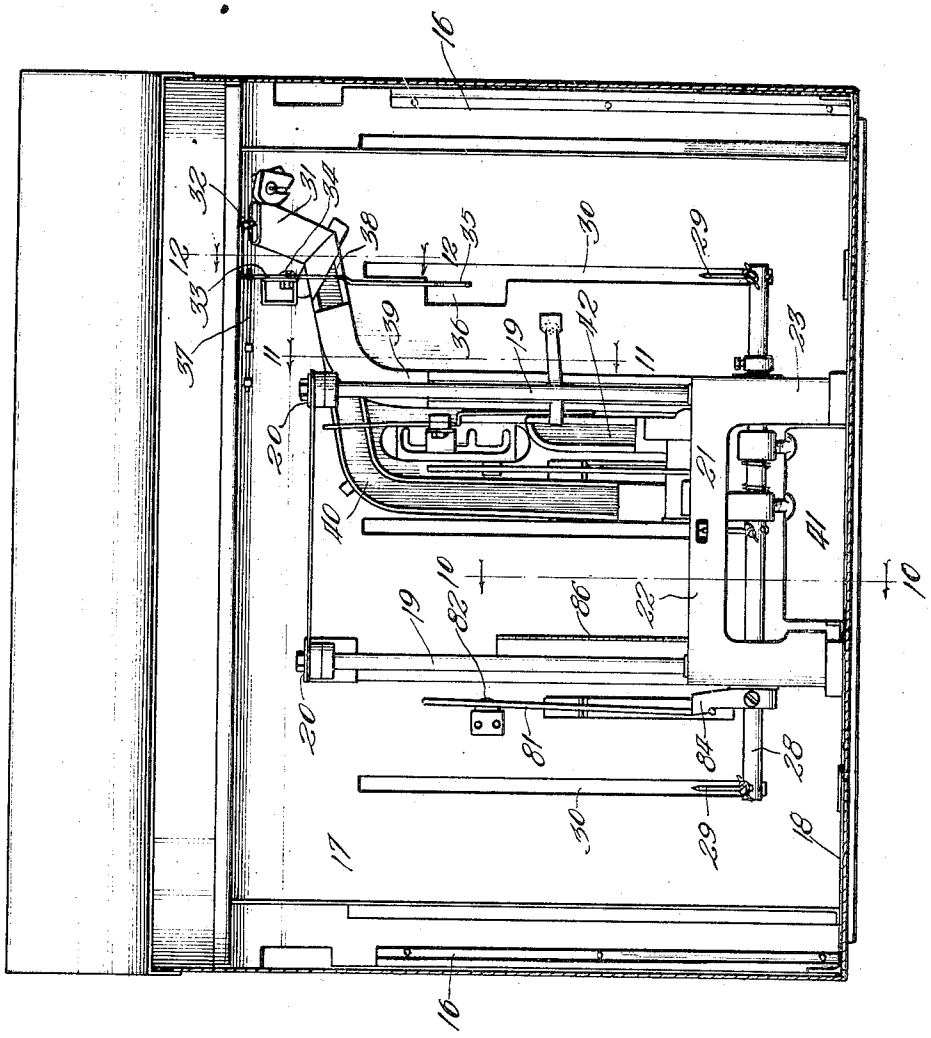
Apr. 17, 1923. 1,451,787

E. SHULTZ

COIN OPERATED VENDING MACHINE

Filed Dec. 26, 1919 5 Sheets-Sheet 1

Fig. 1.




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Apr. 17, 1923. 1,451,787

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COIN OPERATED VENDING MACHINE

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Fig. 2.

