

Dec. 5, 1950

G. M. WILCOX

2,532,978

COIN COLLECTOR APPARATUS

Filed Feb. 24, 1944

3 Sheets-Sheet 1

Fig. 1.

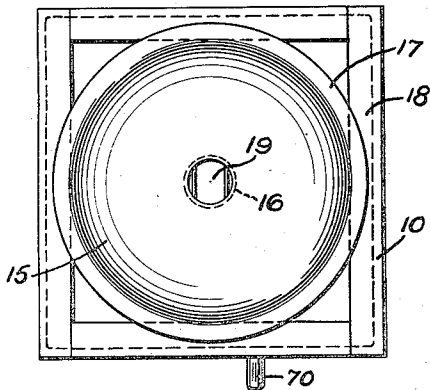


Fig. 2.

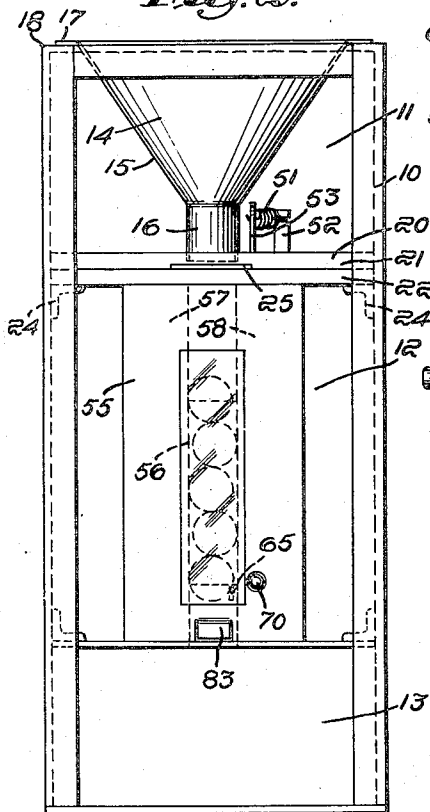
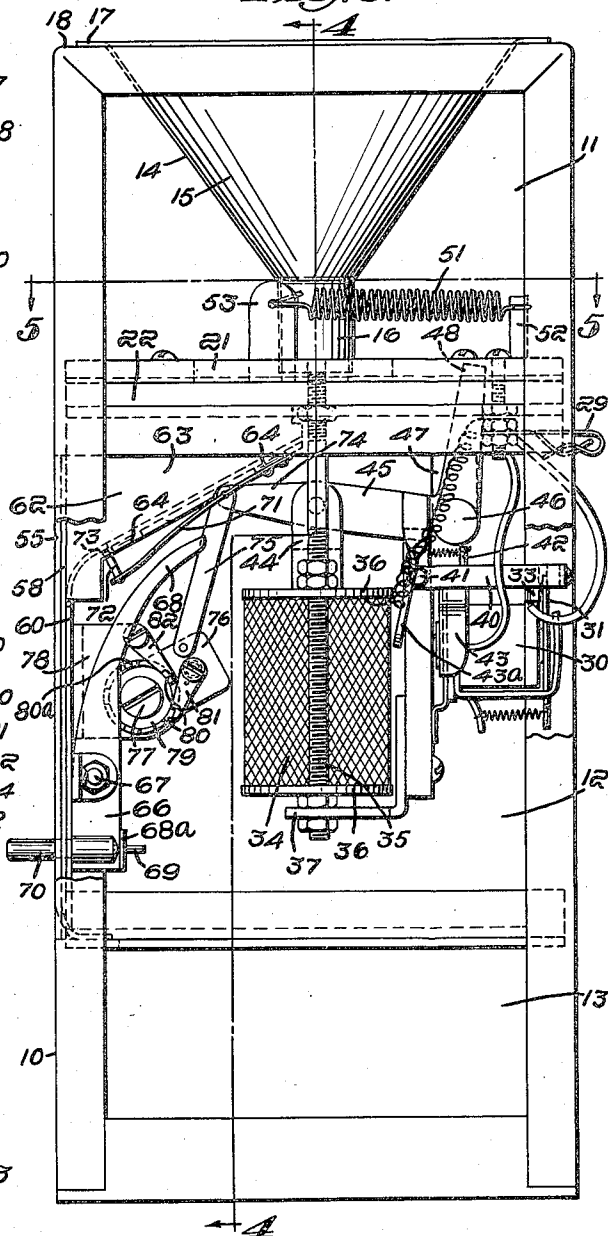


Fig. 3.



