J. SCHMIDT.

VENDING MACHINE.

APPLICATION FILED NOV. 15, 1906.

1,000,347.

Patented Aug. 8, 1911.

4 SHEETS—SHEET 1.

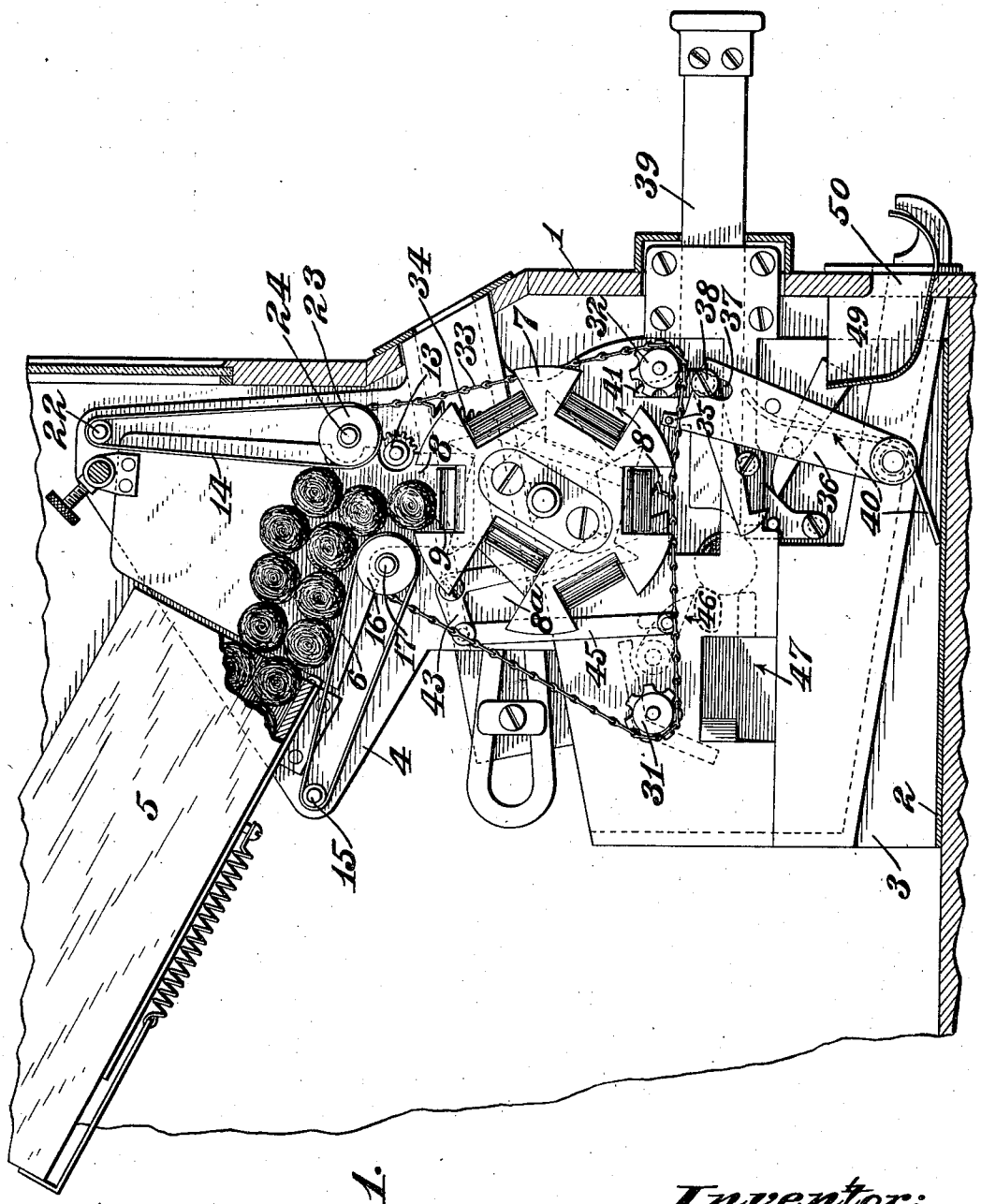

Fig. 1.