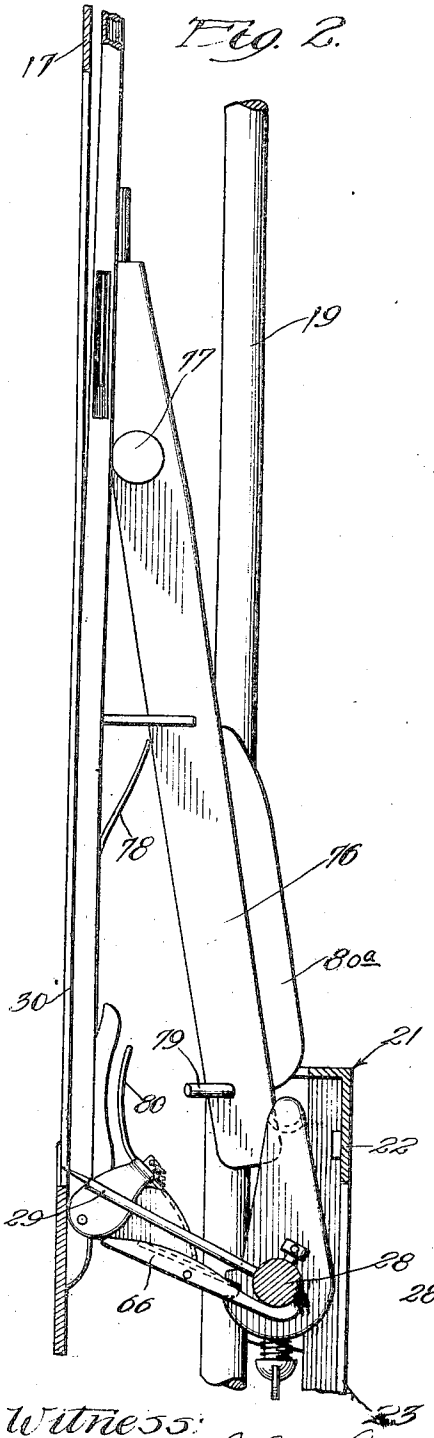
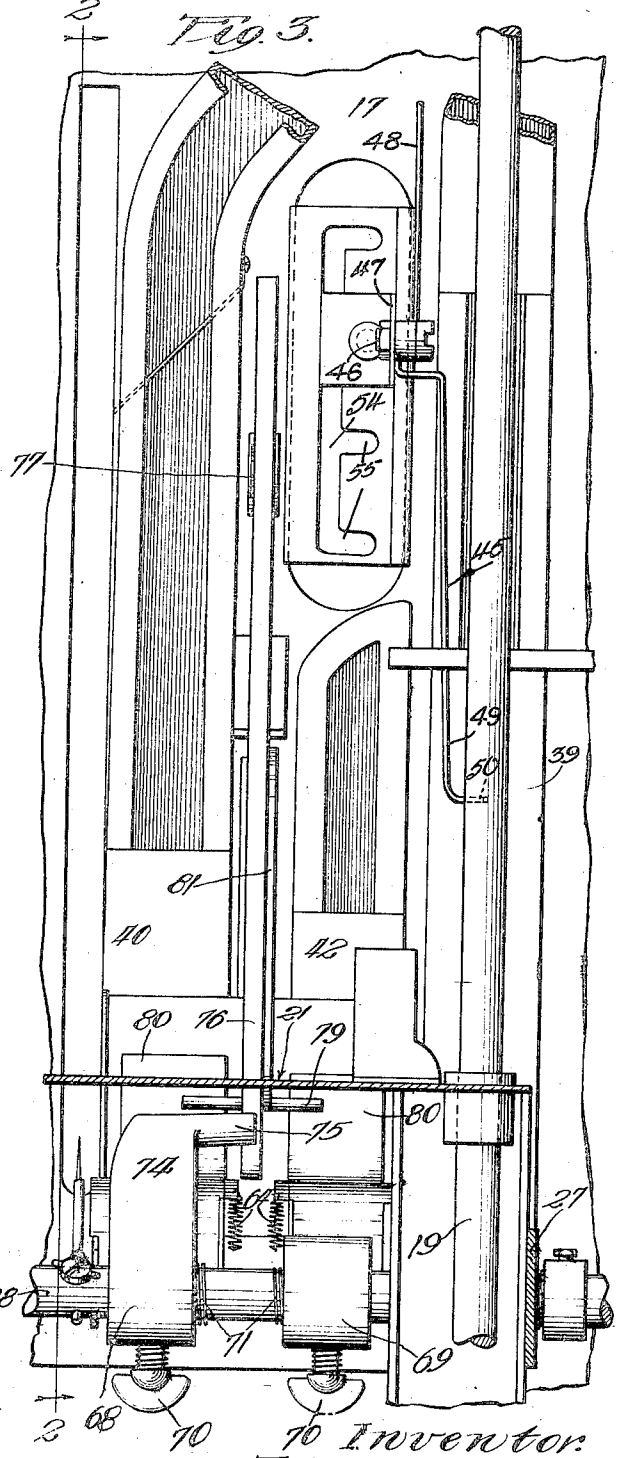



Fig. 3.




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Apr. 17, 1923. 1,451,787

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COIN OPERATED VENDING MACHINE

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Fig. 4.

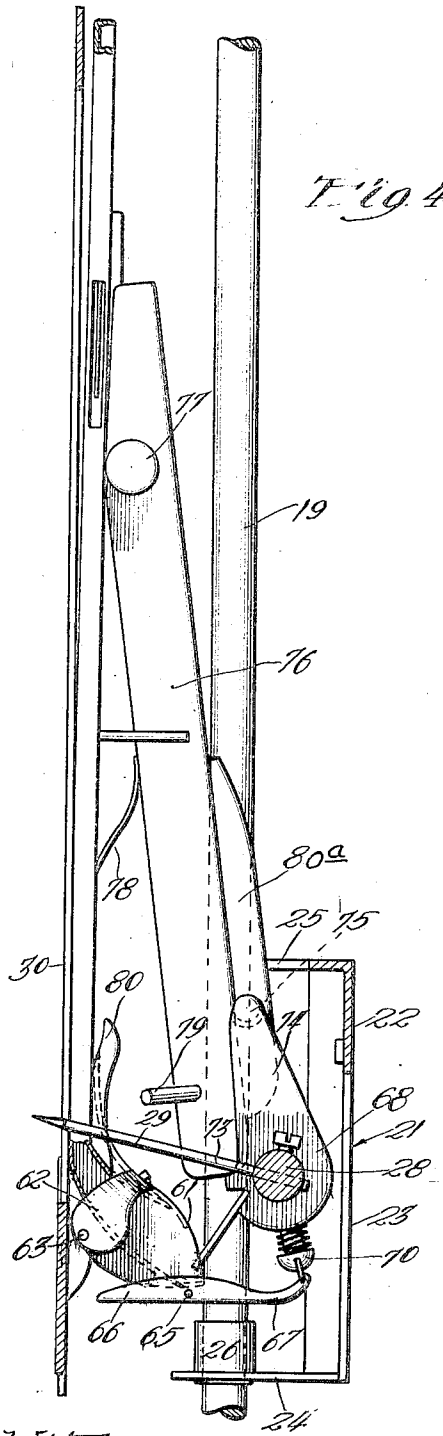



Fig. 5.

