F. WARREN.

COIN OPERATED VENDING MACHINE.

APPLICATION FILED SEPT. 26, 1912.

1,088,949.

Patented Mar. 3, 1914.

2 SHEETS—SHEET 1.

Fig. 1.

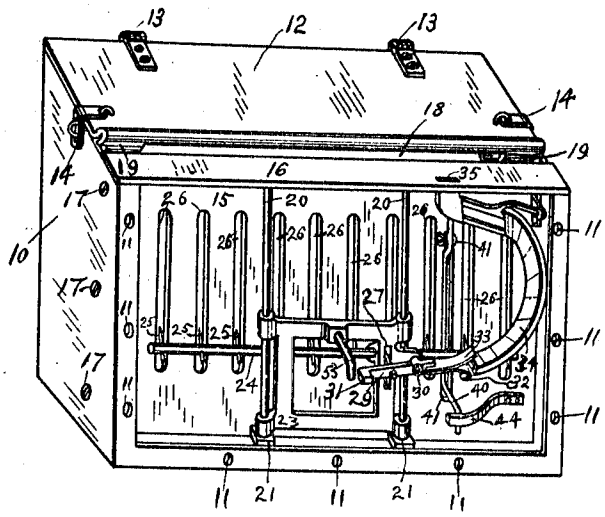
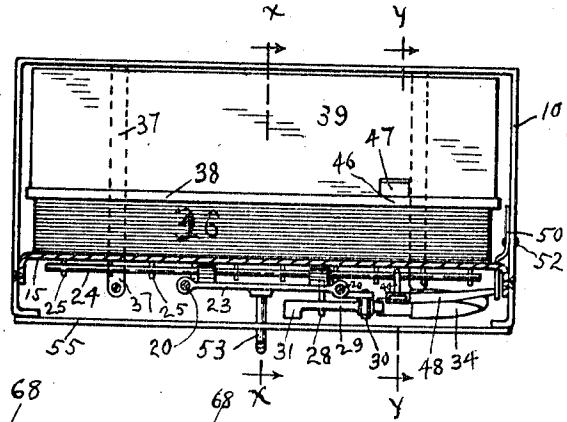


Fig. 2.



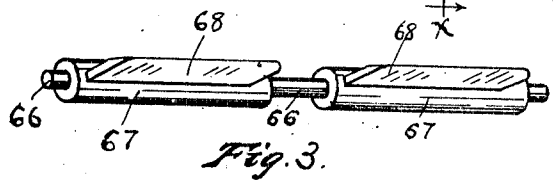


Fig. 3.

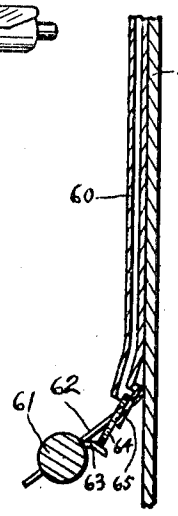


Fig. 4.

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2 SHEETS—SHEET 2.

Fig. 5.

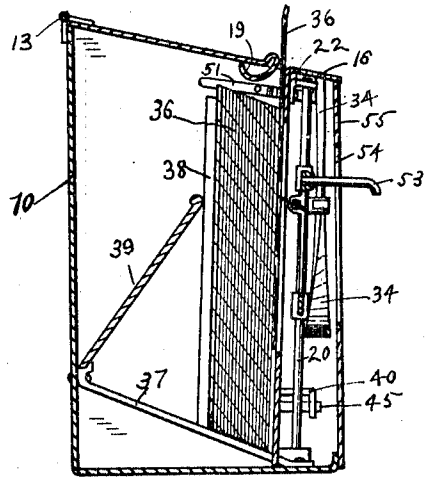


Fig. 7.

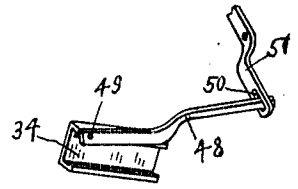


Fig. 6.