Inventor:
Granville M. Wilcox
by Nathaniel Frucht
Attorney

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Fig. 4.

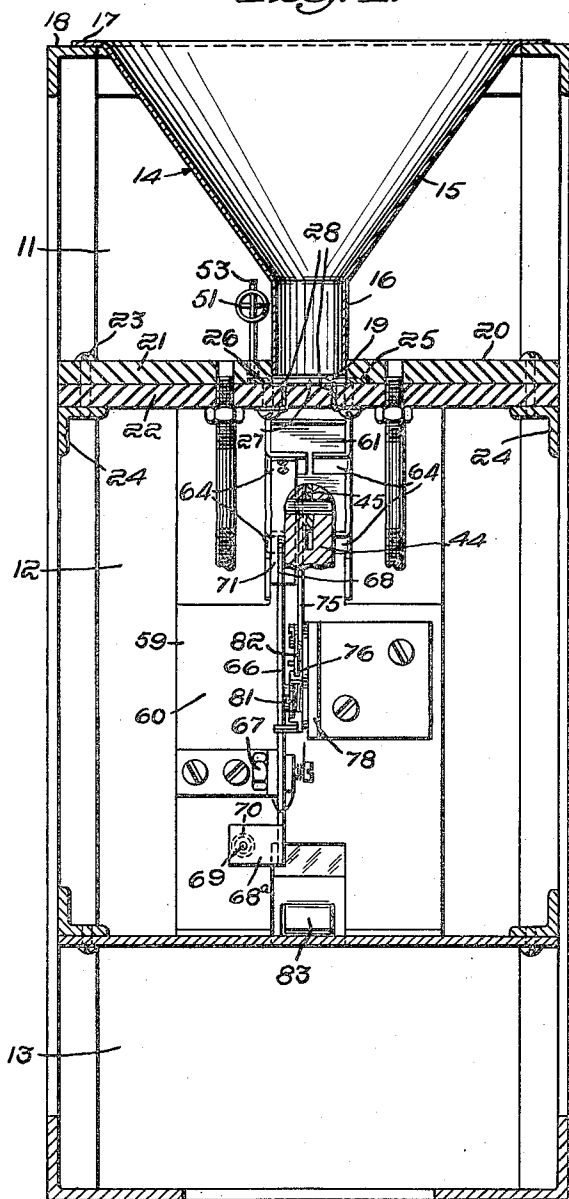


Fig. 5.

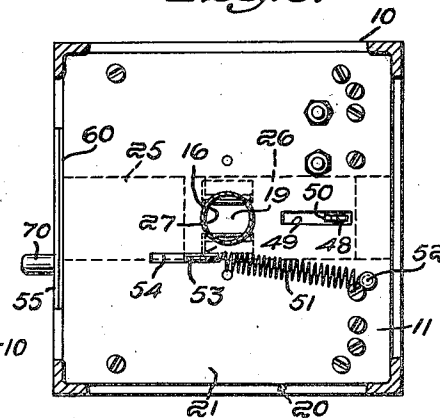
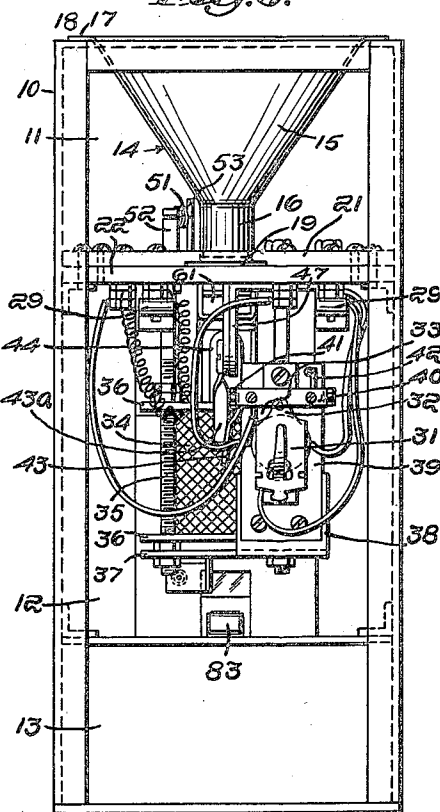


Fig. 6.



