

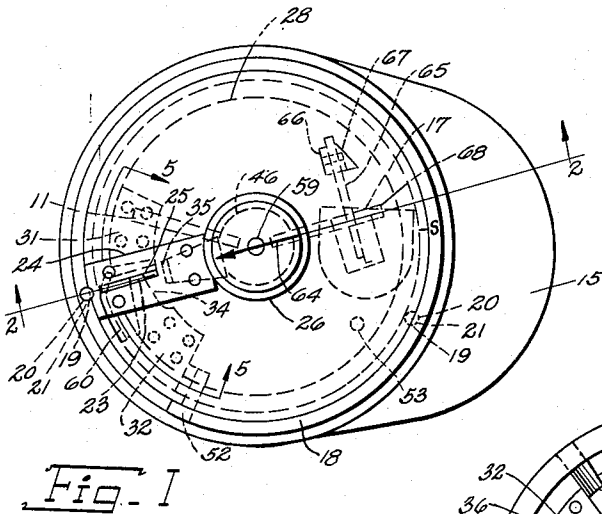
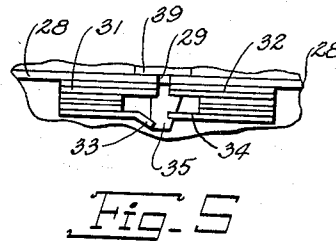
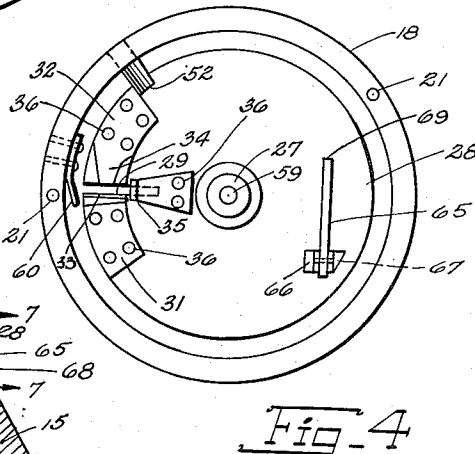
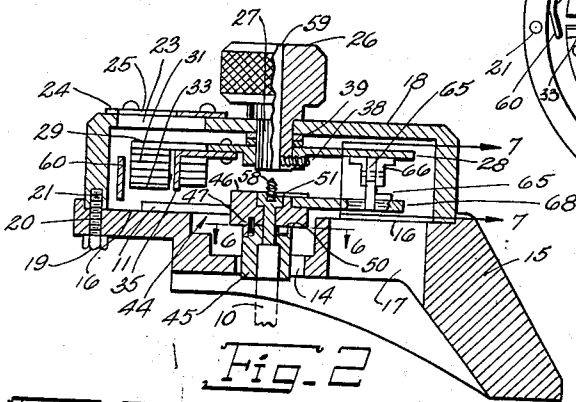
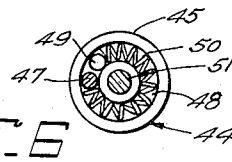
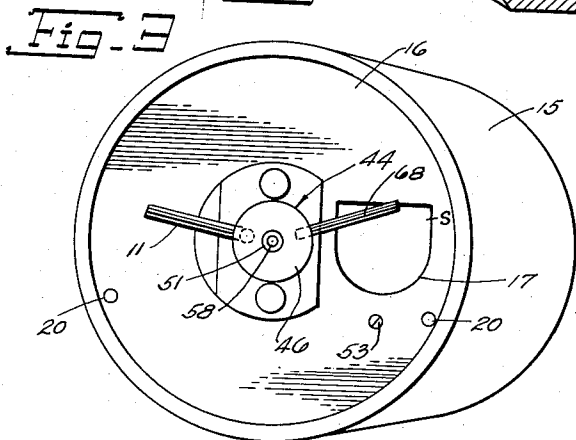
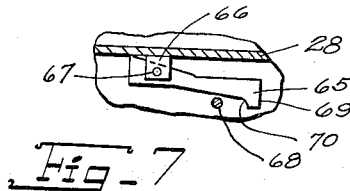
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2,672,968

