Dec. 13, 1927. 1,652,540

L. H. MORIN

VENDING MACHINE

Filed Oct. 24, 1925 3 Sheets-Sheet 1

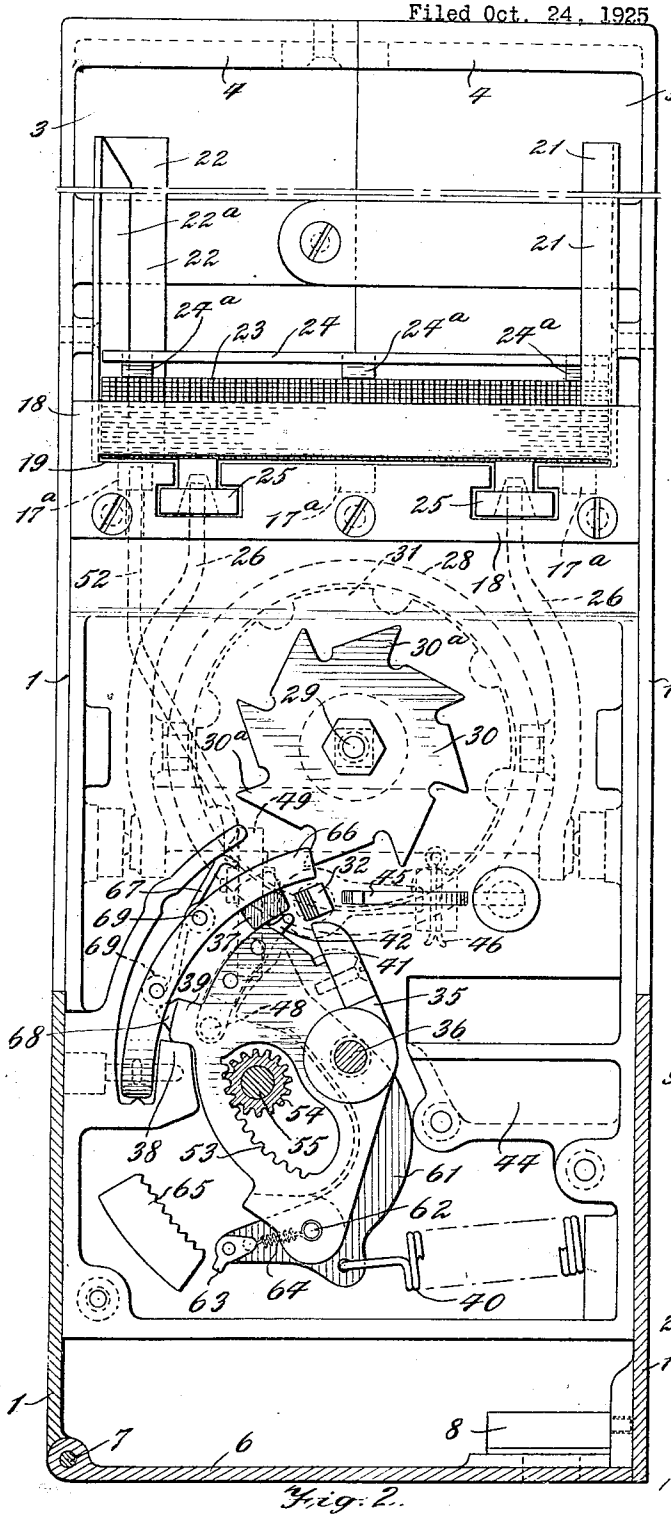


Fig. 2.

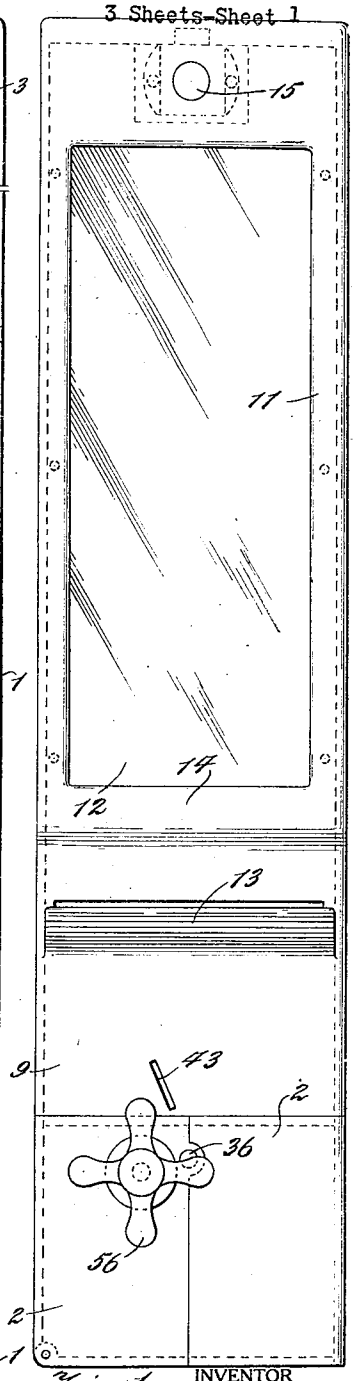


Fig. 1.

INVENTOR
Louis H. Morin

BY
Stockbridge & Sons
ATTORNEY

Dec. 13, 1927.

