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E. F. LEESE

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COIN DISPENSER

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INVENTOR.

EDWARD F. LEESE

BY
Reynolds & Beach
ATTORNEYS

UNITED STATES PATENT OFFICE

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COIN DISPENSER

Edward F. Leese, Everett, Wash.

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Coin dispensers are required at places such as public telephone centrals, where it is necessary to dispense the equivalent of large coins in smaller coins. They are also required as part of change-making machines. While the present invention concerns either type of coin dispenser, it is particularly designed for the purpose of breaking up large coins into smaller denominations, as dollars into half-dollars or quarters, half-dollars into dimes, or quarters into nickels.

It goes without saying that it is necessary in such a coin dispenser to provide a device capable of operating with great accuracy to dispense the precise number of coins desired, no more and no less. Such a device, therefore, must be rugged, simple, and dependable, and these are the general aims of the present invention.

However, the present invention aims additionally to provide a construction to the ends indicated, which may be conveniently, simply, and cheaply made by manufacturing processes such as stamping or die casting, or both, with little necessity for finishing operations, notwithstanding the accuracy required.

More especially it is an object to provide an apertured coin slide, whereby a predetermined number of coins are moved from the hopper, whence they are delivered, to a delivery point, in which slide are incorporated means for returning it automatically to its initial position, yet one in which the parts are simply and compactly arranged.

One further object is attained by the present invention, namely, so to arrange and operate the several parts of such a coin dispenser that the operation occurs by a finger of a hand which is thrust beneath the delivery point, so that as the finger effects movement of the slide in a manner to effect delivery of coins, the hand of which that finger is a part is naturally and necessarily disposed in such position to receive the coins thus delivered.

These objects and others, such as will appear as the specification progresses, will be more clearly understood from a study of the accompanying drawings, of this specification, and of the claims which terminate the same.

In the accompanying drawings the invention has been shown embodied in a typical form, such as is at present preferred by me.

The invention comprises the novel combination and arrangement of the various parts, in the manner and to the ends indicated.

Figure 1 is a section on a vertical plane, longitudinally of a multiple dispenser unit.

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Figure 2 is an enlarged isometric view, with various parts broken away and shown in section, illustrating the cooperative relationship of the various parts.

5 Figure 3 is an isometric view, from below, of one of the slides.

A base plate 1 is provided with one or several apertures, according to whether it is to dispense one type of coin or several, each aperture being of a size to pass a particular coin. One advantage of this structure is that each unit is sufficiently compact that several may be located closely adjacent, for handling coins of several different denominations. Hoppers, such as the upstanding cylinders 11, receive and collect the coins in neat stacks, ready to pass through the apertures in the base plate. In the arrangement shown the hoppers 11 are reduced and shouldered at their lower ends to fit within, and to be swaged into, apertures in the base plate, so that in effect the aperture in the base plate is constituted by the lower portion of the hopper 11.

The base plate is notched in its under side, as indicated as 12, for the reception of a slide 2, which is thus guided for movement forwardly and rearwardly. Preferably the guides are rectilinear guides, so that the slide moves from front to rear, and the reverse. Each slide is apertured, as indicated at 20, the aperture being of a size to register with the aperture in the base plate 1 or with the bore of the cylinder 11, and each slide is of a thickness just sufficient to contain a predetermined number of coins of the particular denomination to be handled, stacked one upon another.

To prevent the coins from falling through when the aperture 20 is in registry with the hopper 11, as it is normally, a bottom plate 3 is secured to the under side of the base plate 1, as by the screws 30, and serves the additional function of holding the slides 2 within their respective notches 12. This facilitates ease of assembly, as will appear more fully hereafter. Each bottom plate, however, is notched or recessed at its forward edge, as is indicated at 31 (see Figure 2), so that when the slide 2 is slid forwardly its aperture 20 will register with the notch 31 for release of the coins trapped within the aperture 20.

50 The slide 2 may be of a length corresponding closely to the width of the base plate 1, and thus there need be no appreciable extension of the slide beyond the confines of the base plate. To retain the slide normally in its rearward position, without bulky spring mounting or retaining

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means, and without any such mechanism in an exposed position, I provide matching grooves 22 in the slide and 32 in the bottom plate 3, although the grooves might instead be in the slide and base plate 1, respectively. In order that the springs may be small, and apply their force evenly, two such grooves are preferably provided, extending along opposite edges of the slide, outside of its aperture 20. Within these grooves are received compressible coiled springs 4. In order that these springs may react between the slide 2 and the plate, whether it be the bottom plate 3 or the base plate 1, I provide on the forward edge of the plate a groove-filling lug 23, and upon the rear edge of the bottom plate 3 I provide a similar groove-filling lug 33. The spring 4, seated within the grooves 22 and 32, and between the lugs 23 and 33, urges the slide 2 rearwardly, to a position such that its aperture 20 lies in registry with the bore of the hopper 11.

It is necessary that parts be stopped quite accurately in such position. Accordingly, I provide a stop 24 upon the forward edge of the slide 2, which engages the edge of the base plate 1, or which may be received into a recess 14, to constitute a stop limiting rearward movement of the slide. A similar stop limits forward movement of the slide, as will shortly be explained.