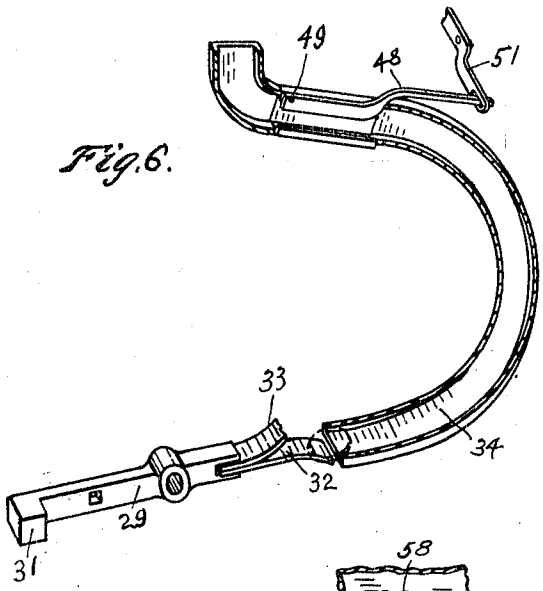
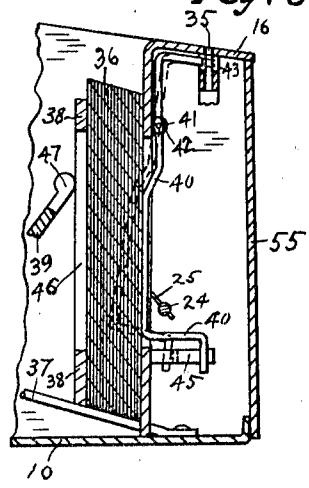


Fig. 8.



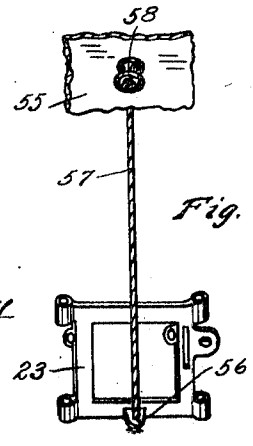


Fig. 9.

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COIN-OPERATED VENDING-MACHINE.

1,088,949. Specification of Letters Patent. Patented Mar. 3, 1914.

Application filed September 26, 1912. Serial No. 722,390.

To all whom it may concern:

Be it known that I, FRANK WARREN, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented a certain new and useful Improvement in Coin-Operated Vending-Machines, of which the following is a specification.

My invention relates to improvements in coin-operated vending machines which are adapted for making accessible to a purchaser an article contained within a storage receptacle in response to the insertion of a coin and particularly it relates to a coin-operated machine especially adapted for making accessible to a purchaser a newspaper, magazine, sheet music or an article having a thin flat shape of considerable area and the object of my improvement is to provide an automatic coin-operated vending machine which may be stored with newspapers, periodical publications and the like, and which may be placed in a location accessible to the general public who, by depositing a coin of proper value within a slot in such machine, may procure one of the articles contained therein.

A further object of my invention is to provide an automatic coin-operated vending machine that shall be simple in its construction, efficient and reliable in its operation and which may be made at a lower cost.

I attain these objects by devices illustrated in the accompanying drawings in which—

Figure 1 is a view in front elevation of a structure embodying my invention with the front wall of the receptacle removed to show other parts; Fig. 2 is a plan view of the same with its top cover removed to show the positions of its interior parts, Fig. 3 is a perspective view of a modified form of a part of my invention, Fig. 4 is a view in vertical-section showing another modified form of parts of my invention, Fig. 5 is a view in vertical cross-section of the structure of Figs. 1 and 2 on broken line *x*—*x* of Fig. 2, Fig. 6 is an enlarged view in perspective showing several parts of my invention and their relative positions, Fig. 7 is a perspective view of some parts as they are disposed under some conditions of operation, Fig. 8 is a fragmentary view of parts of my invention in vertical cross-section on broken line *y*—*y* of Fig. 2, and Fig. 9 illustrates by perspective and fragmentary view a modified form of means for communicating motion to a movable part of my invention.

