Nov. 28, 1933. J. J. JWANOUSKOUS ET AL 1,936,673

COIN CONTROLLED ELECTRIC TIME SWITCH

Filed May 29, 1931 2 Sheets-Sheet 1

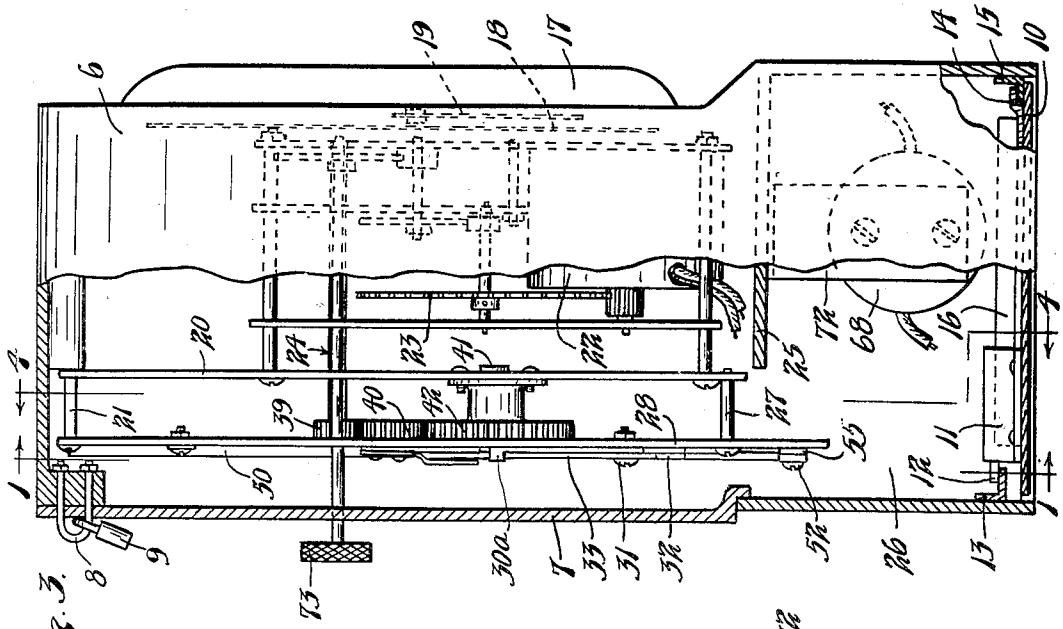


Fig. 3.

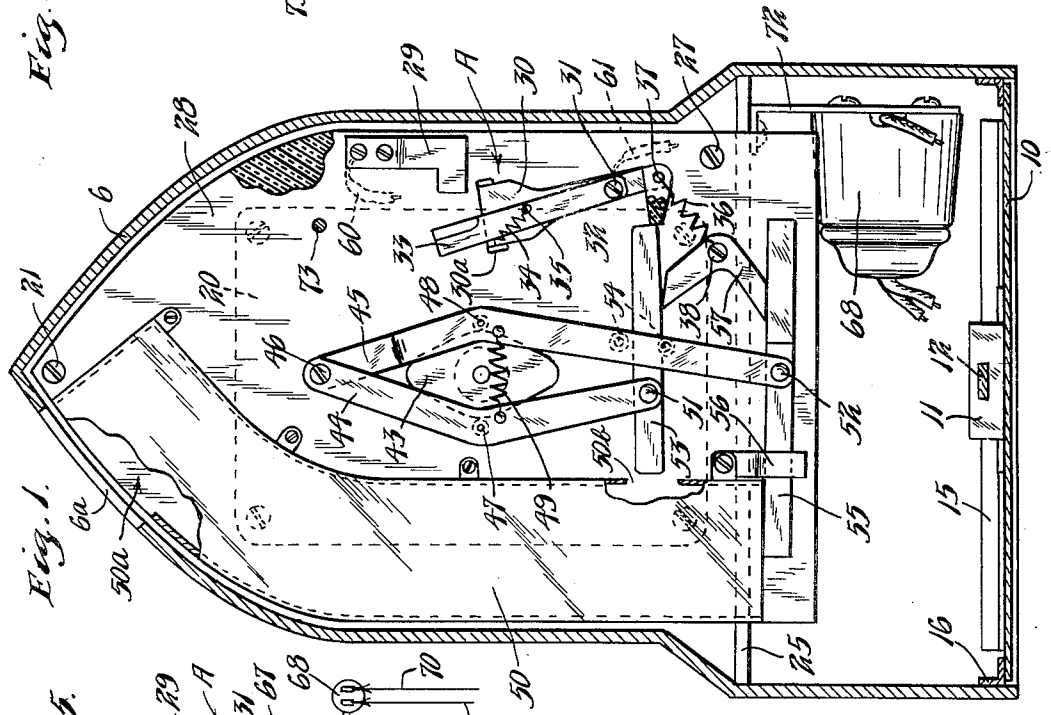


Fig. 1.

