J. SCHMIDT.

VENDING MACHINE.

APPLICATION FILED OCT. 21, 1907.

909,688.

Patented Jan. 12, 1909.

2 SHEETS—SHEET 1.

Fig. 2.

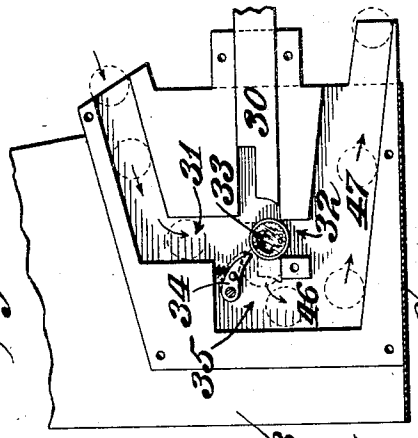


Fig. 6.

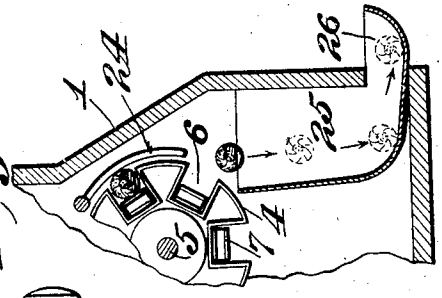


Fig. 1.

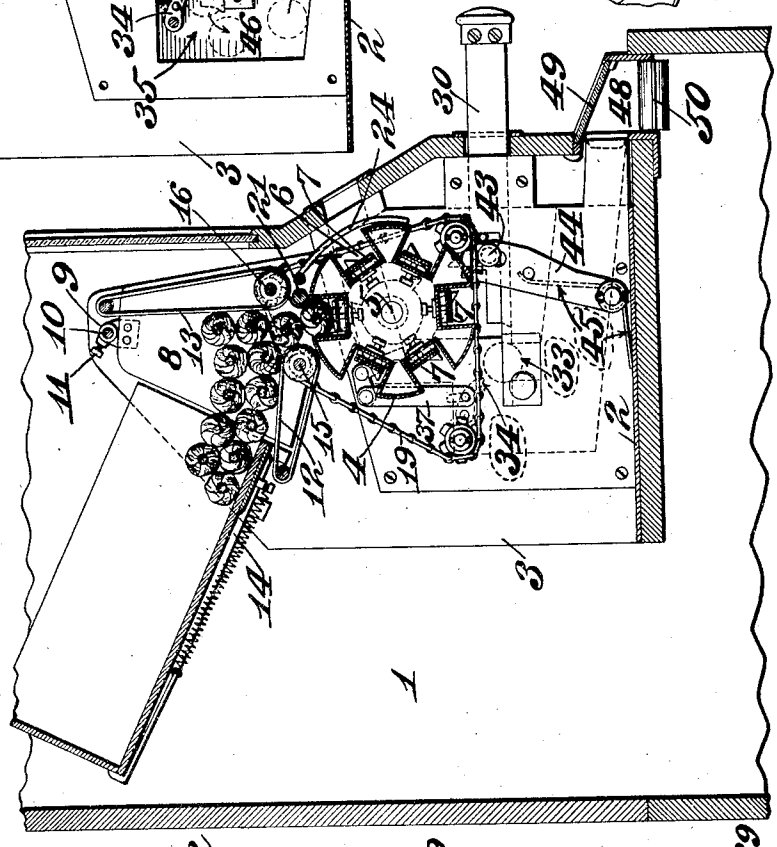


Fig. 3.

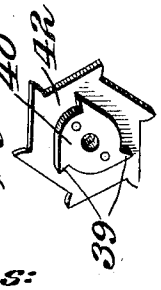


Fig. 4.

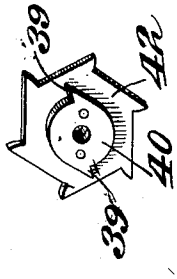
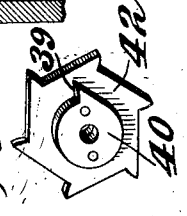


Fig. 5.



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2 SHEETS—SHEET 2.

Fig. 11.

