

March 19, 1929.

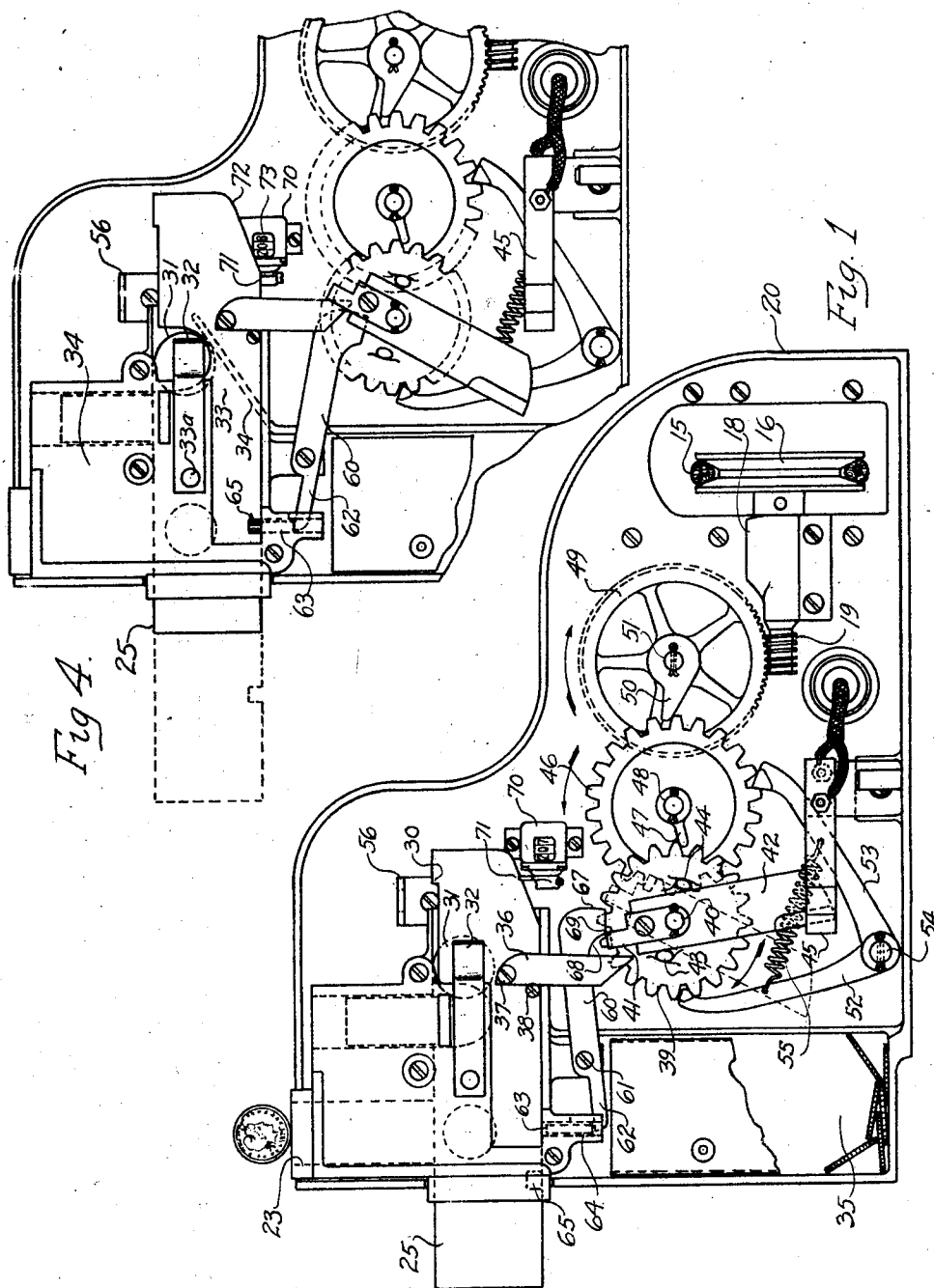
J. ROCKE

1,705,735

METERING DEVICE FOR WASHING MACHINES

Filed Dec. 11, 1924

2 Sheets-Sheet 1



Witnesses
Chas. A. Barnett

Inventor
John Rocke
By Left. Left. Attorneys.

March 19, 1929.

