Dec. 20, 1949 C. C. McPHERSON 2,491,573

COIN DISPENSING MECHANISM

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FIG. 1.

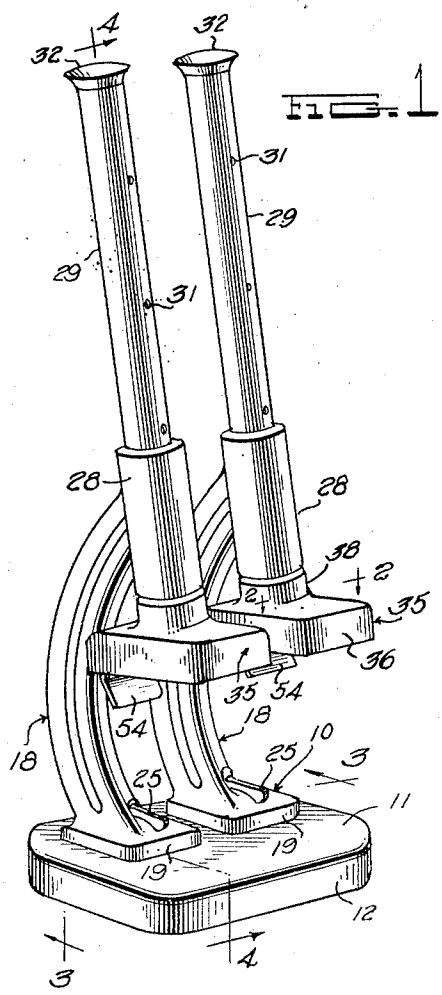
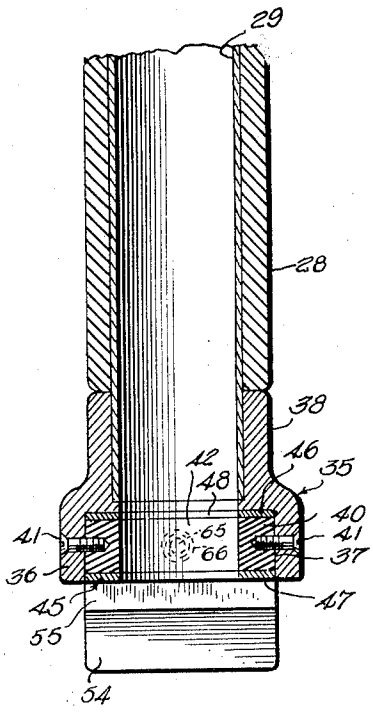


FIG. 2.



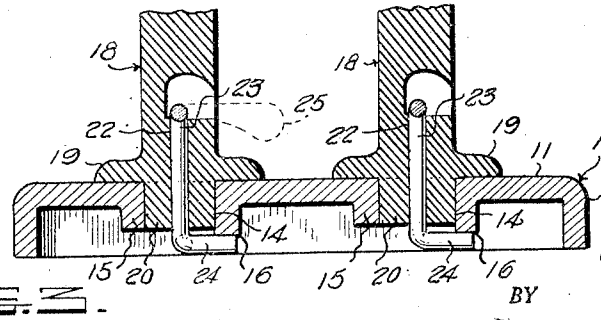


FIG. 3.

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FIG. 4.

