

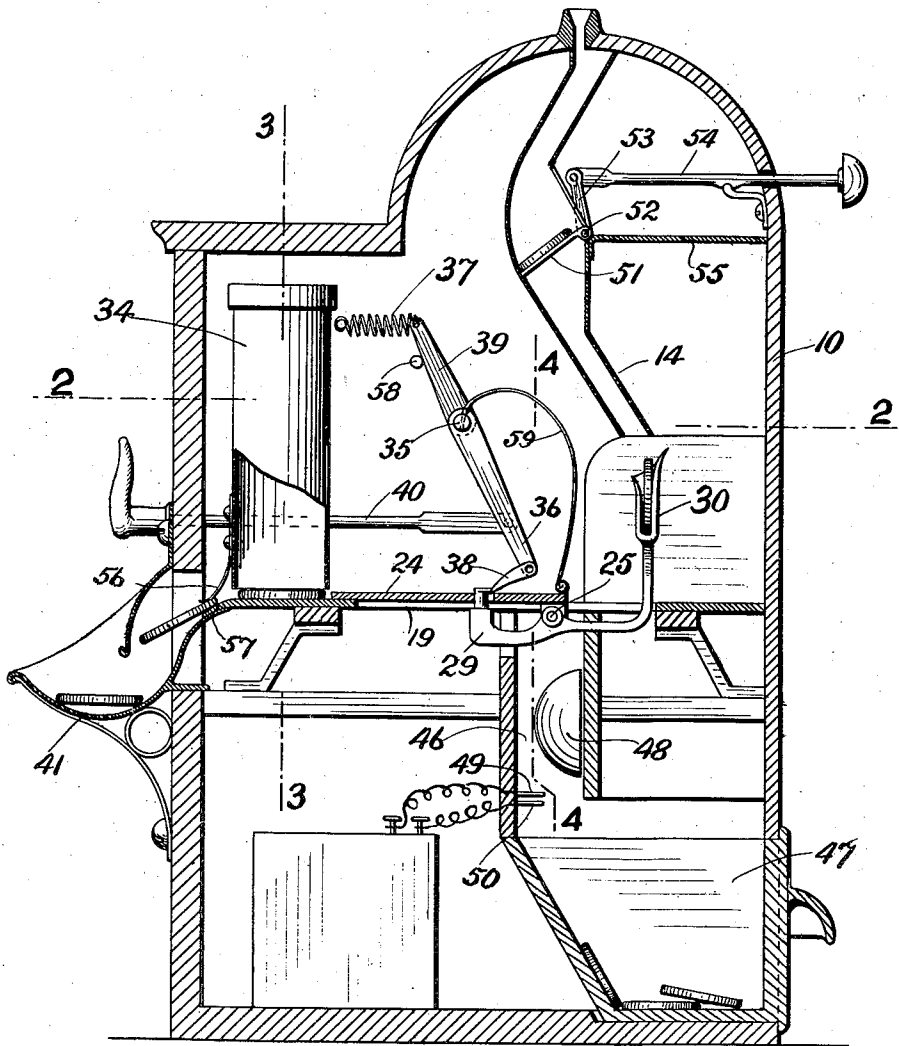
J. D. CARNEY.
 AUTOMATIC COIN CHANGING MACHINE.
 APPLICATION FILED SEPT. 10, 1908.

929,550.

Patented July 27, 1909.

3 SHEETS—SHEET 1.

FIG. 1.



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3 SHEETS—SHEET 2.