Like reference numerals indicate like parts throughout the drawings.

I have illustrated my invention as embodied in a box-like structure of wood, sheet metal or other suitable material which structure is adapted to receive and store within it for sale a plurality of newspapers folded in the usual form as sold by news boys wherein such newspapers may be disposed and fixed in substantially a vertical plane with their lower edges resting upon inclined supports whereby they may have a tendency to slide on their bottom edges, by force of gravity, in a forward direction against the surface of a fixed plate disposed in a nearly vertical position to extend in a lengthwise direction in the box in a plane at a suitable distance from the front of such box. Such fixed plate is provided with a plurality of vertical slots or openings extending through it and disposed at suitable distance apart through each of which slots may be projected a needle to penetrate that one of the newspapers which is next adjacent to the inner side of said plate, all of such needles being fixed in a rotatable rod that is mounted in suitable bearings of a carrier which is adapted to move up and down while guided by suitable guide-rods, such carrier being provided with means which extends to the exterior of the box whereby such carrier may be raised and lowered. Associated with said rotatable rod is a projecting arm which is articulated with a lever whereby the movement of such lever may rotate said rod to swing and project the needles thereon through said slot to engage with and penetrate the frontmost newspaper whereby when said carrier is raised such newspaper may be carried upwardly to project through a slot provided in the top of the box. The said lever is pivoted on a stud projecting from said carrier and one end of such lever normally is disposed to rest adjacent to the mouth of a coin chute at an angle normally to cause the needles to rest in a position whereby they may not engage with a newspaper even if said carrier is raised and lowered since such end of said lever does not engage with said mouth of said coin chute adjacent to which it normally rests, but if a coin be caused to fall in such chute to project outwardly from the mouth thereof then such end of said lever

intercepts and engages with such coin to arrest it whereupon if the carrier be raised the coin acts on such end of said lever to tip such lever to an angle that causes it to rotate said rod to project the needles thereon through the slots of said plate to penetrate the frontmost newspaper and carry it as the carrier is raised to its highest point to project such newspaper through the slot out of the top of the box and when the carrier is lowered or permitted to fall to its lowest position the needles are withdrawn without the slots by the action of the counterbalance weight acting to rotate said rod until said lever assumes its normal position. Thus said carrier may be repeatedly raised and lowered without causing said needles to engage with a newspaper except there be a coin dropped in said chute to project from the mouth thereof so that it may intercept and act upon such end of said lever during the upward travel of said carrier to a point where said end of said lever is tipped to such angle as will permit it to disengage with said coin to allow said coin to drop to the bottom of the box.

Means are provided whereby no coin may be permitted to pass into said chute if no newspaper be present within the box and also means are provided whereby the chute may be changed readily to adapt it to permit only either one of two coins as desired to pass through said chute to its mouth and such means I will hereinafter describe in detail.

Referring to Fig. 1 of the drawing, 10 is a box of suitable material, preferably of sheet-metal, of a form adapted for storing within it a plurality of newspapers, whose front wall is removed, the holes 11 being adapted for fastening with screws or bolts such front wall in position, 12 is a cover adapted to be raised to swing on hinges 13 disposed at its back edge, as shown, 14 indicates means for securing the cover 12 in a closed position. A slotted plate 15, whose upper portion is bent forward at an angle to form a flange 16, is disposed to extend lengthwise of the box in a plane that leans slightly forward and at a suitable distance to afford space between it and the front wall of the box 10 within which space may be disposed the operative mechanism of my invention. Such plate 15 may be secured in position by screws at each end of box 10 such screws of the left hand end of the perspective view being indicated by the screw-heads 17.