J. ROCKE

1,705,735

METERING DEVICE FOR WASHING MACHINES

Filed Dec. 11, 1924

2 Sheets-Sheet 2

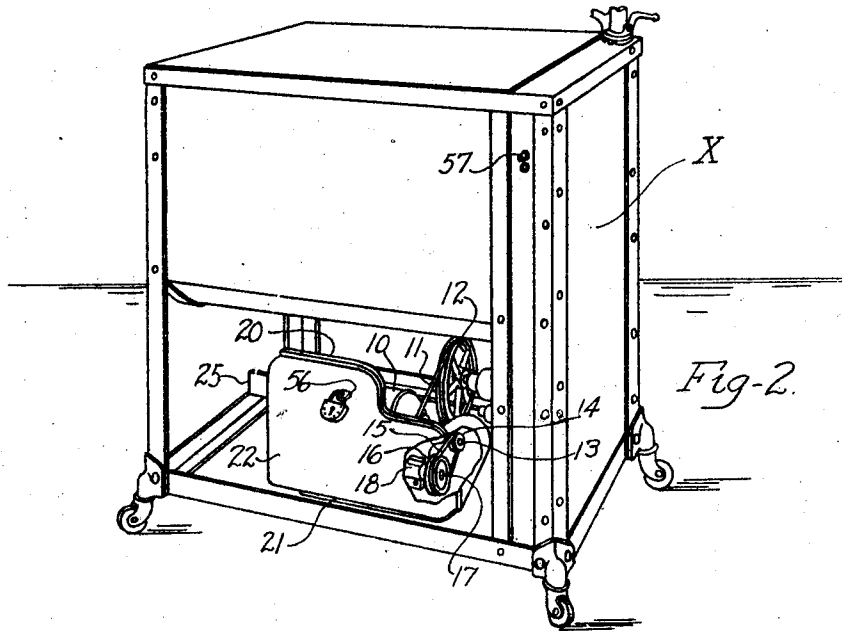


Fig. 2.

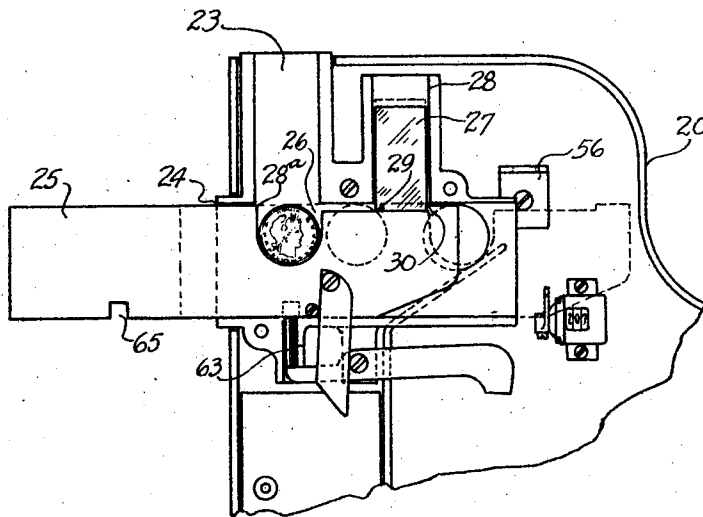


Fig. 3.

Witnesses
Chas. A. Barrett.

Inventor.
John Rocke
By Jeff & Jeff
Attorneys.

UNITED STATES PATENT OFFICE.

JOHN ROCKE, OF BLOOMINGTON, ILLINOIS.

METERING DEVICE FOR WASHING MACHINES.

Application filed December 11, 1924. Serial No. 755,188.

My invention relates to washing machines having association therewith of a coin controlled metering device adapted to automatically control the operation of the washer.

5 The object of my invention is in the provision of a metering device in combination with a conventional washing machine, whereby, said washer has its movement controlled by the operation of a coin inserted in the metering device.

10 A further object of my invention, is in the provision of a metering device associated with a washer, said metering device depending for its operation, upon the insertion of a coin and the manual movement of said coin into engagement with operating portions, thereof.

15 A still further object of my invention is in the particular fashioning of a metering device for washing machines, whereby a circuit control member is actuated by a shiftable member to open and close the electrical circuit, said shiftable member being controlled by a series of timing gears, and depending for its initial operation, upon the insertion of a coin and the manual movement thereof, against an operating portion of the metering device.

20 Yet another object of my invention is in the provision of mechanism for insuring the full period of use to the operator as well as recording the machine movements.

25 Other objects of my invention will appear in the following specification, taken in connection with the annexed drawings, in which

30 Fig. 1, is a front elevation, with the cover removed, of the metering device.

35 Fig. 2, is a perspective showing the mounting of the coin controlled metering device and driving connection with the electric motor of the washing machine.

40 Fig. 3, is an enlarged detail showing the coin insert and actuating means for initially energizing the metering device, and

45 Fig. 4, is a detail view showing the locking lever in position during the operation of the washer and control mechanism.