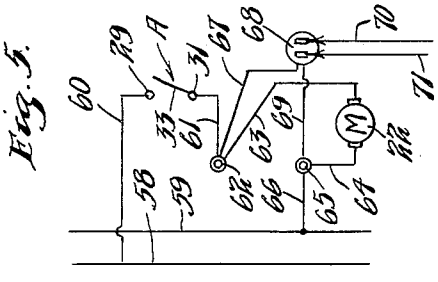


Fig. 5.

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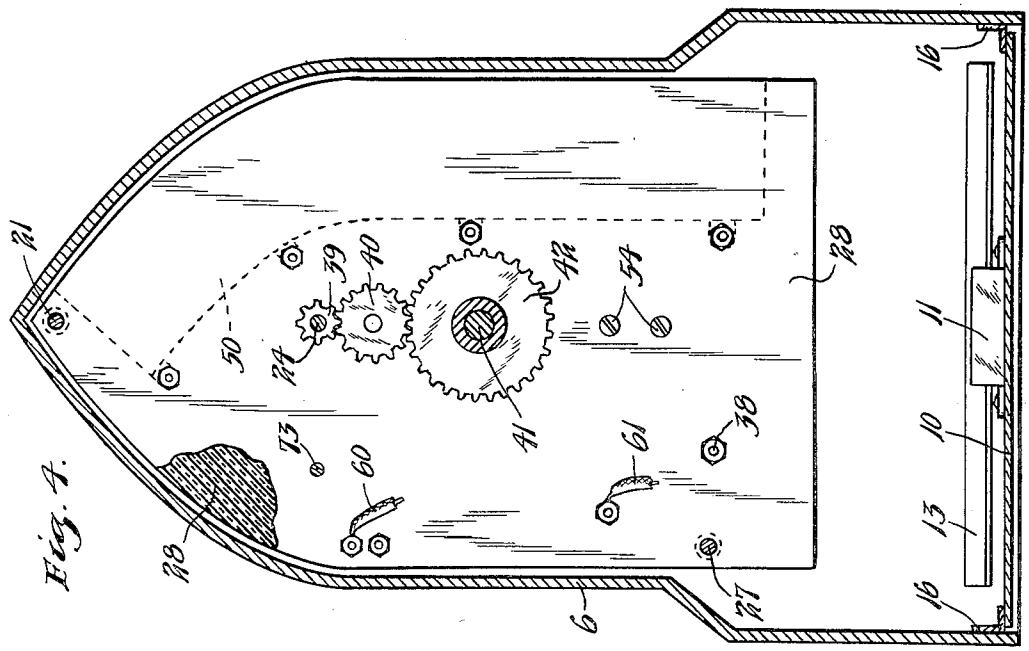


Fig. 1.