COIN COLLECTING DEVICE WITH SHORT AND LONG TIME OPERATION

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## UNITED STATES PATENT OFFICE

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COIN COLLECTING DEVICE WITH SHORT  
AND LONG TIME OPERATIONHarry Greenwald, Blauvelt, N. Y., assignor to  
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This invention relates to new and useful im-  
provements in coin collecting devices for electri-  
cal appliances, particularly automatic washing  
machines employing electric timers.

It is customary to operate washing machines  
so as to give a long or short wash, as desired.  
Heretofore, coin collecting devices have been so  
constructed that a person could select a long  
or short wash operation of the washing machines.  
These prior constructions generally were charac-  
terized by forming the discharge openings  
through which the deposited coins fell into the  
coin receiving boxes extra long. Persons were  
then instructed that if a long wash was desired  
it would be necessary to turn the knob of the  
coin collecting device slowly so that the coin  
would fall through the front portion of the coin  
discharge opening and therefore the timer would  
be set to its starting position and give a long  
wash. If a short wash was desired the instruc-  
tions were to turn the knob of the coin collecting  
device rapidly so that the coins were discharged  
through the back ends of the coin discharge  
openings, and in this way cause the timers to  
be turned past their starting positions. A short  
wash therefore results. However, it is natural  
for people to do things quickly and invariably  
they would turn the knobs of the coin collecting  
devices too rapidly so that they would always  
receive the short wash. Naturally the washing  
operation was then unsatisfactory and complaints  
would result.

This invention particularly proposes a new  
construction of coin collecting device which will  
give a long wash or a short wash independent  
of the speed with which the operating knob of  
the coin collecting device is operated. It is pro-  
posed that the coin collecting device be so con-  
structed that the knob of the coin collecting de-  
vice must be turned its full distance for a long  
wash. If a short wash is desired it must then  
be turned back and then forward again to move  
the electric timer forward to diminish the wash  
period.

More particularly, the invention proposes the  
use of a pawl mounted on the manual turnable  
means of the coin collecting device for moving  
forward when the turnable means is moved for-  
wards, and for moving rearwards when the turn-  
able means is moved rearwards. A ratchet ele-  
ment is associated with the means for turn-  
ing the electric timer and is engageable by the  
pawl when positioned to the front of the pawl  
and the pawl is moved forwards. It is contem-  
plated to so arrange these parts that the pawl

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may idle over the ratchet element when to the  
front of the ratchet element, and the pawl is  
moved rearwards. It is also proposed that the  
ratchet element be normally behind the pawl  
while the coin is being discharged through the  
coin discharge opening. With this construction  
it is possible to move the manual turnable means  
back after a coin has been discharged through  
the discharge opening in order to move the pawl  
behind the ratchet element so that said manual  
turnable means may now be moved forwards for  
further turning the electric timer past its start-  
ing position to shorten its time of operation.

While the new coin collecting device is partic-  
ularly intended for the timer of an automatic  
washing machine it must be understood that it  
may be used on other appliances and devices  
where a selection of long time or short time  
periods is required for one price.

Another object of the invention is the construc-  
tion of a device as mentioned which is simple and  
durable and which may be manufactured and  
sold at a reasonable cost.

For further comprehension of the invention,  
and of the objects and advantages thereof, refer-  
ence will be had to the following description and  
accompanying drawing, and to the appended  
claims in which the various novel features of the  
invention are more particularly set forth.

In the accompanying drawing forming a ma-  
terial part of this disclosure:

Fig. 1 is a plan view of a coin collecting device  
constructed in accordance with this invention.

Fig. 2 is a sectional view taken on the line  
2—2 of Fig. 1.

Fig. 3 is a plan view similar to Fig. 1 but illus-  
trating the device with the head thereof re-  
moved.

