

2,502,999

Filed Dec. 22, 1947

2 Sheets-Sheet 1

FIG. 1.

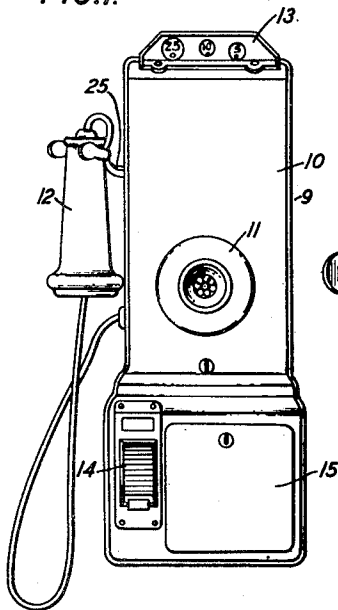


FIG.2.

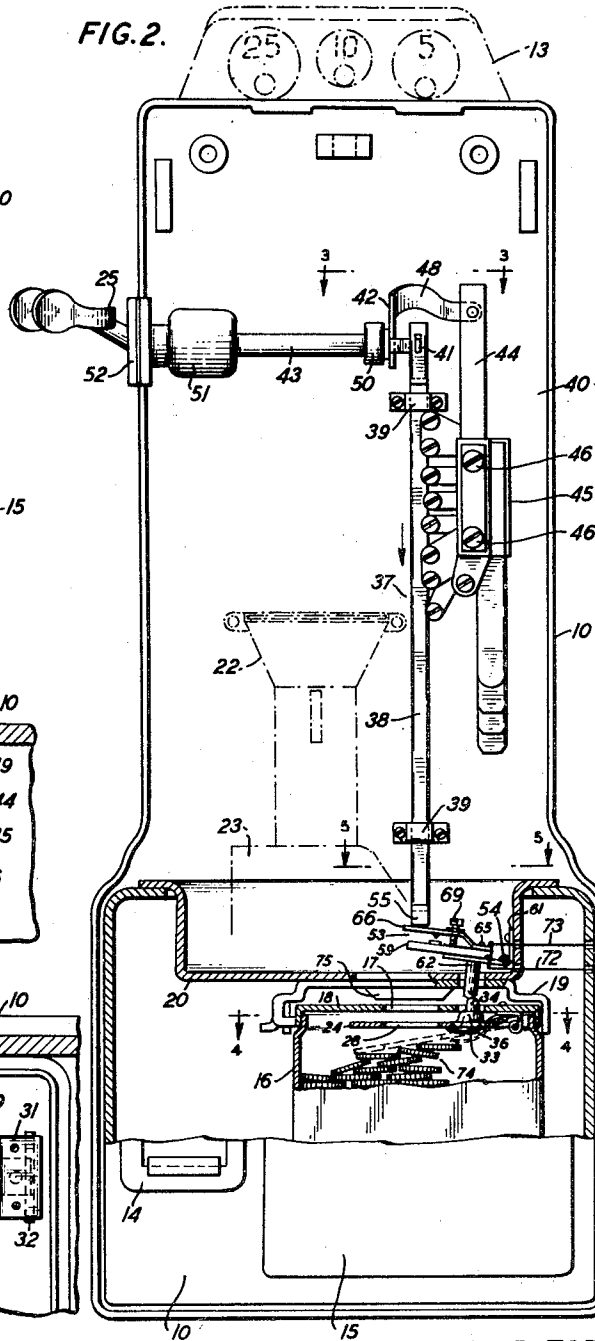


FIG. 3.

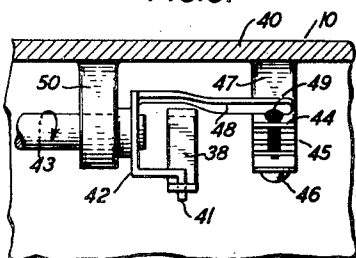
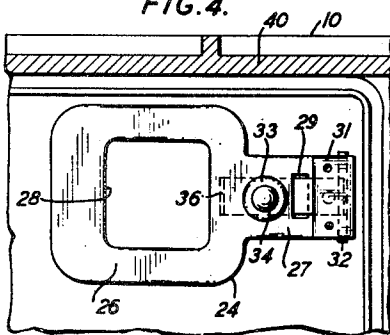


FIG. 4.



INVENTOR
O. A. SHANN
BY *J. MacDonald*
ATTORNEY

April 4, 1950

O. A. SHANN
TELEPHONE COIN COLLECTOR WITH
PILE-UP LEVELING MEANS

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FIG. 5.