Inventor:
 Grawille M. Wilcox
 2029 Nathaniel Frucht
 Attorney

Dec. 5, 1950

G. M. WILCOX
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Fig. 7.

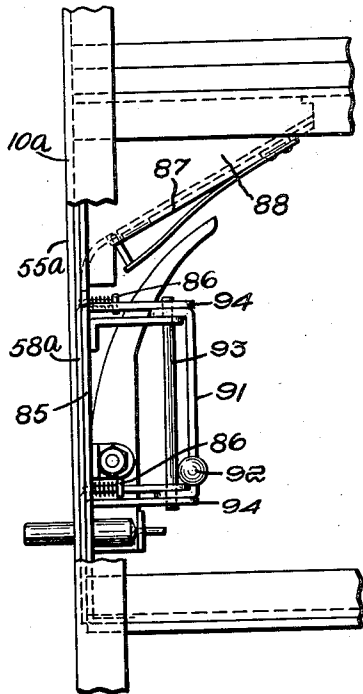


Fig. 8.

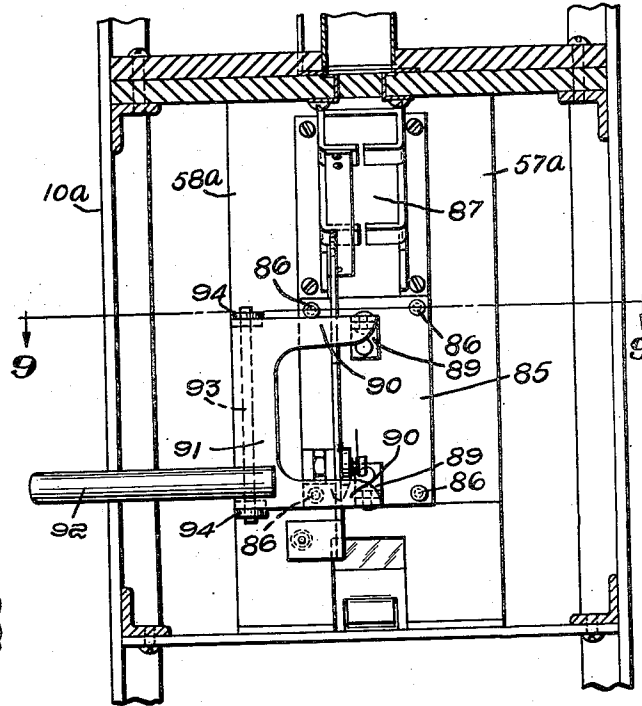
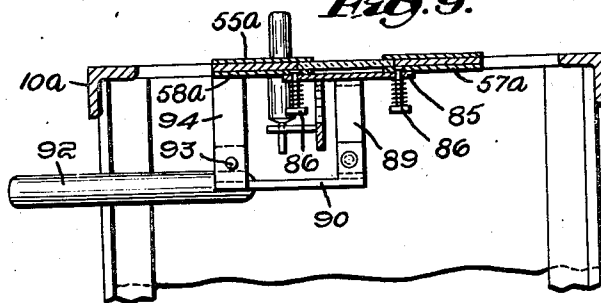


Fig. 9.



Inventor:
Granville M. Wilcox
by Nathaniel Frucht
Attorney

UNITED STATES PATENT OFFICE

2,532,978

COIN COLLECTOR APPARATUS

Granville M. Wilcox, Lincoln, R. I., assignor to
Max L. Grant, Providence, R. I.

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2 Claims. (Cl. 194—6)

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My present invention relates to improvements in coin collectors and has specific reference to an apparatus for displaying collected coins and for releasing the displayed coins in groups of a predetermined number.