Fig. 4 is a bottom view of the head of the  
coin collecting device.

Fig. 5 is a fragmentary elevational view of the  
coin supporting means, this view being taken  
looking in the direction of the line 5—5 of Fig. 1.

Fig. 6 is a fragmentary enlarged horizontal  
sectional view taken on the line 6—6 of Fig. 2.

Fig. 7 is a fragmentary sectional view taken  
on the line 7—7 of Fig. 2.

The coin collecting device, in accordance with  
this invention, is intended to be used with an  
electric timer, not illustrated on the drawing, hav-  
ing a cam or control shaft schematically illus-  
trated on the drawing with the dot and dash  
lines 10 in Fig. 2. This timer may be used to con-  
trol an electrical appliance such as a washing  
machine or other device. It is essential that the

3 timer be of a design in which the cam or control shaft 10 moves in one direction only and has a starting position and a stop position which is less than 360° from the starting position. More specifically, the coin collecting device illustrated on the drawing is intended to be used with a timer having a starting position, indicated in Figs. 1 and 3 by the letter S, and having a stop position indicated by the position in which the radial pin 11 is illustrated.

The cam or control shaft 10 extends through an opening 14 in a base or casing 15 of the coin collecting device. This base or casing 15 may be of any suitable shape by which it is adapted to be mounted on a washing machine or other electrical appliance. The base or casing 15 is provided with a coin supporting surface 16 extending around said opening 14. This coin supporting surface 16 is provided with a coin discharge opening 17 at one point, which point corresponds with the starting position S of the timer. A head 18 is mounted on the base or casing 15 over said coin supporting surface 16 and is held in position with fastening elements 19. In the particular design of the coin collecting device illustrated, the base or casing 15 is provided with two openings 20 for two fastening elements 19 to engage two complementary openings 21 formed in the head 18. The head 18 is provided with a coin intake slot 23 through which a coin may be deposited upon said coin supporting surface 16. A small plate 24 is attached upon the top of the head 18 and is provided with a coin slot 25 aligned with the coin slot 23. This coin slot 25 may be of a limited size so as to accommodate either a dime, a nickel or a quarter, or other size coin, to which the coin collecting device is adjusted.

Manual turnable means is provided, turnable forwards for moving a coin inserted in said slot 25 to said discharge aperture 17, and said means is turnable back to said slot 25. Said manual turnable means includes a knob 26 positioned outside of the head 18 centrally thereof and provided with a stem portion 27 extending through the head 18. This stem portion 27 connects with and supports a coin supporting means within the head 18. This coin supporting means is for the purpose of supporting a coin dropped through the slot 25 edgewise upon the coin supporting surface 16. This coin supporting means includes a disc 28 fixedly attached to the stem 27 and at one point provided with a radial slot 29 alignable with the coin opening 25. A plurality of laminated strips 31 and 32 are mounted upon the bottom of the disc 28 to the sides of the slot 29. The laminated group of strips 31 have a bottom strip provided with a downwardly bent edge or flange 33 opposed to a pointed strip 34 located upon the bottom of the group of strips 32. The pointed strip 34 is adapted to engage through the center hole of a slug, in which case the slug will not be properly supported and will topple over. If a genuine coin is inserted in the collecting device the flange 33 and pointed strip 34 will engage the opposite faces and properly support it upon the coin supporting surface 16. A stop 35 is mounted on the bottom of the disc 28 radially aligned with the slot 29 for further assisting in supporting the coin and preventing it from rolling radially of the coin supporting surface 16.

It is pointed out that the stop 35 and the laminated strips 31 and 32 are secured in position with fastening elements 36 in order that it

is possible to select the position of the stop 35 and the depth of the laminated strips 31 and 32 to adapt the coin collecting device for a specific coin such as a dime, or nickel, or quarter. The knob 26 may be turned for turning the disc 28 in order to move a properly supported coin along the coin supporting surface 16. The disc 28 is mounted on the stem 27 with a fastening element 38 in order that the disc 28 may be adjusted upwards and downwards on the stem 27. Washers 39 are mounted on the stem 27 between the disc 28 and the bottom face of the head 18. The purpose of the disc 28 is to assist in the adjustability of the coin collecting device to coins of particular dimensions, in order to reject slugs and smaller coins. Washers 39 may be removed or added, as needed.