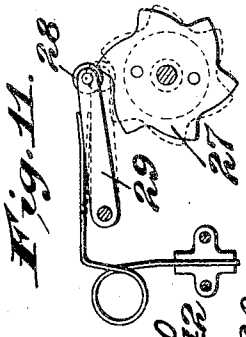


Fig. 9.

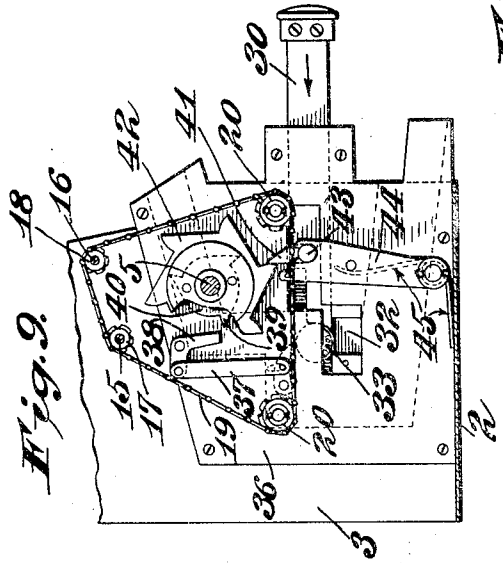


Fig. 10.

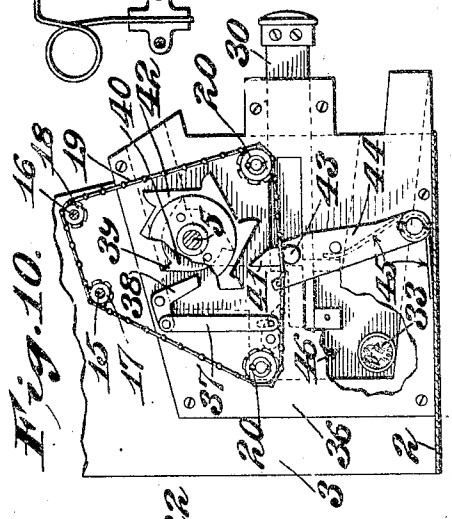


Fig. 7.

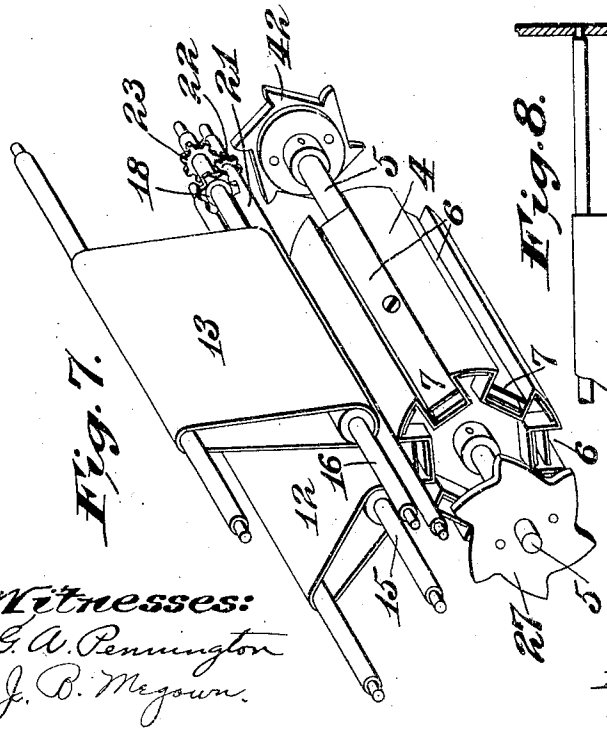
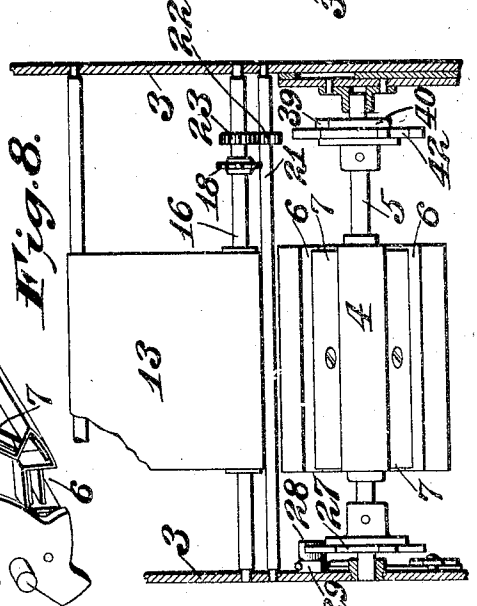


Fig. 8.