1,652,540

L. H. MORIN

VENDING MACHINE

Filed Oct. 24, 1925

3 Sheets-Sheet 2

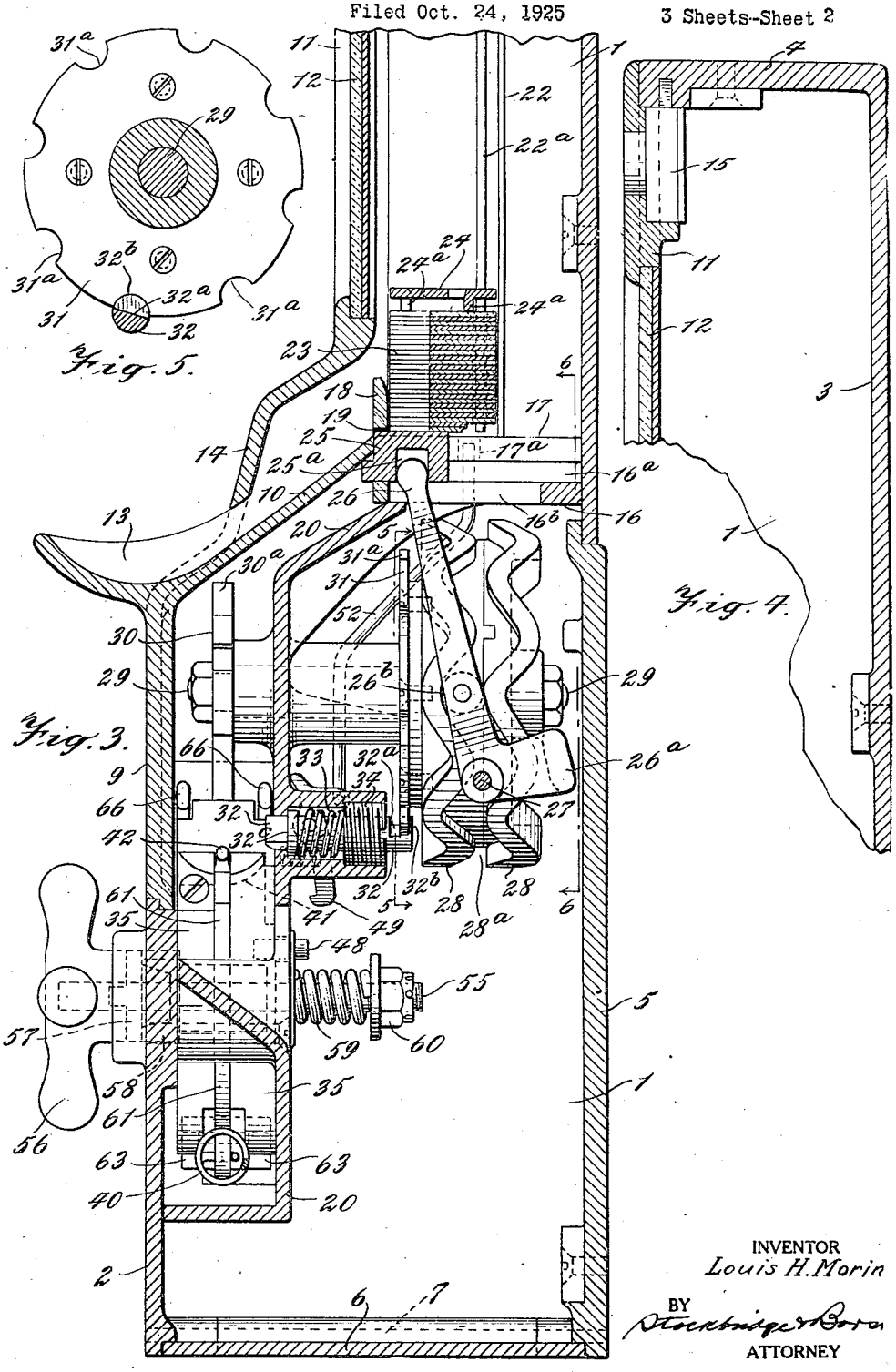


Fig. 5.

Fig. 4.

Fig. 3.

INVENTOR
Louis H. Morin

BY
Stockbridge & Boos
ATTORNEY

Dec. 13, 1927. 1,652,540

L. H. MORIN

VENDING MACHINE

Filed Oct. 24, 1925 3 Sheets-Sheet 3

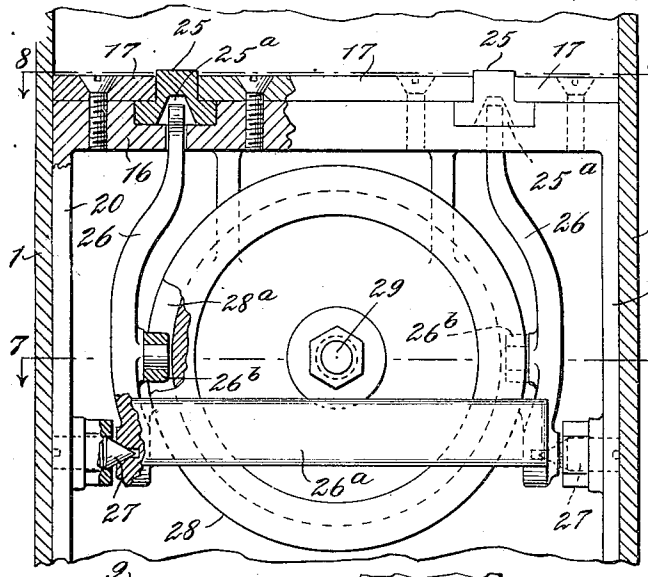


Fig. 6.