Means is provided for turning said electric timer to its starting position when said manual turnable means is operated forwards to discharge a coin through said discharge opening 17. This means includes a clutch 44 for fixed attachment on the cam or control shaft 10. More particularly, this clutch 44 has a bottom section 45 adapted to be fixed on the cam or control shaft 10. The clutch 44 is also provided with a top section 46 which is movable forwards (clockwise) in a contact position on the bottom section 45 for turning said bottom section forwards (clockwise) and which may idle rearwards (counterclockwise) from and back again to said contact position. The contact position of the clutch 44 is determined by a pin 47 mounted upon the top section 46 and extending downwards into a groove 48 formed in the top of the bottom section 45. This pin 47 contacts against the side of a pin 49 which is fixedly mounted in the groove 48 on the bottom section 45. A spring 50 is mounted around the groove 48 and acts between the pins 47 and 49. The top section 46 is turnably mounted on the bottom section 45 with a stud 51. When the top section 46 is turned clockwise the pin 47 engaging the pin 49 turns the bottom section 45 clockwise. The spring 50 normally urges the sections 45 and 46 into a position in which the pins 47 and 49 contact each other. This is the contact position of the clutch 44. The pin 11 previously referred to, is mounted radially on the top section 46 of the clutch 44 and extends across the coin supporting surface 16 in order to be moved by a coin moved along said coin supporting surface 16.

A stop 52 is mounted on said head 18 and extends into the path of motion of the laminated strips 32 for limiting turning of the coin supporting means in one direction from a position beneath said slot 25. A stop 53 projects from the base 15 and is positioned in the path of motion of the laminated strips 31 for limiting turning of said coin supporting means to a position over said coin discharge hole 17. As illustrated on the drawing, the laminated strips 32 are now engaging the stop 52. A coin may now be dropped through the slot 25 into a position in the coin supporting means. The knob 26 may now be turned clockwise in relation to Fig. 1 to a position in which the laminated strips 31 will strike the stop 53 and in this position the coin will be dropped through the coin discharge opening 17 and the pin 11 will now be at the starting position of the timer, namely at position S.

A threaded connector 58 is coaxially connected

with said clutch 44 and is aligned with a coaxial opening 53 formed through said knob 26 in order that a tool, not shown, may be passed through the opening 53 and engaged with the threaded connector 58 for manually moving said clutch 44. This is necessary for axially moving the cam shaft 10 of the timer under certain conditions of operation of the timer.

A leaf spring 60 is mounted within the head 18 adjacent the coin slot 25 and above the coin supporting surface 16 for preventing reclaiming of a coin moved along said surface 16 past said leaf spring 60. Specifically, when a coin is dropped through the slot 25 it rests on the coin supporting surface 16 and when the knob 26 is turned, the coin flexes the end of the leaf spring 60 as it passes. Once the coin passes the end of the leaf spring 60 it cannot be reclaimed because it cannot be moved back to a position beneath the coin slot 25. An arrow 64 is imprinted on the top of the knob 26 to indicate the position of the slot 29 in the disc 28.

A pawl 65 is mounted on said manual turnable means for moving forwards when said turnable means is moved forwards, and rearwards when said turnable means is moved rearwards. More particularly, the pawl 65 is mounted upon the bottom face of the disc 28. Brackets 66 are attached to the bottom face of the disc 28. The pawl 65 is pivotally supported upon the brackets 66 by a pintle pin 67. The pintle pin 67 is located near the tail end of the pawl 65 so that the front end of the pawl 65 naturally seeks a down position. The tail end of the pawl 65 engages the bottom face of the disc 28. The front end of the pawl 65 is free to move upwards. A ratchet element 68 is mounted on the means for turning the electric timer and is engageable by said pawl 65 when positioned to the front of the pawl 65 and the pawl 65 is moved forwards. This ratchet element 68 comprises a pin 62 which is radially mounted on the top section of the clutch 44.