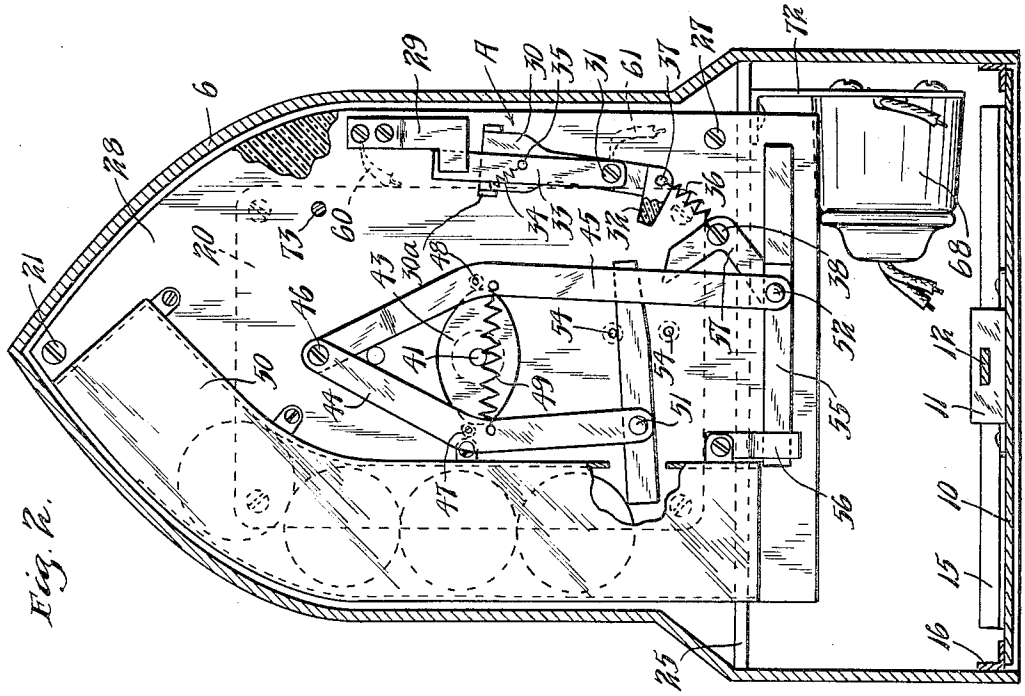


Fig. 2.

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UNITED STATES PATENT OFFICE

1,936,673

COIN CONTROLLED ELECTRIC TIME SWITCH

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Application May 29, 1931. Serial No. 540,890

15 Claims. (Cl. 194—9)

This invention relates to coin controlled electric time switches.

Many electrical apparatus such for example, as electric refrigerators, are now sold on the installment plan. From the seller's standpoint, it is desirable that some means be provided for causing the purchaser to set aside enough money as the apparatus is used, to cover the installment payments on the apparatus. From the purchaser's standpoint, it is desirable that small amounts of money be set aside daily as the apparatus is used, in order that the installment payments usually falling due monthly may be taken care of.

It is the object of this invention therefore to provide a novel and improved coin controlled electric time switch of cheap and simple construction, which can be used with practically any type of electrical apparatus to control the supply of electric current to the apparatus so that the apparatus can only be operated when a coin is deposited and this operation will continue for a definite period of time for each coin deposited.

It is also an object of the invention to provide such a device which will permit the time period of operation to be readily changed.

The objects and advantages of the present invention will more fully appear from the following description, made in connection with the accompanying drawings, wherein like reference characters refer to the same or similar parts throughout the various views, and, in which,

Fig. 1 is a vertical section taken through a device embodying the invention on the line 1—1 of Fig. 3, as indicated by the arrows, the various movable parts being shown in the position they will assume prior to the time that the device is set in operation;

Fig. 2 is a view taken similar to Fig. 1 illustrating the movable parts in the position they will assume at one time during the operation of the device;

Fig. 3 is a view taken chiefly in side elevation of the device, certain of the parts being broken away and shown in section;

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

Fig. 5 is a wiring diagram of the device shown in the other views of the drawings.

Referring to the drawings, there is illustrated a suitable housing 6, which may be of the same shape as that used with an ordinary electric clock. This housing may be equipped with a removable back panel 7 which may be secured in place on the housing by a forwardly offset and down turned flange at the lower edge of the panel, a hasp 8 located at the upper rear end of the housing 6 and projecting through an opening in the panel 7 and a padlock 9 secured to the hasp. The housing 6 is preferably open at its bottom and the bottom opening is closed by a removable bottom panel 10 carrying a suitable lock 11, the bolt 12 of which is adapted to engage over a flange of an angle iron 13 applied to the rear side of the housing 6 adjacent its lower edge. An upwardly offset and forwardly extending cross bar 14 is secured to the forward edge of the bottom panel 10 and the lower horizontal flange of an angle bar 15 secured to the forward side of the housing 6 adjacent its lower edge fits between the panel 10 and the offset portion of the bar 14. Side angle irons 16 may be secured to the sides of the housing 6 adjacent the lower edges thereof with which the edges of the panel 10 will abut. A glass crystal 17 is applied to the forward side of the housing and behind this crystal there is located a clock dial 18 shown in dotted lines, Fig. 3, over which the hands 19 of a clock work. The clock face 18 is secured to a cage 20 hung from a horizontal stud 21 mounted at the top of the housing 6. Carried by this cage 20 is a suitable low speed synchronous electric motor 22 of the type now used with electric clocks and the hands 19 of the clock are adapted to be driven from this motor through a suitable gear train 23, the details of which are not shown. A horizontal shaft 24 projecting rearwardly from the cage 20 is also driven from the motor 22 through the gear train 23.

Below the cage 20 and projecting rearwardly from the forward side of the housing is a horizontal partition 25, which divides the housing to form a coin chamber 26 in the lower portion of the housing. Secured to the rear side of the cage 20 and spaced therefrom by a stud 21 and studs 27 is a vertical panel 28 formed of insulating material. This panel is shaped to fit the side walls of the housing 6 and projects from the top of the housing downwardly to approximately the same level as the partition 25. It is chiefly on this panel that the mechanism of the device of the invention is mounted.