The front edge of the flange 16 of the plate 15 is disposed to register with the front wall of the box 10 and between the top of said plate 15 and the front edge of the cover 12 there is a space to form a slot 18 through which a newspaper may be projected upwardly and guided in its upward movement by curved guide strips 19 which are fastened to the bottom side of said cover 12 near its front edge adjacent to the ends of the box 10.

Two metal rods 20 are fixed to extend from points adjacent to the flange 16 downwardly to the bottom of the box 10 which rods 20 are supported by brackets 21 and 22 at their lower and upper ends respectively as may be more clearly seen in Fig. 5.

Slidably mounted to be moved upwardly and downwardly on said rods 20 is a carrier 23 preferably of cast iron upon which carrier 23 is mounted in suitable bearings a rod or bar 24 which is provided with a plurality of needles 25 disposed and fastened in holes extending crosswise through said rod 24 whereby each of such needles 25 may be caused by a rotary movement of said rod 24 to assume different angular positions and to project through one of the slots 26 of the slotted plate 15 thus to penetrate and engage with that one of a plurality of newspapers which is next adjacent to the inner side of said slotted plate 15, as shown more clearly in Figs. 1 and 5.

As shown in Fig. 1 in the right hand portion of the carrier 23 there is disposed a slot 27 which extends through said carrier to permit a projecting needle 28 to extend therethrough from the rod 24, into which it is fixed, such needle 28 serving the purposes of limiting the endwise motion of rod 24 and adapting such rod 24 to be turned in its bearings by a movement of a lever 29 which is pivoted on a stud 30 which is disposed on a projecting arm of the carrier 23 as shown in Figs. 1 and 2.

The left hand end of the lever 29 is provided with a counterweight 31 to act normally to hold the projecting pin 28 in its downwardmost position so that the rod 24 shall maintain the needles 25 at such angular position that they will not project through the slots 26 of the plate 15. The right hand end of such lever 29 is provided with two pieces of metal 32 and 33 which at their ends are bent apart, as shown, to form V shaped jaws into which a coin may project, which jaws normally are disposed opposite and adjacent to the exit end of a coin chute 34 which coin chute 34 extends upwardly to communicate with a slot formed hole 35 disposed in the flange 16 which hole 35 is of dimensions to admit a coin of a desired maximum size which may drop to find its way to project one portion of it into the jaws formed by said pieces 32 and 33 while the remaining portion may rest within the end of said coin chute 34. Thus with such coin so disposed if the carrier 23 be raised then such coin will act on the jaw of piece 32 to cause the lever 29 to raise projecting pin 28 to turn the shaft 24 to swing the needles 25 through

the slots 26 of the plate 15 to penetrate and engage with the frontmost one of the newspapers that may be stored within the box 10 to lift such newspaper to project it through the slot 18, as shown in Fig. 5, which newspapers I have indicated by the numeral 36 and which newspapers 36 may be disposed to rest against said plate 15 with their lower edges on inclined supports 37 whereon they may slide downwardly forward as one after another of them is extracted from the box 10.

Resting with its lower edge on the supports 37 and against the rearmost one of the newspapers 36 is a plate or board 38 and leaning against such board 38 is a plate 39, as shown in Fig. 5, preferably of metal which board 38 and plate 39 may assist the forward movement of the newspapers 36 and maintain them in an upright position.

A lever 40 fulcrumed by pivot 41 in projections 42 disposed in the front upper portion of plate 15 is bent in its upper end portion to an angle that adapts its upper end in response to a swinging movement to project through a hole 43 at the upper end of the chute 34 whereby when such lever 40 is swung backwardly its upper end, projecting through such hole 43, may prevent the insertion of a coin through the hole 35 in the flange 16. The lower portion of said lever 40 is so disposed that it may swing backwardly through a vertical slot 44 in the plate 15, as more clearly seen in Fig. 1, in response to the force of a flat spring 45 which rests constantly against the lower end of such lever 40 whereby when no newspaper is resting against the back surface of the plate 15 the flat spring 45 may swing the lever 40 through the slot 44 to obstruct the insertion of a coin in the hole 35 there being also a vertical slot 46 in the board 38 and a notch 47 in the upper edge of the plate 39 whereby such board 38 and plate 39 may not obstruct the swinging movement of said lever 40 after all of the newspapers 36 are extracted from the box 10. Thus if there be no newspapers within the box 10 one may not insert his cent in the hole 35.