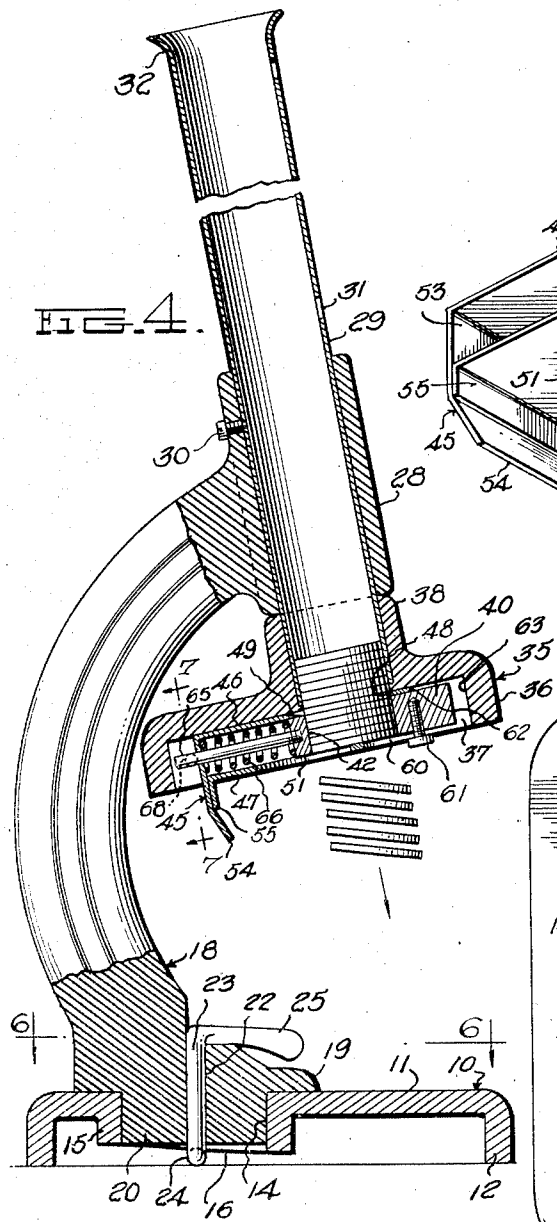
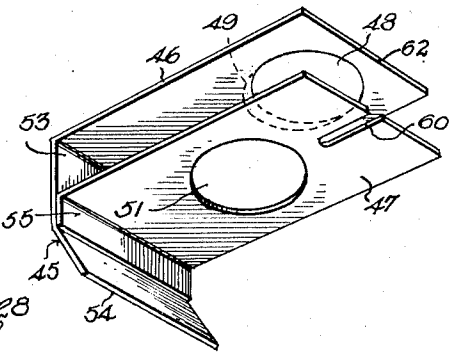


FIG. 5



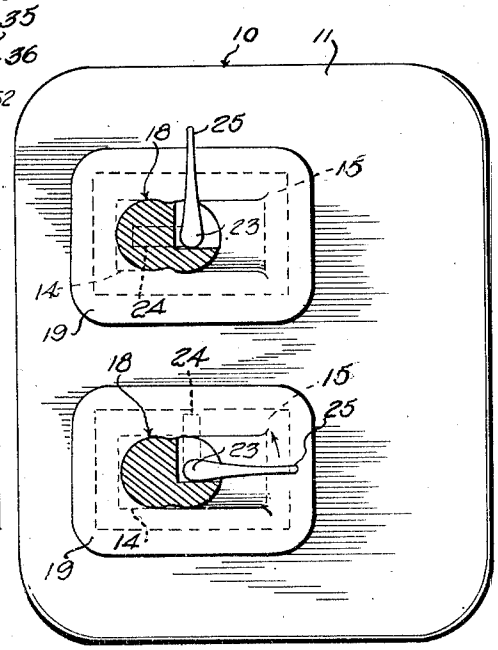
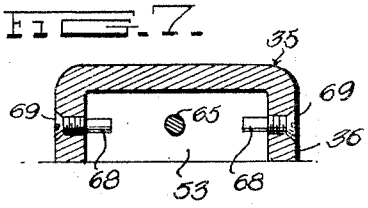


FIG. 6

FIG. 7.



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COIN DISPENSING MECHANISM

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Application July 16, 1947, Serial No. 761,267

6 Claims. (Cl. 133—5)

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This invention relates to a coin dispensing mechanism, and is a continuation-in-part of my abandoned copending application Serial No. 644,085, filed January 29, 1946.

It is the common practice in banks, stores and other places of business to provide coin dispensers whereby change may be quickly and accurately made. Devices of this character usually are relatively complicated and expensive to manufacture, and accordingly their use is sometimes financially burdensome, if not prohibitive.

An important object of the present invention is to provide a highly simplified form of a coin dispenser for making change which employs a minimum number of parts and which is quickly and readily operable.