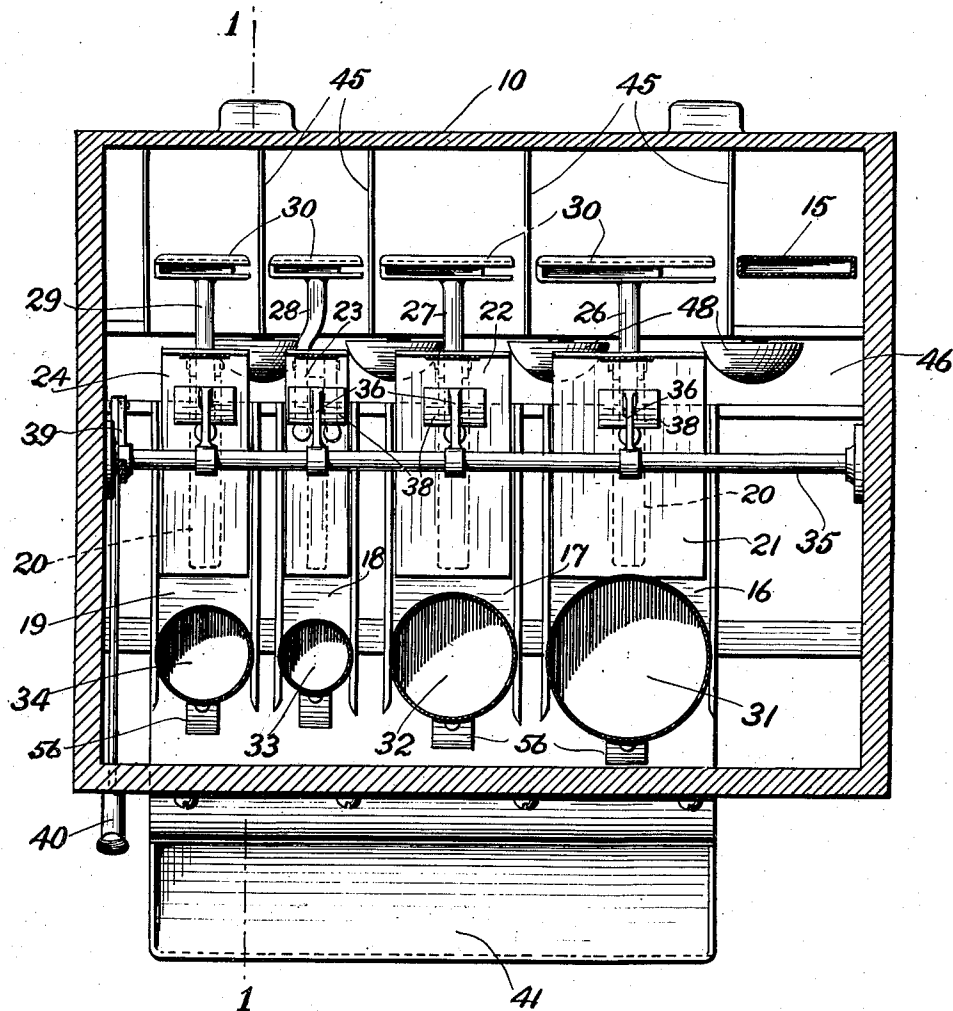


FIG. 2.

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3 SHEETS—SHEET 3.

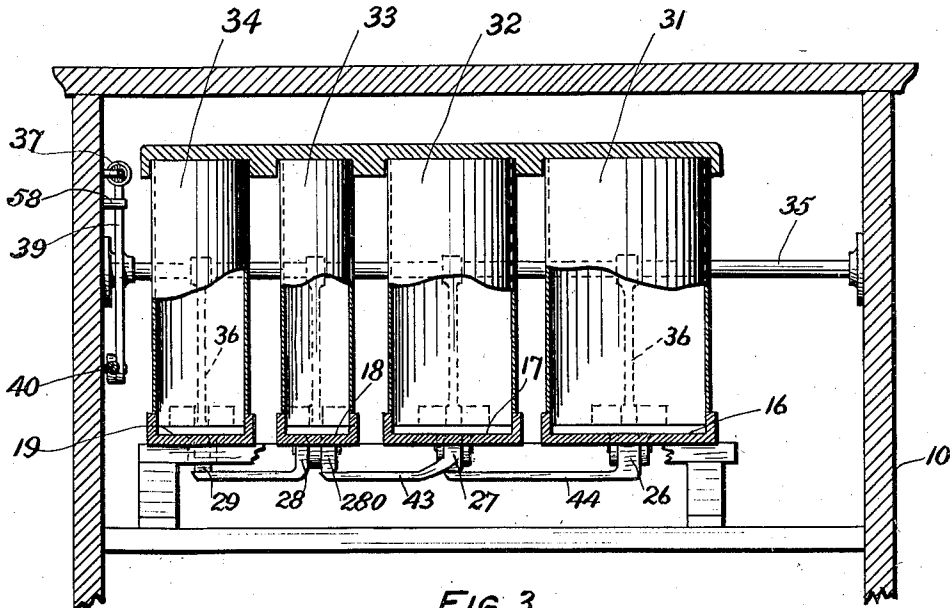


FIG. 3.