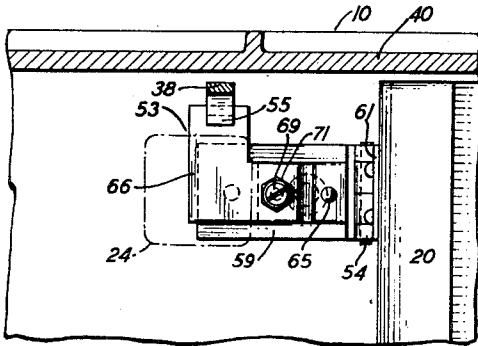


FIG. 6.

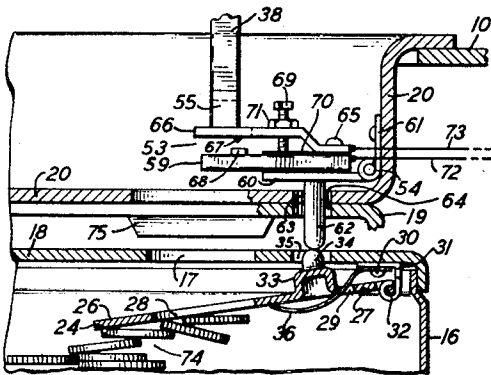


FIG. 7.

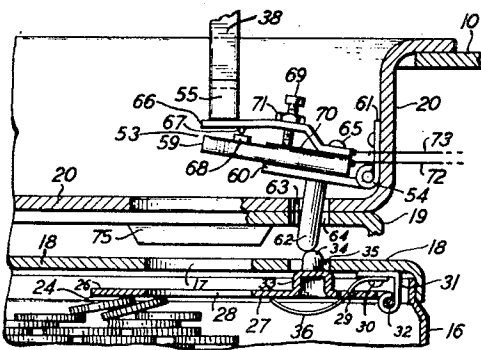
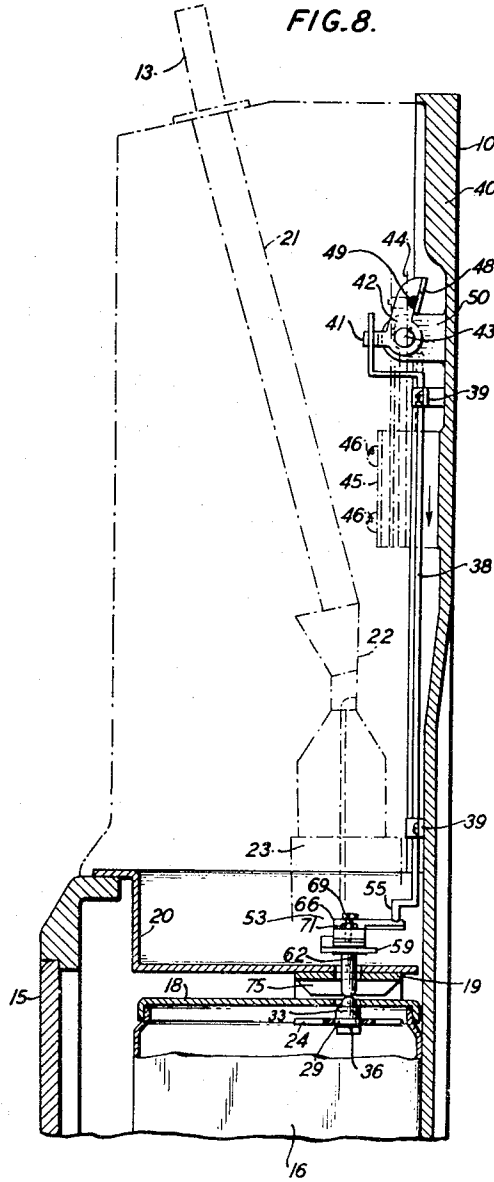


FIG. 8.



INVENTOR
O. A. SHANN
BY *J. Mac Donald*
ATTORNEY

UNITED STATES PATENT OFFICE

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TELEPHONE COIN COLLECTOR WITH PILE-UP LEVELING MEANS

Oscar A. Shann, Short Hills, N. J., assignor to
Bell Telephone Laboratories, Incorporated, New
York, N. Y., a corporation of New York

Application December 22, 1947, Serial No. 793,164

5 Claims. (Cl. 179-6.3)

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This invention relates to coin collector apparatus and more particularly to telephone coin collectors of the type in which coins inserted in the apparatus are directed into a coin box.

The object of the invention is to provide improved means for preventing undue piling up of coins in the coin box.

A feature of the invention resides in a movable member mounted in the coin box and operable to move coins in the coin box when the coins pile up in the form of a peak or mound in the coin box.

