin over the member O' of the pawl O, such member O' being of such a width as to admit of the coin being drawn past it and discharged through the opening F² in advance of the discharge of the goods by the delivery-slide. When the goods are delivered, the operating slide-bar and the delivery-slide are quickly drawn back into place and the pawl locked in position by their retractile springs. I would state, however, that the relations of the abutment, the operating-slide, and the coin-arresting pawl are such that, should the slide be drawn slightly outward to engage a smaller coin, it, (the coin,) in engaging the abutment, would not depress the pawl sufficiently to release it from the operating-slide, and would thereby prevent the machine being operated by a coin of smaller size than a nickel.

In the practical use of a cigar-vending machine it is desirable for convenience and time that a number of coins can be admitted in the chute and a number of cigars be withdrawn by repeated movement of the operating-bar without the necessity of stopping and inserting a nickel after the discharge of each single cigar.

In the construction shown in the drawings I am enabled to put ten nickels in the chute at one time and to successively bring out ten cigars by operating the operating-bar. To this end I make the extension K' of the slide of such thickness that when the bar K is pulled forward the extension will pass under the mouth of the chute and close it, thus holding the remaining coins in position, so that when the bar K comes back into position the next succeeding coin will fall into position.

It will readily be seen that the chances for "beating" the machine by the use of wires, or using a coin with a string attached, is by my construction reduced to a minimum.

By reference to Fig. 3 it will be observed that after the pawl is lifted from the bar S its locking-notch s will move forward at least one-half to three-fourths of an inch before the cigar will be discharged, thereby giving a free movement of the slides before the pawl again locks the same. This free movement is objectionable, because dishonest or meddling persons will endeavor to gradually pull the rod back and forth to the extent of its movement in the endeavor to obtain more cigars after the coin has been discharged. In the construction shown such a result is rarely obtained; but I find that manipulating the pull-rod in this manner has a tendency to slightly wedge the cigars at the feed-opening. To avoid any possibility of obtaining the cigar in this manner and to avoid any wedging or checking the proper feed of the cigars, I

provide a safety gravity-pawl, (shown in detail in Fig. 7,) by reference to which it will be seen that the pawl T is pivoted upon the bracket F', has its rear end weighted, and is provided with a lateral lug *t*, said pawl normally resting upon a stop-plate U, provided with a notch or tooth *u*, the forward end of the pawl T having a lateral member *t'* for engaging said tooth. The pawl is so adjusted that its weighted end rides on the top of the plate U, and when in the outward movement of the delivery-slide the notch *u* reaches the lug *t* a projection V on the slide engages the member *t'* and holds the lug out of engagement from said notch until the tooth *u* is passed under said lug, which again rests upon the smooth part of the plate U, as shown in dotted lines, Fig. 7.

It will be seen that should a person attempt to let the pull-rod L^x go back slowly, that ere it passes back on one-eighth of an inch the pawl will engage the tooth *u*, and thereby prevent at this time any forward movement of the slide. The operator, realizing that the rod is locked, releases his hold, and the pawl engaging the inclined wall of the notch is lifted on the upper edge of the plate U, the slides then returning to their normal or locked position, and cannot again be operated until the proper-sized coin is inserted in the chute.

In my previous application I described and illustrated a casing provided with a large door in the back for access to the interior of the casing. In the present case I make the back solid, with only a small door for the admission of the coin-receptacle, and I make the transpicious top detachable, whereby better facilities are afforded for adjusting the interior parts. To this end I provide the front edge of the top W with fingers or lugs *w*, which project under the edge *x* of the ledge X of the front plate, and a depending lug *z* at its rear end, with which engages the end 10 of a swinging locking-bar, pivoted at 12 to the back and having a lateral finger 13 at its lower end, which engages a bail 4 on the inner upper end of the door 5, a suitable spring 6 being provided for normally holding said bar in locked position.

7 denotes a pintle arranged on the inside of the casing in line with the key-hole 8, on which may be fitted the stem of a suitable key for tilting the lever when it is desired to unlock the top W and door 5. It is obvious that any suitable locking devices may be employed for the top W and the door 5; but I prefer (owing to simplicity and cheapness) to use the construction shown. I am aware that, broadly, it is not new to use a single corrugated slide provided with a discharge-opening or to use a coin mechanism operated by direct movement of the coin. I therefore do not broadly claim such construction.

From the foregoing description, taken in connection with the drawings, the advan-

tages and operation of my improved vending-machine will readily appear. The same is exceedingly simple in construction and cheap as to cost.

I find, from practical experience with a machine constructed as described, that by arranging two slides to operate in alternate directions—one to act as a receiver and cut-off, while the other discharges—a practical feed of the cigars may be obtained irrespective of their diametrical contour.

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

1. In a vending-machine, the combination, with a goods-discharge slide, of a merchandise-holder provided with a discharge-opening normally disposed over said slide, said holder having a longitudinal and vertical movement in relation to the slide at the point of its discharge-opening, substantially as and for the purpose described.

2. The combination, with an independent delivery-slide, of a merchandise-holder arranged above said slide, provided with a discharge-opening, the lower edge thereof normally disposed on said delivery-slide, and mechanism intermediate of and connecting said slide and holder, whereby said holder will be moved bodily rearward longitudinally and its discharge end lifted upward in the arc of a circle as the delivery-slide is pulled longitudinally forward, substantially as and for the purpose described.

3. The combination, with a longitudinally-movable merchandise-holder provided with a discharge-opening at one end and having a bearing at its opposite end, and a longitudinally-movable delivery-slide located beneath said holder to receive the article to be sold therefrom; of swinging link-connections centrally pivoted on supports fixed to the casing, their lower ends engaging the delivery-slide, their upper ends forked, forming seats for lateral lugs on the said holder, said links normally disposed so an oscillating movement thereof will cause the slide to move forward and the holder backward, and adapted during such movement to lift the feed end of said holder in the arc of a circle, substantially as and for the purpose described.