50 Referring to the drawings, in Fig. 2, I have shown the coin controlled metering device, in combination with a washing machine, and the particular manner of mounting same.

The present device is adapted mainly for use in apartment houses, the revenue gained from the use of same, being intended to

eventually pay for the machine, as well as permit a profit.

Generally, it might be said that the metering device is installed with relation to the washer to prohibit use of same unless the proper coin is inserted in the metering device.

60 Although the present disclosure illustrates a certain type of washing machine, namely cylinder, nevertheless, the present metering device is adapted to be used in connection with any of the well known and conventional types of washing machines. By washing machines, of course, is meant the power machines and especially the electric motor driven type.

65 Referring to the drawings, in Fig. 2, I have shown generally a power washer of the electric type, designated "X". No details of the particular gearing for the washing machine or drive mechanism other than the belt drive from the electric motor, has been shown, for the reason that the above structure is entirely formal and merely shown generally for the purpose of bringing out the association of the metering device with a washer.

70 With respect to the metering device, now to be described, it might be said that this metering device is adapted to control the electric current to the motor of the washing machine for a determined period, although the present structure is designed with respect to the timing element to permit the operation of the washer for a period of 30 minutes upon the insertion of a quarter. Nevertheless, it may well be seen that the device might be constructed to take any coin or be constructed to run any desired length of time, the changes that would be necessary being merely matters of degree.

75 An electric motor of conventional design is shown at 10, there being a belt drive 11, from said electric motor to the main drive wheel 12, that controls the operation of the washing element whether it be of the reciprocating, cylinder, dolly or any other type, as well as the wringer mechanism.

80 An extension of the motor shaft 13, carries at its outer end, a small pulley 14. A belt drive connection 15, connects said pulley 14, with the driving element or pulley 16, on the metering device. A stub shaft 17, suitably supported in bracket 18, provides the axis for the pulley 16, as well as the driving element for the series of gears in the meter-

ing device, this driving connection being made through the engagement of the worm 19, with the teeth upon the sprocket which it engages.

5 The metering device itself is positively attached to the frame of the washing machine and in an immovable relation to the electric motor. Housing 21, covers the belt drive between the metering device and the electric
10 motor. The housing referred to is made up of a plate 20, and a removable cover portion 22. As said before the plate 20, is positively attached to the frame of the machine. This plate 20, carries the working elements of the
15 metering device which includes the following portions: A coin slide is shown at 23, the upper end of which is fashioned as to size just sufficient to receive a quarter. Details of the coin receiving portions are shown in
20 Fig. 3, there being a slide-way 24, for a longitudinally shiftable member 25, said shiftable member having a coin receiving slot 26, therein, said slot normally or rather when the metering device is in its inoperative position,
25 lying directly under the coin slide 23, and adapted to receive the coin dropped there-through. As may be seen in Fig. 3, the shiftable member is adapted to be manually shifted to the right, whereby the coin carried in
30 the receptacle 26, is adapted to abut the lower end of a weight 27, slidable in a guide-way 28, located directly above the member 25. It will be noticed that the weight 27, in its lowermost position slides upon the upper side
35 of the member 25, but upon being struck by the upper and curved side of the coin during its passage thereunder, is adapted to be moved to the dotted line position there shown. With respect to the fashioning of the shiftable
40 member 25, it may be said that said member, upon one side, namely, the side to the left of the coin receptacle 26, is somewhat wider than the remaining portion, and as a matter of fact, this wider portion is fashion-
45 ed to fit snugly, although slidable therein, the guide way or slide portion 24.

With respect to the variance in width of this slidable member, it may be seen that unless a coin is carried in the receptacle 26,
50 any sideward movement of the member 25, will result in a direct abutment of the corner 28^a, with the square corner 29, on the weight member 27. Obviously, this particular fashioning is to prevent the longitudinal and operative movement of the slide
55 member unless the proper coin is contained therein.

Again to prevent the complete withdrawal of the member 25, from the metering device,
60 the right hand end portion thereof, is similarly widened as at 30, to prevent withdrawal due to the abutment with the weight member when such movement is attempted.

65 The guide-way 24, has an opening through one side thereof, of sufficient size to permit

passage of the coin member therethrough, when said coin has been forced to such a position, the movement of the coin through this opening 31, being assisted by the spring member 32, forcing it through the opening and
70 into a coin passageway 33, the base portion of which is shown at 34, and the ultimate coin receptacle at 35. The manner of fashioning the spring member to accomplish the above result is effected by attaching the
75 spring at 33^a, to a plate 34, that encases the coin receiving portion above described. This spring 32, does not actually touch the side of the coin but abuts the shiftable member 25, in a tensioned manner to force the coin
80 through the opening 31, and down the passageway into the ultimate coin receptacle.