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4 SHEETS—SHEET 2.

Fig. 3.

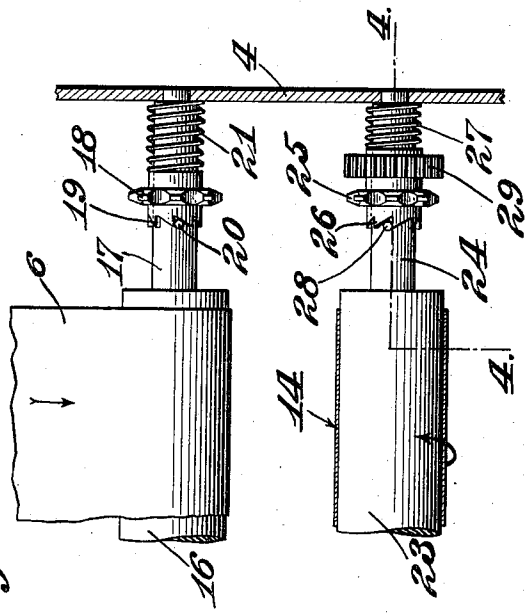


Fig. 4.

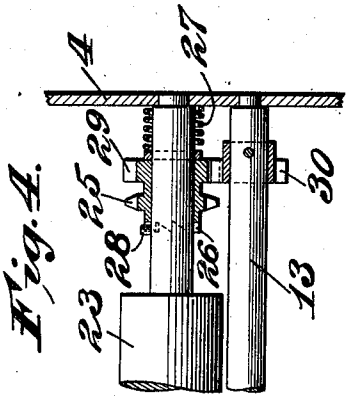
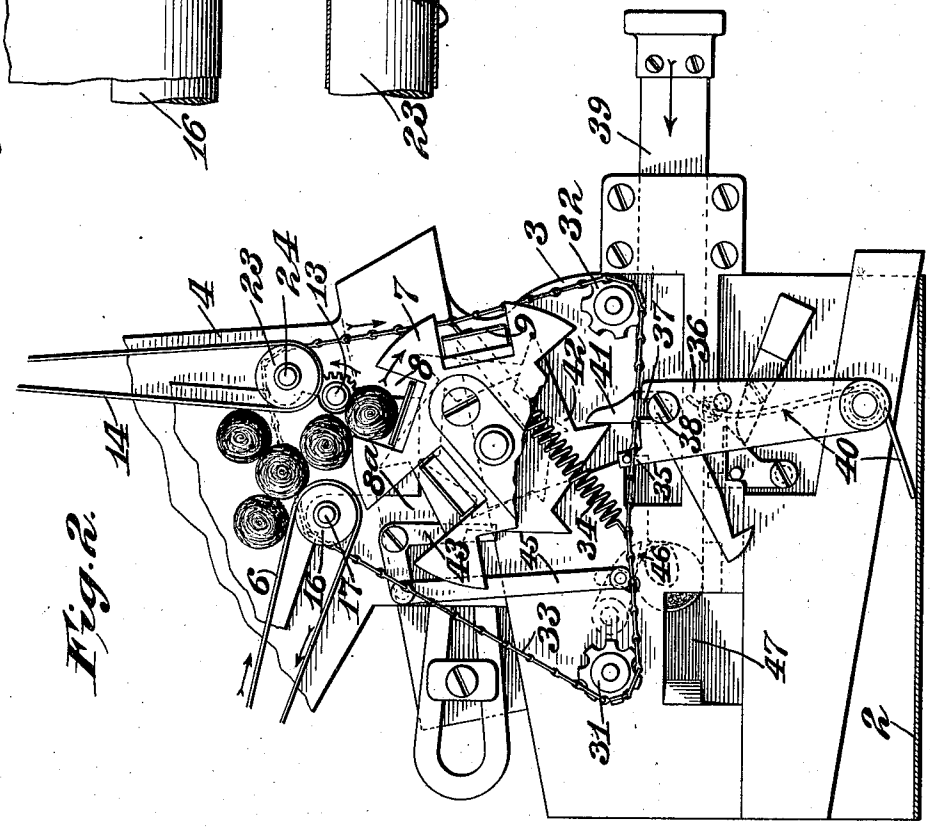


Fig. 2.