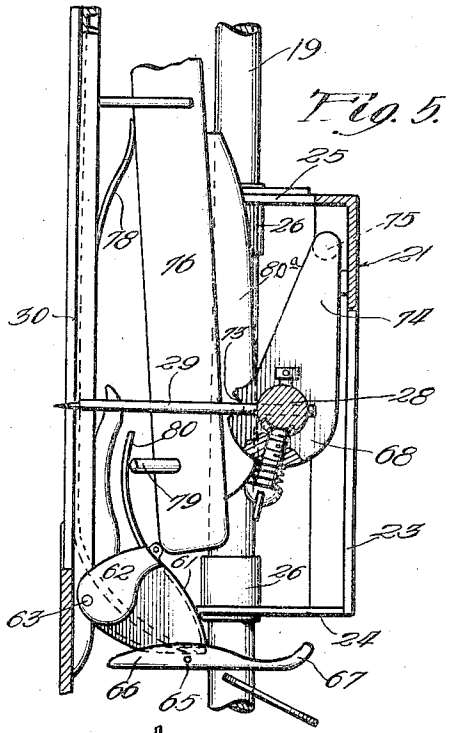
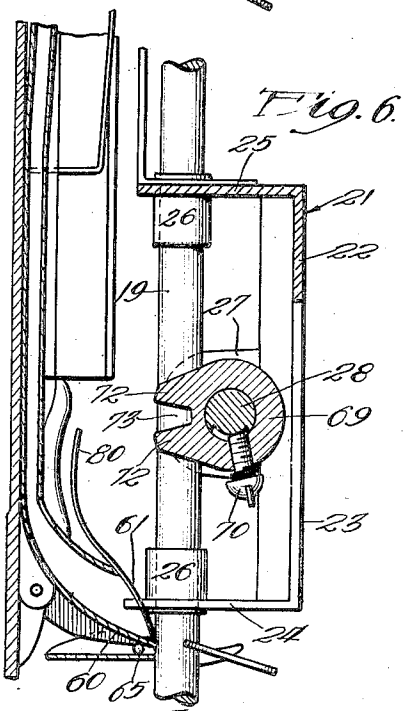



Fig. 6.




Witness:
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Apr. 17, 1923. 1,451,787

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COIN OPERATED VENDING MACHINE

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Fig. 7.

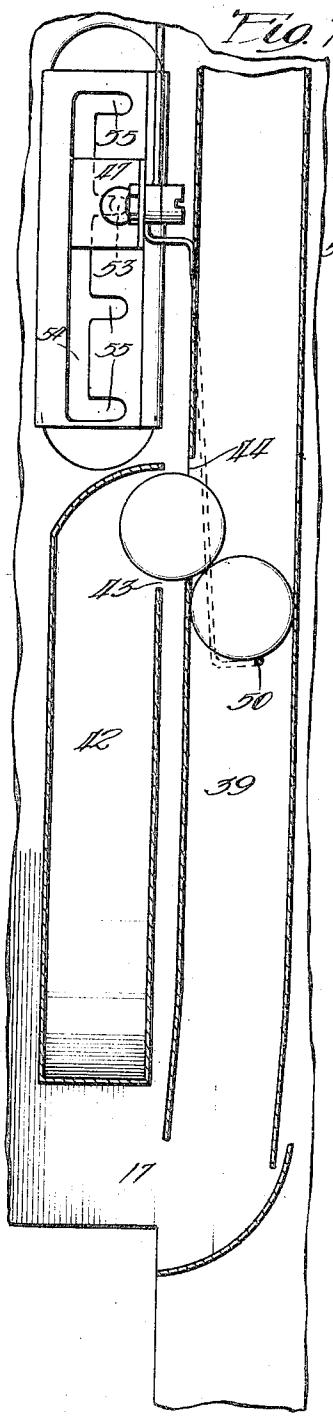



Fig. 8.

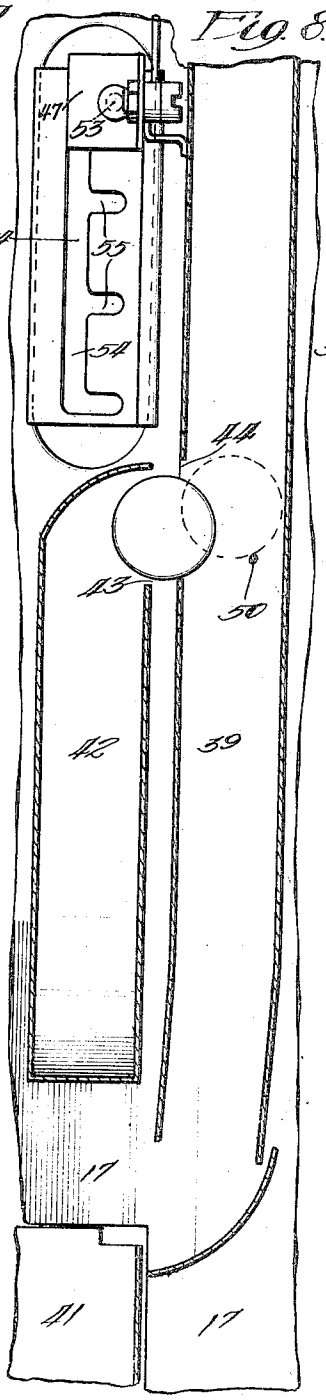
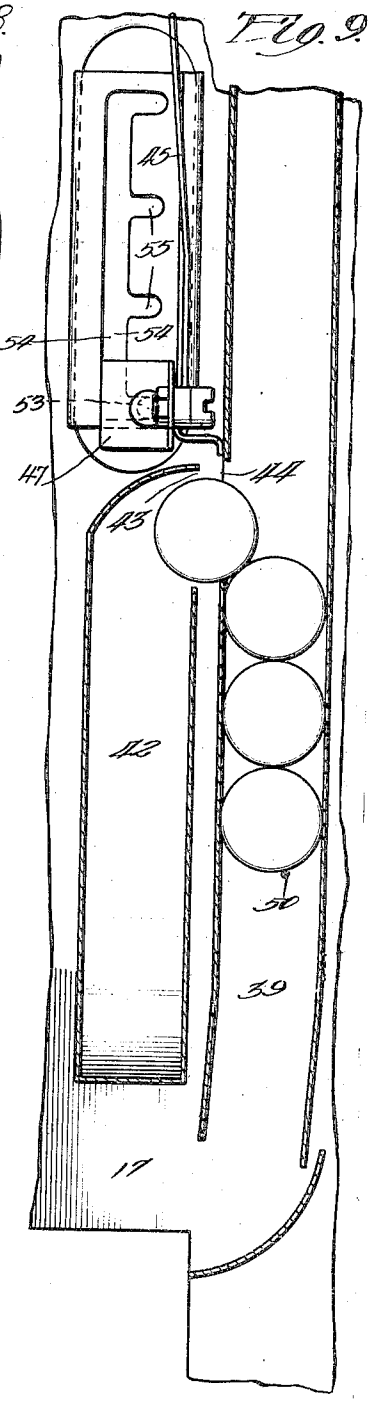