The upper portion of the chute 34 for a suitable distance is disposed, as shown in Fig. 1, to incline from the horizontal toward the slot 35 with its plane leaning slightly frontward and with its front wall mostly cut away only enough of such front wall being retained to guide a coin of a predetermined size in its passage from the hole 35 to the lower portion of the chute 34, but not enough to guide a coin of a smaller size between the hole 35 and such lower portion of the chute 34. Thus a nickel five cent piece might roll from the hole 35 to the jaws of the pieces 32 and 33 but a cent after passing through the hole 35 upon reaching that point where the front wall of the upper portion of the chute 34 is removed then such cent would fall out of its path to drop to the bottom of the box 10 without passing through the lower portion of the chute 34 to engage with the jaws of the pieces 32 and 33 and hence a five cent newspaper might not be extracted by the insertion of one cent. I have provided however changeable means whereby, when it is desired, a cent may be guided through and past that upper portion of the chute 34, where a part of its front wall is removed, into and through the lower portion of such chute 34 to engage with the pieces 32 and 33 to cause the extraction of a newspaper for one cent which changeable means may be understood by reference to Fig. 2 and Fig. 7 wherein is shown a lever 48 which is hinged at one end to the upper front portion of the chute 34 by pivot 49 while its other end engages with a slot 50 in the end of a lever 51 which is pivoted by a pivot rivet 52 in the upper portion of the end of the box 10 whereby a movement of the lever 51 may act on the lever 48 to move said lever 48 downwardly to a position to guide the upper portion of a cent and prevent it from falling out of the open portion of the chute 34 as such cent rolls into the lower closed portion of the said chute 34. Thus, when the price of a newspaper is one cent the lever 51 may be moved to a position to cause a cent to be guided to permit the operation of the extracting mechanism, but if the price be five cents the lever 51 may be moved to raise the lever 48 to such position that a cent may not reach the point where it will serve to permit the operation of extracting a newspaper.

The carrier 23 is provided with a projecting handle 53 which is disposed to project outwardly through a vertical slot 54 in the front wall 55 of the box 10, as shown in Figs. 2 and 5, whereby after a cent reaches its position to actuate the lever 29 the handle 53 may be raised to lift the carrier 23 to project a newspaper through the slot 18 as described.

In Fig. 9 I have shown a modified means for raising the carrier 23 which means may be substituted for the handle 53 and the slot 54 and such means comprises a lug 56 which may project from carrier 23 (as shown in Fig. 9) to which may be fastened a flexible wire or cord 57 leading upwardly through a suitably formed hole (not shown) in the upper part of the front wall 55 (a fragment of which is indicated in Fig. 9) the end of which cord 57 may be connected to a knob 58 which knob 58 may be pulled by the hand to cause the cord 57 to raise the carrier 23.

Fig. 4 shows a modified and preferable form of means for controlling the rotary movements of the rod 24 which may be substituted for the means shown in Figs. 1 and 2 for like purpose; in which Fig. 4 59 indicates the fragment of a plate like the plate