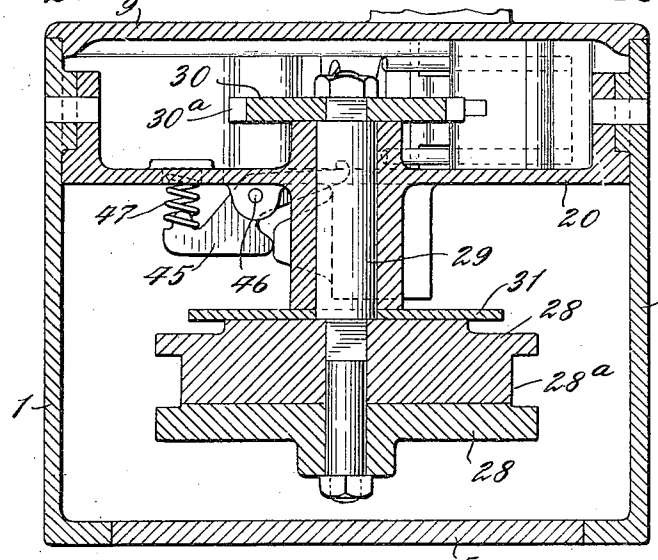


Fig. 7.

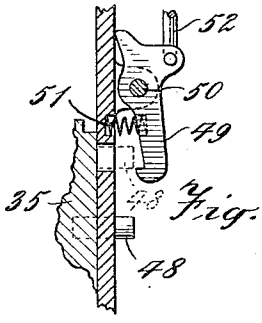


Fig. 9.

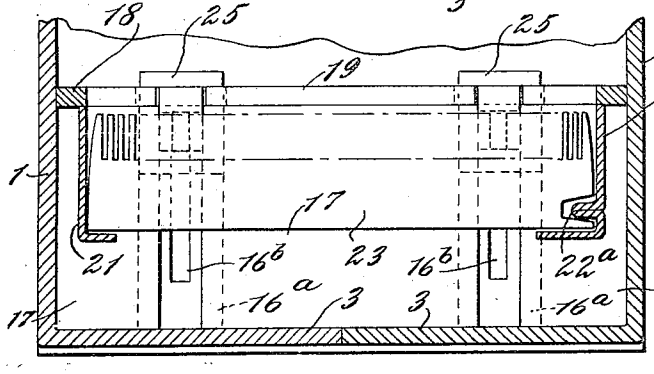


Fig. 8.

INVENTOR
Louis H. Morin

BY
Stockbridge & Borst
ATTORNEY

Patented Dec. 13, 1927. 1,652,540

UNITED STATES PATENT OFFICE.

LOUIS H. MORIN, OF NEW YORK, N. Y., ASSIGNOR TO DOEHLER DIE-CASTING COMPANY, A CORPORATION OF NEW YORK.

VENDING MACHINE.

Application filed October 24, 1925. Serial No. 64,501.

The construction of the purchase-delivering mechanism of a coin-controlled vending machine must necessarily to a considerable extent be determined by the nature of the articles to be vended. While the present invention is shown as embodied in a machine for vending combs, it is to be understood, and will be apparent from the drawings and the ensuing description, that this machine is equally well adapted for vending other articles, without change in the general construction, and with only slight changes in the parts coming into contact with the articles to be vended, depending upon the nature of the articles, as to size, shape, texture, etc.

In carrying out the invention the mechanism employed for moving a coin to cause the coin to operate the purchase-delivering mechanism, together with the safeguarding devices is substantially the same as that disclosed and claimed in my copending application, Serial No. 39,442, filed June 25, 1925. The present present invention relates more particularly to the purchase-delivering mechanism.

An object of the invention is to provide a vending machine well adapted to the vending of combs. Another object is to provide a vending machine having a novel purchase-delivering mechanism which is adapted to co-operate with the coin-moving means disclosed in my said copending application. Other objects are inexpensiveness of manufacture, simplicity of construction, effectiveness in operation, strength, durability and dependability. Other objects and advantages will hereinafter appear.

The invention comprehends various features of construction and combinations of parts, as will appear from the following description and as set forth in the appended claims.

In the accompanying drawings illustrating an embodiment of the invention:

Fig. 1 is a front elevation of the complete machine, drawn to a reduced scale;

Fig. 2 is a front elevation with the front wall of the magazine and of the upper part of the casing or base removed and with parts in vertical section just back of the lower part of the front casing wall, and as viewed from the left in Fig. 3, the middle part of the magazine being broken out as indicated by the broken parallel lines;

Fig. 3 is a substantially central vertical section as viewed from the right in Figs. 1 and 2, with some of the parts shown in elevation, the upper part of the magazine being omitted;

Fig. 4 is a similar view of the upper part of the magazine, omitted from Fig. 3;

Fig. 5 is a partial vertical section on the line 5—5 of Fig. 3, as viewed from the left or front of the machine, and shows parts of the coin-operated locking device for the delivery mechanism;

Fig. 6 is a similar section mostly on the line 6—6 of Fig. 3, as viewed from the right or back of the machine, and shows the delivery means and the operating cam therefor;

Fig. 7 is a horizontal section on the line 7—7 of Fig. 6, with some parts omitted;

Fig. 8 is a similar section on the line 8—8 of Fig. 6; and

Fig. 9 is a detail, as viewed in Fig. 3, of a latch for locking the coin carrier at slot-closing position when the magazine needs replenishing.