A knife switch is mounted on the rear side of the panel preferably adjacent one edge thereof, as the right edge as viewed in Figs. 1 and 2. This knife switch may be designated as an entirety by the letter A and it includes a pair of closely spaced spring arms 29 which are secured to the panel 28 at their upper ends and have downwardly extending closely spaced portions which form the fixed contact of the switch. The

movable contact of the switch includes an arm 30 which is pivoted to the panel 28 on the pivot stud 31 below the spring arms 29 and this arm is provided with a widened portion at its upper end having rearwardly bent side wings 30*a* thereon. Below the pivot 31, the arm 30 is provided with a laterally extending block 32 formed of insulating material. Also pivoted on the pivot stud 31 is a knife 33 which projects upwardly above the upper end of the arm 30 between the two wings 30*a*. This knife has its right edge sharpened for engagement with the spring arms 29 and a light coiled spring 34 is secured at one end to a pin 35 carried by the knife 33 and is secured at its other end to the left hand wing 30*a*. This spring 34 exerts tension on the knife 33 to urge the same toward the left wing 30*a*. A coiled tension spring 36 is mounted at one end on a pin 37 carried at the lower end of the arm 30 and this spring is secured at its other end as to a pivot stud 38. The spring 36 exerts tension on the arm 30 to urge the knife 33 into engagement with the spring arms 29.

The shaft 24 is journaled at its rear end in the panel 28 and it carries immediately forwardly of the panel a pinion 39 meshing with an intermediate gear 40 journaled in the panel 28 at the forward side thereof. Approximately centrally of panel 28 there is journaled a shaft 41 and this shaft is also journaled in the rear side of the cage 20. The intermediate gear 40 meshes with a large gear 42 mounted on the shaft 41 between the forward side of the panel 28 and the rear side of the cage 20. A diamond-shaped cam 43 is mounted on shaft 41 adjacent the rear side of the panel 28. A pair of hanger arms 44 and 45 respectively are pivoted on a pivot stud 46 above the cam 43 and these two arms carry rollers 47 and 48 respectively which engage with opposite edges of the cam 43. The two arms 44 and 45 may be angularly bent as shown so that they extend in opposing relation, and the two arms may overlie the rear side of the cam 43 partially, as shown. A coiled tension spring 49 is connected at its two ends to projecting pins at the rear sides of the two arms 44 and 45 and this spring acts to maintain the two rollers 47 and 48 constantly in engagement with the edges of the cam 43. Secured to the panel 28 adjacent an edge thereof opposite the edge near which the knife switch A is placed, is a coin chute 50. This coin chute as shown in the drawings is curved adjacent its upper end to conform to the shape of the housing 6 and it is provided with a coin receiving opening 50*a* in alinement with a coin slot 6*a* cut through the housing 6 adjacent its upper end. The coin chute 50 runs downwardly from the opening 50*a* and terminates somewhat short of the lower edge of the panel 28 in an opening permitting the discharge of coins into the coin receiving chamber 26. Upwardly spaced from the lower end of the coin chute 50 a distance approximating the diameter of the coins that are adapted to be received in the chute, an opening 50*b* is cut in the inner edge of the chute. The hanger arm 45 projects downwardly below the lower end of the hanger arm 44 a distance approximating the diameter of the coins adapted to be received in the chute 50 and a pivot stud 51 is mounted at the lower end of the arm 44, while a second pivot stud 52 is mounted at the lower end of the arm 45. Pivoted on the stud 51 is a bar 53 which is generally horizontally disposed and is weighted heavier at the right side of the pivot stud 51 than at the left side thereof. Pivotal movement of the bar 53 about the pivot stud 51 is limited by a pair of pins 54 disposed in vertical alinement and mounted on the panel 28 and the lower pin 54 is so positioned that when the bar 53 rests against the same, as it normally will due to the action of gravity, the right end of the bar as viewed in Figs. 1 and 2, will be horizontally alined with the block 32 carried by the arm 30 of switch A. The upper pin 54 is so disposed that when the bar 53 is swung on its pivot 51 to engage the upper pin, the right end of the bar will be thrown out of horizontal alinement with the block 32 to a position above the block. The opening 50*b* in the coin chute 50 is made large enough and is so positioned that the left end of the bar may enter the coin chute through this opening 50*b* irrespective of whether the bar is in engagement with the upper pin 54 or the lower pin 54. Pivotally mounted on the pivot stud 52 carried by hanger arm 45 is a bar 55 which is of heavier construction at the right side of the pivot stud than at the left side thereof as viewed in Figs. 1 and 2, the right end of the bar being reversely bent on itself for this purpose. Limited upward swinging movement of the left end of the bar 55, is permitted by a guide strap 56 secured to the panel 28 and this strap is rearwardly offset adjacent its lower end from the panel, so that the left end of the bar 55 will fit between the strap and the panel. Pivotally mounted on pivot stud 38 intermediate the right ends of the two bars 53 and 55 is a small bell crank lever 57 having angularly cut ends as shown which respectively normally bear against the lower edge of the right end portion of the bar 53 and the upper edge of the right end portion of the bar 55.

