Dec. 13, 1932. J. E. WALKER 1,890,761

VENDING MACHINE AND MONEY CHANGER

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Fig. 1.

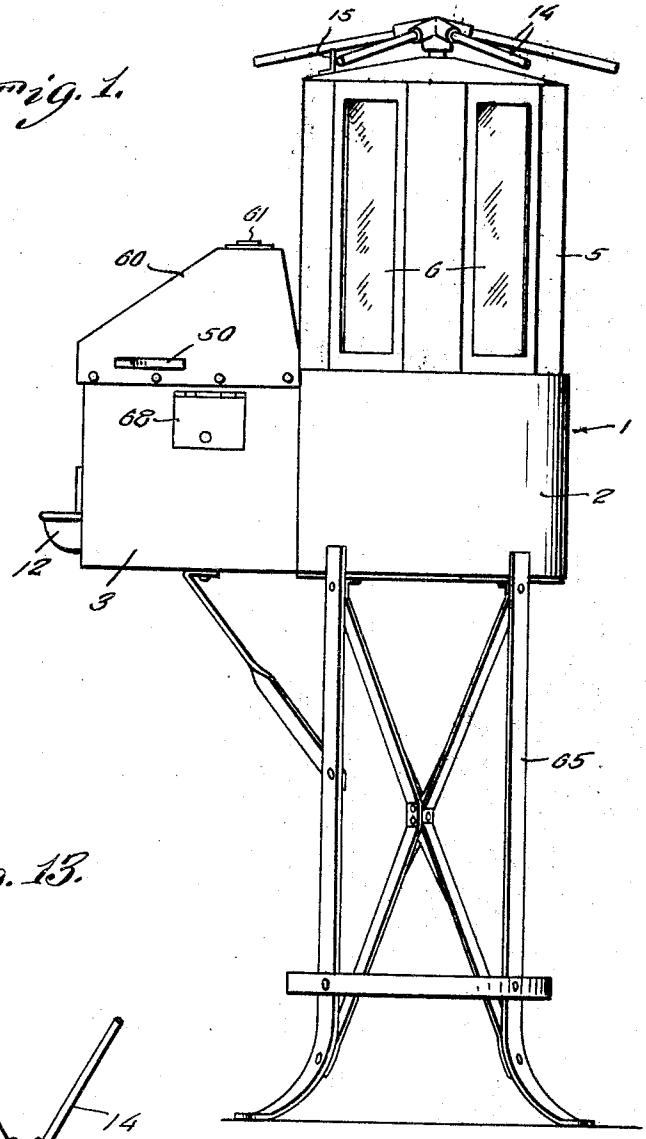
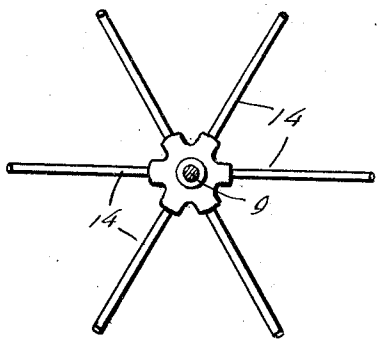


Fig. 13.