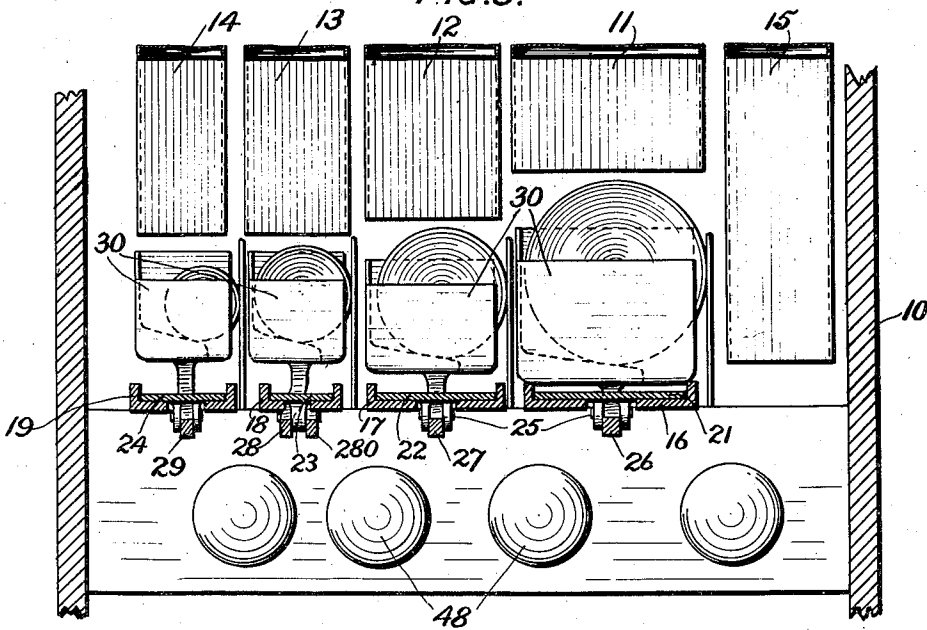


FIG. 4.

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UNITED STATES PATENT OFFICE.

JOHN D. CARNEY, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO AUTOMATIC CASHIER MACHINE COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF DELAWARE.

AUTOMATIC COIN-CHANGING MACHINE.

No. 929,550.

Specification of Letters Patent.

Patented July 27, 1909.

Application filed September 10, 1908. Serial No. 452,370.

To all whom it may concern:

Be it known that I, JOHN D. CARNEY, a citizen of the United States, residing at Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Automatic Coin-Changing Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

The object of my invention is to provide a machine adapted, when a coin of any denomination is dropped into the machine, to deliver a coin or coins of a total value representing the difference between the value of the inserted coin and the value of a smaller coin of a fixed denomination.

The invention consists of means and instrumentalities adapted to effect this object. The invention may be usefully applied to street cars on which a fixed rate of fare is charged; but other useful applications of the invention may be made. If, for example, the fare is five cents, the mechanism is such that if a coin of larger denomination, *i. e.* a dollar, a half dollar, a quarter dollar, or a dime, is dropped into the machine, it will deliver the coin of the value of the inserted coin less five cents.

The invention also has for its object to provide means whereby the passenger may provide himself with a transfer, numbered, dated and punched with the time that it is good for transportation by the simple act of pulling a plunger rod.

In the drawings: Figure 1 is a vertical section through the machine on the line 1—1 of Fig. 2. Fig. 2 is a horizontal section on the line 2—2 of Fig. 1. Fig. 3 is a partial vertical section on the line 3—3 of Fig. 1. Fig. 4 is a partial vertical section on the line 4—4 of Fig. 1.

10 is a casing containing the mechanism.

11, 12, 13, 14 and 15 are a series of five rearwardly extending chutes adapted for the reception respectively of a dollar, half dollar, quarter dollar, dime and nickel. In front of the first four chutes are a series of tables or ways 16, 17, 18, 19, on which are a series of ejectors or slides 21, 22, 23 and 24, adapted to move back and forth in said ways. Attached to each ejecting slide and extending through a slot 20 in the corresponding table, are lugs 25, and to the several lugs respectively are pivoted, between

their ends, the levers 26, 27, 28 and 29. The rear arm of each lever extends backward and upward, and the free end of the arm carries a pocket or coin receiver 30 arranged under the corresponding chute and adapted to receive the coin that is dropped into the chute. The front arm of each lever extends forward and upward through the slot 20 in the corresponding table and into a hole in the corresponding slide.