Referring now particularly to the wiring diagram shown in Fig. 5, an electric transmission line having two wires 58 and 59 respectively, is illustrated. From the line wire 58 a conductor 60 runs to the fixed contact 29 of the knife switch A. A second conductor 61 runs from the pivot stud 31 of the knife switch to a binding post 62. From the binding post 62 a conductor 63 runs to the synchronous motor 22 while another conductor 64 runs from the motor to a second binding post 65, which in turn is connected by a conductor 66 to the line wire 59. A conductor 67 runs from the binding post 62 to one contact of a split plug 68 while a conductor 69 runs from the other contact of the split plug 68 to the binding post 65. Conductors 70 and 71 run from the split plug 68 to any electrical apparatus such as an electric refrigerator in connection with which the device of the invention is to be used. As shown in Figs. 1, 2, and 3 of the drawings, the split plug 68 may be secured to a suitable bracket 72 mounted on the lower side of the partition 25.

Operation

The starting position of the device is shown in Fig. 1. This is the position the parts will assume when there are no coins in the coin chute 50 and after the device has ceased operating. In this position the bar 53 rests by gravity against the lower pin 54 and bears against the insulated block 32 to hold the knife 33 out of engagement with the spring arms 29 of the switch A against the tension of the spring 36. It will also be noted that the arm 53 does not project through the opening 50*b* into the coin chute 50. The bar 55 will be held by gravity with its left end portion immediately below the lower end of the coin chute. The widest portion of

the cam 43 will be substantially vertically disposed. As the switch A is open, no current will be supplied from the line wires 58 and 59 either to the motor 22 or the power circuit formed by the conductors 70 and 71 together with the particular electric device with which these conductors are connected. To supply current to the power circuit 70—71, it is necessary that one or more coins of the proper denomination be inserted through the coin slot 6*a* and opening 50*a* into the coin chute 50. Let us assume that two or more coins are inserted within the coin chute. The first coin inserted will drop downwardly through the chute and will strike the left end of the bar 55 as viewed in Fig. 1. The remaining coins will run downwardly through the chute until they come to rest on top of the lowermost coin. The weight of the lowermost coin in the chute is sufficient to weight the bar 55 heavier at the left side of the pivot 52 than at the right side thereof and as a result, the left end of the bar will be depressed to raise the right end of the bar upwardly until its upward movement is stopped by contact with the medial portion of the bell crank lever 57. The upper arm of the bell crank lever 57 will be swung upwardly to kick the right end of the bar 53 upwardly and out of engagement with the block 32, whereupon the bar 53 will be thrown into engagement with the upper pin 54. As the arm 30 of switch A is now free to swing about its pivot 31, the spring 36 will force the upper end of the arm 30 to the right to carry the knife 33 between the two spring arms 29 of the stationary contact of the switch. The switch will thus be closed and a motor circuit will be established through the line wire 58, conductor 60, switch A, conductor 61, binding post 62, and conductor 63 to the motor 22 and thence through conductor 64, binding post 65 and conductor 66 to the other line wire 59. Simultaneously a power circuit will be established from line wire 58 through conductor 60, switch A, conductor 61, binding post 62, conductor 67, split plug 68 to conductor 70 and thence through the electrical apparatus in connection with which the device of the invention is used back through conductor 71, split plug 68, conductor 69, binding post 65 and conductor 66 to the other line wire 59. Both the synchronous motor 52 and electrical apparatus will thus be set in operation, immediately after a first coin is inserted in the coin chute 50.