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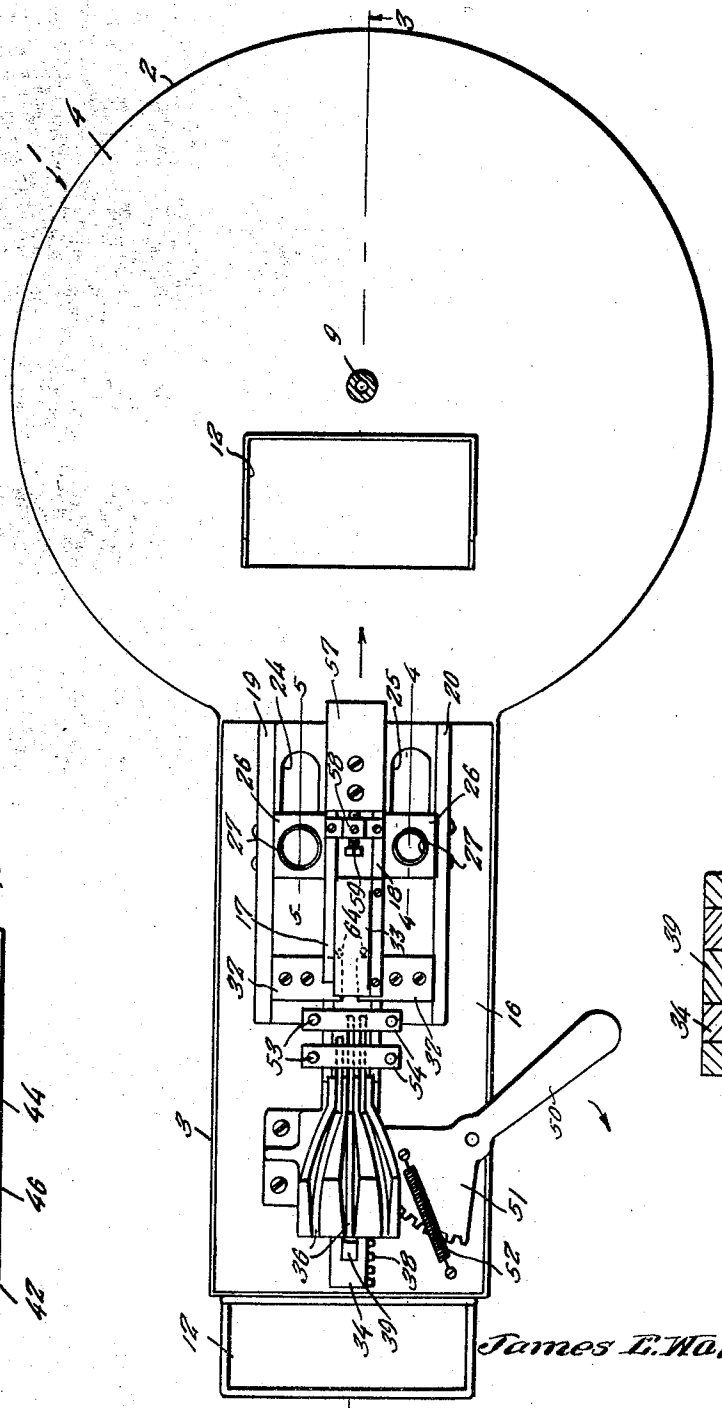


Fig. 8.

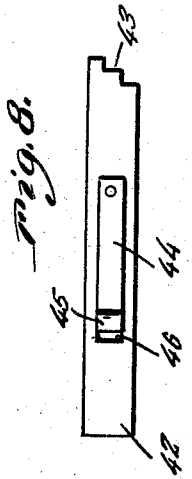
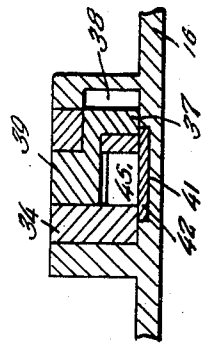


Fig. 9.