Referring now, to Fig. 1, it may be seen that a finger member 36, is pivoted at 37,
85 upon the shiftable member, said finger member abutting a lug 38, upon the slidable member 25, in a manner to prevent its rearward movement. A gear wheel 39, is pivoted at 40, below the finger 36, and in such a position with relation thereto, to be moved
90 slightly by the abutment of the finger member with a lug 41 on actuating bar 42, that has the following connection with the gear member. This actuating bar 42, is pivoted
95 upon the same axis that supports the gear wheel but is not integrally or positively attached to said gear, there being lug members 43, and 44, upon the gear wheel which determine the limit of movement of said actuating member. It may be seen that movement
100 of the shiftable member 25, will result in a similar movement of the finger 36, to eventually strike the lug 41 thereby, resulting in a movement of the actuating member 42, to the dotted line position shown in Fig. 1, as well as a perhaps slight movement of
105 the gear wheel 39.

It may also be noticed that movement of this actuating member 42, cannot be accomplished unless a coin or rather a quarter has
110 been inserted in the receptacle 26, to permit longitudinal movement of the member 25, under the weight member 27, and to its innermost position, it being the final movement of the shiftable member 25, that actuates the
115 actuating bar 42.

With respect to the movement of the actuating member 42, it might be said that this bar is the means for controlling the electrical
120 circuit to the electric motor through the spring switch 45. This spring switch 45, is fashioned with two contact points adapted normally to abut and close the electric circuit to the motor, but when the metering device is not in operation, as shown in Fig. 1,
125 these two contact portions, only one of which may be seen in Fig. 1, of the drawings, and described as 45, are held apart by the actuating bar 42, of fibre or some insulating material. This spring switch 45, is positioned
130

with relation to the actuating member, to have the electric current controlled thereby broken, or made by the engagement or disengagement of this actuating bar therewith.

5 One sprocket wheel 39, has been described, and this sprocket wheel forms one of the elements in a series of timing gears now to be described. A second gear 46, has an inner tooth 47, integrally cast therewith and rotating upon the same pivot 48, said tooth adapted upon each rotation of the gear 46, to transmit a slight movement to the gear 39, in the direction shown by the arrow.

15 Another gear in the timing arrangement is shown at 49. This gear having also an inner tooth 50, cast in a rather similar manner as before to the axis 51, and said tooth 50, likewise upon each rotation actuating the gear 46, slightly in the direction of the arrow.

20 Now, it is clear that movement of this chain of gears is effected through the worm drive shown at 19, and the power being transmitted through the belt 15, and pulley 14, upon the electric motor.

25 Obviously, and as described, it is the shiftable movement of the member 25, which through the finger 36, throws the actuating bar 42, from between the lips of the spring switch 45, and hence closes the circuit to the electric motor and thus commences the operation of the washer. The commencement of operation of the electric motor as well as the operating portions of the washing machine also transmits movement to the metering device through the above noted connections and thereby starting the series of timing gears which results in the following movement.

35 The movement of the gears can be followed by noting the direction of the arrows which will show that the gear 39, is moved in a clockwise manner, carrying the actuating member 42 with it. It may be also seen that eventually the actuating member, after being thrown initially from engagement with the switch 45, will ultimately re-engage said switch and break or rather open the electrical circuit to the electric motor.

40 As has been said before, in this particular structure, this timing of the operation of the electric motor has been for one half hour, although obviously merely degrees of structure would result in a different time arrangement. The arms 52, and 53, pivoted at 54, and spring tensioned as at 55, and engaging the respective gears 39, and 46, are merely for the purpose of resisting slightly their movements to regulate the distance of travel when actuated by the respective teeth 47, and 50.

45 Every means has been provided for insuring the user of the washing machine, there full period of use after depositing the necessary coin, in this instance, a quarter. In order to prevent any possibility of a user not obtaining the full limit of time, a device has been provided for preventing the return

movement of the shiftable bar member which receives the coin, until the machine has completed its cycle of operation, namely the 30 minute period. This application is an improvement upon a device wherein there was no means for preventing withdrawal of the shiftable member at any time and hence it was possible for one user to complete the washing action prior to the using of the entire 30 minutes and then the subsequent user thinking the machine in normal position, to withdraw the shiftable member and insert another coin, thereafter forcing the shiftable member to a position where the coin would raise the weight member and eventually fall to the receiving box. Inasmuch as the former cycle had not been completed, this subsequent user would only get the remaining minutes that remained in the incompleting original cycle.