Overhanging the front of the several tables or ways 16, 17, 18 and 19 are a series of open-bottomed coin receptacles 31, 32, 33 and 34 adapted to contain respectively single vertical rows of half dollars, quarter dollars, dimes and nickels. The lower edge of each receptacle 31, 32 and 34 is elevated above its corresponding table 16, 17, or 19 a distance slightly greater than the thickness of a coin, and the lower edge of receptacle 33 is elevated above its corresponding table 18 a distance slightly greater than the thickness of two coins, so that below each receptacle there is always a single coin, and in the case of the receptacle 33 two coins, resting upon the table and free to be moved forwardly from under its receptacle by the corresponding slide.

Turning in bearings in the casing is a shaft 35, on which are secured four arms 36. On this shaft is also secured, between its ends, the arm 39, whose upper end is normally held forward by a coil spring 37 connecting it with the casing. The lower ends of the arms 36 carry pushers or pawls 38 normally resting upon the several slides respectively. The lower end of the arm 39 has pivoted to it a hand operated rod 40.

It will be understood that when, for example, a dime is dropped into the chute 14, it will drop into the pocket 30 carried by the lever 29. The rear end of this lever thereupon drops, due to the weight of the coin, and the front end of the lever 29 rises so that it projects above the level of the upper face of the slide 24. The passenger then takes hold of the rod 40 and pulls it forwardly, thereupon turning the shaft 35 and swinging forwardly the arms 36 so as to slide all the pawls 38 forwardly. The pawl back of lever 29 will engage the end of that lever projecting above its slide 24 and thereby push the slide 24 forwardly under the overhanging receptacle 34, thereby ejecting a nickel and delivering it into the tray 41 at

the front of the coin receptacles. As none of the other levers 26, 27 or 28 have been operated, they will not be engaged by their corresponding pawls and the slides 21, 22, and 23 will remain stationary. It will be understood that in the same way, when a quarter dollar is dropped into the chute 13, it swings the lever 28 into position to be engaged by the pawl 38 back of it, thereby, when the rod 40 is pulled forwardly, causing the slide 23 to be moved forwardly to eject two dimes from under the receptacle 33. To the pivot of lever 28 is also pivoted a lever 280, which extends forward and upward alongside of lever 28 through the slot 20 of table 18 and into a second hole in the slide 23.

When a half dollar is dropped into the chute 12, it swings the lever 27 into position to be engaged by the pawl 38 back of it, so that the slide 22 may be operated to eject a quarter dollar from under the receptacle 32. In order that, at the same time, the slide 23 may be simultaneously moved to eject two dimes, the front arm of the lever 27 is provided with a finger 43 extending under the front arm of the lever 280, so that when the lever 27 is operated, it in turn operates the lever 280, thereby enabling the slides 22 and 23 to be simultaneously operated so as to deliver coins to the value of forty-five cents.

When a dollar is dropped into the chute 11, it swings the lever 26 into position to be engaged by the pawl back of it, so that the slide 21 may be operated to eject a half dollar from under the receptacle 31. The front arm of the lever 26 is provided with a finger 44 extending under the front arm of the lever 27, so that when the lever 26 is operated, it also operates the lever 27. It has been described how the operation of the lever 27 dictates the operation of the lever 280. It will therefore be understood that when a dollar is deposited, the levers 26, 27 and 280 are simultaneously operated, thereby enabling the slides 21, 22 and 23 to be simultaneously operated so as to deliver coins to the value of ninety-five cents.

Each pocket 30 has an inclined bottom. A coin is prevented from rolling out by means of a guard 45 secured alongside the same. When a lever carrying a coin is moved forwardly, as soon as the pocket 30 passes beyond the front edge of the guard (which coincides with the limit of movement of the slide), the coin rolls out and drops through a passage 46 (there being a separate passage preferably for each coin) into a common receptacle 47. The chute 15 for the reception of nickels communicates directly with its corresponding passage 46. Each passage contains a bell 48 so shaped as to be struck by the descending coin. Beneath each bell are two strips 49 and 50 communicating with opposite poles of a source of current supply.

The upper strip 49 is flexible and yields when struck by a coin so as to move downwardly into contact with the other strip 50, thereby completing the circuit. Registering mechanism of known construction may be interposed in this circuit.