It is the principal object of the invention to provide a collector which displays coins in sequence and automatically releases the displayed coins when a fixed number has been collected and displayed.

Another object of the invention is to provide a collector which receives and stacks deposited coins, and displays the deposited coins.

Still another object of the invention is to provide an automatic display in multiple of deposited coins in the order of their deposit.

With the above and other objects and advantageous features in view, the invention consists of a novel arrangement of parts more fully disclosed in the detailed description following in conjunction with the accompanying drawings, and more specifically defined in the claims appended thereto.

In the drawings,

Fig. 1 is a top plan view of an illustrative collector device embodying the invention;

Fig. 2 is an elevation thereof;

Fig. 3 is an enlarged side elevation, partly broken away;

Fig. 4 is a vertical section on the line 4—4 of Fig. 3;

Fig. 5 is a horizontal section on the line 5—5 of Fig. 3;

Fig. 6 is a rear elevation;

Figs. 7, 8 and 9 are detail views, partly in section, showing a modified construction for the coin display arrangement.

It has been found desirable to provide a coin collector which has a novel wide mouth hopper to permit coins to be dropped therein, the hopper stacking the deposited coins in deposited sequence. Each coin, as it leaves the hopper, actuates an operating mechanism to deposit the coin in sequence, in a display device, the number and amount being simultaneously registered if desired; when a selected number of coins has been displayed as a group, for example, five coins, the deposit of the next coin actuates the operating mechanism to release the group into a suitable receptacle.

The drawings illustrate a preferred constructional embodiment of the invention, but the invention is not limited by the specific structural arrangement, as other suitable arrangements of parts may be utilized to obtain the desired operational sequence.

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In the drawings, see Fig. 2, the collector includes a framework 10 of any suitable material, metal being preferred, divided into an upper coin deposit compartment 11, an intermediate coin display compartment 12, and a lower coin receiving compartment 13.

The coin deposit compartment houses a funnel shaped hopper 14, which as illustrated in Fig. 2 has an upper conical receiver 15 and a lower cylindrical stacking portion 16, the upper edge of the receiver being preferably flanged as indicated at 17 to seat on the upper edges 18 of the framework. The hopper is preferably removable, but may be fixed in position if desired. As the coins are dropped into the conical receiver they become stacked in the stacking portion 16; this construction facilitates the depositing of coins, as there is no slot or narrow deposit entry, and increases the speed of depositing, which is an important factor when the collector device is used for collecting transportation fares or other services where speedy collection is desirable.

The lower end of the stacking portion rests directly over an opening 19 in a transverse partition 20, which as illustrated comprises an upper plate 21 and a lower plate 22, the plates being fixed in the framework 10, as by means of screws or the like 23, see Fig. 4, which thread into transverse angle bars 24 forming part of the framework. As illustrated in Figs. 4 and 5, the upper plate 21 is transversely recessed or slotted as indicated by the reference numeral 25, to slidably receive a transfer plate 26 which has an opening 27 to receive a deposited coin from the stacking portion. The slot 25 and the transfer plate 26 are of the right thickness to receive only one coin at a time, and the plates 21 and 22 are preferably of insulation material, for the purpose hereinafter described.

Referring now to Fig. 4, two spaced contact plates 28 are mounted in the lower insulating plate 22, the plates extending across the opening 27, as shown in Fig. 5, and projecting slightly above the upper surface of the plate 22 to be engaged by a coin when it falls into the opening 27. The two contact plates are connected by suitable wiring to a source of electrical power, as for example electrical wire receiving clips 29, see Fig. 3, and to an electromagnet 30 which is mounted on an insulating block as hereinafter described and which has an armature 31 normally spring pressed to open released position.

When the armature is closed, the upper portion 32 thereof contacts a contact bar 33, connected by suitable wiring to complete the electrical circuit through a solenoid 34 suitably

mounted in the framework 10, as by means of depending threaded rods 35 and plates 36, an auxiliary plate 37 also mounted on the rods 35 having a vertical flange 38 to support an insulated block 39 on which the electromagnet 30 is mounted. A safety catch is also mounted on this block 39, and comprises a U-shaped bar 40 pivotally mounted as at 41, see Fig. 3, and adapted to overhang the upper armature end when the armature is in closed position. The bar 40 is normally spring urged to release position by means of an upper finger 42, and has a depending finger 43 for a purpose hereinafter described.