The ratchet element 68 is mounted at a higher elevation than the radial pin 11 and the front end of the pawl 65 extends downwards a distance sufficient to engage the ratchet element 68, but a distance insufficient to engage the radial pin 11. The reason for this arrangement is to prevent the pawl 65 from engaging the pin 11 and moving the electric timer unwarrantably. It may be well to point out at this time that the particular coin collecting device illustrated on the drawing shows but one pin 11, but it is customary to add additional pins to the top section 46 of the clutch 44 when it is desired to convert the coin collecting device to one requiring more than one coin for its operation, as for example, like the coin collecting device disclosed in my patent application Serial No. 133,350, filed December 16, 1949. The front end of the pawl 65 has a vertical front 69 which when located behind the ratchet element 68 is capable of moving the ratchet element 68 forwards.

The front end portion of the pawl 65 also has a curved bottom section 70 which will ride over the ratchet element 68 and cause the pawl 65 to lift when the pawl 65 is moved rearwards in relation to the ratchet element 68. The ratchet element 68 is normally behind the front end of the pawl 65, as illustrated on the drawing, while the coin is being discharged through the discharge opening 17. However, the manual turnable means is capable of being moved backwards after a coin has been discharged through the discharge opening 17 in order to move the pawl 75

65 behind the ratchet element 68 so that the manual means may now be moved forwards for turning said electric timer past its starting position to shorten the time of its operation.

The operation and use of the coin collecting device may be understood from the following:

A coin may now be dropped through the coin slot 25 so that it comes to rest on the coin supporting surface 16 edgewise, and is held in this position by the coin supporting means including the flange 33, the pointed strip 34, and the stop 35. The knob 26 may now be turned clockwise so that the coin will engage pin 11. By this time the coin has moved past the leaf spring 60 and cannot be reclaimed. The knob 26 is turned clockwise so that the coin strikes pin 11 and then turns the clutch 44 clockwise. The clutch 44 in turn turns the cam shaft 10. The clutch 44 is continued to be turned clockwise until the coin reaches the coin discharge opening 17 and drops downwards. At this time the pin 11 will have reached the starting position S and the timer starts. The timer keeps operating until the cam shaft 10 has turned around to a position in which the pin 11 is in the position as illustrated on the drawing. This is the stop position of the timer.

The coin collecting device may be operated to give a long wash or short wash when it controls an automatic electric washing machine, or give a long operation or short operation when controlling some other appliance. The long operation is obtained by merely dropping the coin through the slot 25 while the manual turnable means is in the start position as illustrated on the drawing. The knob 26 is now turned clockwise in order to move the coin clockwise on the coin supporting surface 16. Soon the coin engages the radial pin 11 and starts turning the electric timer towards its starting position. Up to this point the pawl 65 merely moved a little further ahead of the ratchet element 68, but as soon as the pin 11 is engaged by the coin and starts turning the means for turning the electric timer, the top section 46 of the clutch 44 is being turned clockwise, and the ratchet element 68 now maintains its position in relation to the pawl 65. The knob 26 is turned as far as it will go, controlled by the laminated strips 31 striking the stop 53. At this position the coin will fall through the discharge opening 17 and the electric timer will now be in its starting position. The coin collecting device may be left in this position and will now give the long wash, or full time period. If a short wash, or short time period is desired, the knob 26 must be turned back so that the pawl 65 will idle over the ratchet element 68 and get behind it. Now the knob 26 may be turned forwards again until the laminated strips 31 again strike the stop 53. By doing this the pawl 65 will engage the ratchet element 68 and move the electric timer forwards from its starting position, and in this way cut down its time of operation.