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UNITED STATES PATENT OFFICE.

JOHN SCHMIDT, OF ST. LOUIS, MISSOURI, ASSIGNOR TO INTERNATIONAL VENDING MACHINE COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

VENDING-MACHINE.

No. 909,688. Specification of Letters Patent. Patented Jan. 12, 1909.

Application filed October 21, 1907. Serial No. 398,408.

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 more particularly to machines for vending cigars. It has for its principal objects to provide for the delivery of a plurality of cigars or other articles for a single coin or token; to provide for a predetermined succession of actuations of the machine after the insertion of a single coin or token; and to attain certain advantages hereinafter more fully appearing.

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 vertical cross-section of a cigar-vending machine embodying my invention; Fig. 2 is an elevation with the cover-plate removed to expose the coin chutes; Figs. 3, 4 and 5 are detail views of modified forms of ratchet wheels for the delivery-cylinder operating and locking devices; Fig. 6 is a fragmentary sectional view of the delivery-cylinder and delivery-chute; Fig. 7 is a perspective view of the feed-hopper, delivery-cylinder and associated parts; Fig. 8 is a front elevation of the parts shown in Fig. 7; Figs. 9 and 10 are views in elevation, showing the positions of parts of the delivery-cylinder operating and locking devices during the actuation of the machine; and, Fig. 11 is a detail view of the delivery-cylinder positioning device.

The vending machine comprises a housing 1 in which the feed and delivery mechanism and the main portions of the actuating mechanism are mounted. The main frame upon which these parts are mounted comprises a base portion 2 and two side members 3, preferably made of a single plate of heavy sheet metal. The several shafts hereinafter mentioned are journaled in the said side members of the frame.

The delivery mechanism preferably comprises a hollow cylindrical shell 4 fixed to a shaft 5 which is journaled in the side plates 3. This cylindrical shell is preferably made of sheet metal and has longitudinal depressions or pockets 6 formed in the periphery thereof of sufficient size to accommodate a cigar or such other article as it may be desired to deliver. Each of the depressions has a yielding or resiliently mounted false bottom 7. Above said delivery-cylinder is the feed mechanism. This feed mechanism comprises a hopper of which adjustable side-plates 8 constitute the ends. These side-plates are provided with sleeved portions 9 which are mounted on a rod 10 and adapted to be secured in position by set-screws 11. The sides of the hopper consist of movable members, preferably endless belts 12, 13, of rubber or other elastic material. These movable sides are arranged at a considerable angle to each other, one of them, 12, being nearly horizontal, and the other, 13, being nearly vertical. The frame is provided with a support 14 for an ordinary cigar box in such position that the lower end of the box overlaps the outer end of the horizontal side 12 of the hopper.

The endless belts constituting the movable sides of the hopper are mounted upon drums or shafts 15, 16, which are provided with sprocket wheels 17, 18, respectively. Over these sprocket wheels passes a sprocket chain 19 which coöperates with idler sprocket wheels 20 and is arranged to be actuated as hereinafter described.

The hopper opening or space between the adjacent ends of the movable members of the hopper is immediately above the delivery-cylinder, and the cylinder-actuating mechanism is arranged to bring the pockets therein into register with said opening successively. By this arrangement, the lowermost cigar or other article in the hopper is fed into the pocket, and the yielding false bottom of the pocket protects the cigar against injury during the movement of the cylinder. A roller 21 is mounted on the side members 3 of the frame and has a pinion 22 fixed thereon and meshing with a pinion 23 fixed on the shaft 16 which carries the sprocket wheel 18. When the delivery-cylinder is moved to take a cigar from the hop-

per, the cigar projecting a short distance beyond the periphery of the cylinder will contact with the roller 21, thereby causing the false bottom of the pocket to yield sufficiently to permit the cigar to pass by said roller without injuring the wrapper. A guard 24 is provided to prevent the cigar from being ejected from the pockets when the yielding bottom returns to normal position, and to retain the cigars within the respective pockets until the same are in proper position to deliver a cigar into a delivery chute 25. The delivery-chute terminates in a trough 26 outside the housing of the machine.