The casing and general framework of the machine will first be described. These parts comprise, in general, a lower casing part or base, which houses the operating mechanism, and an upright magazine above the base. Substantially similar right and left castings are joined at the front in the base and at the back in the magazine part, along middle vertical lines, to form right and left side walls 1 for the base and magazine, a lower front wall part 2 for the base, a back wall 3 for the magazine, and a top closure or cover 4 for the magazine. A back wall 5 for the base is shown as a separate piece. A bottom closure 6 for the base is hinged along one side at 7 and at the other side is secured by a suitable lock 8. The upper front part of the base and the front of the magazine are closed by a front casting, comprising a front wall 9 and an inclined wall 10, for the upper front part of the base, and a frame 11 at the front of the magazine. The frame 11 carries a glass plate 12 which may be a mirror. The inclined wall 10 forms the floor of a delivery chute which terminates outwardly in a reception cup 13, and a top wall is formed for the delivery chute by an apron 14 on the lower end of the frame 11. The lower edge of the front wall 9 of the base interlocks with the upper edge of the lower wall part 2 and the upper end of the frame 11 is secured

by a suitable lock 15. A thick horizontal plate 16 closes the top of the base at the back and together with an overlying sectional plate 17, secured thereto so as to form a part thereof, forms a bottom for the magazine.

The lower part of the magazine at the front is closed by a transverse vertical plate 18 having therein a delivery slot 19 flush with the top of the magazine floor plate 17 and with the upper edge of the inclined chute bottom 10. The base of the machine has secured therein a frame 20 for supporting the operating mechanism and in the illustrated machine the lower magazine bottom plate 16 is shown as formed in one piece with this frame.

The magazine, at the sides thereof, is provided with vertical right and left sheet metal flanged guide strips 21 and 22 for guiding the articles to be purchased, such strip 21 at the right side being of channel shape with its front flange at the bottom cut away at the delivery slot 19, and the other strip 22 being of L-shape and provided near the back with a guide rib 22^a which at its lower end is cut away opposite the delivery slot 19. In the machine illustrated the articles to be purchased are combs 23 which at their ends are guided by the strips 21 and 22 to move downward, one end of the combs being provided with a notch as shown, to receive the guide rib 22^a, thus compelling the placing of the combs in the magazine all in the same position with their teeth forward, as shown. The combs 23 may move freely downward by reason of their own weight, assisted by the weight of a follower bar 24 which is guided by the strips 21 and 22 the same as the combs. In effecting the delivery of a purchased comb the combs are permitted to descend until the lowermost comb rests upon the magazine floor 17, then this bottom comb is pushed forward through the delivery slot 19 and descends along the inclined chute bottom 10 into the reception cup 13. The novel purchase-delivering mechanism for effecting this operation will now be described.

The magazine bottom 16—17 is provided in its upper side with two transverse T-slots or grooves 16^a, the wider part of these grooves being shown as formed in the lower or main plate 16 while the narrow part of the grooves section in the upper plate 17. T-shaped notches in the front magazine plate 18 opening into the delivery slot 19 form forward continuations of the slots 16^a. T-shaped delivery members 25 are guided in the slots 16^a to slide to and fro, in the illustrated machine this movement being backward and forward. These members or blocks are proportioned so as to project above the magazine floor plate 17 to the extent of the thickness of a single comb. In the forward or delivery position of these members shown in the drawings and which is their normal position, the stack of combs rests upon the delivery members and the delivery members enter and close the delivery slot 19, thereby preventing the possibility of an unpaid for comb being obtained by tipping the machine forward and shaking or jarring it. At the rear of the magazine floor 17 a free space is provided between the guide strips 21 and 22 and the rear wall 3 of the magazine, for the reception of the delivery members 25 when the latter are moved to the rear of the combs. The rearward movement of the delivery members 25 is an idle or preparatory movement while their forward movement is a delivery movement, a complete to and fro movement, backward and forward, being required to effect a delivery of a purchased comb. When the delivery members are moved to the rear of the combs the combs rest upon the magazine floor 17 and as the delivery members are returned to their normal slot-closing forward position they push the lowermost comb forward through the delivery slot 19, the forward ends of these delivery members then coming substantially flush with the front face of the plate 18, as shown in Fig. 3. Coin-operated means including a suitable cam are provided for imparting a complete to and fro, or backward and forward movement to the delivery members 25, and will now be described.

The magazine bottom plate 16 is provided with transverse slots 16^b which open into the bottoms of the T-slots 16^a and the delivery members 25 are provided in their lower sides with recesses 25^a, for the reception of the upper rounded ends of upright levers 26 fulcrumed at their lower ends on the frame 20 by means of pivot studs 27, these levers being shown as rigidly connected together by a cross bar 26^a which is shown as formed in one piece with the levers. At a suitable distance above their pivots 27 these levers carry cam followers shown as rollers 26^b. A cam wheel 28 rotative on a horizontal axis has an undulatory peripheral cam groove 28^a in which the cam rollers 26^b engage at diametrically opposite points of the cam, this cam groove being symmetrically formed and having an even number of complete undulations, such number being eight in the cam 28, as will presently more clearly appear. For convenience and inexpensiveness of manufacture the cam 28 is split through the cam groove 28^a into two parts or sections which interlock by means of a diametral ridge on one cam part fitting into a groove in the other as shown. The cam 28 is fixed upon the inner reduced end of a cam shaft 29 which is journaled in the supporting frame 20, this shaft having a squared portion as shown to compel the cam to rotate with the shaft and being provided at its inner end with a nut which screws up against the cam.