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4 SHEETS—SHEET 3.

Fig. 6.

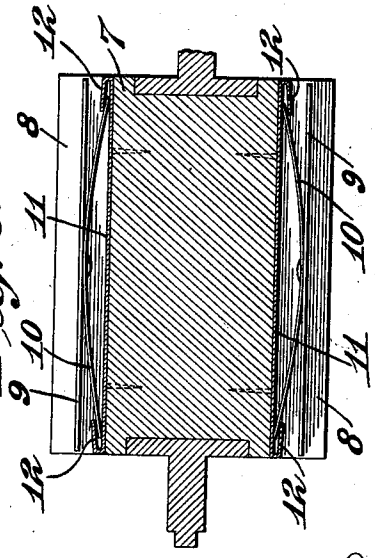


Fig. 7.

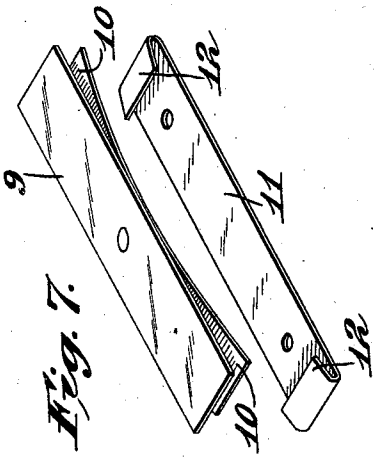
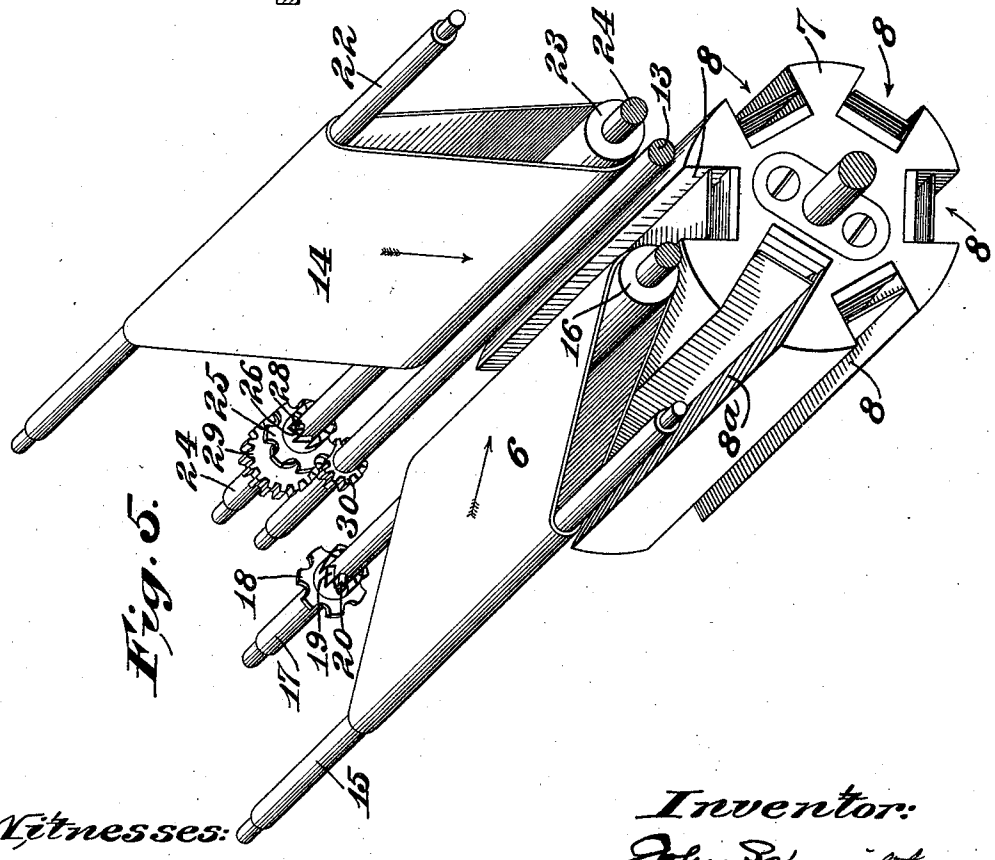