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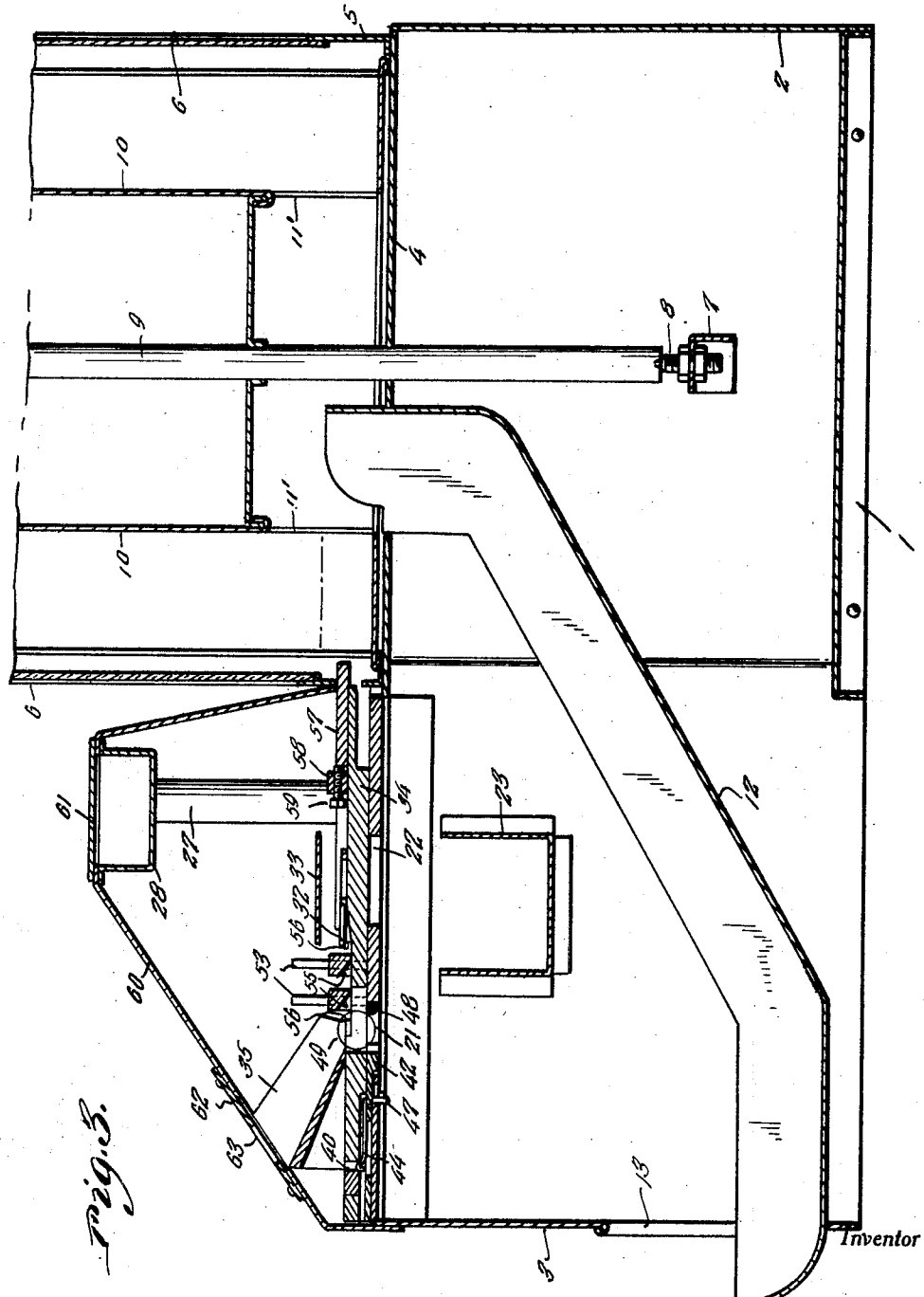


Fig. 5.

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Fig. 3.

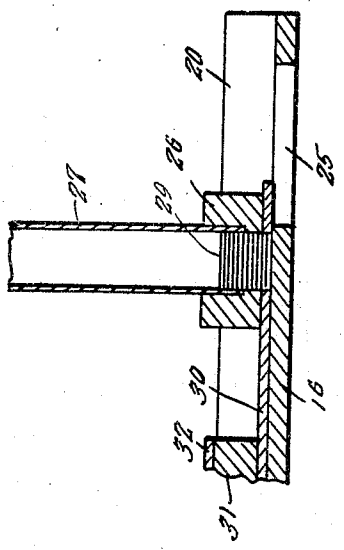


Fig. 6.

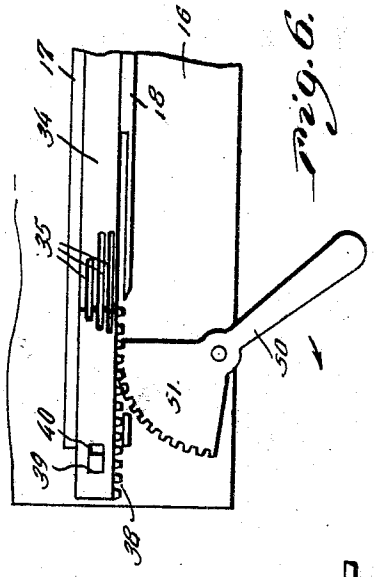


Fig. 4.