The shaft 24 will, of course, be driven from the motor 22 through the gear train 23 and the cam 43 will begin to rotate. As the cam 43 rotates, the two rollers 47 and 48 riding on the cam will be spread apart thereby causing the lower end of the hanger arm 44 to move toward the coin chute 50 to carry the left end portion of the bar 53 through the opening 50*b* into the chute. The lower end of the arm 45 on the other hand will be moved to the right as viewed in Fig. 1 away from the coin chute 50 until when the long portion of the cam is substantially horizontally disposed, all portions of the bar 55 will be out of line with the bottom opening in the coin chute and at this time the lowermost coin in the chute will drop into the coin receiving chamber 26. As the left end of the bar 53 is at this time disposed within the coin chute and as the spacing between the bars 53 and 55 is approximately the same as the diameter of the coins, the bar 53 will support all but the lowermost coin in the chute. After the lowermost coin has passed out of the chute the bar 55 will tip back to a substantially horizontal position, and the various parts at this time will assume the position shown in Fig. 2. As the cam 43 continues to rotate from this position, the lower end of the hanger arm 44 will be moved to the right while the lower end of the hanger arm 45 will be moved to the left. The left end of the bar 53 will thus be slowly withdrawn through the opening 50*d* from the chute while the left end of the bar 55 will be slowly carried back to its original position below the lower open end of the chute. Shortly before the right end of the bar 53 is carried to a point adjacent the left end of the block 32, the left end of this bar will be completely withdrawn from the chute 50, whereupon the remaining coin or coins disposed within the chute will no longer be supported by the bar 53 and the then lowermost coin will drop onto the left end portion of the bar 55, thereby causing the right end of this bar to tilt upwardly to swing the upper arm of the bell crank lever upwardly and thereby raise the right end of the bar 53 above the level of the block 32, so that it will not engage the block. The switch A will thus be maintained closed and the mechanism will go through a second cycle of operation. After the last coin in the chute has been dropped due to the movement of the bar 55 to an extreme right hand position, after the cam 43 has assumed the position shown in Fig. 2, the bar 53 will tip by gravity downwardly so that it rides against the lower pin 54. During the next 90° of movement of the cam 43, no further coins will drop downwardly on the bar 55 and as a result, the right end of the bar 53 will be maintained in lowered position. As the hanger arm 44 moves to the right, the right end of the bar 53 which is now in horizontal alinement with the block 32, will strike the block and a continued movement of the bar 53 to the right will swing the arm 30 at its upper end to the left. The knife 33 will remain in engagement between the spring arms 29 until the upper end of the arm 30 has been moved to such a position that the right wing 30*a* strikes the knife 33 and moves it slightly to the left. The light spring 34 will then quickly snap the knife 33 from between the spring arms 29 to the left, thereby eliminating the possibility of an arc being formed between the knife 33 and the spring arms 29. As the switch A is opened, by this movement, both the motor circuit and the power circuit will be broken and no further movement of the parts will take place until another coin is inserted in the coin chute 50.

As the motor 22 is a synchronous motor, of slow speed, it will always take exactly the same length of time for the cam 43 to move through 180° after a coin has been inserted in the slot 50 and as a result, the power circuit will be maintained closed for a definite and fixed period of time for each coin as it is inserted in the chute. It will also be seen that the power circuit will be maintained closed without interruption as long as one or more coins remain in the chute.

As the motor 22 drives the clockwork mechanism to move the hands 19 over the clock dial 18, it will be seen that the device of the invention serves the double function of a clock and a coin controlled time switch. By substituting different sized gears for the gears 39, 40 and 42 or one or more of them, the particular time period during which the power circuit will be established as a coin of a certain denomination is inserted in the chute, may be varied to suit different requirements. It will also be under-

stood that by making slightly different electrical connections and by inserting an electro-magnetically operated clutch between the drive shaft 24 and the gear 39 and operating this clutch as the switch A is closed, it is possible to maintain the motor 22 and clock portion of the mechanism in constant operation irrespective of whether or not the power circuit is established by insertion of a coin in the chute.

The device of the invention has been amply and successfully demonstrated. The parts are few and the construction is extremely simple. It will be understood that the coins can be removed from the coin chamber 26 by unlocking the lock 11 and removing the lower panel 10. The panel 7 can also be removed for ready access to the working parts of the device.

A great many changes may be made in the form, details, arrangement and proportions of the various parts without departure from the scope of the present invention, which generally stated, consists in the matter shown and described and set forth in the appended claims.

What is claimed is:

1. A coin controlled time switch having in combination an electric motor, a fixed electrical contact, a cooperating movable electrical contact, a rotatable member, means for driving said rotatable member from said motor when said contacts are engaged, an electrical power circuit adapted to be established when said contacts are engaged, means for throwing said movable contact into engagement with said fixed contact as a coin is inserted in said chute, means controlled by said rotatable member for engaging said movable contact to throw the same out of engagement with said fixed contact after said rotatable member has turned through a definite arc, means controlled by said rotatable member for retaining an inserted coin in said chute and dropping the same from said chute after said rotatable member has turned through an arc less than said first mentioned arc, said last mentioned means cooperating with said third mentioned means to permit only one inserted coin to be dropped at a time from said chute, and means operated from said last mentioned means to prevent said third mentioned means from throwing said movable contact out of engagement with said fixed contact when a coin remains in said chute after a previously inserted coin has been dropped from the chute.