Fig. 5.



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4 SHEETS—SHEET 4.

Fig. 9.

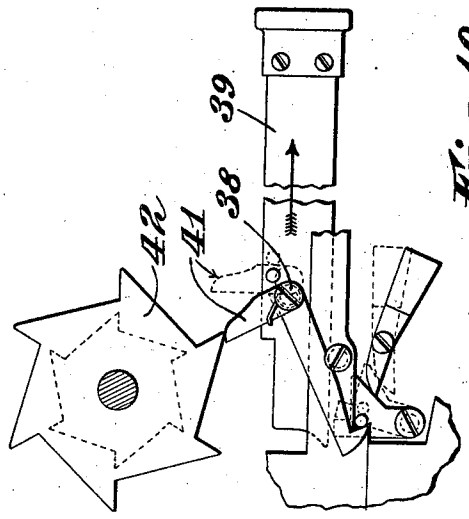


Fig. 10.

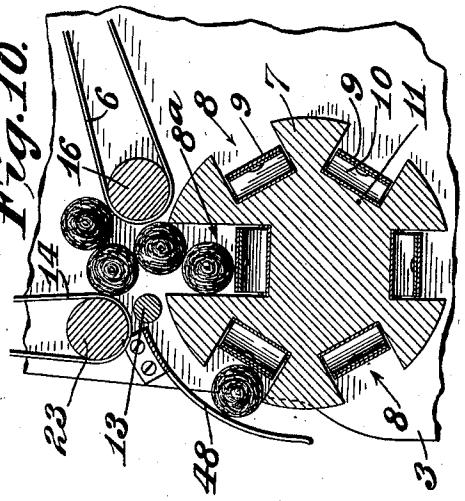
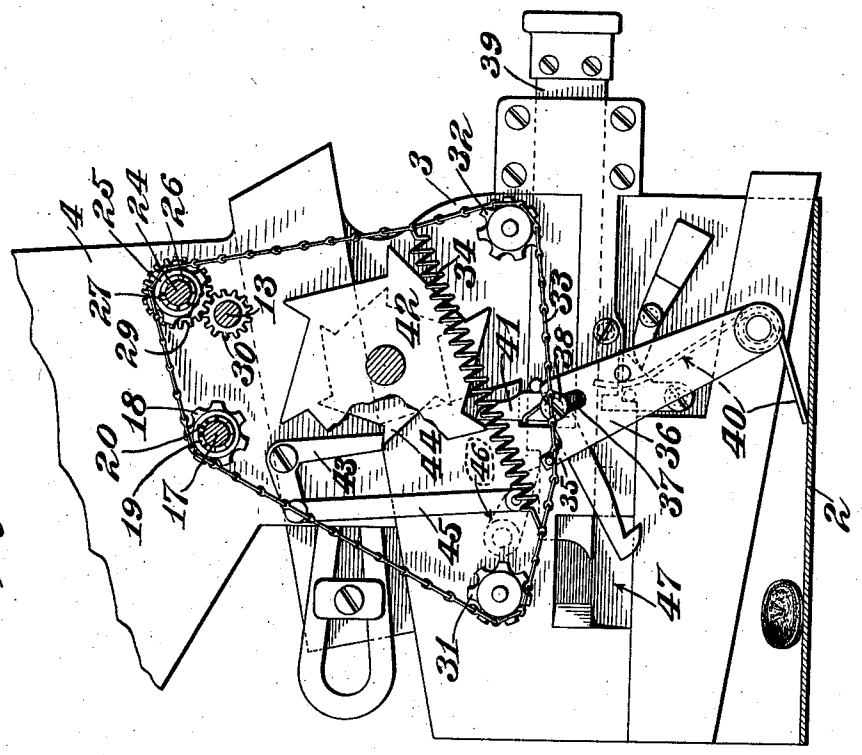