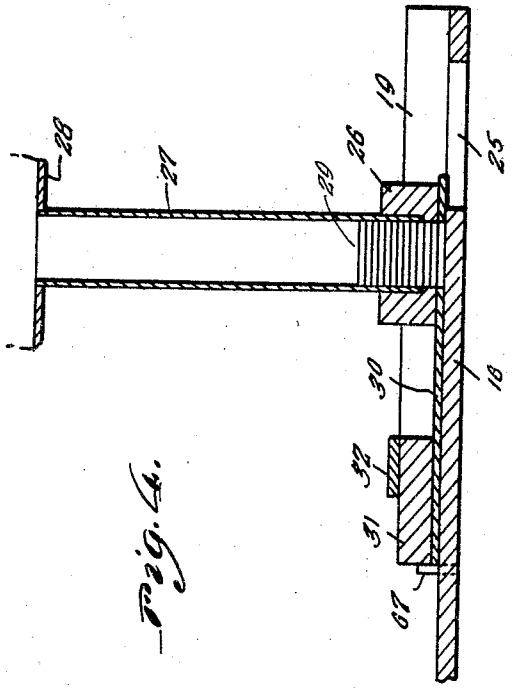
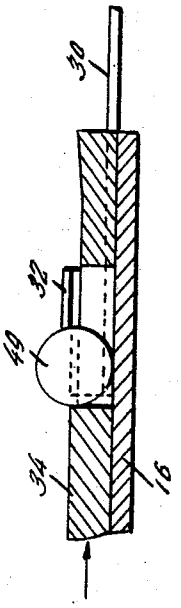


Fig. 7.



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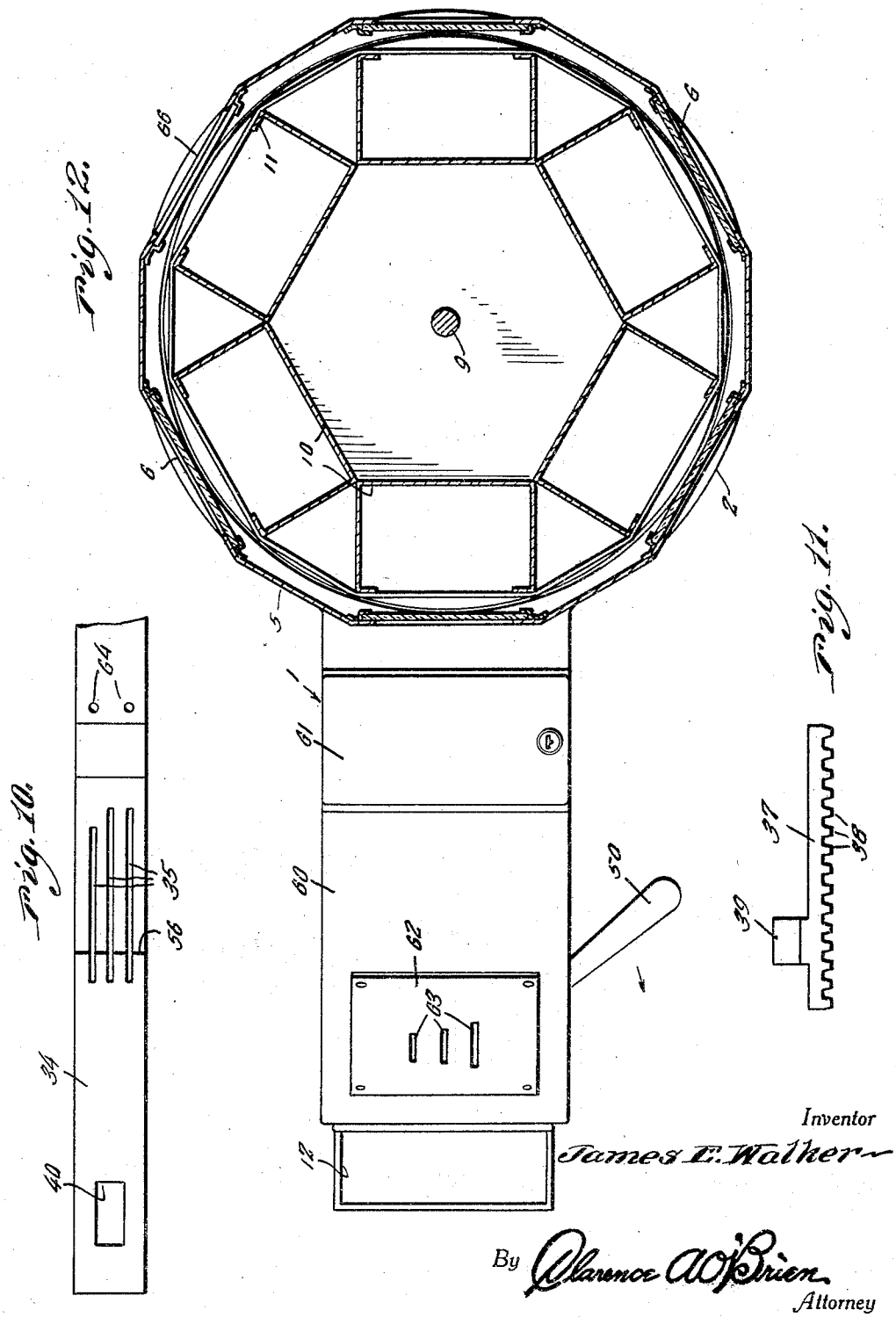
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Filed Feb. 23, 1932 5 Sheets-Sheet 5