Another feature resides in a lever system for operating the movable member in the coin box.

Another feature resides in an electrical switch to control an electrical alarm system.

In the drawings:

Fig. 1 is a front elevational view of a telephone coin collector apparatus in which the invention is used;

Fig. 2 is an enlarged view, partly in section, of the telephone coin collector shown in Fig. 1 with portions removed and showing the invention;

Fig. 3 is a view, partly in section, of a portion of the apparatus and taken on the line 3-3 in Fig. 2;

Fig. 4 is a view, partly in section, of a portion of the apparatus and taken on the line 4-4 in Fig. 2;

Fig. 5 is a view, partly in section, of a portion of the apparatus and taken on the line 5-5 in Fig. 2;

Fig. 6 is an enlarged view, partly in section, of portions of a casing and a coin box and showing the movable member and certain other parts of the invention and with the movable member engaging coins in the coin box;

Fig. 7 is a view corresponding in general to the view shown in Fig. 6 but with the movable member held against movement by coins and with the switch closed; and

Fig. 8 is a side view, partly in section, of the apparatus shown in Fig. 2.

In telephone coin collectors of the type shown in Fig. 1 and which may be constructed along the general lines of the coin collector shown in the O. F. Forsberg, United States Patent 1,043,219 a coin box is provided to receive the coins collected for telephone service rendered. When a coin is deposited in the coin collector apparatus the coin falls by gravity through a coin chute and into a hopper to strike a trigger and then pass to a coin trap. The trap is operated by means controlled from a central station to collect or refund the coin according to the service rendered.

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When the trap is operated to collect the coin, the coin falls through an aperture in the coin box and into the coin box. Since coins coming into the coin box have to pass through a single aperture in the top of the coin box the coins received have a tendency to pile up in the coin box and in some cases to such an extent that the top of the pile of coins blocks the entrance to the coin box and prevents subsequently deposited coins from going through the apparatus as required.

In the present invention a movable member is provided in the coin box to engage the upper portion of a pile of coins and move the coins to other locations in the coin box so that the opening in the coin box will not be obstructed. Means are provided to move the movable member in the coin box each time a telephone receiver is placed on its switchhook. An electrical switch is also provided to close a circuit including an alarm device when the coin box is so filled with coins that the movable member is blocked by coins against operation.

The coin box is removable from the main casing of the telephone coin collector and may be constructed along the general lines of the coin receptacle shown and described in the W. O. Beck, United States Patent 1,121,063.

As shown in Fig. 1 the telephone coin collector 9 comprises a box-like casing 10, a telephone transmitter 11, a receiver 12 and a coin gauge 13 of conventional form. In the lower portion of the casing 10 is a coin refund chute 14 and a door 15. Behind the door 15 as shown in Fig. 2 and within the casing 10 is a removable coin box 16 having an aperture 17 formed in a top cover 18 of the coin box 16. An apertured retainer 19 located within the casing 10 and secured to a frame 20 serves to retain the coin box 16 in required place in the casing 10. When a coin is inserted in the coin gauge 13, the coin falls by gravity through a coin chute 21 shown in dot-dash lines in Fig. 8 and into a hopper 22 leading to a coin distributor 23 which forms no part of the present invention but in which means are provided to direct a coin into the coin refund chute 14 or into the coin box 16. A coin directed to the coin box 16 falls through the frame 20 and the apertured retainer 19 and through the aperture 17 in the top cover 18 and into the coin box 16. The coin box 16 is large enough to accommodate a large quantity of coins but since all coins coming into the coin box 16 enter by way of a relatively small aperture 17 the coins have a tendency to form a pile of coins in register with

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the aperture 17. If the pile-up of coins is high enough to block the aperture 17 no more coins can enter the coin box 16 by way of the aperture 17. Subsequently deposited coins will then accumulate in the coin distributor 23 and the accumulation may be sufficient to prevent the coin distributor 23 from properly working.