A further object is to provide a device of this character wherein a simple finger piece is operable to dispense coins with the hand held in a position to receive the coins dispensed from the device.

A further object is to provide a simplified form of dispenser which is carried solely by the coin tube in which the supply of coins is maintained.

A further object is to provide a simplified form of supporting and mounting means for a dispenser of the character referred to which is highly attractive in appearance and which supports the dispensing mechanism in a convenient position for operation.

A further object is to provide a coin dispenser of the type just referred to wherein the mounting and supporting means for the dispenser is connected in a novel manner to a base of simple structure which readily may be designed to hold one or any number of coin dispensing devices.

A further object is to provide a base and mounting arrangement for a plurality of coin dispensers wherein the same base may be employed with selected coin dispensers in accordance with the coins which are usually dispensed in the greatest quantities.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the drawings I have shown one embodiment of the invention. In this showing

Figure 1 is a perspective view of one of the dispensing mechanisms showing two of the dispensing units,

Figure 2 is an enlarged fragmentary sectional view through one of the dispensing units per se taken on the axis of the coin tube transverse to the direction of movement of the dispensing elements,

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Figure 3 is an enlarged fragmentary sectional view through the base and associated elements, taken substantially on line 3—3 of Figure 1,

Figure 4 is an enlarged vertical sectional view taken through the axis of one of the coin dispensing units longitudinally of the direction of movement of the dispensing elements and taken substantially on line 4—4 of Figure 1,

Figure 5 is an enlarged perspective view of the movable unit of one of the dispensing elements,

Figure 6 is a horizontal sectional view on line 6—6 of Figure 4, and

Figure 7 is a detail sectional view on line 7—7 of Figure 4.

Referring particularly to Figures 1, 3, 4 and 6, the numeral 10 designates the base of one type of mechanism designed for supporting two dispensing devices. It will become apparent that the base 10 may be designed for a single dispensing unit or any praticable number of such units. The base 10 comprises a top plate portion 11 having depending edge flanges 12 on which the device is supported. The top plate portion 11 is provided in the present instance with two openings 14 defined by a depending flange 15 formed integral with the base. One side of the flange 15 is inclined from the horizontal as at 16 (Figure 4) for a purpose to be described.

A supporting arm indicated as a whole by the numeral 18 is associated with each opening 14. Each arm 18 is provided with a flat bottom portion 19 adapted to seat on the plate portion 11, and is further provided with a depending lug 20 corresponding in horizontal cross sectional shape to each opening 14 and adapted to be arranged therein.

Each arm 18 is provided with a vertical opening 22 therethrough substantially centrally of the lug 20 and rotatably receiving a rock shaft 23. This shaft is shown as being provided with an integral projection 24 extending perpendicularly therefrom in one direction. Such projection is at the lower end of the rock shaft 23 and the upper end of such shaft is provided with an operating finger piece 25 perpendicular to the rock shaft and extending at right angles to the projection 24. When the finger piece 25 is in the position shown in Figures 1 and 4, the projection 24 will be arranged beneath and in engagement with the inclined surface 16 to lock the arm 18 to the base 10. It will be obvious that either arm 18 may be quickly released from the base by turning the associated finger piece 25 through 90° in the direction of movement indicated by the arrow in Figure 6.

Each arm 18 is provided at its upper end with a cylindrical sleeve 28 preferably formed integral with the arm and inclined from the vertical as shown in Figures 1 and 4 to facilitate the operation of the device, as will become apparent. Each sleeve 28 supports a coin tube 29 projecting therethrough as shown in Figure 4. Such coin tube may be supported in any suitable manner, for example by a setscrew 30. Each coin tube is provided with sight openings 31 to facilitate determining the depth of the stack of coins in the tube, and each tube is preferably flared at its upper end as at 32 to facilitate the loading of the tube.

Below each sleeve is arranged a dispensing head 35 shaped generally as shown in Figure 1. Each head 35 is generally rectangular in plan and is provided with down turned flanges 36 forming an internal recess 37, open at the bottom of the head 35, for a purpose to be described. Each head 35 is provided with an upwardly extending annular flange portion 38 receiving the lower end of one of the tubes 29. Such tube is secured in the flange 38 in any suitable manner, for example by having a driving fit therewith.