The supporting frame 20 is for the most part in the form of a vertical plate which forms a partition wall across the casing in parallel spaced relation to the front wall portions 2 and 9, this partition wall having front and rear bosses which form a bearing for the cam shaft 29. A coin-operated drive member in the form of a peripherally toothed wheel 30 is fixed upon the outer squared end of the cam shaft 29 and held in place by a nut as shown. The drive wheel 30 has eight teeth 30^a which form a circumferential series of equidistantly spaced abutments some one of which, at the lower edge of the wheel, is normally in the path of the upper edge portion of a coin, in position to be engaged thereby and moved a step equal to the distance between the teeth, as the coin is moved from left to right. The one-eighth step of rotation thus imparted to the drive wheel will impart a corresponding step of rotation to the cam wheel 28, whereby the delivery members 25 will be first retracted and then returned to their normal position, thereby to deliver a purchased comb, as above described. The teeth 30^a of the drive wheel have abrupt front faces, shown as radial, to be engaged by the coin, while the rear faces of these teeth are inclined, so that the teeth taper substantially to a point.

A locking device, adapted to be released by the moving coin, is provided for normally positively locking the cam 28 against rotative movement in either direction away from its normal or delivery position, and which therefore is also effective to lock the delivery members 25 at their slot-closing delivery position and to lock the drive wheel 30. This locking device includes a locking disc 31 secured by screws to the forward face of the cam wheel 28 and provided on its periphery with eight equidistantly spaced semi-circular notches 31^a. A normally effective automatically engaging coin-operated locking pawl is provided for the disc 31, in the form of a short push rod 32 which upon its upper side near its inner end is provided with a square-shouldered notch 32^a, for the reception of the periphery of the disc 31 when the latter is rotated, the end portion 32^b of the rod inward from the notch 32^a normally engaging in a notch 31^a of the disc to lock the latter against rotative movement in either direction. The pawl-forming push rod 32 is normally pressed to its engaging position by a coiled compression spring 33 which acts between a shoulder 32^c on the rod and a plug 34 screwed into the end of a boss on the rear side of the partition wall 20. The pawl rod 32 is guided in the plug 34 and its forward end projects through and is guided in the wall 20, against which the shoulder 32^c abuts, to limit the forward movement of the rod, the forward end portion of the rod being squared, to prevent rotative shifting of the rod.

The forward end of the pawl rod 32 normally projects beyond the wall 20 and is provided, as shown, with an inclined cam surface which is in the path of the rear edge portion of the moving coin, whereby the coin as it is moved from left to right between the upper front wall portion 9 and the partition wall 20 will push back the pawl rod 32 and thereby disengage the pawl end 32^b from a notch 31^a in the locking disc 31, the pawl rod notch 32^a now being brought into alignment with the disc 31 so that the latter is free to be rotated together with the cam wheel 28 and drive wheel 30.

The pawl rod 32 is so positioned that while the moving coin is still in engagement with its outer end, and the cam wheel 28 is unlocked, the coin will come into engagement with a tooth 30^a of the drive wheel 30 and impart initial rotative movement thereto. A further slight forward movement of the traveling coin will carry it beyond the end of the pawl rod 32, whereupon, the pawl spring 33, urging the pawl rod outward, will cause the inner pawl end 32^b to ride upon the rear face of the locking disc 31 between two adjacent notches 31^a in readiness to snap into the next notch for thereby again locking the disc 31, together with the drive wheel 30, the cam wheel 28 and the delivery members 25 at the delivery position of the latter.

In carrying out the present invention the construction of the means employed for moving the coin for operating the purchase-delivering mechanism as above described is substantially the same as disclosed in my said copending application, and some parts thereof form elements in combination in the present invention. Such means will now be described to an extent necessary for an understanding of the present invention.

A manually operable rocking coin carrier 35 is pivoted at 36 and at its upper part substantially fills the space between the partition wall 20 and the front wall of the casing. The rocking movement of the coin carrier is limited by stop lugs 37 and 38 in the casing which are in the path of a lug 39 on the back of the coin carrier. The coin carrier is returned to and normally maintained at its normal retracted position shown in the drawings by a coiled retractile spring 40 anchored in the casing and connected to the lower part of the coin carrier.

In its upper portion the coin carrier is provided with a coin-holding slot or notch 41 to receive the lower edge of a coin, and back of this coin-holding slot the coin carrier is provided with a coin-pushing finger 42. A slightly inclined coin slot 43 is provided in the front casing wall 9 through which a proper coin may be inserted into the

machine, where it will rest at its lower edge in the coin carrier slot 41 and will be between the coin-pushing finger 42 and the adjacent inclined cam face of the pawl rod 32 of the above described locking device.