2. A coin controlled electric time switch having in combination an electric motor, a fixed electrical contact, a cooperating movable electrical contact, means urging said movable contact into engagement with said fixed contact, a coin chute, a rotatable member, means for driving said rotatable member from said motor when said movable contact is engaged with said fixed contact, an electrical power circuit adapted to be established when said contacts are engaged, an oscillating hanger arm operated from said rotatable member, a pivoted bar carried by said arm and normally held by gravity in such position that it will strike said movable contact to throw said movable contact out of engagement with said fixed contact during oscillation of said hanger arm and capable of being tipped to a position where it will not strike said movable contact as said hanger arm is oscillated and means for tipping said bar to said latter position as a coin is inserted in said chute.

3. A coin controlled electric time switch having in combination an electric motor, a fixed electrical contact, a cooperating movable electrical contact, means urging said movable contact into engagement with said fixed contact, a coin chute, a rotatable member, means for driving said rotatable member from said motor when said movable contact is engaged with said fixed contact, an electrical power circuit adapted to be established when said contacts are engaged, an oscillating hanger arm operated from said rotatable member, a pivoted bar carried by said arm and normally held by gravity in such position that it will strike said movable contact to throw said movable contact out of engagement with said fixed contact during oscillation of said hanger arm and capable of being tipped to a position where it will not strike said movable contact as said hanger arm is oscillated, a second hanger arm oscillated by said movable member, a second pivoted bar carried by said second hanger arm and normally projecting partially across said chute and normally held by gravity in one tipped position and adapted to be tipped to a second position as a coin inserted in said chute strikes said second bar and means operated by said second bar to throw said first mentioned bar to its last mentioned position as said tipping movement of said second mentioned bar occurs, the oscillation of said second hanger arm being adapted to carry said second bar from a position extending partially across said chute to thereby release a coin in the chute.

4. A coin controlled electric time switch having in combination, an electric motor, a fixed electrical contact, a movable electrical contact, means urging said movable contact into engagement with said fixed contact, a coin chute, a hanger arm mounted for oscillatory movement between said chute and said movable contact, means adapted to be driven from said motor when said contacts are in engagement for oscillating said hanger arm, a substantially horizontally disposed tipper bar pivoted on said hanger arm and weighted heavier at one side of said arm than at the other side thereof, said bar when disposed in its normal gravity hung position being adapted to engage said movable contact to swing said movable contact out of engagement with said fixed contact during oscillation of said hanger arm, and said bar being capable of being tipped to a second position, where it will not engage said movable contact during oscillation of said hanger arm, means for tipping said arm to its second position as a coin is inserted in said chute and an electric power circuit adapted to be established when said movable contact is engaged with said fixed contact.

5. A coin controlled time switch having in combination, an electric motor, a fixed electrical contact, a cooperating movable electrical contact, resilient means urging said movable contact into engagement with said fixed contact, an electrical power circuit adapted to be established when said contacts are in engagement, a pivotally hung member weighted heavier at one side of its pivot than at its other side, means adapted to be driven by said motor when said contacts are in engagement to oscillate said pivotally hung member, said pivotally hung member normally engaging said movable contact to retain the same out of engagement with said fixed contact and adapted to be tipped to a position to release said movable contact and means operated as a coin is inserted into said chute to tip said pivotally hung member to its latter position.

6. A coin controlled electric time switch hav-

ing in combination, an electric motor, a fixed electrical contact, a movable electrical contact, resilient means urging said movable contact into engagement with said fixed contact, a coin chute, an oscillatable hanger arm disposed between said coin chute and said movable contact, means for oscillating said arm from said motor when said contacts are engaged, a tipper bar pivoted on said hanger arm, weighted heavier at one side of its pivot than at its other side, said bar when disposed in a gravity hung position being adapted to engage said movable contact to throw the same out of engagement with said fixed contact during oscillation of said arm and capable of being tipped to a second position where it will not strike said movable contact, a second hanger arm also oscillated from said motor when said contacts are in engagement, a second bar pivoted to said second hanger arm, and over balanced to stand in the path of a coin running through said chute, said second bar being capable of being moved out of the coin path and means for throwing said first arm to its second mentioned position by the tipping action of said second bar as a coin strikes the same, and a power circuit adapted to be established when said contacts are engaged.