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Patented Dec. 13, 1932 1,890,761

UNITED STATES PATENT OFFICE

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VENDING MACHINE AND MONEY CHANGER

Application filed February 23, 1932. Serial No. 594,669.

The present invention relates to a vending machine and money changer for dispensing various kinds of merchandise and has for its primary object to provide, in a manner as hereinafter set forth, novel manually operable, coin controlled means for causing the delivery of the merchandise upon the insertion of the proper coin.

Another very important object of the invention is to provide a coin controlled operating unit for vending machines embodying novel means for delivering the correct change with the merchandise when a coin of a denomination other than the price of the merchandise is inserted.

Still another important object of the invention is to provide a vending machine of the character set forth embodying a novel construction, combination and arrangement of parts through the medium of which different kinds of merchandise may be selected by a customer and delivered upon the insertion of a coin.

Other objects of the invention are to provide an apparatus of the aforementioned character which will be simple in construction, strong, durable, efficient and reliable in operation and which may be manufactured at low cost.

All of the foregoing and still further objects and advantages of the invention will become apparent from a study of the following specification, taken in connection with the accompanying drawings wherein like characters of reference designate corresponding parts throughout the several views, and wherein:—

Figure 1 is a view in side elevation of an embodiment of vending machines constructed in accordance with the present invention.

Figure 2 is a view in top plan thereof with the cover removed from the case of the operating unit to expose said unit in top plan.

Figure 3 is a view in vertical longitudinal section through the lower portion of the device, taken substantially on the line 3—3 of Figure 2.

Figure 4 is a view in vertical longitudinal section through a portion of the coin mechanism, taken substantially on the line 4—4 of Figure 2.

Figure 5 is a detail view in vertical longitudinal section, taken substantially on the line 5—5 of Figure 2.

Figure 6 is a detail view in top plan showing the rack and gear means for manually actuating the coin carriage.

Figure 7 is a detail view in vertical longitudinal section through an intermediate portion of the coin carriage, showing a coin in position therein.

Figure 8 is a detail view in top plan of an element of the coin mechanism.

Figure 9 is a detail view in vertical transverse section through a portion of the coin mechanism.

Figure 10 is a detail view in top plan of a portion of a coin carriage.

Figure 11 is a detail view in top plan of the rack bar.

Figure 12 is a view in horizontal section through the cabinet.

Figure 13 is a view in longitudinal section through the upper portion of the rotary shaft and showing, in bottom plane, the magazine retainer arms.

Referring now to the drawings in detail, it will be seen that the reference numeral 1 designates generally a base which, in the embodiment illustrated, comprises a circular portion 2 and a projecting portion or extension 3. The base 1 is provided with a top 4 and mounted thereon is a cabinet 5 having circumferentially spaced, vertically elongated windows 6 therein. A supporting bar 7 is mounted transversely in the base 1 in the circular portion 2 thereof and has mounted thereon a bearing 8 which rotatably supports a vertical shaft 9 which extends centrally through the cabinet 5, said shaft extending through the top 4 of the base and through the top of the cabinet.