In order to prevent the hopper from becoming clogged, the movable sides are preferably arranged to be moved endwise simultaneously. The horizontal side is preferably moved towards the hopper opening at the same time that the vertical side is moved upwardly therefrom. These movements of the hopper sides occur just prior to and during the forward movement of the delivery-cylinder; and the return stroke of the actuating mechanism causes a reversal of the movement of the movable sides of the hopper. By this arrangement, the forward movement of the delivery-cylinder brings an empty pocket into register with the opening of the feed-hopper, so that the lowermost cigar therein is free to drop into said pocket. The delivery-cylinder is provided with a snap-acting centering device which is so arranged that the pocket registers with the hopper opening before the end of the forward movement of the horizontal side of the hopper. In consequence of this arrangement, the movement of the horizontal side has a tendency to dislodge and feed forwardly the lowermost cigar and thereby prevent it from becoming stuck.

Preferably, the centering device comprises a star wheel 27 fixed on the shaft of the delivery-cylinder, and an antifriction roller 28 mounted upon a spring-pressed arm 29 and arranged to bear against the periphery of said star wheel. By this arrangement, the pressure of the spring-pressed arm transmitted through the anti-friction roller on the star wheel causes a rapid movement of the cylinder as soon as the roller passes the apex of the tooth of the star wheel, and before the actuating bar reaches the inner limit of its movement.

The actuating mechanism comprises a manually-operable push-bar 30 which traverses the lower end of a coin chute 31. This chute terminates in a constricted portion 32 which constitutes a trap or seat for a coin or token. A coin 23 of proper size resting on this seat is in position to bear against a lever 34 pivotally mounted in an enlarged passageway 35 which communicates with the lower portion of the chute 31. The lever 34 is provided with a pin or stud which projects through a slot in the cover plate 36 which constitutes one of the side walls for the several coin chutes and passageways. A link 37 is pivotally attached at one end to said pin, on the outside of said cover-plate, and has its opposite end pivotally attached to one leg of a bell-crank 38. The free leg of the bell-crank constitutes a pawl which is arranged to engage a tooth or projection 39 of a ratchet wheel or disk 40 fixed on the shaft of the delivery cylinder. This pawl when in engagement with a tooth 39 serves to lock the delivery-cylinder against forward rotation.

The manually-operable push-bar 30 has a projection or pawl 41 thereon arranged to bear against the lowermost tooth of a ratchet wheel 42 fixed on the shaft of the delivery-cylinder. This pawl is pivotally mounted and is resiliently held against a suitable stop on the push-bar, so that it will move the ratchet wheel during the inward movement of said push-bar, but will ride under the lowermost tooth upon the return stroke of the push-bar.

The push-bar carries a pin or stud 43 which rests in an elongated slot or bifurcation of a lever or pivoted arm 44 which is held in normal or forward position by a spring 45. This pivoted arm is attached to the sprocket chain 19 which passes over the sprocket wheels on the belt-actuating shafts and also over the idler sprocket wheels, whereby both the inward and outward movements of the actuating bar are transmitted to the belts.

The inward movement of the actuating bar causes the inner end of said bar to bear against the coin 33 which constitutes an element in the train for disengaging or unlocking the delivery-cylinder to permit rotation thereof. A continuation of the inward movement of the actuating bar pushes the coin under the lever 34 whereby the pawl 38 is moved away from the tooth 39 of the ratchet wheel 40. At this time, the projection 41 on the actuating bar engages the lowermost tooth of the ratchet wheel 42, whereupon the delivery-cylinder is rotated until the snap-acting centering device acts to throw the delivery-cylinder into proper position to bring the next succeeding empty pocket into register with the hopper opening so as to receive the lowermost cigar therein. When the coin has performed its function in the train, it is ejected into a chute 46 which terminates in an inclined chute 47 leading to a coin box 48. The restricted passageway 32 beneath the coin trap or rest leads into the chute 47, said passageway being intended to eliminate coins of smaller size than that required to operate the machine. The coin

box 48 is provided with a transparent panel 49 to permit inspection of the contents, and its bottom comprises a trap-door 50 adapted to be overbalanced by a considerable number of coins. When the trap-door is overbalanced the coins are dumped into a suitable chamber or receptacle within the interior of the housing of the machine.