To prevent the undesired piling up of coins in the coin box 16 a movable member 24 is provided in the coin box 16 and is operated therein to knock down a pile-up of coins. The movable member 24 is operated to swing downwardly within the coin box 16 each time the telephone receiver 12 is placed on its receiver hook 25 shown in Figs. 1 and 2. The movable member 24 as shown clearly in Fig. 4 is paddle-like in form and comprises a blade portion 26 and a shaft portion 27, the blade portion 26 having a relatively large aperture 28 formed therein through which a coin may pass. The shaft portion 27 as shown in Figs. 6 and 7 is apertured at 29 and is hinge supported on the top cover 18 of the coin box 16, the shaft portion 27 being in the nature of one leaf of the hinge, the other leaf 31 being angular in form and secured by means of screws 30 or other securing means to the under side of the top cover 18. A pintle 32 extending through the two leaf parts of the hinge holds the parts together and serves as a pivot point for the movable member 24. The shaft portion 27 has an upwardly extending boss 33 formed thereon as shown in Figs. 2, 4, 6 and 7 on the top of which is securely mounted a button piece 34 arranged to extend upwardly into an aperture 35 in the top cover 18. A curved leaf spring 36 secured at one end to the screw 30 extends downwardly through the aperture 29 and then upwardly into engagement with the under surface of the movable member 24 and urges the movable member 24 upwardly toward the under surface of the top cover 18. The movable member 24 is operated against the action of the leaf spring 36 by means of the switchhook 25 through a lever system 37 comprising a longitudinally movable bar 38 slidably supported in spaced brackets 39—39 mounted on the rear wall 40 of the casing 10. The upper end of the longitudinally movable bar 38 is apertured to accommodate one end portion 41 of a bell crank lever 42 secured to a rotatable shaft 43 which when the rotatable shaft 43 is rotated in a counter-clockwise direction as viewed in Fig. 8 causes the bar 38 to move downwardly in the casing 10 against the action of a leaf spring 44 mounted in a leaf spring pile-up 45 secured by means of mounting screws 46 on a projection 47 in the casing 10. The bell crank lever 42 has an arm portion 48 equipped with a pin 49 in frictional engagement with the leaf spring 44.

The rotatable shaft 43 is journaled in spaced blocks 50 and 51 extending from the rear wall 40 of the casing 10 and one end of the shaft 43 is mechanically connected to a lever type receiver hook 25 extending outwardly of the casing 10 and supported in a bearing 52. The receiver hook 25 extends angularly with respect to the rotatable shaft 43 and operates in the nature of a crank to rotate the shaft 43 in a counter-clockwise direction as viewed in Fig. 8 and against the action of the spring 44 when the receiver 12 is placed on the switch hook 25.

An electrical switch 53 supported on a hinge 54 is located between the lower end 55 of the movable bar 38 and the movable member 24. The electrical switch 53 performs two functions one being to transmit downward movements of the

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bar 38 to the movable member 24 and the other being to control an alarm device 56 in an alarm system 57 energized by a suitable source of current supply 58.

The electrical switch 53 as shown clearly in Figs. 6 and 7 comprises a conducting plate 59 insulatingly supported on a leaf member 60 of the hinge 54 the other leaf member 61 of the hinge 54 being secured to the frame 20 in the casing 10. Secured to and extending downwardly from the leaf member 60 is a shaft 62 which extends through relatively large apertures 63 and 64, respectively, in the frame 20 and the retainer 19 and into register with the aperture 35 in the top cover 18 of the coin box 16. The lower end of the shaft 62 rests on the top of the button piece 34 so that downward movement of the shaft 62 will cause a downward swinging action of the movable member 24 against the action of the curved leaf spring 36. Insulatingly supported on the conducting plate 59 and secured in place by a screw 65 is an L-shaped resilient conducting arm 66 carrying a contact point 67 in spaced relation with a contact piece 68 on the conducting plate 59. An adjustment screw 69 extends through a tapped hole in the conducting arm 66 and into engagement with the insulating strip 70 on the conducting plate 59. The adjustment screw 69 is equipped with a locknut 71 and may be adjusted to adjust the spacing between the contact point 67 and the contact piece 68. The lower end 55 of the longitudinally movable bar 38 rests on the upper surface of the resilient conducting arm 66. The conducting arm 66 has more stiffness than the curved leaf spring 36.

The switch 53 controls the operation of a signal device 56 which may be located remote from the telephone coin collector or at some other point where it is desired to have a signal displayed or sounded. The conducting plate 59 is in electrical connection with one side of the alarm system 57 and the conducting arm 66 is in electrical connection with the other side of the alarm system 57 through the insulated conducting wires 72 and 73 respectively. When the switch 53 is closed the alarm signal 56 will operate to display or sound an alarm depending on the type of alarm device employed in the alarm system 57.