Referring now to Fig. 3, the solenoid 34 has an armature having a normally upstanding end 44; this upstanding end operates the transfer plate 26 and a counter wheel release mechanism by means of a bell crank 45, pivoted at 46 to a depending support 47 fixed to the framework. The upper end 48 of the bell crank projects through suitable aligned slots 49 in the upper and lower transverse plates, see Fig. 5, to seat in an opening 50 in the transfer plate, whereby downward movement of the solenoid armature swings the bell crank end 48 and thrusts the transfer plate 26 and the coin positioned in its opening forwardly; the transfer plate is subsequently returned by means of a spring 51 having one end fastened to a post 52 secured to the framework, and the other end fastened to an upstanding finger 53 of the transfer plate, which extends through a suitable slot 54 in the upper plate 21 and may be used to actuate a coin counter (not shown), which may be removable. Movement of the bell crank also resets the armature of the electromagnet by pressing against the finger 43, with a downwardly extending finger 43a, thus breaking the circuit and stopping chatter of the solenoid.

When the solenoid is actuated the transfer plate is moved forwardly to transfer the coin in the transfer plate opening to a display device in the display compartment 12. As illustrated in Figs. 2 and 3, a plate 55 is vertically mounted on the framework, and is provided with a vertical rectangular slot 56; two smaller plates 57, 58 are mounted in back of the plate 55, to slightly overlap the vertical sides of the slot 56, whereby a glass or transparent panel may be mounted in the slot 56 to seat on the overlapping edges of the vertical plates 57, 58 and thus display the coins therein to view. The thickness of the plate 55 is preferably the thickness of the glass panel, and the thickness of the plates 57, 58 is slightly greater than the thickness of the coin to be deposited.

Mounted in rear of the plates 57, 58 is a backing device 59, the lower end 60 being in the form of a back plate, and the upper end 61 being in the form of a narrow tongue bending upwardly and rearwardly and forming the base of a coin drop housing 62, the sides 63 being triangular and secured to the framework and the lower transverse plate 22, and having bent over fingers 64 to receive and support the upper end 61 of the backing device.

The upper portion of the coin drop housing is directly under the path of movement of the transfer plate, whereby forward movement of the transfer plate permits the coin to drop into the housing 62 and slide down over the backing device and into the vertical space between the inner edges of the two plates 57 and 58. The spacing of the plates 57 and 58, and the thick-

ness of the passageway thus formed, is gauged to accommodate only one coin at a time, whereby the coins are stacked vertically for display. The downward movement of the coin is stopped by a finger 65 which is normally positioned at the lower end in the path of movement of the coin, and which is part of a bent lever 66 pivoted to the framework at 67. Each additional coin rests on top of the previous coin until a group of a predetermined number of coins is displayed.

The bent lever 66 has its upper end 68 curved as shown in Fig. 3, and has a transverse finger 68a at its lower end provided with an opening through which the reduced end 69 of a push pin 70 extends, the push pin 70 being slidably mounted in the framework and extending outwardly from the front so that the lever 66 may be manually moved when required. The upper end 68 of the bent lever is positioned adjacent a resilient metal blade 71, secured at its rear end to the upper end 61 of the backing device 59, and having an upwardly extending stop pin 72 which passes through a suitable opening 73 in the upper end 61 for the purpose of stopping passage of a coin down into display position, as hereinafter described.

Referring now to Fig. 3, the forward end 74 of the bell crank 45 is pivoted to a link 75 which in turn is pivoted to a swing plate 76, rotatably mounted as at 77 to an angle iron or the like 78 secured to the framework. Pivotaly mounted on the pivot 77 is a toothed wheel 79 having a number of spaced laterally extending teeth 80, one tooth 80a being of greater length than the others. The swing plate has a spring pressed actuating pawl 81 to movably engage the teeth 80, and the angle iron 78 has a spring pressed stop pawl 82 to successively stop backward movement of the toothed wheel.