Fig. 8.



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UNITED STATES PATENT OFFICE.

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VENDING-MACHINE.

1,000,347. Specification of Letters Patent. Patented Aug. 8, 1911.

Application filed November 15, 1906. Serial No. 343,488.

To all whom it may concern:

Be it known that I, JOHN SCHMIDT, a citizen of the United States, and a resident of the city of St. Louis and State of Missouri, have invented a new and useful Improvement in Vending-Machines, of which the following is a specification.

This invention relates to vending machines, and particularly to machines for vending cigars.

It has for its principal objects to produce novel mechanism adapted to feed cigars from a box or receptacle to the delivery mechanism of the machine; to produce a novel mechanism in conjunction with said feeding mechanism whereby cigars may be delivered one by one, or in predetermined numbers from the machine; and to attain certain advantages hereinafter more fully set forth.

The invention consists in the parts and in the arrangements and combinations of parts hereinafter described and claimed.

In the accompanying drawings which form part of this specification and wherein like symbols refer to like parts wherever they occur, Figure 1 is a view showing a portion of the case in section and one of the side frames removed to show the mechanism, the parts being in normal position; Fig. 2 is a view of the mechanism partially operated; Fig. 3 is a fragmentary view showing the reverse arrangement of the respective ratchets for the feed-apron rolls; Fig. 4 is a section on line 4—4 of Fig. 3; Fig. 5 is a detail perspective view showing relative arrangement of feed aprons and delivery cylinders; Fig. 6 is a longitudinal section through the delivery cylinder; Fig. 7 is a detached view of the resilient false bottom for the pockets in the delivery cylinder and the securing plate therefor; Fig. 8 is a view showing the actuating mechanism at one extreme of its movement; Fig. 9 is a detail view showing the action of the actuating pawl and latch-tripping hook during the return stroke of the actuating bar; and, Fig. 10 is a fragmentary view partly in section showing the guard or retainer in coöperative relation to the delivery cylinder.

The actuating mechanism of the machine illustrated in the accompanying drawings is of the "coin-actuated" type, and, in many respects, is substantially the same as that disclosed in U. S. Letters Patent No. 811,501, granted to J. Heinrich, *et al.*, on January 30, 1906.

The mechanism of the entire machine is incased within a housing 1. The frame comprises a base-plate 2 having upturned side portions 3 to which are attached extension-plates 4. The side portions 3 and extensions 4 constitute the side-frames, and they are provided with bearings for the several cross-shafts of the machine.

A box 5 having an open end is supported on an incline so that cigars contained therein can be discharged by gravity upon an endless apron or belt 6. The apron 6 is adapted to convey cigars to a rotatable delivery-cylinder 7 having parallel peripheral pockets 8 extending longitudinally thereof. The pockets 8 of the delivery-cylinder are provided with false bottoms 9. These false bottoms are yieldingly supported by springs 10 which are loosely held within the pockets by plates 11 having turned-over end portions 12 under which the ends of the springs rest. The pockets in the delivery-cylinder, as shown in the drawings, are adapted to receive a single cigar, with the exception of the pocket 8^a which is of a depth sufficient to receive two cigars, the purpose of which will be hereinafter explained.