85 It is to overcome the above and loss of a considerable amount of use by an operator, that the following stop means has been provided for preventing withdrawal of the shiftable bar 25, until the cycle of operation of the user has been entirely completed. The above is accomplished by the following mechanism. The lever 60, is pivoted at 61, with its short end 62, abutting the lower end of a pin 63, that is slidable in a guide-way 64 and is adapted to engage receiving notch 65, upon the slidable bar 25. The opposed and longer end 67, of the lever 60, is fashioned to project into the path of the lug 41, and to be raised and lowered by the movement of the lug along the cam surface 68, and flat end portion 69, thereof. The operation of the above described stop mechanism is as follows: We will say that the metering device has completed its cycle, whereupon the lug 41, abuts the cam portion above described, of the lever 60, and raises it as shown in Fig. 1, of the drawings, thereby lowering the opposite end and releasing the pin 63 from the receiving notch 65, with the result that the next user may readily withdraw the shiftable bar to a coin receiving position, and thereafter drop the coin in the slot and move the shiftable bar again to an inward position and hence place the machine in position to be used for its 30 minute electrical cycle.

100 It is the inner movement of the shiftable bar, or rather the final inner movement of the shiftable bar that locks it, and this locking is accomplished as follows: As previously described, the finger 36, in its inner movement, strikes the lug 41, thereby throwing the member 42 out of engagement with the knife switch 45, thereby closing the electrical circuit. Now this final inner movement of the finger 36, and consequent movement of the member 42, also releases the lever 60, as shown in Fig. 4, whereupon the opposed end forces the pin 63, into the receiving notch 65, in the shiftable bar 25.

It is apparent from the above, that no withdrawal of the shiftable bar can take place until the member 42 has completed its entire cycle and has finally raised the lever 61, as previously described.

Another means has been added to the present structure for acquainting both the collector of the coins as well as the owner of the machine, just how many times it has been used, and naturally, the revenue that should result therefrom. To accomplish the above, the following mechanism is used: A formal metering device or counter 70, is secured to the plate 20 and the operating arm 71, thereof, is projected into the path of the shiftable bar 25. The inner end of this shiftable bar 25, is fashioned as at 72, in a cam like manner in order to apply an even pressure upon the operating arm 71.

The operation of the metering device or counter is obvious, in view of the foregoing description of operation of the stop mechanism which prevents the movement of the shiftable bar to an outward position until the machine has completed its regular cycle. Also the shiftable bar cannot be moved to an inward position unless the proper coin is deposited and when the proper coin has been deposited, and the shiftable bar 25, moved to an operative position, there will, of course, be a movement of the operating arm 71, and hence movement of the counting device and a showing upon the dial 73, thereof. The counting device has not been described in detail, in view of the fact that this device is well known and the fact that but a general showing has been made inasmuch as any one of a number of kinds might well be used. The idea, as explained above, is, of course, to keep a tally of the times the machine has been used in order that an accurate check may be kept of the revenue obtained therefrom. The stop mechanism not only insures against any possible loss by the user of the machine, but also co-operates with the counting device to permit an accurate check on the revenue obtained therefrom.

As said before, every precaution has been taken to prevent tampering with the mechanism

of the metering device, and the cover plate is padlocked to the plate 20, carrying the working elements of the metering device in the following manner. A projecting bar 56, passes through an aperture in the casing 22, and is positively held in such manner by means of the padlock above described.

Relative to the operation of the washer, it may be seen that the operator has 30 minutes actual use thereof, irrespective of stops, inasmuch as an electric switch 57, upon the washer controls the circuit to the electric motor and can be actuated at will, by the operator without effecting the metering device, other than to stop it temporarily.

What I claim is:

1. A metering device, in combination, an electric motor for operating same, a circuit control member, means for operating the circuit control member including a shiftable bar provided with a member for actuating the circuit control member, a series of timing gears controlled by said circuit control member and permitting a determined length of operation of the electric motor prior to the second engagement of the actuating member with the circuit control member, stop mechanism preventing movement of the shiftable bar to a normal position until the gears have completed their cycle of operation, and means for recording each operative movement of the shiftable bar and hence, each operation of the machine.

2. A metering device, in combination, an electric motor for operating same, a circuit control member, means for operating the circuit control member including a shiftable bar provided with a member for actuating the circuit control member, a series of timing gears controlled by said circuit control member and permitting a determined length of operation of the electric motor prior to the second engagement of the actuating member with the circuit control member, and means for recording each movement of the shiftable bar that actuates the circuit control member.

In testimony whereof I affix my signature.

JOHN ROCKE.