Vertically disposed merchandise magazines 10 are fixed on the shaft 9 for rotation therewith in the cabinet 5. The magazines 10 are open at their front or outer sides with the exception of the retaining flanges 11 in order that the merchandise in said magazines may be observed through the windows 6. The in-

ner or rear walls of the magazines 10 are provided with openings 11′ in their lower ends for the passage of merchandise from said magazines into a delivery chute 12 which rises through the top 4 of the base 1 and which extends downward in said base and through an opening 13 in the free end wall of the extension 3. Fixed on the upper end of the shaft 9 above the cabinet 5 are the substantially radiating arms 14, an arm 14 being provided for each of the magazines 10. The arms 14 extend above the magazines 10 and are engageable in a suitable retaining bracket 15 for facilitating the positioning of the desired magazine adjacent the chute 12 for the delivery of merchandise thereinto. When the desired merchandise has been located through the windows 6, the arm 14 which is above the magazine in which that merchandise is contained is engaged with the retainer 15 and in this manner the machine is set.

Fixed on top of the extension 3 is a metallic plate 16 from which the spaced, parallel guide flanges 17, 18, 19 and 20 rise, the flanges 17 and 18 being of greater length than the flanges 19 and 20. Between the flanges 17 and 18, the plate 16 is provided with the aligned slots 21 and 22. A suitable coin receptacle or box 23 is provided beneath the slot 22. Comparatively wide slots 24 and 25 are provided in the plate 16 between the guide flanges 17 and 19 and between the guide flanges 18 and 20, respectively.

Blocks 26 are mounted between the flanges 17 and 19 and between the flanges 18 and 20, said blocks being spaced slightly above the plate 16 and having vertical bores therein for the reception of the lower end portions of the vertically disposed change magazines 27 having a suitable receptacle 28 on their upper ends. The change coins in the magazines 27 are designated by the reference numeral 29 and it will be seen that each stack of coins will rest on the plate 16. Coin ejecting slides 30 are mounted for reciprocation in a horizontal plane between the flanges 17 and 19 and the flanges 18 and 20, said slides being operable beneath the blocks 26 and having circular openings therein of appropriate size for registry with the bores of said blocks for receiving coins from the magazines and conveying said coins to the slots 24 and 25 through which the coins drop by gravity into the chute 12. These change coins are thus delivered by gravity to the lower end of the chute 12 with the merchandise. Blocks 31 are fixed on one end portion of the slides 30 and fixed thereon are the arms 32 which project inwardly over the flanges 17 and 18. A guard plate 33 is mounted horizontally on the flange 18 and extends toward the flange 17.

Mounted for longitudinal sliding movement between the flanges 17 and 18 on the plate 16 is a coin carriage and merchandise ejecting bar 34 having slots 35 of various lengths therein for the reception of the coins that are inserted to operate the machine. The slots 35 are normally disposed beneath the coin chutes 36 which are mounted on the plate 16 for receiving the coins from said chutes 36. When the mechanism is actuated, the slots 35 register with the slot 22 to permit the coin to drop into the receptacle 23.

The outer portion of the ejector bar 34 is recessed to accommodate a rack bar 37 for limited sliding movement relative to said ejector bar. As best seen in Figure 9 of the drawings, the inner side of the flange 18 is recessed to accommodate the teeth of the rack bar, said teeth being designated by the reference numeral 38. A horizontally and then upwardly projecting lug 39 is formed integrally with the rack bar 37 and is engaged in an opening 40 which is provided in the ejector bar 34. The opening 40 is of a size to permit slight longitudinal movement of the lug 39 therein. Beneath the outer portion of the ejector bar 34, the plate 16 is provided with a longitudinal channel 41 in which is slidable a coin elevating bar 42. The elevating bar 42 is provided with a thickened, stepped inner end 43 which is operable in the slot 21. A spring 44 is secured, at one end, on top of the elevating bar 42 and is provided with a substantially U-shaped free end portion 45 which is engageable in the opening 40 in the ejector bar 34 between the lug 39 and the inner end wall of the slot 40. This is clearly seen in Figure 3 of the drawings. A longitudinal slot 46 is provided in the elevator bar 42 beneath the spring 44 to permit said spring to be depressed, thereby permitting continued forward movement of the bar 34 independently of the elevator bar when the machine is being operated. A pin 47 depends from the elevating bar 42 and is operable in a longitudinal slot provided therefor in the plate 16. The pin 47 is engageable with the end walls of the slot provided therefor in a manner to limit the sliding movement of the elevator bar 42. A roller 48 is journaled in the forward end portion of the slot 21 over which the coins pass when the machine is in operation. A coin which has just been inserted and which is in one of the slots 35 of the bar 34 is designated by the reference numeral 49.