A spacer block 40 is arranged in the recess 37 and is fixed with respect to the associated head 35 in any suitable manner, as by screws 41 extending through the side flanges 36. The spacer block 40 is provided with an opening 42 in axial alignment with and corresponding in size to the internal diameter of the tube 29, such diameter depending upon the particular coins to be dispensed from each unit.

The spacer block of each unit is associated with a movable coin dispensing unit indicated as a whole by the numeral 45. Such unit comprises upper and lower plates 46 and 47 the former of which operates in the space provided for this purpose above the spacer block 40, as shown in Figure 2. The plate 47 operates against the bottom surface of the spacer block 40. The plate 46 is provided with an opening 48 normally arranged in axial alignment with the tube 29 and of the same diameter as the internal diameter of such tube. One edge of the opening 48 is tapered as at 49, Figure 4, to slice between coins of a stack in the device when a plurality of coins is to be dispensed, as described in detail below. The plate 47 is provided with a similar opening 51 of the same size but normally offset axially from the stack of coins as shown in Figure 4.

The plate 46 has one end thereof turned downwardly as at 53, approximately perpendicular to the body of the plate 46, and is then bent inwardly at a slight angle at its lower edge as at 54. The corresponding end of the plate 47 has a down-turned flange 55 fixed in any suitable manner, as by welding, to the down-turned end 53. Accordingly the plates 46 and 47 are fixed together for movement as a unit.

The plate 47 (Figure 5) is provided with a slot 60 receiving the shank of a screw 61 threaded in the block 40 and carried thereby. The head of the screw 61 fixes the forward end of the plate 47 against possible downward flexing. The inner end of the slot 60 may engage the screw 61 to limit forward movement of the dispensing element 45, or the advancing edge 62 of the plate 46 may engage the surface 63 of the flange 36 to limit such movement. The limit of movement referred to will occur when the opening 51 is axially aligned with the coin tube, as will be apparent.

The spacer block 40 carries a stationary rod 65 threaded thereinto as shown in Figure 4 and this rod is surrounded by a spring 66 one end of which engages the adjacent end of the block 40 and the other end of which engages the end 53 of the plate 46. The spring 66 urges the dispensing element 45 toward the left to the normal position shown in Figure 4, and the inner stems 68 of screws 69, carried by the side flanges 36 engage the down-turned end 53 to limit movement of the dispensing element 45 to normal position.

Operation

The combined arm and dispensing structures are preferably made up in units having tubes 29 and the associated coin dispensing elements in predetermined sizes according to the coins to be dispensed by each unit. These units are selected for connection with the base 10 in accordance with the requirements of the purchaser. The base 10 obviously will be the same regardless of the particular coins to be dispensed and will vary only according to the number of dispensing units to be supported.

The proper dispensing units and the proper base 10 having been selected, the finger piece 25 of each unit will be turned in the direction of the arrow in Figure 6, whereupon the associated lug 20 will be inserted in the proper opening 14. The finger piece 25 will be turned back to a position corresponding to the position shown in Figures 1 and 4 to bring the projection 24 into clamping engagement with the associated incline 16. Thus each unit is rigidly connected to the base 10, and is easily connected to and detached from the base. If, in the use of one of the devices, it is desired to change the denomination of the coins to be dispensed by any unit, such unit is readily detachable and replaceable by the desired unit.

Each tube 29 is filled to the desired extent with the proper coins and these coins will drop to the bottom of the dispenser to be supported by the plate 47, the opening 51 of which is normally substantially out of alignment with the coin stack. The number of coins to be dispensed at any given operation will be determined by the distance from the top of the plate 47 to the top of the spacer 40. For example, if quarters are to be dispensed, this distance normally will be equal to the thickness of four quarters, change for a dollar. If pennies are to be dispensed, the distance referred to usually will be equal to the thickness of five pennies, etc.