In each chute is a plate 51 secured to a shaft 52 extending outside the chute. To this shaft is secured an arm 53, to which is attached a rod 54 under the control of the conductor. When a coin is dropped into the chute, it first drops onto the plate 51 and may be inspected by the conductor, who then pushes the rod 54 forwardly, thus causing the plate 51 to swing downwardly and allowing the coin to descend to the bottom of the chute. If the coin is a bad one, or a good one of improper denomination, the conductor pulls the rod 54 backwardly, throwing the plate 51 upwardly and ejecting the coin through an opening in the chute onto a way 55, within easy reach of the conductor, who may then restore it to the passenger.

56 are spring fingers secured respectively to the coin receptacles. Projecting from the tables is a lip 57 underlying the fingers 56. A coin when ejected must pass between the lip 57 and one of the fingers 56. These spring fingers normally prevent a coin from sliding out onto the tray 41 by accident, due to shaking or jarring, but they are not sufficiently strong to interpose any effective resistance to the ejection of a coin when it is positively pushed out by its corresponding slide. A pin or stop 58 extends in front of the upper end of the arm 39 and limits the rearward movement of the rod 40 and the arms 36. To retract the slides leaf springs 59 are provided, one end of each spring being secured to its corresponding slide and the other end to the shaft 35.

Having now fully described my invention, what I claim and desire to protect by Letters Patent is:—

1. In an automatic change dispenser, the combination with a series of coin receivers adapted to receive coins of progressively smaller denominations, of a series of coin receptacles each adapted to contain coins of a denomination below and next to that of the coins which its corresponding receiver is adapted to receive, a series of coin ejectors corresponding to the coin receptacles, a series of pushers adapted to actuate said ejectors, means to actuate the pushers, a series of devices between the coin receivers and ejectors, each of which is adapted to be actuated by a coin introduced into the corresponding receiver to bring the corresponding pusher and ejector into operative relation, and a connection between one or more of said devices and the device or devices adjacent to it whereby the former actuates the latter, thereby enabling a coin of rela-

tively large denomination to dictate the operation of a plurality of ejectors, substantially as described.

2. In an automatic change dispenser, the combination with a series of coin chutes and a series of coin receiving pockets, of a series of coin receptacles, a series of coin ejectors, a series of pushers adapted to actuate said ejectors, means to actuate the pushers, a series of movable levers carrying said pockets and connected respectively to and movable bodily with the respective ejectors and adapted, when actuated by coins entering said pockets, to be moved into operative relation to the pushers, substantially as described.

3. In an automatic change dispenser, the combination with a series of coin chutes and a series of coin receiving pockets, of a series of coin receptacles, a series of coin ejectors, a series of pushers adapted to actuate said ejectors, means to actuate the pushers, a series of movable levers carrying said pockets and connected respectively to and movable bodily with the respective ejectors and adapted, when actuated by coins entering said pockets, to be moved into operative relation to the pushers, and arms on one or more of said levers engaging the next adjacent lever or levers to enable two or more levers to be actuated by a single coin, substantially as described.

4. In an automatic change dispenser, the combination with a series of receivers adapted to receive coins of specified different denominations, of a series of coin ejectors, means normally inoperative to actuate said coin ejectors, and means actuated by one or more of said receivers to bring the corresponding coin ejectors and one or more additional coin ejectors into operative relation with their actuating means, substantially as described.

5. In an automatic change dispenser, the combination with a series of ways, a series of coin ejecting slides movable on said ways, and a series of pushers, of a series of movable levers carried by said slides, said slides being orificed to receive the ends of said levers, and a series of coin receiving pockets carried by said levers and adapted when weighted with a coin to actuate said levers to move the said ends thereof into line of travel of said pushers, substantially as described.

6. In an automatic change dispenser, the combination with a series of ways, a series of coin ejecting slides movable on said ways, and a series of pushers, of a series of movable levers carried by said slides, said slides being orificed to receive the ends of said levers, a series of coin receiving pockets carried by said levers and adapted when weighted with a coin to actuate said levers to move the said ends thereof into line of

travel of said pushers, and a connection between one or more of said levers and one or more of the remaining levers by which the former operates the latter, substantially as described.