A hand lever 50 is pivotally mounted for swinging movement in a horizontal plane and projects from one side of the extension 3 of the base 1 and formed integrally with said lever is a gear segment 51 which is in mesh with the rack bar 37. A spring 52 is connected to the gear 51 in a manner to return the coin controlled mechanism to inoperative position after the machine has been operated.

Pairs of pins 53 are mounted vertically on the plate 16 adjacent the flanges 17 and 18 and mounted for vertical sliding movement on said pins are the lock bars 54 which normally rest on a recessed intermediate portion

of the ejector bar 34. The lock bars 54 are provided with notches 55 which are aligned with the slots 35 for receiving the coins which are inserted in the machine. The lock blocks 54 are engageable with the shoulders provided on the ejector bar 34 by the recessed intermediate portion thereof in which said lock blocks rest for preventing operation of said ejector bar unless a coin has been inserted. The shoulders are designated by the reference numeral 56.

A plate 57 is mounted on the inner end portion of the ejector bar 34 and projects inwardly therebeyond. The plate 57 is for engagement with the merchandise for sliding said merchandise out of the magazines 10 into the delivery chute 12. A bracket 58 extends between the flanges 17 and 18 and has threaded longitudinally therethrough for adjustment a stop screw 59 which is engageable with the plate 57 for limiting the outward movement of the ejector bar.

A hood 60 is mounted over the operating mechanism and is provided with an opening in its top over which is disposed a removable lock equipped closure 61 through the medium of which the change magazines 27 may be filled. The hood 60 is further provided with an opening in its lower portion over which is secured a plate 62 having slots 63 therein which are aligned with the coin chutes 36.

In use, if the price of the merchandise in the magazines 10 is five cents, the change magazines 27 are preferably loaded one with ten cent pieces and the other with five cent pieces. The slots 63 are of a size to accommodate five, ten and twenty-five cent coins. If the customer has a five cent piece, it is inserted in the intermediate slot 53 and rolls into the corresponding slot 35 of the ejector bar 34. The lever 50 is then actuated in the direction indicated by the arrows to move the rack bar 37 forwardly. By reason of the U-shaped portion 45 of the spring 44 being engaged in the opening 40 in the ejector bar 34, said ejector bar and the coin elevating bar 42 will, when the rack bar begins to move, travel in unison therewith. The stepped inner end 43 of the bar 42 causes the coin to ride up over the roller 48 in the slot 21 and the inward movement of said elevating bar is then arrested by the engagement of pin 47 with the inner end of the slot provided therefor in the plate 16. This causes the U-shaped portion 45 of the spring 44 to be forced out of the opening 40 in the ejector bar 34 by the lug 39, thus permitting the inward movement of the ejector bar and the rack bar to be continued. The coin which has been inserted engages the lock bars 54 in the notches 55 and elevates said lock bars to permit the shoulders 56 on the ejector bar to pass therebeneath. As the ejector bar moves inward, the plate 57 thereon engages the merchandise in the adjacent magazine 10 and forces said merchandise through the opening 11′ in that magazine into the delivery chute 12.