Fig. 9.




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Apr. 17, 1923.

1,451,787

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COIN OPERATED VENDING MACHINE

Filed Dec. 26, 1919

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Fig. 10.

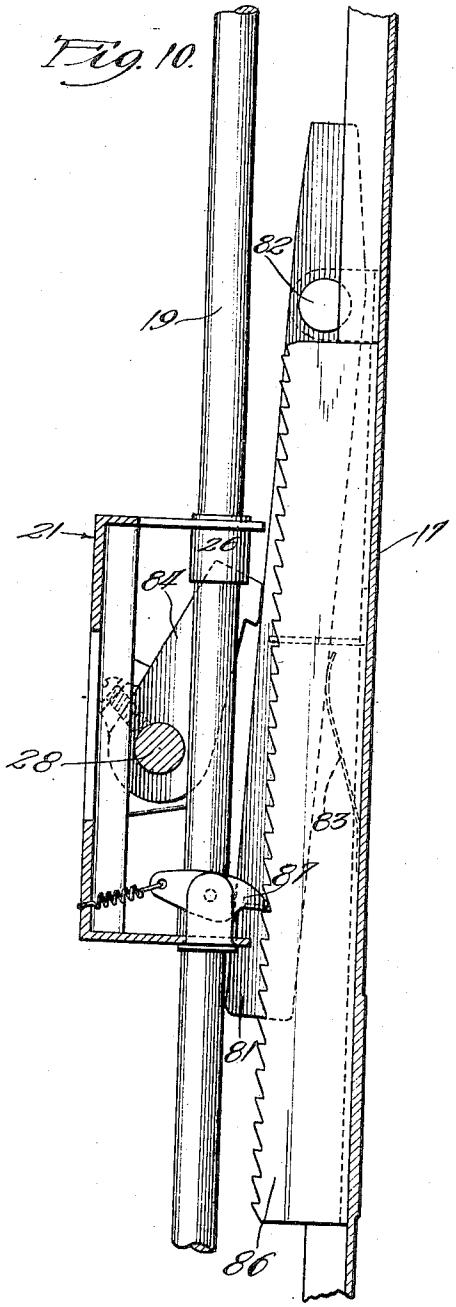



Fig. 11.

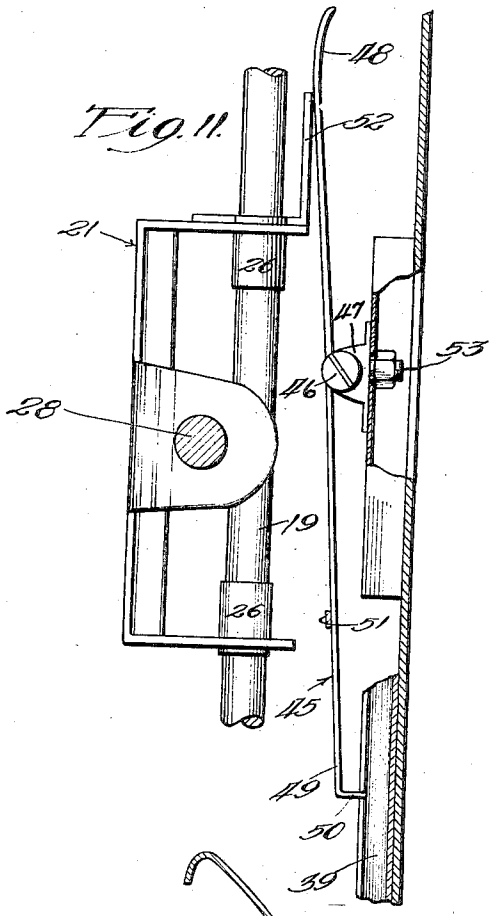
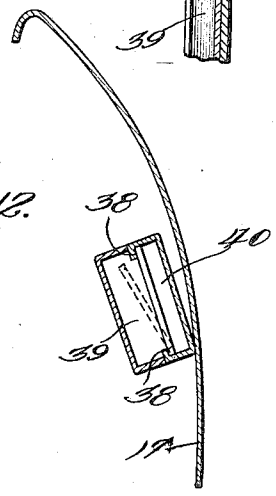



Fig. 12.




Witness:
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Inventor:
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Fleming & Fleming Attys.

Patented Apr. 17, 1923. 1,451,787

# UNITED STATES PATENT OFFICE.

EDWARD SCHULTZ, OF MAYWOOD, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO MRS. E. A. LAUGHERY, OF CHICAGO, ILLINOIS.