7. In an automatic change dispenser, the combination with a series of coin delivering devices, of a series of movable levers adapted to control the operation of said devices respectively, a series of coin receiving pockets carried by said levers and adapted when weighted with coins to actuate said levers respectively, and a connection between one or more of said levers and one or more of the remaining levers by which a plurality of levers may be simultaneously operated by a single coin, substantially as described.

8. In an automatic change dispenser, the combination with a series of movable levers and a series of open-sided coin-receiving pockets carried thereby, of a series of coin-retaining guards alongside said pockets, a series of coin ejectors carrying said levers respectively, means to operate said ejectors, and means whereby said levers when moved by coins deposited in said pockets control the operation of said ejecting means, said guards terminating at a point short of the point to which said levers are bodily moved by said ejectors, thereby permitting said coins to be discharged, substantially as described.

9. In an automatic change dispenser, the combination with a series of chutes adapted to receive coins of different denominations, of a series of movable levers, pockets carried by the respective levers communicating with the respective chutes and adapted when weighted with coins to move their respective levers, a series of coin receptacles, normally inoperative coin ejectors adapted to be rendered operative by the respective levers, and a connection between two or more of said levers whereby one of said levers actuates the other or others, substantially as described.

10. In an automatic change dispenser, the combination with a chute, of a coin receiver communicating with said chute, coin ejecting means controlled by said receiver, a plate interposed in said chute and adapted to arrest the passage of a coin therein, and means to swing said plate either upwardly or downwardly, thereby either ejecting the coin from the chute or permitting it to pass there-through into the receiver, substantially as described.

11. In an automatic change dispenser, in combination, a series of slotted ways, a series of open-bottomed coin receptacles above said ways, a series of coin ejecting orificed slides movable upon said ways, a series of levers pivoted on parts of said slides extending through said slots, corresponding ends of said levers extending into the ori-

10 fices in the respective slides, a series of coin receiving pockets at the other ends of said levers, a series of chutes communicating with said pockets, a series of pushers adapted to engage the first named ends of said levers respectively when the same are lifted above the level of their respective slides, by the depression of their opposite ends by a coin, and a hand-operated rod connected with said pushers and adapted to actuate them simultaneously, substantially as described.

15 12. In an automatic change dispenser, in combination, a series of slotted ways, a series of open-bottomed coin receptacles above said ways, a series of coin ejecting orificed slides movable upon said ways, a series of levers pivoted on parts of said slides extending through said slots, corresponding ends of said levers extending into the orifices in the respective slides, a series of coin receiving pockets at the other ends of said levers, a series of chutes communicating with said pockets, a series of pushers adapted to engage the first named ends of said levers respectively when the same are lifted above the level of their respective slides, by the depression of their opposite ends by a coin, and an arm on one of said levers engaging the next adjacent lever whereby a single coin may simultaneously operate a plurality of levers, substantially as described.

20 13. In an automatic change dispenser, the combination with a way, a coin ejecting slide movable thereon, and a pusher, of a movable lever carried by the slide, said slide being orificed to receive the end of the lever, and a coin receiving pocket-carried by the lever and adapted when weighted with a coin to actuate said lever to move the end thereof into line of travel of the pusher, substantially as described.

14. In an automatic change dispenser, the combination with an ejector and a pusher, of a lever pivoted on the ejector, a coin-receiving pocket carried by said lever and adapted when weighted to move said lever on its pivot into the path of movement of the pusher, and means by which the pusher may be manually operated to move said lever bodily, thereby carrying the ejector with it.

15. In an automatic change dispenser, the combination with a coin ejecting slide, of a pusher above and slidable along the top of the slide, a coin-controlled lever carried by the slide and adapted to be projected above the same into the path of the pusher, and manually operated means to actuate the pusher.

16. In an automatic change dispenser, the combination with an open-bottomed coin receptacle, of a coin-ejecting slide adapted to move under the receptacle, a shaft, an arm carried thereby, a rod adapted to operate said arm, a pawl carried by said arm and movable along the top of the slide, manually operated means to move said arm, a lever pivoted between its ends on the slide, and a coin-receiving pocket carried on one end of the lever and adapted, when depressed, to project the opposite end of the lever through an orifice in the slide into the path of travel of the pawl.

In testimony of which invention, I have hereunto set my hand, at Philadelphia, on this 8th day of September, 1908.

JOHN D. CARNEY

Witnesses:

M. M. HAMILTON,
A. M. URIAN.