To operate the device, the operator will place his hand beneath the head 36, palm up, and with the tips of his fingers behind the flange 54, he will pull forwardly to move the dispensing element 45 in the same direction against the tension of the spring 66. The edge 49 will push ahead of it the coin lying in its plane of movement and will move beneath the next adjacent upper coin. The sharpened edge 49 facilitates movement of the plate 46 beneath the latter coin which, together with all of the coins thereabove, will be supported by the plate 46. When the dispensing element reaches its forward limit of movement, the opening 51 will align with the opening 42, and the predetermined number of coins within the vertical limits of the spacer block 40 will drop through the opening 51 into the palm of the operator. The operator merely holds the coins and releases the finger piece 54, whereupon the parts return to normal position, the coin displaced by the edge 49 being moved back into alignment with the coin stack. The opening 48 will again align with the opening 42 and the coin stack will drop to the extent of the thickness of the predeter-

mined number of coins previously dispensed.

The device is readily assembled as will be obvious from the drawings. The spacer blocks 40 may be made with openings 42 of the desired thickness, and of the desired depth to predetermine the number of coins to be dispensed. The dispensing elements 45 will be made so that the distance between the plates 46 and 47 will correspond to the thickness of the block 40 used therewith.

The tilting of the coin tubes 29 at an angle facilitates the reaching of the finger piece 54. The use of the head 35 simplifies the mounting of the operating parts, the opening for the screws 41 (Figure 2) being drilled through the use of a jig to properly align such openings with the threaded screw openings of the block 40. The operating parts are housed within the head and the use of the latter is permitted while using an attractive structure by curving the supporting arm 18 shown in Figure 1. All of the supporting parts are carried and supported by the head 35 of each unit, and each unit is wholly and solely supported by the associated tube 29.

It will be apparent that bases 10 may be made for one or any number of dispensing units and these units are substantially identical with each other and allow largely for the duplication of parts in manufacture. For example, the arms 18 will be cast identical and the openings through the sleeves 28 will be drilled in accordance with the size of the coin tubes 29. The heads 35 may be similarly manufactured identically and similarly drilled according to the coins to be dispensed.

Particular attention is invited to the interchangeability of the dispensing units relative to the base 10. Any arm 18 and associated parts may be used in connection with the opening 14 of any base, regardless of the number of units for which such base is designed. If a purchaser of the device finds, for example, that he needs one less nickel tube and one more quarter tube to meet his requirements, he need purchase only a single quarter unit to replace one of the nickel units. Thus he is enabled to secure a dispensing apparatus as a whole fitted to his needs, and if such needs are not properly satisfied with the apparatus as purchased, it is merely necessary for him to buy a single dispensing unit to replace one of the original units.

I claim:

1. A coin dispenser comprising a coin tube, means for supporting said tube, a head fixed solely to said tube at the lower end thereof, said head having depending side flanges, a spacer block fixed to said side flanges and having a coin opening aligned with said tube, and a dispensing element comprising upper and lower plates arranged respectively above and below said spacer block and slidably engaged therewith for movement in a line perpendicular to the axis of said tube from a predetermined normal position, one of said plates having opposite edges contacting with said flanges to be guided thereby for movement in said line, said upper plate having an opening normally aligned with said tube and said lower plate having a coin opening normally out of alignment with the opening in said spacer block whereby said lower plate normally supports coins inserted in said tube, and means biasing said dispensing element to said normal position, said upper plate, when said dispensing element is moved away from said normal position being adapted to slice through the stack of coins to support all of the coins thereabove and the opening in said lower plate being adapted to assume a position aligned with the opening in said spacer block whereby the coins in the latter are free to drop by gravity through the opening in said lower plate.

2. A coin dispenser comprising a coin tube, a head at the lower end of said tube, said head having an upstanding annular flange surrounding and engaging said tube whereby said head is supported solely by said tube, said head having depending flanges forming a downwardly opening recess therebetween, a spacer block in said recess fixed at opposite sides to the adjacent flanges, a dispensing element in said recess comprising spaced upper and lower plates fixed to each other and arranged respectively above and below said spacer block, said upper plate having an opening normally in alignment with said tube, said lower plate having an opening normally out of alignment with said tube, said spacer block having an opening in alignment with said tube and with the opening in said upper plate when the latter is in normal position whereby a stack of coins will be supported by said lower plate when said dispensing element is in normal position, and spring means biasing said dispensing device to normal position, said dispensing device being in sliding contact with said spacer block and with two of said flanges to be guided thereby for movement from said position to an operative position with the opening in said upper plate out of alignment with said tube and with the opening in said lower plate in alignment with the opening in said block.