## COIN-OPERATED VENDING MACHINE.

Application filed December 26, 1919. Serial No. 347,350.

*To all whom it may concern:*

Be it known that I, EDWARD SCHULTZ, a citizen of the United States, residing at Maywood, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Coin-Operated Vending Machines, of which the following is a specification.

This invention relates to a coin-operated vending machine adapted to dispense newspapers, periodicals, or other selected commodities.

The general construction of the parts which form the delivery mechanism may, if desired, be much the same as that disclosed in Letters Patent No. 1,088,949, granted March 3, 1914, to Frank Warren, and accordingly the description to follow will be brief in its relation to such parts. The coin mechanism herein disclosed embodies, however, a number of improved features which co-operate with the delivery mechanism in a novel and efficient manner, all as will be hereinafter pointed out at length.

For its objects, this invention aims to provide a mechanism adapted to dispense a single paper or other article, only after the insertion of one or more coins totaling not less than a predetermined number and value; and a mechanism that may be readily adjustable to operate with coins of different denominations, or with coins whose total number or value varies in accordance with a desired plan. In addition, the parts of the present machine are so constructed and assembled as to be practically fool-proof, are securely protected from tampering, and are safe-guarded against effects of the weather if the device be placed out in the open; and, furthermore, they are formed and arranged in a simple and durable manner, thus conducing to certainty in operation and low cost in manufacture. Numerous other objects as well are also attained in this invention, many of which will hereinafter appear from the specification and claims.

### *The drawings.*

A machine in which the present improvements may be incorporated is illustrated in the accompanying drawings, in the manner following:

Figure 1 is a vertical section through the container taken just behind its front wall and showing in elevation the coin mechanism secured to the partition plate that is arranged within the container;

Fig. 2 is a view in cross section taken on line 2—2 of Fig. 3, showing the carriage in its lowermost position;

Fig. 3 is a detail in elevation showing the parts adjacent the delivery end of the coin chutes;

Figs. 4, 5, and 6 are cross sectional details, similar to Fig. 2, showing the relation of the parts during three successive stages in the operating cycle;

Figs. 7, 8, and 9 are sectional views through the coin chutes, showing three separate adjustments each of which controls the operation of the coin mechanism for coins of a different number or valuation;

Fig. 10 is a vertical section taken on line 10—10 of Fig. 1;

Fig. 11 is a similar view taken on line 11—11 of Fig. 1; and

Fig. 12 is a detail of the switch in the coin chute.

### *General assembly.*

Preliminary to an exposition of the mechanism that is novel in this invention, it may be mentioned that its use is contemplated in connection with a suitable container within which are housed the articles to be dispensed, as well as the mechanism by which the dispensing operations are accomplished. This mechanism is mounted upon a partition plate which is removably positioned within the container, the articles to be dispensed lying on one side of the plate and the mechanism on the reverse side thereof. Formed in the plate are suitable slots arranged vertically through which pins are adapted to be projected so as to engage with the proximate article on the opposite sides of the plate, these pins being carried upon a rock shaft which is mounted within a vertically movable carriage whose function it is to elevate the articles after the pins have been engaged therewith. Through a suitable slot formed in the upper end of the container the dispensing articles are projected therefrom a sufficient distance to be grasped by the hand. The elevation of the carriage is accomplished by some such means as a chain connected therewith, and having one end positioned ex-

teriorly of the container so that it may be operated by the purchaser. A structure answering generally to the above is disclosed in the Warren patent above noted, but inasmuch as this invention is concerned primarily with a coin mechanism by which the dispensing operations are governed, a further detailed description of the latter is thought unnecessary.

*The carriage.*

The container within which the mechanism is housed is provided with end walls to whose inner sides are secured guides 16 for removably supporting therein a partition plate 17 on which the operating mechanism is mounted. At its lower end the plate is turned to provide a bottom 18 on which is mounted the lower ends of a pair of guide rods 19, their upper ends being supported as by means of brackets 20 which may be secured to the partition plate. Mounted to slide upon these guide rods is a carriage 21, whose cross-sectional form may best be understood by reference to Figs. 4 and 6. As shown, this carriage is provided with a main wall 22 from whose ends depend legs 23, each of which is turned at its bottom to provide a foot 24. Ears 25 are extended from the upper part of the frame within each of which as well as the feet 24 is mounted a journal 26 adapted to facilitate free sliding movements of the carriage upon the guide rods 19. From the side of each leg 23 extends an ear 27 which provides a mounting for a rock shaft 28 which carries at each end a pin 29 adapted for projection through a slot 30 that is formed vertically within the partition plate. By means which will be presently described, the shaft 28 is adapted to be rocked with each upward movement of the carriage so as to project these pins 29 through the slots 30 into engaging relation with the papers or other commodities that are arranged on the opposite side of the partition plate.

*The coin chute.*

The mechanism that is peculiar to this invention includes a coin chute whose receiving end 31 extends to the exterior of the container where coins of a proper value may be inserted. At the receiving end of the chute, means are provided for preventing the reception of coins consisting of a finger 32 which is formed as part of a wire 33 which is pivoted at 34, having one end 35 normally projected through an opening 36 that is formed laterally of one of the slots 30, a spring 37 tending to maintain the wire in this relation. As long as articles remain within the container, the one proximate to the plate 17 will push back the wire end 35, thereby removing its finger end 32 from a position where it may interfere with coins that might otherwise be inserted within the chute. The effect of this is to permit the insertion of coins only when there are articles in the container ready to be dispensed.