15 of Figs. 1 and 2 while 60 is a fragment of the lower portion of a coin chute whose upper portion is like the chute 34 of said Figs. 1 and 2. 61 is a needle rod, like the rod 24 of Fig. 1, likewise provided with needles 62 which upon the turning of said rod 61 may project the needles 62 through slots (not shown) in the plate 59. A projecting pin 63 fixed in rod 61 normally is disposed in a position with relation to the lower end of the chute 60 so that a coin as coin 64, upon reaching the bottom end of chute 60 will be arrested and retained in the position shown with its upper portion leaning against a projection 65 extending from the back wall of the chute 60 in which position if the rod be raised by a carrier then the coin 64 will be caught between the lower end of the back wall of the chute 60 and the projecting pin 63 of the rod 61 thus to cause the projecting pin 63 to be held by the coin as the rod 61 rises thus causing such rod 61 to turn as it rises to cause the needles 62 to project through slots (not shown) in the plate 59 to engage with a paper that may be resting against the front surface of said plate 59 and when the rod 61 is raised by its carrier to reach a certain height then the pin 63, with relation to its circumferential position on said rod 61, will be in such position as to release and pass th coin 64 whereupon such coin 64 will drop into the box and the needles 62 will have penetrated and engaged with a newspaper to raise such newspaper and make it accessible to a purchaser.

In Fig. 3 I have illustrated a modified means for engaging with and raising a newspaper which modified means may be substituted for and perform the function of the needles 25 in the rod 24 of Fig. 1; in which Fig. 3 a rod 66 is provided with a plurality of enlarged portions 67 which portions 67 are provided with lengthwise slots into which may be inserted thin edged blades 68 whose sharp edge may engage with and lift a paper when the rod 66 is operated in the same manner and under the same conditions as is operated the rod 24 of Fig. 1.

In cases when the device of Fig. 3 is employed a plate, like the plate 15, would have to be wide enough to permit the blades 68 to project through such plate to engage with a paper.

Of course the blades 68 might be shorter in length and greater in number than those shown in Fig. 3.

What I claim is:

1. A vending machine comprising a receptacle adapted to contain articles and provided with a discharge opening through the top thereof, a follower for said articles, a stationary plate adapted to be contacted by the forwardmost article and having a plurality of vertically positioned slots therethrough, vertical rods secured forwardly of said plate, a sliding frame movably mounted upon said rods, a bar rotatably journaled in said frame between said frame and plate, a plurality of needles transversely secured through said bar in alinement with said slots and adapted to extend rearwardly of said plate upon a rotation of said bar.

2. A vending machine comprising a receptacle adapted to contain articles and provided with a discharge opening through the top thereof, a follower for said articles, a stationary plate adapted to be contacted by the forwardmost article and having a plurality of vertically positioned slots therethrough, vertical rods secured forwardly of said plate, a sliding frame movably mounted upon said rods, a bar rotatably journaled in said frame between said frame and plate, a plurality of needles transversely secured through said bar in alinement with said slots and adapted to extend rearwardly of said plate upon a rotation of said bar, a weighted lever normally maintaining said needles inoperative, means operable from the exterior of the machine for reciprocating said frame and adapted for depositing one of said articles exteriorly thereof upon each of said reciprocations.

3. A vending machine comprising a receptacle, a stationary closure plate at the front of said receptacle provided with a plurality of vertically positioned slots therethrough, a slidable frame movably mounted exteriorly of said plate, a bar rotatably journaled horizontally in said frame, a plurality of needles secured transversely of said bar and adapted to project through said slots upon an upward movement of said frame and means operable from the exterior of the machine for reciprocating said frame.

4. A vending machine comprising a receptacle, a stationary closure plate at the front of said receptacle provided with a plurality of vertically positioned slots therethrough, a slidable frame movably mounted exteriorly of said plate, a bar rotatably journaled horizontally in said frame, a plurality of needles secured transversely of said bar and adapted to project through said slots upon a partial rotation of said bar, a weighted lever pivoted to said frame, a pin connection between said lever and bar whereby the turning of said bar is simultaneous with the pivoting movement of said lever.

In witness whereof, I hereunto subscribe my name this eighteenth day of September, A. D., 1912.

FRANK WARREN.

Witnesses:
THOMAS B. MILLER.
J. VERNON METCALF.