It will be seen as shown in Fig. 2 that there is a pile up 74 of coins in the coin box 16 and that a coin deposited in the telephone coin collector and having passed through the coin distributor 24 may readily fall through apertures in the frame 20, the retainer 19, a coin guide 75 and the aperture 17 in the top cover 18 of the coin box 16 and enter the coin box 16. The coin after passing through the top cover 18 may readily fall through the aperture 28 in the movable member 24 and onto the top of the pile up 74, the movable member 24 being in the position it takes when the telephone receiver 12 is removed from the switchhook 25. When the receiver 12 is placed on the switchhook 25 the weight of the receiver 12 causes the rotatable shaft 43 to rotate in a counter-clockwise direction as viewed in Fig. 8. Rotation of the shaft 43 in this direction operates the bell crank lever 42 to move the bar 38 downwardly against the action of the leaf spring 44. The bar 38 in moving downward causes the switch 53 as a whole to swing downwardly on its hinge 54 to the position shown in Fig. 6. In moving to this position the shaft 62 bearing on the button piece 34 causes the movable member 24 to swing downwardly in the coin box 16. In swinging downwardly in the coin

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box 16 the movable member 24 knocks coins off the top of the pile up 74 and causes the coins on the top of the pile up 74 to fall to a lower level in the coin box 16. When the receiver 12 is removed from the switchhook 25 the leaf spring 44 causes the rotatable shaft 43 to rotate in a clockwise direction as viewed in Fig. 8 and causes the bell crank lever 42 to lift the bar 38 to permit the curved leaf spring 36 to move the movable member 24 and the switch 53 to the positions shown in Fig. 2. If the movable member 24 in its upward movement to the position shown in Fig. 2 encounters a coin the coin may readily fall through the aperture 28 in the movable member 24.

In the event that coins pile up in the coin box 16 to such height as to prevent downward movement of the movable member 24 and as shown in Fig. 7 and the receiver 12 is placed on the switchhook 25 the bar 38 moving downwardly under the weight of the receiver 12 will downwardly flex the resilient conducting arm 66 of the switch 53 so that the contact point 67 engages the contact piece 68 to close the circuit of the alarm system 57. The alarm 56 will then operate to indicate that coins are piled up too high in the coin box 16 for required operation of the movable member 24.

What is claimed is:

1. A coin collector apparatus comprising a coin box into which a plurality of coins may fall, a movable member supported in said coin box and operable to move coins in said coin box, a lever system exterior of said coin box and operable to move said movable member and an electrical switch between said movable member and said lever system and operable to transmit a movement of said lever system to said movable member.

2. A coin collector apparatus comprising a coin box into which a plurality of coins may fall and build up to form a pile of coins, an apertured and movable paddle-like member supported in said coin box and operable to engage and move coins having a tendency to build up in the form of a pile in said coin box, a longitudinally movable bar exterior of said coin box to operate said movable member, a pivotally supported electrical switch disposed between said longitudinally movable bar and said movable member and operable to transmit a movement of said longitudinally movable bar to said movable member, relatively movable contact members in said switch and operable to close against each other when said longitudinally movable bar is moved and a pile-up of coins in said coin box is too high to be knocked down by said movable paddle-like member and an alarm system controlled by said electrical switch.

3. A telephone coin collector apparatus comprising a coin box in which collected coins may accumulate and build up to form a pile-up of coins, a movable paddle-like member supported

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in an upper portion of said coin box and operable to move and knock down coins from the top portion of a pile-up of coins in said coin box, a movable switchhook to support a telephone instrument and a system of mechanically movable elements extending from said switchhook to said paddle-like member to move said paddle-like member when said switchhook is operated.

4. A telephone coin collector apparatus comprising a final coin box in which collected coins may accumulate and build up in the form of a pile-up of coins, a movable paddle-like member supported in said coin box and operable to knock down within said coin box the topmost coins of the coins piling up in said coin box, a movable switchhook to support a telephone instrument, a rotatable shaft in mechanical connection with said movable switchhook and a lever system extending from said rotatable shaft to said movable paddle-like member and operable to move said paddle-like member to knock down the topmost coins of a pile-up of coins in said coin box when the telephone instrument is placed on said movable switchhook.

5. A telephone coin collector apparatus comprising a coin box in which collected coins may accumulate and form a pile-up of coins in said coin box, a movable member pivotally supported in an upper portion of said coin box and operable to swing within said coin box and knock down the uppermost coins in a pile-up of coins in said coin box, a movable switchhook to removably support a telephone instrument, said switchhook being movable under the weight of the telephone instrument, a longitudinally movable bar operated by means of said switchhook, a pivotally supported electrical switch extending between said bar and said movable member, said switch being movable as a whole to transmit a movement of said bar to said movable member, a resilient contact in said switch and engaged by said longitudinally movable bar, a relatively fixed contact in said switch and spaced from said resilient contact and an electrical alarm system connected to said switch, said resilient contact being operable to move against said fixed contact to close said electrical alarm system when said longitudinally movable bar is moved and said movable member in said coin box is held against movement by a pile-up of coins in said coin box.

OSCAR A. SHANN.

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