A short distance from its receiving end the chute is tilted over somewhat and is disposed in a course that is partially vertical, but principally horizontal. The angular disposition of this portion of the chute is best shown in Figs. 1 and 12, where I have arranged a switch by which the smaller coins are shunted off into one branch, the larger coins being guided through another branch of the chute. At the place where the switch is located the chute walls are angularly inclined and are provided with inwardly projecting guiding flanges 38 spaced apart sufficiently to permit the smaller coins to flop over by gravity into a lower branch chute 39, the larger coins, however, are maintained in an upper position by these flanges 38 so as to be guided into a second branch chute 40. For convenience in denomination, these two chutes will be termed the penny and nickel chutes respectively, as they are adapted to receive coins of these dimensions.

*The coin setting mechanism.*

As already suggested, the present machine is adapted for operation only after coins have been inserted of the required number and denomination. A means is accordingly provided for setting the mechanism to operate with (1) from one to four pennies, (2) with one nickel, or (3) with one nickel and one to four pennies, thus adapting the machine, in the capacity herein shown, to operate with from one to nine cents. A greater range of capacity would require merely that the parts to be hereinafter described be duplicated or reproportioned according to the purpose in view.

The chute 39 extends downwardly to present its delivery end operatively to a coin box 41 that may be positioned conveniently between the legs of the carriage, as best shown in Fig. 1. A branch chute 42 is arranged parallel therewith and has its upper end formed with a side opening 43 in proximity to a side opening 44 that is formed in the chute 39, the purpose being to provide a means of transferring coins from one into the other. Such a transfer, however, may take place only after a predetermined number of coins has first passed into the chute 39, and to accomplish this result use is made of a lever 45 (see Figs. 3 and 11) that is pivoted as at 46 to a bracket support 47 to provide an upper end portion 48 and a lower portion 49 from which latter part extends a finger 50 that is adapted to be projected within the chute 39 at a point below its opening 44, a spring 51 acting normally to maintain the finger in such position. In

Fig. 11, these parts are shown in the position that they occupy when the carriage has been raised where it will be noted a shield 52 engages with the upper end 48 of the lever 45 to press the same toward the partition plate, thereby withdrawing the finger 50 from its projected position with the chute 39.

In Fig. 8 I have indicated the uppermost position of the finger 50, where it stands slightly above and away from the lower edge of the opening 44. When so positioned, coins descending through the chute 39 are shunted laterally by the finger so as to pass through the openings 44 and 43 into the branch chute 42. The finger 50 may be set in other positions, however, according to the number or value of the coins that are requisite for the purchase of the commodities within the container. A means for vertically adjusting the bracket support 47 is clearly shown in Figs. 7 to 9, and includes a stud 53 carried thereby, adapted to project through a slot 54 formed in the partition plate, a thumb nut (see Fig. 11) being threaded to the stud on the reverse side of the plate. The portion of the plate in which the slot 54 is formed lies in a plane that projects slightly away from the articles to be dispensed, so as to provide a space on the side facing the commodities which will accommodate the adjusting thumb nut, thereby obviating interference with such articles. Extending laterally from the slot 54 are notches 55 within any one of which the stud 53 may lie to locate the bracket support in a definite position of vertical adjustment, by which the position of the finger 50 within the chute 39 is also determined. According to the construction shown, the bracket support may be adjusted in any one of four positions, this number of adjustments being, of course, variable, depending upon the number of notches 55 that are provided.

As shown in Fig. 8, the finger 50 is in its uppermost position where it acts to transfer into the branch the first coin that passes into the chute 39. In the position shown in Fig. 7, the bracket support is adjusted one notch lower, thereby setting the finger 50 to retain within the chute 39 only the first coin that passes therein, the coin so held acting to shunt the second inserted coin into the branch chute 42. In Fig. 9 I have shown the finger as set to its lowermost position, where it may retain inoperatively three coins within the chute 39, the upper one of which is so positioned as to shunt off into the branch chute 42 any fourth or succeeding coins that may be introduced into the chute 39.

*The coin and carriage release mechanism.*

The lower ends of the nickel chute 40 and branch chute 42 are obliquely inclined away from the partition plate, each having a delivery end 60 which points toward the rock shaft 28 when the carriage is down, the delivery end of each chute being normally closed as by means of a gate 61 formed with companion ears 62 extending therefrom into pivotal relation with a pin 63. Each gate is normally held in closed position upon its chute by a spring 64 one of whose ends may be attached to the gate and the other to a fixed part of the chute. It will be noted that the delivery ends of these two chutes are arranged closely side by side, and provide a mounting for a pin 65 which extends laterally across from one to the other. This pin carries at each end an arm 66 adapted to engage with the ears 62 so as to open both gates 61, one of the arms 66 being provided with a finger 67 that is extended forwardly in position to be depressed by the rock shaft 28 when the carriage 21 is in lowermost position, the effect being to normally maintain both gates open against the tension of their springs 64. Mounted upon the rock shaft 28 are two dogs 68 and 69 in co-operating relation to the delivery ends of the chutes 40 and 42 respectively, each of which may be locked non-rotatably to the shaft as by means of a set screw 70. A short spring 71 connecting each dog with the shaft acts to maintain both dogs normally in a backed up position against any suitable stops. Each dog is formed with a pair of jaws 72 providing between them a slot 73 that normally aligns with the delivery end of the proximate chute, so that the coins descending therethrough may pass partly through the open gates 61 to lodge partly between the jaws, as clearly indicated in Fig. 2.