3. A coin dispenser comprising a coin tube, means for supporting said tube between its ends, a head fixed solely to the lower end of said tube, said head having depending side and end flanges defining a downwardly opening elongated recess, a spacer block in said recess fixed to said side flanges, a dispensing device in said recess comprising spaced upper and lower plates fixed to each other at one end and being slidable longitudinally of said recess in engagement with the top and bottom faces respectively of said block, opposite edges of said plates slidably engaging said side flanges, said dispensing device having a normal position and said upper and lower plates having coin openings respectively in and out of alignment with said tube when said dispensing device is in said normal position, said spacer block having a coin opening in alignment with said tube whereby a stack of coins in the device will be normally supported by said bottom plate, and resilient means biasing said dispensing device to said normal position, said dispensing device being movable longitudinally of said recess to an operative position with the opening in said upper plate out of alignment with said tube and with the opening in said lower plate in alignment with the opening in said spacer block.

4. A coin dispenser comprising a coin tube, a head at the lower end of said tube, said head having an upstanding annular flange surrounding and engaging said tube whereby said head is supported solely by said tube, said head having depending flanges forming a downwardly opening recess therebetween, a spacer block in said recess fixed at opposite sides to the adjacent flanges, a dispensing element in said recess comprising spaced upper and lower plates fixed to each other and arranged respectively above and below said spacer block, said upper plate having an opening normally in alignment with said

tube, said lower plate having an opening normally out of alignment with said tube, said spacer block having an opening in alignment with said tube and with the opening in said upper plate when the latter is in normal position whereby a stack of coins will be supported by said lower plate when said dispensing element is in normal position, said dispensing device being in sliding contact with said spacer block and with two of said flanges to be guided thereby for movement from said position to an operative position with the opening in said upper plate out of alignment with said tube and with the opening in said lower plate in alignment with the opening in said block, and resilient means biasing said dispensing device to normal position, said resilient means comprising a coil spring between one end of said spacer block and the adjacent end of said dispensing device.

5. A coin dispenser comprising a coin tube, means for supporting said tube between its ends, a head fixed solely to the lower end of said tube, said head having depending side and end flanges defining a downwardly opening recess elongated perpendicular to the axis of said tube, a spacer block in said recess having side edges arranged adjacent said side flanges and fixed thereto, and a dispensing device in said recess comprising spaced upper and lower plates arranged respectively above and below said block and having side edges contacting said side flanges to be guided thereby for movement longitudinally of said recess from a normal position to an operative position, said upper and lower plates having coin openings respectively in and out of alignment with said tube when said dispensing device is in normal position, said spacer block having a coin opening in alignment with said tube whereby a stack of coins in the device will be normally supported by said bottom plate, said plates being connected at one end and having a fixed depending finger piece at such end.

6. A coin dispenser comprising a coin tube, means for supporting said tube between its ends, a head fixed solely to the lower end of said tube, said head having depending side and end flanges defining a downwardly opening recess elongated perpendicular to the axis of said tube, a spacer block in said recess having side edges arranged adjacent said side flanges and fixed thereto, a dispensing device in said recess comprising spaced upper and lower plates arranged respectively above and below said block and having side edges contacting said side flanges to be guided thereby for movement longitudinally of said recess from a normal position to an operative position, said upper and lower plates having coin openings respectively in and out of alignment with said tube when said dispensing device is in normal position, said spacer block having a coin opening in alignment with said tube whereby a stack of coins in the device will be normally supported by said bottom plate, said plates being connected at one end and having a fixed depending finger piece at such end, and resilient means between said dispensing device and said block biasing said dispensing device to said normal position.

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