Mounted at a slight distance above the delivery-cylinder, just a little in advance of a pocket in the normal position of said cylinder, is a shaft 13. Above this shaft 13 is arranged an endless apron or belt 14 which is adapted to travel downwardly on its side toward the cigar box or receptacle 5. The apron 6 is carried by a shaft 15 and a roll 16 mounted on a shaft 17. Loosely mounted on the shaft 17 is a sprocket wheel 18 having a hub portion which is provided with a series of ratchet teeth 19. The sprocket wheel 18 is yieldingly held with its ratchet teeth in engagement with a pin 20 on the shaft 17 by a spring 21. The teeth 19 are so formed that they will hold against the pin only when the sprocket wheel is rotated in one direction. The apron 14 is carried by a shaft 22 and a roll 23 mounted on a shaft 24. A sprocket wheel 25 is loosely mounted on this shaft 24 in alinement with the sprocket wheel 18 on the opposite shaft 17. The sprocket wheel 25 is provided with ratchet teeth 26 similar to the teeth 19 on the wheel 18 but formed the reverse thereof. A spring 27 yieldingly holds the sprocket

wheel 25 with its ratchet teeth in engagement with a pin 28 on the shaft 24. Fastened to, or integral with the sprocket wheel 25 is a gear wheel 29 which is adapted to mesh with a pinion 30 on the shaft 13. An endless chain 33 passes around the sprocket wheels 18 and 25 and idler sprocket wheels 31 and 32. A spring 34 connects the chain at points between the idlers 31 and 32 and sprocket wheel 25 to maintain a tension upon said chain to take up the slack and keep it tight upon the sprocket wheels. The chain 33 is attached to a projection 35 on an oscillatory lever 36 pivoted near the base of the machine. This lever has a slotted or bifurcated portion 37 which engages a stud 38 on a horizontally-movable actuating-bar or plunger 39. A spring 40 yieldingly holds the oscillatory lever and plunger in their normal forward positions, and acts to restore the parts after the machine has been operated.

The plunger 39 carries a spring-pressed pawl 41 which is adapted to engage a ratchet wheel 42 fixed on the shaft of the delivery cylinder. The delivery-cylinder is normally locked against forward rotation by a bell-crank pawl 43 which engages a second ratchet wheel 44 fixed on the shaft of the delivery-cylinder. One arm of the pawl 43 normally engages the ratchet wheel 44 and the opposite arm is connected by a link 45 to a dog 46. The free end of the dog 46 lies within a coin-passage and is adapted to be lifted by a coin which is moved toward the dog by the plunger 39. When the dog 46 is lifted the bell-crank pawl 43 will be moved out of engagement with the ratchet wheel 44, thereby leaving the delivery-cylinder 7 free to be rotated by a continuation of the inward movement of the plunger. The coin-controlled features and arrangements of coin-passages are substantially the same as disclosed in the Patent No. 811,501 hereinbefore referred to, and therefore will not be herein described in detail.

During the operation of the machine the coin X is passed successively through the coin-passages to the positions indicated in Figs. 1 and 2, and finally is pushed out through an opening 47 into a suitable receptacle (not shown) which may be provided, or simply dropped on the bottom of the case, as shown in Fig. 8.

In the operation of the machine, the plunger 39 upon being pushed inwardly will, by reason of its pawl 41 engaging the ratchet wheel 42 rotate the delivery-cylinder 7 a distance equal to the distance between the pockets 8. The moving plunger also rocks the lever 36. The endless sprocket chain 33 also travels with the oscillating lever to which it is attached. When the plunger 39 is relieved of inward pressure the spring 40 will cause the lever 36 to swing outwardly and thereby move the plunger and sprocket chain to normal position. Thus it will be seen that the delivery-cylinder will be rotated during the inward movement of the plunger, but remains stationary during the return stroke owing to the ratchet and pawl arrangements, and that the sprocket-chain is caused to travel first in one direction and then returned to normal position. The arrangement of the ratchet teeth on the respective sprocket wheels 18 and 25 is such, that during the inward movement of the plunger 39, the feed apron 6 is caused to travel in the direction indicated by arrows to feed the cigars to the delivery-cylinder, while the apron 14 remains stationary. During the return stroke of the plunger the apron 14 is caused to travel while the apron 6 remains stationary.