As the coin carrier 35 is rocked in a forward direction the finger 42 pushes the coin forward and at the beginning of the movement of the coin its rear edge comes into engagement with the inclined cam face of the pawl rod 32 and pushes this rod back thereby unlocking the purchase-delivering mechanism as hereinbefore described. While the inner edge of the coin thus holds back the push rod 32 with its pawl end 32^b disengaged from a notch 31^a in the locking disc 31 and with its notch 32^a in alignment with the disc 31, the upper forward edge portion of the coin comes into engagement with a tooth 30^a of the drive wheel 30. A slight further forward movement of the coin frees the coin from the pawl rod 32, and continued forward movement of the coin rotates the drive wheel 30 through a step of one-eighth of a complete rotation, thereby imparting a corresponding step of rotative movement to the cam wheel 28, whereby the cam-operated levers 26 impart a complete to and fro, backward and forward, movement to the delivery members 25, thus delivering a purchased comb 23.

When the coin carrier 35 has reached its final forward position the coin carried thereby will stand on edge in substantially vertical position. The coin carrier, being set free, will now be retracted or moved backward by its restoring spring 40, and the coin carried thereby, being thus freed from a drive wheel tooth 30^a will drop into a coin chute 44 and thence to the casing bottom 6. To guard against the possibility of the coin failing to free itself from the coin carrier, a spring-pressed coin-disengaging or kick-off pawl 45 is provided to dislodge the coin from the coin carrier. The kick-off pawl is pivoted on the partition wall 20 on a vertical pivot pin 46, is pressed to engaging position by a spring 47 and has a coin-engaging hooked end projecting through the wall 20 into the path of the rear edge portion of the coin, to be moved rearwardly by the advancing coin and to engage and dislodge the coin as the coin carrier is retracted, the spring-pressed movement of the pawl being limited by a stop lug as shown in Fig. 7.

In carrying out the invention, automatically acting means are provided controlled by the supply of articles in the magazine to prevent the loss of coins in the machine when the magazine requires replenishing. When the coin carrier 35 is moved forward it closes the coin slot 43, and a latch for the coin carrier is provided and is controlled by the follower 24 to lock the coin carrier at slot-closing position. The particular means for thus locking the coin carrier embodied in the machine illustrated in the drawings will now be described.

The follower bar 24 is provided with a suitable number of legs 24^a, shown as three, by which it is supported upon the stack of combs 23, and this follower may be of rather heavy sheet metal with its legs struck downward therefrom as shown in the drawings. When the last or topmost comb in the magazine is pushed forward through the delivery slot 19 and the delivery members 25 are locked at their delivery or normal forward position, the follower 24 will descend and its legs 24^a will enter holes 17^a provided for them in the magazine floor plate 17.

The coin carrier 35 is provided with a pin 48 which projects through a slot in the partition wall 20. A latch hook 49 is pivoted at 50 to lugs on the rear face of the wall 20 and is normally held out of engagement with the pin 48 by a light thrust spring 51 acting between the latch hook 49 and the wall 20, the spring-pressed movement of the latch hook being limited by a tail arm on the latch hook coming into engagement with the wall 20. The latch hook has a rearwardly extending bell-crank arm to which is pivoted the lower end of a thrust link 52. The upper end of this link or rod is slidably guided in a hole in the magazine bottom plate 16 and projects into one of the holes 17^a, shown as the one at the left side of the machine. When the follower legs 24^a enter the holes 17^a, as above described, the one which enters the hole into which the link 52 projects will, by reason of the weight of the follower, push the link 52 downward, thereby rocking the latch hook 49 against the tension of its spring 51 to bring the hook of the latch into the path of the pin 48 on the coin carrier while the latter is at its forward position. The latch hook 49 thus prevents the spring 40 from returning the coin carrier to its normal position, in which the coin slot 43 would be open, but locks the coin carrier at a forward position in which it blocks or closes the coin slot 43, whereby a coin cannot be inserted into the machine.

The remaining parts of the complete operating mechanism illustrated in the drawings are not directly concerned in the present invention, but relate more particularly to the invention disclosed in my said copending application, and will be only briefly described herein.

The manually operable means provided for rocking the coin carrier 35 against the tension of its restoring spring 40 will now be described. An internally toothed arcuate rack 53 on the coin carrier is engaged by a pinion 54 on a handle shaft 55 upon the outer end of which is fixed a handle knob 56. The handle knob 56 imparts rotation to the pinion 54 through a friction clutch compris-

ing a cone member 57 rotative with the handle knob and a cup member 58 connected to the pinion 54 to rotate the latter. The clutch elements 57 and 58 are held in driving engagement by a coiled compression spring 59 which is held under tension upon the inner end of the handle shaft 55 by a nut 60. This yieldable clutch driving connection is a safeguard against the possibility of breaking the operating mechanism by trying to force it beyond limits of its movement.