It is extremely convenient to support the base board 1 elevated above a table T or similar support. To that end depending legs 15 are provided at the opposite ends of the base board, whereby to support the latter elevated above the table. Now a hand may be thrust beneath the elevated base board, and by engaging a handle 16 depending beneath the rear end of the slide 2, by one finger of such a hand, so positioned, the slide may be moved forwardly, and when it completes its forward movement the coins it has entrapped will drop into the hand placed beneath it, which will thus receive these coins. This handle 16 at the same time may well engage a notch or edge 35 of the bottom plate 3, to limit forward movement of the slide. Immediately the coins have dropped, the finger releases the handle 16, and the slide is returned to its rearward position by the springs 4. Two such springs being employed, of substantially equal force, the slide moves readily and without any tendency to cock or stick within its guide 12.

Each individual part is simple, and there are but few parts in all. Most of them can be made as die-castings, at low cost, and are not expensive to make even if the volume does not warrant the expense of dies. Assembly is a simple matter, since the hoppers 11 can first be swaged in place within the apertures of the base plate, whereupon the slides are inserted, the springs laid in the grooves 22, and then the bottom plate 3 is secured in place, and assembly is complete.

The device will operate with extreme accuracy to deliver the predetermined number of coins with each complete reciprocation of a slide, so long as the hopper is kept filled. Each slide is always filled, ready to deliver its count of coins, and delivery is completed by forward reciprocation of the slide, while no action is required to return the slide to its rearward position, since the springs 4 accomplish this automatically when the slide is released.

I claim as my invention:

1. A coin dispenser comprising an apertured base plate slotted from front to rear, intersecting such aperture, and having legs for its support in elevated position above a table, a coin hopper

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arranged for delivery of coins through said aperture, a slide guided in said slot, having an aperture to register with the base-plate aperture, and of thickness to receive a predetermined number of coins, a bottom plate underlying said slide, secured to said base plate, and notched in its forward edge for registry with the slide's aperture, compression coil springs, one at each side of said slide, the slide and bottom plate being complementally grooved to receive said springs, the slide having a groove-filling lug at its rear edge, and the bottom plate having a similar lug at its forward edge, to seat the respective ends of said springs, and a handle carried by the rear of said slide, to shift the same in opposition to said springs by the fingers of a hand held to catch coins when the slide is shifted forwardly.

2. In a coin dispenser, an apertured base plate, a slide guided therein for shifting in the plane of said base plate, apertured for registry with the base plate's aperture, and of a thickness to receive a predetermined number of coins, a bottom plate underlying said slide throughout a part of its path, to retain coins in its aperture while it is in such part, but to release such coins when the slide passes beyond such part, a groove in said slide and a matching groove in one of said plates, parallel to the slide's direction of movement, a groove-filling lug outstanding from one such grooved member, at one end of the groove, and a similar groove-filling lug outstanding from the other such grooved member at the other end of the groove, a coil spring engaged by its opposite ends with the respective lugs, whereby to urge said slide into one limit position, and co-operating stop means to restrain movement of the slide between two limit positions, in one whereof its aperture registers with that of the base plate, and in the other whereof its aperture is beyond said bottom plate.

3. In a coin dispenser, an apertured base plate, a slide guided therein for sliding movement transversely of said base plate, apertured for registry with the base plate's aperture, and of a thickness to receive a predetermined number of coins, a bottom plate underlying said slide, and closing said apertures when those of the slide and base plate are in registry, but notched in its forward edge for release of coins from the slide when the latter is slid forwardly, stop means to restrain movement of the slide between rearward and forward limit positions wherein its aperture registers, respectively, with the aperture of the base plate, and with the notch of the bottom plate, and two equal compression spring means, one at each side of the slide's aperture, reacting in the plane of contact of the slide and a plate, and in lines parallel to the slide's movement, between the slide and such plate, to urge said slide to remain in its rearward limit position.

4. In a coin dispenser, an apertured base plate, a slide guided therein for sliding movement transversely of said base plate, apertured for registry with the base plate's aperture, and of a thickness to receive a predetermined number of coins, a bottom plate underlying said slide, and closing said apertures when those of the slide and base plate are in registry, but notched in its forward edge for release of coins from the slide when the latter is slid forwardly, stop means to restrain movement of the slide between rearward and forward limit positions wherein its aperture registers, respectively, with the aperture of the base plate, and with the notch of the bottom plate, said slide and said bottom plate being

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complementally grooved along opposite sides of the apertures, groove-filling lugs depending from the slide at its rear edge, groove-filling lugs upstanding from the bottom plate at its forward edge, and compression coil springs received within said grooves and reacting between the lugs of the slide and plate, respectively.

5. In a coin dispenser, an apertured base plate, a slide guided therein for sliding movement transversely of said base plate, apertured for registry with the base plate's aperture, and of a thickness to receive a predetermined number of coins, a bottom plate underlying said slide, and closing said apertures when those of the slide and base plate are in registry, but notched in its forward edge for release of coins from the slide when the latter is slid forwardly, stop means to restrain movement of the slide between rearward and forward limit positions wherein its aperture registers, respectively, with the aperture of

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the base plate, and with the notch of the bottom plate, said slide and said bottom plate being complementally grooved along opposite sides of the apertures, groove-filling lugs depending from the slide at its rear edge, groove-filling lugs upstanding from the bottom plate at its forward edge, compression coil springs received within said grooves and reacting between the lugs of the slide and plate, respectively, and a handle depending from the rear portion of said slide.

EDWARD F. LEESE.

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