When the solenoid armature is actuated by deposit of a coin, the forward end of the bell crank moves the swing plate, and the actuating pawl 81 turns the toothed wheel; at the same time the coin is transferred to drop into the display slot, where it is stopped by the finger 65 of the bent lever, the stop pin 72 being held out of the path of movement by the spring blade 71. Each deposited coin is successively exposed to view as indicated in Fig. 2, until a group of the desired number corresponding to the number of short teeth 80 is reached. The next coin deposited causes the long tooth 80a to engage the back portion of the bent lever; this moves the stop pin 72 inwardly to stop passage of the coin, and moves the finger 65 out to release the group of displayed coins. Further movement of the counter releases the stopped coin to display position. The group of released coins is directed by a rearwardly bent flange 83 at the lower end of the plate 55 into a receptacle, (not shown), in the coin receptacle compartment 13.

The operation of the novel collector is therefore as follows: Any number of coins may be deposited in the coin hopper, it being essential that the coins be of the proper size and of the requisite thickness. The coins are stacked in the stacking portion, and the lowermost coin slides into the opening in the transfer plate, and closes the electrical circuit to operate the electromagnet and the solenoid, thus producing movement of the transfer plate to deposit the lowermost coin in the display panel and to turn the toothed wheel, the other coins being similarly transferred and the wheel similarly turned. The toothed wheel may be connected to a coin registering device of

any standard type, by suitable mechanism (not shown). When the desired number of coins, such as for example five, is displayed, the next movement of the wheel moves the release lever to release the displayed coins as a group, while stopping movement of additional coins to the display panel. If the release lever fails to function, or if it is desired to release a smaller number of coins, the push rod is pushed manually to release the displayed coins. The invention is therefore simple and effective in operation, and results in the release of deposited coins in groups while affording an opportunity for inspection of the group as a unit before release to a coin receptacle.

Under certain conditions, it is desirable to provide a mechanism for preventing possible jamming of the collector because of bent or otherwise marred coins. This is preferably accomplished by mounting the backing device so as to be manually movable to widen the coin passage in the display device, and an illustrative construction for accomplishing this function is shown in Figs. 7 to 9.

In this construction, the framework 10a is provided with the front plate 55a and the back strips 57a and 58a. The backing plate 85, however, is movable and mounted on four headed support pins 86, each provided with springs to urge the backing plate towards the strips 57a and 58a; the upper portion 87 of the backing device is preferably separate and secured to the coin receiving housing 88. As illustrated in Fig. 9, two spaced supports 89 are secured to upper and lower portions of the backing plate 85, and are pivoted to the arms 90 of a U-shaped member 91, this member having a manually operable extension handle 92 and being pivotally mounted on a pivot rod 93 mounted in lugs 94 secured to the framework. A manual pull on the handle 92 turns the U-shaped member and pulls the backing plate 85 back against the springs of the support pins, thus releasing any bent or marred coins which have lodged in the vertical display channel.

While I have described an illustrative constructional embodiment of my invention, it is obvious that alternative constructional arrangements may be used to accomplish the desired sequence of operations for different coin collection devices without departing from the spirit and the scope of the invention as defined in the appended claims.

I claim:

1. In a coin collector, a coin display compartment comprising an elongated coin passageway having side edges spaced to receive one coin only and having a backing plate and a transparent front plate spaced to receive one coin in thickness only, a housing for receiving deposited coins, and transfer mechanism for transferring coins in sequence into said passageway, whereby said coins are displayed in said passageway edge to edge, a movable stop at the lower end of said passageway movable to release the displayed coins from said passageway, means for moving said stop after a predetermined number of coins have been transferred to said passageway, comprising mechanism actuated by a subsequently deposited coin, and means operated by said mechanism to prevent passage of said subsequently deposited coin into said passageway until the displayed coins have been released and the movable stop is in non-release position.

2. In a coin collector, means for receiving deposited coins in varying amounts, means for displaying said coins, means for transferring the coins in sequence from the receiving to the displaying means, until a group of a predetermined number of coins is displayed, means responsive to the transfer of an additional coin for releasing the group, and means for withholding movement of said additional coin to the displaying means until the group has been released.

GRANVILLE M. WILCOX.

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