The dog 68 adjacent the nickel chute is specially provided with an arm 74 from which extends laterally a pin 75 that lies adjacent a latch 76 that is pivoted as at 77 to a suitable bracket carried on the partition plate, a spring 78 pressing against the latch to hold it against the pin 75. This latch, as will be plain from the drawings, is so formed as to limit its own movement away from the partition plate, and carries a pin 79 whose ends are capable of engaging with upper extremities 80 formed on each gate 61 so as to open them. This latch is further provided with a cam plate $80^a$ adapted to be engaged by the rock shaft 28, the purpose being to force the latch toward the partition plate with each reciprocation of the carriage. The normal position of the latch plate, which is indicated in Fig. 2, is such that its lower end lies in the path of upward movement of the rock shaft 28 when the carriage first commences to rise, thus constituting a stop to prevent any but a very limited movement of the

carriage unless proper measures have first been taken to operate the coin mechanism in the manner that will presently be described.

A second latch 81 is also pivoted as at 82 to a suitable bracket that is mounted on the partition plate, its lower end being urged as by means of a spring 83 to a position immediately above the rock shaft 28 so as normally to prevent any appreciable elevation of the carriage. I have also provided means for withdrawing this latch from locking position consisting of an arm 84 secured to the rock shaft and adapted to retract the latch when the rock shaft is properly rotated. The carriage may also be equipped with full stroke mechanism such as is shown in a ratchet 86 secured to the partition plate and adapted to be engaged by a dog 87 mounted upon the carriage in the manner well known to such devices.

*Operation.*

While the operation of the present machine has already been explained in part, I will now outline the successive movements of the several mechanisms under all the conditions normally encountered.

To operate with one penny: The bracket support 47 should be set at the topmost notch 55 so that the finger 50 will act to shunt the first penny into the branch chute 42; the dog 69 co-operating with this chute, as well as the other dog 68, should be made tight upon the rock shaft 28. The first penny inserted will partially lodge between the jaws of the dog 69, and when only a slight upward movement has been imparted to the carriage, as by means of a chain which may be conveniently extended to the exterior of the container, the coin which is partly held beneath the gate 61, will act to turn the dog from the position indicated in Fig. 2 to that which is shown in Fig. 4, this movement at the same time rocking the shaft 28 sufficiently to retract both latches 76 and 81 through the medium of the arms 74 and 84 respectively. With rocking of the shaft, the pins 29 are also projected through the slots 30 to engage with the adjacent paper, or other commodity, on the reverse side of the partition plate, by which action it is dispensed from the container as the carriage is raised. The carriage is now free for elevation through its entire stroke during the execution of which the cam plate $80^a$ is retracted to fully open both gates for the release of the coin (or more than one if necessary) that has been introduced into the machine. It will be noted that this cam plate is of sufficient length to hold both gates open as long as required for the clearance of all coins, this action occurring with each stroke of the carriage.

To operate with two pennies: The bracket support 47 should be set at next to the topmost notch 55 so that the finger 50 will act to shunt only the second penny into the branch chute 42. With raising of the carriage exactly the same movements take place, with the addition that the upper end 48 of the lever 45 being engaged by the carriage shield 52, the finger 50 is withdrawn from the chute 39 for a sufficient interval to permit release of the first coin remaining therewithin. It may be noted here that if more coins than necessary are dropped into the chute, those in excess of the number required for operation will be shunted into the branch chute 42 to drop into the coin box 41 when the gates 61 are opened with movement of the carriage.

To operate with three or four pennies: The bracket support 47 should be set at the proper notch 55 so that the finger 50 will act to shunt the last penny into the branch chute 42. In all other respects the action of the parts will be the same as already explained.

To operate with one nickel: In this instance, the bracket support 47 may be set at any position, but the nickel dog 68 should be made fast, and the penny dog 69 be made loose, upon the rock shaft 28. When the parts are so adjusted, it will be impossible for any number of pennies to effect a rocking of the shaft 28 and consequent unlocking of the carriage. By the use of a nickel, however, which alone may co-operate with the dog 68, the operation of the mechanism is assured in the manner previously stated. In case one or more pennies be also dropped into the chute, they will simply clear through the chutes 39 or 42 into the coin box as the carriage is raised.

To operate with one nickel and one cent: The bracket support 47 should be set at the topmost notch 55 and the nickel dog made loose, and the penny dog 69 made fast, upon the rock shaft. When the proper coins have been inserted and lodged within their respective jaws, both dogs will turn as the carriage starts upward, the penny dog operating to rotate the rock shaft to thereby retract the latch 81. The other dog is also turned, due to the action of the nickel engaged therewith in consequence of which the arm 74 operates to retract the other latch 76, thereby removing all interference to a full movement of the carriage. Both coins will thereafter drop into the coin box as already explained. It will be noted that each coin operates to effect the release of one latch, and that at least one nickel and one penny are required to effect the unlocking action when a six-cent adjustment has been made in the manner pointed out.

To operate with a nickel and two or more cents: The same adjustments are required as for six cents except that the bracket sup-

port 47 should be lowered to set the finger 50 properly. In all other respects the operation of the machine follows the course already outlined.

*General observations.*

The present machine embodies a convenient assembly of parts all of which are securely mounted on one side of the partition plate, and away from the compartment within the container where the commodities to be dispensed are stored. The only adjustments that are ever required are those which affect the operation with coins of a selected number and value. When the container is opened up, such adjustments may be made principally from that side of the partition plate where the papers or other commodities are stored. In other words it is not usually necessary to have access to the compartment wherein the mechanism itself is located in order to effect such adjustments.