To prevent loss of coins in the machine, automatically acting means are provided to prevent backward movement of the coin carrier 35 from intermediate points of its forward movement when it carries a coin, while permitting free return movement of the coin carrier from any point when it carries no coin, thereby to uncover the coin slot to provide for the normal operation of the machine. A lever 61 forming a feeler, located in a slot in the forward edge of the coin carrier, is pivoted to the lower part of the coin carrier by a pivot pin 62. The return spring 40 for the coin carrier is connected to the lever 61 below and to the right of its pivot, as appears in Fig. 2, and an arm of this lever which extends to the left pivotally carries a pair of reversible pawls 63 which are urged toward their intermediate positions by small retractile springs 64, one of which is shown in Fig. 2. The long upper arm of the lever 61 forms a feeler finger the tip of which may move across the empty coin-holding slot 41 in the coin carrier, or may abut against a coin therein, as the case may be. When the coin carrier rocks in either direction the pawls 63 wipe over a ratchet 65 and escape from the ratchet at the end of each complete movement of the coin carrier. Should the coin carrier, when it carries no coin, be partly advanced and then released, the pull of the coin carrier spring 40 will cause the pawls 63 to reverse on the ratchet 65 and the coin carrier will be returned to its normal retracted position, the feeler tip of the lever 61 passing across the empty coin-holding slot 41 to permit the reversal of the pawls 63. Should there be a coin in the slot 41 it forms an abutment for the feeler lever 61 which will prevent the reversal of the pawls 63 until the coin carrier has been moved forward to its full extent, to free these pawls from the ratchet 65.

A horseshoe magnet 66 provided for lifting magnetizable slugs out of the coin-holding slot 43 and discarding them, is adapted to be rocked on its lower middle portion and lifted at its upper end, against the tension of a spring 67, by a cam lug 68 on the coin carrier which successively engages small rollers 69 carried by the magnet.

It may be further noted that the coin-moving finger 42 will pass freely through the hole in a washer, so that the latter will be discarded without operating the purchase-delivering mechanism; and that a weak disc, such as of thin metal or paper, will be bent and mutilated, without operating the purchase-delivering mechanism, and will be discarded.

The upward curvature of the bottom of the coin-holding slot 41 at the back, as shown by the dotted line in Fig. 3, prevents the insertion into the machine of square or other angular slugs.

The forward wall of the slot 41 at the front side of the coin carrier extends upwardly to form a coin guide which is shown as a separate piece secured by a screw to the body of the coin carrier.

The construction and operation of the complete machine illustrated in the drawings and embodying my invention have now been described. The above described illustrated embodiment of the invention has been found to operate satisfactorily. However, it is obvious that various modifications may be made in the construction shown in the drawings and above particularly described, within the principle and scope of my invention as set forth in the appended claims.

I claim:

1. A coin-controlled vending machine having, in combination, a magazine in which articles to be purchased and delivered therefrom may move downward and having a delivery slot adjacent its bottom, manually operable means for moving a coin, and a purchase-delivering mechanism operable by the moving coin; said mechanism comprising an abutment in the path of the moving coin to have unidirectional movement imparted thereto thereby, a delivery member movable to and fro normally closing the magazine slot and upon which the articles in the magazine normally rest, said member having an idle slot-opening movement and a purchase-delivering return movement, and means for causing the unidirectional movement of said abutment to impart a complete to and fro movement to said delivery member.

2. A coin-controlled vending machine having, in combination, a magazine in which articles to be purchased and delivered therefrom may move downward and having a delivery slot adjacent its bottom, a purchase-delivering mechanism, a movable coin carrier, and a releasable locking device for normally locking said mechanism and including a part in the path of a moving coin carried by the coin carrier to be engaged by said coin to release said device to unlock said mechanism; said mechanism comprising an abutment in the path of the moving coin to have unidirectional movement imparted thereto thereby, a delivery member movable to and fro normally closing the magazine slot and upon which the articles in the magazine normally rest, said member having

an idle slot-opening movement and a purchase-delivering return movement, and means for causing the unidirectional movement of said abutment to impart a complete to and fro movement to said delivery member.

3. A coin-controlled vending machine having, in combination, a magazine in which articles to be purchased and delivered therefrom may move downward and having a delivery slot adjacent its bottom, a manually operable coin carrier for moving a coin, and a purchase-delivering mechanism operable by the moving coin; said mechanism comprising a rotative drive member provided with a circumferential series of equidistantly spaced abutments some one of which is normally in the path of the moving coin to be moved a step thereby, a delivery member movable to and fro normally closing the magazine slot and upon which the articles in the magazine normally rest, said delivery member having an idle slot-opening movement and a purchase-delivering return movement, and means for causing each step of movement of said drive member to impart a complete to and fro movement to said delivery member.

4. A coin-controlled vending machine having, in combination, a magazine for articles to be purchased and delivered therefrom, a manually operable coin carrier for moving a coin, and a purchase-delivering mechanism operable by the moving coin; said mechanism comprising a rotative drive member provided with a circumferential series of equidistantly spaced abutments some one of which is normally in the path of the moving coin to be moved a step thereby, a cam rotative with the drive member and having an undulatory cam surface, the complete undulations of which are equal in number to the number of said abutments, a lever to be rocked to and fro by the cam at each step of rotative movement of the drive member, and a delivery member to be moved to and fro by the lever and engageable with the articles in the magazine to deliver a purchase therefrom at each complete to and fro movement.

5. A coin-controlled vending machine having, in combination, a magazine for articles to be purchased and delivered therefrom, a manually operable coin carrier for moving a coin, and a purchase-delivering mechanism operable by the moving coin; said mechanism comprising a rotative drive member provided with an even number of circumferentially arranged equidistantly spaced abutments some one of which is normally in the path of the moving coin to be moved a step thereby, a cam rotative with the drive member and provided with a peripheral undulatory cam groove the complete undulations of which are equal in number to the number of said abutments, a pair of similar levers having cam followers engaging in said groove at diametrically opposite points of said cam, and delivery means moved to and fro by the levers and engageable with the articles in the magazine to deliver a purchase therefrom at each complete to and fro movement.