4. The combination, with the longitudinally-movable delivery-slide having a discharge-opening, of the longitudinally and diagonally reciprocating merchandise-holder provided with a discharge-opening normally in line with the opening in the delivery-slide, but out of line of the goods-receptacle, strips or splints adapted for detachable connection with the discharge-opening in said holder, whereby the size of said opening may be adjusted, and means for operating the slide and holder, substantially as shown and described.

5. An adjustable supplemental box adapted to be detachably connected to the bottom of

the goods-receptacle and loosely supported upon the reciprocating merchandise-holder, substantially as and for the purpose specified.

6. In a vending-machine essentially as described, the supplementary frame or holder longitudinally and transversely adjustable in size, and provided with an offset or seat at its upper edge adapted to receive and support a cigar-box thereon, substantially as and for the purpose described.

7. The combination, with the goods-delivery slide provided with a discharge-opening, of a holding-bar, as G^5 , disposed below the said discharge-opening, said bar adapted for transverse adjustment, whereby a greater or less movement of the said discharge-slide will be required to dislodge the cigar or other article from said bar, substantially as and for the purpose described.

8. In a vending-machine essentially as described, the longitudinally-movable delivery-slide provided with a discharge-opening, one wall of said opening made adjustable, whereby said openings may be adjusted to receive cigars of different diameters, substantially as and for the purpose described.

9. The combination, with an independently-movable merchandise-discharging slide, a pawl normally engaging said slide and holding it from movement, of a coin-chute, an independently-movable operating slide-bar disposed below said chute, said pawl and the lower end of the chute engaging the coin to hold the same in position, and an abutment, said slide-bar adapted to move the coin edgewise into engagement with said abutment, whereby the pawl will be tripped to disengage the discharge mechanism, substantially as and for the purpose described.

10. The combination, with the merchandise-delivery mechanism, the coin-receiving chute, and an abutment disposed at the discharge end of said chute, of a horizontally-disposed operating slide-bar K, disposed beneath said discharge end, provided with a coin-embracing portion K^2 , and a pawl having a portion disposed below the said portion K^2 of the bar K, said portion adapted to arrest the proper-sized coin and hold the same, its opposite end normally engaging the merchandise-delivery mechanism from operation, said pawl adapted to release such mechanism when tilted by the outward pull on said bar K, substantially as and for the purpose set forth.

11. In a vending-machine, substantially as described, a coin-receiving chute, an abutment arranged to one side of the discharge end of said chute, an operating slide-bar disposed below said chute and abutment, said bar provided with a coin-embracing portion K^2 , normally aligning the discharge end of the chute, and a rearward extension K' , a locking-pawl disposed below said operating-bar, said extension K' adapted to close the discharge-opening of the coin-chute when the bar K is pulled forward to operate the pawl, substantially as and for the purpose described.

12. In a vending-machine essentially as described, the combination, with the goods-delivery slide provided with a locking-stop and a coin-chute disposed to one side of said slide, of the locking-pawl horizontally pivoted between said slide and chute, said pawl provided with a lateral projection O' , disposed below the discharge end of the chute and adapted to arrest the coin, and having a lateral member O^2 extended in opposite direction to the projection O' , said member O^2 adapted to engage the lock-stop on the delivery-slide, and means for tilting said pawl when the coin is in position, substantially as and for the purpose described.

13. The locking-pawl O, adapted to be horizontally pivoted, provided with a lateral projection O' , adapted to arrest the coin, a lateral member O^2 for engaging the delivery mechanism, and a leg or foot piece for engaging a fixed portion of the frame, whereby the coin-holding projection is held in proper horizontal adjustment, substantially as and for the purpose described.

14. The combination of a reciprocating discharge-slide, a coin-chute, and an independently-movable operating slide-bar, said slide-bar disposed below the discharge-opening of the chute and adapted to engage the coin endwise, a gravity locking-pawl provided with a lateral projection O' , adapted to arrest and hold the coin, and a member O^2 , normally engaging the delivery mechanism, an abutment arranged above said pawl and slide, a coin-discharge opening below the discharge end of the coin-chute, and a similar opening arranged in line and in advance of said opening, said operating slide-bar connected with the delivery-slide, but having free and independent movement, whereby the coin is moved into engagement with the locking-pawl to release the same from the delivery-slide before said operating slide-bar operates the delivery-slide, said projection O' of the pawl being of such width that the coin will pass over the same and be discharged in advance of the discharge of the article by the delivery-slide, substantially as and for the purpose described.

15. The combination of the coin-chute, a slide arranged below the same and adapted to embrace a coin, a gravity or spring-actuated pawl arranged to arrest the coin and to lock the delivery-slide, and an abutment disposed at the lower end of the chute slightly in advance thereof and above the pawl in such a manner that a coin of a less diameter than the predetermined one, when pulled edgewise to engage said abutment, will not depress said pawl sufficient to lift it from engagement to the delivery-slide, substantially as and for the purpose described.

16. The combination, with the delivery-slide and the coin-operated locking-pawl O, of the auxiliary gravity-pawl T, horizontally pivoted to the bracket F' , an auxiliary lock-stop plate U on the said slide, said pawl provided with

a lateral member t' , and a lateral projection V, secured to the slide, said projection adapted to engage the member t' when the slide is pulled outward to discharge and hold the
5 pawl T from engagement with the lock-stop U, said pawl adapted to engage said stop U on the beginning of the return movement of the slide and hold the same from outward

pull, substantially as and for the purpose described.

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

FRED G. DIETERICH.

Witnesses:

SOLON C. KEMON,

CHAS. A. PETTIT.