The present invention contemplates the delivery of a plurality of cigars or other articles for a single coin. Preferably, the locking device for the delivery-cylinder is arranged to be released when a coin of proper size is placed in position to constitute an element of the actuating mechanism and the actuating bar is operated; and said locking device remains ineffective until a predetermined succession of strokes of the actuating bar has been made to deliver a cigar for each complete actuation thereof. For example, the machine may be arranged to vend two cigars for a quarter of a dollar; three for a quarter; or, six for a quarter, as the case may be. Or any other desirable combination may be made. This is accomplished by the number and position of the teeth on the ratchet wheel 40 relative to the number and position of the teeth on the ratchet wheel 42; that is, the number of the teeth on the ratchet wheel 42 should be equal to the number of pockets in the delivery-cylinder, and the number should be a multiple of the number of teeth on the ratchet wheel 40 and also of the number of cigars to be vended for a single coin.

The machine illustrated in the accompanying drawing is arranged to vend two cigars for a single coin. In this case the ratchet wheel 42 is provided with six teeth and the delivery-cylinder a like number of pockets. The ratchet wheel 40 is provided with three teeth of which six is a multiple. Hence, the delivery-cylinder may be rotated two steps or a distance of two pockets when the pawl is released from a tooth on the ratchet wheel 40 and before the next succeeding tooth is arrested by the pawl. Thus, two cigars may be delivered from the machine upon the insertion of a single coin. A detailed correlation of the ratchet wheels 40 and 42 is illustrated in Fig. 3. This arrangement is for vending two articles for one coin. In Figs. 4 and 5 are detailed arrangements for vending, respectively, three articles for one coin and six articles for one coin. Obviously, other combinations may be made and the device is capable of considerable modification within the scope of my invention, and therefore, I do not wish to be restricted to the particular construction and arrangement shown and described.

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

1. A vending machine comprising a delivery-cylinder having pockets in its periphery, mechanism for feeding articles into said pockets, and manually operable mechanism operatively connected to said cylinder and said feed mechanism to operate the same, a locking device therefor comprising a stop-wheel having equidistant stops thereon, and a pawl arranged to coöperate with said stops, said actuating-mechanism for said delivery-cylinder comprising a ratchet wheel having teeth the number of which is a multiple of the number of stops on said first mentioned wheel, and means for releasing said pawl from said stop-wheel whereby said actuating-mechanism is rendered effective to successively actuate said delivery-cylinder to deliver a plurality of articles.

2. A vending machine comprising a delivery-cylinder having a plurality of peripheral pockets therein, mechanism for feeding articles into said pockets, and manually operable mechanism operatively connected to said cylinder and said feed mechanism to operate the same, said actuating mechanism comprising a locking device for said cylinder comprising a stop-wheel having equidistant stops thereon, the number of stops being less than the number of pockets, and the number of pockets being a multiple thereof, a pawl arranged to coöperate with said stop-wheel, means for releasing said pawl from said stop-wheel, and means for positioning a detachable and insertible element to effect the release of said pawl, whereby said actuating mechanism is rendered effective to successively actuate said delivery-cylinder to deliver a plurality of articles for each inserted element.

3. A vending machine comprising a delivery-cylinder having a plurality of equidistant peripheral pockets therein, mechanism for feeding articles into said pockets, mechanism operatively connected to said cylinder and said feed mechanism to operate the same, said actuating mechanism comprising a manually reciprocable actuating bar and a ratchet wheel in fixed relation to said delivery-cylinder, the number of teeth of said ratchet wheel being equal to the number of pockets in said delivery-cylinder, said actuating bar having a device thereon to engage said ratchet wheel, a locking-device for said delivery-cylinder comprising a ratchet wheel in fixed relation to said first-mentioned ratchet wheel and having equidistant teeth thereon of less number than the teeth on said first mentioned ratchet wheel, and of which lesser number the larger is a multiple, means for releasing said locking pawl from its coöperating ratchet wheel, said releasing means comprising means for positioning a detachable and insertible element to effect the release of said locking pawl comprising a trap having a chute lead-

ing thereto from outside of the machine, whereby said actuating mechanism may be rendered effective to successively actuate said delivery-cylinder to deliver a plurality of articles for each inserted element.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses this 18th day of October, 1907.

JOHN SCHMIDT.

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