6. A coin-controlled vending machine having, in combination, a magazine in which articles to be purchased and delivered therefrom may move downward and having a delivery slot adjacent its bottom, a manually operable coin carrier for moving a coin, and a purchase-delivering mechanism operable by the moving coin; said mechanism comprising a rotative drive member provided with a circumferential series of equidistantly spaced abutments some one of which is normally in the path of the moving coin to be moved a step thereby, a cam rotative with the drive member and having an undulatory cam surface the complete undulations of which are equal in number to the number of said abutments, a lever to be rocked to and fro by the cam at each step of rotative movement of the drive member, and a delivery member to be moved to and fro by the lever and having a slot-opening movement followed by a purchase-delivering return movement.

7. A coin-controlled vending machine having, in combination, a magazine for articles to be purchased and delivered therefrom, a manually operable coin carrier for moving a coin, and a purchase-delivering mechanism operable by the moving coin; said mechanism comprising a rotative drive member provided with a circumferential series of equidistantly spaced abutments some one of which is normally in the path of the moving coin to be moved a step thereby, a cam rotative with the drive member and having an undulatory cam surface the complete undulations of which are equal in number to the number of said abutments, and a delivery member to be moved to and fro by the cam at each step of rotative movement of the drive member and engageable with the articles in the magazine to deliver a purchase therefrom at each complete to and fro movement.

8. A coin-controlled vending machine having, in combination, a magazine in which articles to be purchased and delivered therefrom may move downward and having a delivery slot adjacent its bottom, a manually operable coin carrier for moving a coin, and a purchase-delivering mechanism operable by the moving coin; said mechanism comprising a rotative drive member provided with a circumferential series of equidistantly spaced abutments some one of which is normally in the path of the moving coin to be moved a step thereby, a cam rotative with the drive member and having an undulatory

cam surface the complete undulations of which are equal in number to the number of said abutments, and a delivery member to be moved to and fro by the cam at each step of rotative movement of the drive member and having a slot-opening movement followed by a purchase-delivering return movement.

9. A coin-controlled vending machine having, in combination, a magazine in which articles to be purchased and delivered therefrom may move downward and having a delivery slot adjacent its bottom, a delivery member movable to and fro normally closing the magazine slot and upon which the articles in the magazine normally rest, said member having an idle slot-opening movement and a purchase-delivering return movement, a normally automatically effective releasable locking device for positively locking said delivery member at its normal slot-closing delivery position and releasable by a moving coin, a driving device including an abutment normally positioned to have unidirectional movement imparted thereto, means for causing the unidirectional movement of said abutment to impart a complete to and fro movement to said delivery member, and a normally ineffective manually operable device for moving the coin to release the locking device and thereafter made effective by the coin to impart unidirectional movement to said abutment for thereby moving the unlocked delivery member to and fro away from and back again to its normal locked slot-closing delivery position.

10. A coin-controlled vending machine having, in combination, a magazine in which articles to be purchased and delivered therefrom may move downward and having a delivery slot adjacent its bottom, a delivery member movable to and fro normally closing the magazine slot and upon which the articles in the magazine normally rest, said delivery member having an idle slot-opening movement and a purchase-delivering return movement, a normally automatically effective releasable locking device for positively locking said delivery member at its normal slot-closing delivery position, a rotatable drive member provided with a circumferential series of equidistantly spaced abutments by means of which it may be given successive steps of movement, means for causing each step of movement of said drive member to impart a complete to and fro movement to said delivery member, and a normally ineffective manually operable device to be made effective by means of a coin to enable the latter device to release the locking device and thereafter to impart a step of rotative movement to said drive member thereby to impart to and fro movement to the unlocked delivery member away from its slot-closing position and back again to its normal locked slot-closing delivery position.

11. A coin-controlled vending machine having, in combination, a magazine for articles to be purchased and delivered therefrom, a rotatable drive member provided with an even number of circumferentially arranged equidistantly spaced abutments by means of which it may be given successive steps of movement, a cam rotative with the drive member and provided with a peripheral undulatory cam groove the complete undulations of which are equal in number to the number of said abutments, a pair of similar levers having cam followers engaging in said groove at diametrically opposite points of said cam, delivery means to be moved to and fro by the levers and engageable with the articles in the magazine to deliver a purchase therefrom at each complete to and fro movement, a normally automatically effective releasable locking device for stopping and positively locking the cam at each step of its rotative movement, and a normally ineffective manually operable device to be made effective by means of a coin to enable it to release the locking device and thereafter to impart a step of rotative movement to the drive member.

12. A coin-controlled vending machine having, in combination, a magazine for articles to be purchased and delivered therefrom, a rotatable drive member provided with a circumferential series of equidistantly spaced abutments by means of which it may be given successive steps of movement, a cam rotative with the drive member and having an undulatory cam surface the complete undulations of which are equal in number to the number of said abutments, a delivery member to be moved to and fro by the cam at each step of rotative movement of the drive member and engageable with the articles in the magazine to deliver a purchase therefrom at each complete to and fro movement, a normally automatically effective releasable locking device for stopping and positively locking the cam at each step of its rotative movement, and a normally ineffective manually operable device to be made effective by means of a coin for releasing the locking device and for thereafter imparting a step of rotative movement to said drive member.

In witness whereof I hereunto subscribe my signature.

LOUIS H. MORIN.