It is preferable that the feed-aprons 6 and 14 be made of elastic material so that a cushioning effect is produced, and thereby prevent the cigars from being crushed or broken. By alternating the movement of the feed-aprons, jamming or wedging of the cigars is avoided, and perfect feeding of the cigars is accomplished. The cigars are received into the pockets upon the yielding false-bottoms 9. The depth of the pockets to the false bottom is approximately one-half the diameter of a cigar, so that a cigar contained therein will project outside to prevent a second cigar from entering, as clearly illustrated in Figs. 1 and 2. In Fig. 2 the parts are shown partially actuated. The parts are moving in the direction indicated by arrows. As the delivery cylinder is rotated the cigar contained within the pocket is carried under the roller 13 which is rotating at this time in the proper direction to assist the passage of said cigar thereunder. The yielding false-bottom is depressed while the cigar is being thus carried forward under the roller. A guard or retainer 48 is concentrically arranged relative to the delivery-cylinder and spaced therefrom a sufficient distance to permit the springs 10 to react and restore the false-bottom to normal position, and also prevent binding or crushing the cigar during the continuation of rotation of the delivery-cylinder. As shown in Fig. 10 this retainer 48 is conveniently mounted on the side frame opposite to that on which the actuating mechanism is mounted. It extends substantially the length of the delivery-cylinder, and is of a width sufficient to retain a cigar within a pocket, as shown, until the machine is operated to deliver a cigar. The cigars are dropped by gravity from the delivery-cylinder into a trough 49 from whence they roll outside of the case through an opening 50.

While I have shown a machine adapted to deliver one cigar at a time, it is obvious

that the respective pockets can be made of a capacity to receive and deliver a plurality of cigars. It will be noted that I have herein made provision for delivering two cigars from one of the pockets upon the insertion of a single coin. Thus at regular intervals the machine pays out two cigars for the price of one.

Obviously, my machine is capable of considerable modification within the scope of my invention, and I do not wish to be limited to the specific construction shown and described.

What I claim as my invention and desire to secure by Letters Patent is:

1. A vending machine comprising manually operable actuating mechanism, an article delivery device, a hopper above said delivery device, an endless flexible smooth apron constituting an upwardly extending side of said hopper, and means for successively actuating said endless apron toward the throat of said hopper to coöperate in feeding articles to said delivery device.

2. A vending machine comprising manually operable actuating mechanism, a delivery device, a hopper, smooth endless aprons constituting, respectively, bottom and end of said hopper, and means for actuating said endless aprons to feed articles to said delivery device.

3. A vending machine comprising actuating mechanism, a delivery device, a hopper, two endless aprons constituting, respectively, the bottom and end of said hopper, and means for actuating said aprons successively to feed articles to said delivery device.

4. In a vending machine, the combination with a delivery device, of a feeding device therefor, arranged above said delivery device, said feeding device comprising two endless flexible smooth belts moving in planes at substantially right angles to each other toward the delivery device, and manually operable means for successively actuating said belts.

5. In a vending machine, the combination with a delivery device rotatably mounted on a horizontal axis, of a feeding device located above said delivery device and comprising two successively movable endless flexible smooth belts converging downwardly to form a throat in operative relation to the delivery device.

6. A vending machine comprising a receptacle, a delivery device, a feeding device adapted to feed articles from said receptacle to said delivery device, said feeding device comprising two endless aprons, mechanism for actuating said endless aprons successively and an actuating device common to said apron-actuating mechanism and said delivery device.

7. A vending machine comprising a receptacle, a rotatable delivery cylinder having parallel peripheral pockets provided with yielding bottoms, a roller arranged adjacent to said delivery cylinder in advance of a pocket in its receiving position, a device adapted to feed articles from said receptacle to said pocket, and an actuating mechanism common to said feeding device and said rotatable delivery cylinder.