If a ten cent coin is inserted, said coin is inserted in the small or left hand slot 63 and rolled by gravity into the corresponding slot 35 of the ejector bar 34. The lever 50 is then operated in the usual manner and the mechanism functions in the same manner as when the five cent coin is inserted with the exception that the ten cent coin, when moving over the plate 16 toward the slot 22 in said plate, engages the arm or plate 32 of the slide 30 which is provided for the magazine 27 which is loaded with five cent coins. This slide 30 is thus moved forward in unison with the ejector bar 34 with the result that a five cent coin is conveyed to the block 34 and falls by gravity into the delivery chute 12 to be delivered to the customer as his change. If a twenty-five cent coin is inserted in the comparatively large right hand slot 63, said coin rolls into the corresponding slot 35 in the ejector bar 34 after which the mechanism is manually actuated as hereinbefore described and the twenty-five cent coin engages and operates the slide 30 which is provided in connection with the magazine 27 which is loaded with ten cent coins. This slide is of a thickness corresponding substantially to the combined thicknesses of two ten cent coins, as clearly seen in Figure 5 of the drawings, with the result that twenty cents in change will be delivered to the customer. The guard plate 33 prevents the coins from rising out of the slots 35 when engaged against the arms or plates 32 for actuating the change slides. Pins 64 are provided on top of the ejector bar 34 and engage the arms or plates 42 when the ejector bar is returning to its inoperative position for returning the change slides also to inoperative position.

The reference numeral 65 designates a suitable supporting stand for the machine. The cabinet 5 is provided with a suitable removable door 66 through which the merchandise magazines 10 may be loaded. The arms or plates 32 are operable in horizontal slots provided therefor in the flanges 17 and 18. Stops 67 rise from the plate 16 for engagement with the slides 30 to limit the movement of said slides toward their inoperative or retracted positions. A door 68 is provided in the extension 3 of the base 1 for removing the money when desired.

By the addition of more coin receiving slots and associated parts for fifty cent and one dollar coins, the mechanism will deliver the correct change and can also be adapted for the delivery of pennies in exchange for other coins.

It is believed that the many advantages of a machine constructed in accordance with the

present invention will be readily understood, and although the preferred embodiment of the invention is as illustrated and described, it is to be understood that changes in the details of construction and in the combination and arrangement of parts may be resorted to which will fall within the scope of the invention as claimed.

What is claimed is:—

1. A coin controlled vending apparatus comprising a plate, an ejector slidably mounted on the plate having slots therein for the reception of coins for shifting said coins with the ejector, change magazines rising from the plate, change slides operatively associated with the magazines for discharging coins therefrom, arms projecting from the slides in the path of certain of the first named coins for engagement thereby for actuating the change slides in unison with the ejector, means for actuating the ejector, pins rising from the plate, lock bars mounted for vertical sliding movement on the pins and normally resting by gravity on the ejector, and abutments on the ejector engageable with the lock bars for preventing operation of the ejector, said lock bars being engageable by the first named coins for actuation thereby to inoperative position.

2. A coin controlled vending apparatus comprising a plate having aligned slots therein, an ejector slidably mounted on the plate having coin receiving slots therein for registry with the first named slots, the ejector further having an opening therein, a rack bar slidably mounted adjacent the ejector, means for actuating the rack bar, a lug projecting from the rack bar and engaged in the opening in the ejector for actuating said ejector, the opening being of greater size than the lug, a coin elevating bar slidably mounted on the plate and operable in one of the slots in said plate for engagement with the coins for raising said coins upon actuation of said elevating bar, means for limiting the movement of the elevating bar, and means for disconnectably connecting the elevating bar to the rack bar for actuation thereby.

3. A coin controlled vending apparatus comprising a plate having aligned slots therein, an ejector slidably mounted on the plate having coin receiving slots therein for registry with the first named slots, the ejector further having an opening therein, a rack bar slidably mounted adjacent the ejector, means for actuating the rack bar, a lug projecting from the rack bar and engaged in the opening in the ejector for actuating said ejector, the opening being of greater size than the lug, a coin elevating bar slidably mounted on the plate and operable in one of the slots in said plate for engagement with the coins for raising said coins upon actuation of the elevating bar, means for limiting the movement of the elevating bar, and means for disconnectably connecting the elevating bar to the rack bar for actuation thereby, said means including a spring mounted on the elevating bar, said spring including an arcuate free end portion insertable in the opening in the ejector for operative engagement with the lug on the rack bar.

In testimony whereof I affix my signature.

JAMES E. WALKER.