While I have illustrated and described the preferred embodiment of my invention, it is to be understood that I do not limit myself to the precise construction herein disclosed and the right is reserved to all changes coming within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new and desire to secure by United States Letters Patent is:

1. A coin collecting device for an electric timer having a control shaft with a starting position

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and a stop position less than 360° from said starting position, said control shaft being rotated by the timer in a forward direction from the starting position to the stop position, comprising a head having a coin intake slot, a casing having a coin discharge opening spaced from said slot, manual turnable means turnable forwards for moving a coin inserted in said slot to said discharge opening and turnable back to said slot, means including a pin engaged by a coin moved by said manual turnable means for turning forwards and turning said control shaft to its starting position when said manual turnable means is operated forwards and moves a coin from said intake slot to said discharge opening, a pawl mounted on said manual turnable means for moving forwards when said turnable means is moved forwards and rearwards when said turnable means is moved rearwards, a ratchet element on said means for turning said control shaft, said ratchet element moving forwards when said means for turning said control shaft moved forwards, said ratchet element being engageable by said pawl when positioned to the front of said pawl and said pawl is moved forwards, said pawl idling over said ratchet element when to the front of said ratchet element and said pawl is moved rearwards, said ratchet element being normally behind said pawl while said coin is engaging said pin and is being moved forwards to be discharged through said discharge opening, and said manual turnable means being movable back towards said coin slot after a coin has been discharged through said discharge opening in order to move said pawl behind said ratchet element so that said manual turnable means may now be moved forwards for further turning said control shaft past its starting position to shorten the time of its operation.

2. A coin collecting device as defined in claim 1, in which said pawl comprises a member pivotally mounted on said manual turnable means and having a front end normally urged towards said ratchet element.

3. A coin collecting device as defined in claim 2, in which said ratchet element comprises a pin engageable by the front end of said member when said pawl is moved forwards.

4. A coin collecting device for an electric timer having a cam shaft and having a starting position and a stop position less than 360° from said starting position, said cam shaft being rotated by the timer in a forward direction from the starting position to the stop position, comprising a casing having an opening and also having a coin supporting surface around said opening and a coin discharge opening at one point of said coin supporting surface, said point correspond-

ing with the starting position of said timer, a head mounted on said casing and enclosing said coin supporting surface and having a coin slot through which a coin may be deposited upon said coin supporting surface, coin supporting means positioned under said head for supporting a coin dropped through said slot edgewise upon said coin supporting surface, a knob outside of said head and connected with said coin supporting means by which said coin supporting means may be moved along said coin supporting surface, a clutch mounted through said opening in said casing for connection with said cam shaft and having a bottom section fixed on said cam shaft and a top section which is movable forwardly and also relative to the bottom section, said bottom section being provided with an upwardly projecting pin fixed therein and the top section being provided with a downwardly projecting pin fixed therein for engagement with said upwardly projecting pin when the top section is moved forwardly in order to move the bottom section forwardly, a pin radially projecting from said top section and extending across said coin supporting surface in order to be moved by a coin moved along said coin supporting surface, said radially projecting pin being located slightly in advance of the supported coin when the cam shaft is in stop position, a stop for limiting turning of said coin supporting means in one direction to a position beneath said coin slot, a stop for limiting turning of said coin supporting means in the other direction to a position over said coin discharge opening in order that said coin supporting means may be first positioned beneath said coin slot and a coin deposited into said slot and then said coin supporting means moved over said coin supporting surface to turn said cam shaft to its starting position, a pawl mounted on said coin supporting means, and a ratchet element projecting from said top section of said clutch and normally behind said pawl while said coin is being deposited in said slot, and said coin supporting means being movable back towards said coin slot in order to move said pawl behind said ratchet element in order that now said coin support means may again be moved forward to coin discharging position for further turning said cam shaft past its starting position to shorten the time of its operation.

5. A coin collecting device as defined in claim 4, in which said ratchet element comprises another pin projecting from said top section of said clutch.

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No references cited.