8. A vending machine comprising a receptacle, a rotatable delivery cylinder provided with peripheral pockets, an endless apron adapted to feed articles from said receptacle to said delivery cylinder, a ratchet arranged to cause said endless apron to move in one direction, a sprocket wheel on said ratchet, an endless chain in engagement with said sprocket wheel, and actuating mechanism common to said delivery cylinder and said sprocket chain.

9. A vending machine comprising a receptacle, a rotatable delivery cylinder provided with peripheral pockets, a feed hopper comprising two endless aprons adapted to feed articles to said delivery cylinder, a ratchet for each endless apron arranged to cause said aprons to travel successively, sprocket wheels on said ratchets, an endless chain in engagement with said sprocket wheels, and actuating mechanism common to said delivery cylinder and said sprocket chain.

10. A vending machine comprising a delivery device, a feed device comprising an endless apron adapted to feed articles to said delivery device, a ratchet adapted to cause said endless apron to travel in one direction, a sprocket wheel on said ratchet, idler sprocket wheels, an endless chain in operative engagement with said sprocket wheel and said idler sprocket wheels, a spring-pressed lever attached to said endless chain, and an actuating plunger operatively connected to said lever.

11. A vending machine comprising a delivery device, a feed device adapted to feed articles to said delivery device, said feed device comprising an inclined endless apron and a vertical endless apron, a ratchet for each of said endless aprons, said ratchets being arranged so that said endless aprons are caused to travel successively, sprocket wheels on said ratchets, idler sprocket wheels, an endless chain in operative engagement with said first mentioned sprocket wheels and said idler sprocket wheels, an actuating plunger common to said sprocket chain and said delivery device, and a spring-pressed lever adapted to restore said plunger to normal position.

12. In a vending machine, a rotatable delivery cylinder having peripheral pockets adapted to receive and discharge a predetermined number of articles, said pockets having yielding bottoms and being of such normal depth that the articles received

therein will project outside thereof, and a roller adjacent to the periphery of said delivery cylinder in the path of the projecting portion of said articles.

13. In a vending machine, a rotatable delivery cylinder having peripheral pockets adapted to receive and discharge a predetermined number of articles, said pockets having yielding bottoms and being of such normal depth that the articles received therein will project outside thereof, a roller adjacent the periphery of said cylinder in the path of the projecting portion of said articles, and a retaining device mounted beyond said roller and adjacent to said delivery cylinder.

14. In a vending machine, a rotatable delivery cylinder having peripheral pockets adapted to receive and discharge a predetermined number of articles, said pockets having yielding bottoms and being of such normal depth that the articles received therein will project outside thereof, a roller adjacent the periphery of said cylinder in the path of the projecting portion of said articles, and a curved guard concentrically mounted relative to said delivery-cylinder, and adapted to retain articles in said delivery-cylinder.

15. In a vending machine, the combination with a movable article receiving and delivery device, of an endless apron adapted to support and transport the articles, a second apron disposed beyond the feeding end of the endless apron aforesaid and separated therefrom by a space of sufficient dimensions to permit the passage of one article at a time to the article receiving and delivery device, said second endless apron acting as an abutment for, and regulator of the feed of, the articles from the first-named endless apron to the receiving and delivery device, and means for actuating said endless aprons.

16. In a vending machine, the combination with a movable article receiving and delivering device, of an apron adapted to support and transport the articles, a second apron disposed beyond the feeding end of the apron aforesaid and normally separated therefrom by a space of sufficient dimensions to permit the free passage of one article at a time to the article receiving and delivering device, said second apron acting as an abutment for, and regulator of the feed of the articles from the first named apron to the receiving and delivering device, and means for actuating said aprons.

Signed at St. Louis, Missouri, this 12th day of November, 1906.

JOHN SCHMIDT.

Witnesses:
G. A. PENNINGTON,
J. B. MEGOWN.