Another feature of advantage is the use of a single chute which receives coins of different denominations, but which is arranged to separate such coins properly and guide them into branch chutes according to their relative value. It will be noted also that I have utilized two latches, one of which requires for its retraction that the rock shaft be always rocked, and the other of which requires merely that a dog be moved to effect its release, it being immaterial whether the dog be fast or loose on the shaft; and both latches require that coins of the proper number and value be used to effect movement of their respective actuating dogs as an operation preliminary to raising of the carriage. The various parts of this invention are furthermore conveniently mounted upon the partition plate which is removable from the container when once its cover is opened, so that it is possible to withdraw readily the entire mechanism as a unit if it is desired to effect any repairs or adjustments.

While I have described and illustrated a machine that is adapted for operation with coins of different denominations, such as pennies and nickels, it is obvious, of course, that changes in the number or proportion of its parts would render the device suitable for operation with coins of other denominations. Inasmuch as such changes would not require any substantial modification in the operating principle, I have deemed it unnecessary to show other constructions, but consider that the present disclosure should suffice as an exemplification of the invention in its preferred form.

I claim:

1. In a machine of the kind described, the combination with a reciprocable carriage and locking means therefor, of coin mechanism for controlling the action of said locking means, comprising chutes adapted to receive coins of different denominations, a rock shaft mounted on the carriage, members secured to the rock shaft, one adjacent the delivery end of each chute, adapted to co-operate with coins which are partially protruded therefrom to turn said shaft with the commencement of movement of the carriage, and setting mechanism for adjusting the parts to operate only with a selected combination of coins, and means operated by turning of the rock shaft to retract the locking means whereby the carriage is released for complete reciprocation, substantially as described.

2. In a machine of the kind described, the combination with a movable carriage and a plurality of independent locking means therefor, of coin mechanism for controlling the action of the locking means, comprising a rock shaft on the carriage, two dogs upon the shaft having means for establishing a fast or loose connection therewith, jaws carried by each dog, chutes adapted to receive coins of different denominations and having delivery ends adjacent the jaws adapted to present an edge of a coin between the jaws while each retaining within itself a portion of the coin, and mechanism controlled by the dogs for retracting both sets of locking means with commencement of movement of the carriage, substantially as described.

3. In a machine of the kind described, having a movable carriage, the combination of coin mechanism for controlling movements of the carriage, comprising a chute through which coins are conducted, latch mechanism arranged normally to permit only a limited movement of the carriage, means for retracting the latch mechanism operable by initial movement of the carriage only when a coin of proper denomination has been conducted through the chute, and means for discharging all coins from the chute operable twice during movements of the carriage, substantially as described.

4. In a machine of the kind described, having a movable carriage and locking means therefor, the combination of coin mechanism for controlling said locking means, comprising a main chute from which proceeds two branch chutes each adapted to receive coins of different denominations, a third chute arranged adjacent to one of the branch chutes and having an opening therein adjacent an opening in said branch chute through which coins may be transferred from the branch chute into the other, means operatively arranged in the branch chute for so transferring into the third chute the first or any selected succeeding coins passing through the branch chute, and means operable only by coins received within the third chute and the other branch chute for acting

upon the locking means to permit free movements of the carriage, substantially as described.

5. A machine of the kind described, including a closed container provided with a door, guides arranged interiorly of the container, a partition plate adapted to be supported by the guides and to be removable from within the container when the door is opened, and mechanism carried wholly on one side of the plate adapted to dispense articles that are stored within the compartment on the opposite side of the plate, said mechanism including coin mechanism having means for receiving coins arranged in proximity to the exterior of the container, and adjusting means by which the mechanism may be controlled to operate only in conjunction with coins of a predetermined number and value, said means being adjustable from within the article compartment within the container, substantially as described.

6. A machine of the kind described, including in combination a closed container provided with a door, a partition plate removably secured within the container and adapted for removal through said door, and coin operated mechanism mounted on one side of the plate including parts adapted to be projected thereth rough to engage with articles that are stored adjacent the opposite side of the plate for dispensing the same from the container, and means adjustable from the plate side adjacent the articles for setting the mechanism for operation with a selected combination of coins, substantially as described.

7. In a machine of the kind described, having a movable carriage and locking means therefor, the combination of coin mechanism for controlling said locking means, comprising a chute, a rock shaft mounted on the carriage, a dog on the rock shaft having means for connecting therewith in fast or loose relation, jaws on the dog in proximity to the delivery end of the chute, a latch adapted normally to permit only a limited movement of the carriage, means carried on the rock shaft for retracting the latch, means extended to the exterior of the machine for moving the carriage, means including a coin of proper denomination adapted to engage with the jaws of the dog while still remaining within the chute for turning the rock shaft with initial movement of the carriage to thereby retract the latch, and means operable during movement of the carriage for clearing the chute of all coins retained therein, substantially as described.

8. In a machine of the kind described having a movable carriage together with means connected therewith for imparting movements thereto, the combination of coin mechanism including a plurality of chutes each for coins of a different denomination, locking means arranged normally to permit only a limited movement of the carriage, and means for retracting the locking means operable by initial movement of the carriage only when a selected combination of coins has been received within these chutes, associated with other means adapted to effect a desired modification of the coin combination requisite for retraction of the locking mechanism, substantially as described.

9. In a machine of the kind described, having a movable carriage and locking means therefor, the combination of coin mechanism for controlling the locking means, comprising a main chute from which proceed two branch chutes each adapted to receive coins of different denominations, a third chute arranged adjacent to one of the branch chutes and having an opening therein adjacent an opening in said branch chute through which coins may be transferred from the branch chute into the other, a bracket mounted within the machine and adjustable lengthwise of one branch chute, a lever pivoted to the bracket and having one end formed with a finger which projects into said branch chute for deflecting therefrom into the third chute the first or any selected succeeding coins passing through said branch chute, and means operable only by coins received within the third chute and the other branch chute for acting upon the locking means to permit free movement of the carriage, substantially as described.

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