7. A coin controlled time switch having in combination, an electric motor, a fixed electrical contact, a cooperating movable electrical contact, means urging said movable contact into engagement with said fixed contact, a coin chute, first and second hanger arms disposed between said coin chute and said movable contact, means driven from said motor when said contacts are engaged for oscillating said two hanger arms in opposite directions, first and second bars pivoted respectively to said hanger arms, said two bars being weighted heavier at one side of their pivots than at the other sides thereof and adapted to be tipped from normal gravity hung positions to second positions, said first arm when in its gravity hung position being adapted to strike said movable contact to throw the same out of engagement with said fixed contact during oscillation of said first arm in one direction, and being adapted to be carried partially across said coin chute when oscillated by said first arm in an opposite direction, said first arm being adapted to be placed in a position where it will not engage said movable contact during its oscillation when swung to its second position, said second arm having a portion normally extending into the path of said coin chute and adapted to be oscillated out of the path of said coin chute during the oscillation of said second arm and means disposed between said two arms for tipping said first arm to its second position as said second arm is tipped to its second position, whereby as a coin is inserted in said coin chute, it will strike said second arm to kick said first arm out of engagement with said movable contact and thereby permit said contacts to be engaged for a definite period of time and a power circuit adapted to be established when said two contacts are in engagement.

8. A coin controlled time switch comprising in combination, a fixed contact, a movable contact, resilient means urging said movable contact into engagement with said fixed contact, an electric motor, a power circuit adapted to be established when said contacts are in engagement, a pivotally hung member weighted heavier at one side of its pivot than at its other side, and normally engaging said movable contact to retain the same out of engagement with said fixed contact against the tension of said resilient means, a coin chute, means adapted to be operated from said motor when said contacts are engaged for swinging said pivotally hung member, in one direction towards said movable contact and in an opposite direction into said coin chute and means operated as a coin is inserted into said chute to overbalance said pivotally hung member and throw the same out of engagement with said movable contact.

9. A coin controlled electric time switch having in combination an electric motor, a fixed electrical contact and a cooperating movable electrical contact, means urging said movable contact into engagement with said fixed contact, a coin chute, a rotatable member, means for driving said rotatable member from said motor when said movable contact is engaged with said fixed contact, an electric power circuit adapted to be established when said movable contact is engaged with said fixed contact, an arm oscillatable by said rotatable member as said rotatable member rotates, a pivoted bar carried by said arm and normally held by gravity in such position that it will strike said movable contact to throw said movable contact out of engagement with said fixed contact as said oscillating member is carried in one direction and capable of being tipped to a position where it will not engage said movable contact as said oscillating member is moved, and means for tipping said bar to said latter position as a coin is inserted in said chute.

10. The structure defined in claim 9, said tipping means acting to support a coin in said chute for a period of time as said rotatable member is driven, means operated from said rotatable member for releasing the coin from said tippping means, said pivoted bar being adapted to be carried in to said chute during its oscillation to support all but the lowermost coin in said chute prior to the time that the coin is released by said tipping means.

11. A coin controlled electric time switch having in combination an electric motor, a fixed electrical contact, a cooperating movable electrical contact, means urging said movable contact into engagement with said fixed contact a coin chute, a rotatable member, means for driving said rotatable member from said motor when said movable contact is engaged with said fixed contact, an electrical power circuit adapted to be established when said contacts are engaged, an oscillating hanger arm operated from said rotatable member, a pivoted bar carried by said arm and normally held by gravity in such position that it will strike said movable contact to throw said movable contact out of engagement with said fixed contact during oscillation of said hanger arm and capable of being tipped to a position where it will not strike said movable contact as said hanger arm is oscillated, a second hanger arm oscillated by said movable member, a second pivoted bar carried by said second hanger arm and normally projecting partially across said chute and normally held by gravity in one tipped position and adapted to be tipped to a second position as a coin inserted in said chute strikes said second bar, said coin chute having an opening therein spaced from said second mentioned bar a distance approximating the diameter of a coin adapted to be received in said chute, said first hanger arm being adapted to carry said first bar through said opening partially across said chute to support all but the

lowermost coin in said chute while said second bar is being carried from its position extending partially across said chute.

12. A coin controlled time switch comprising in combination, a fixed electrical contact, a cooperating movable electrical contact, resilient means urging said movable contact into engagement with said fixed contact, an electric motor, a power circuit adapted to be established when said contacts are engaged, a coin chute, a pivotally hung member disposed between said coin chute and said movable contact and weighted heavier at the side of its pivot adjacent said movable contact than at its other side, and normally engaging said movable contact to retain the same out of engagement with said fixed contact, means operated from said motor when said contacts are engaged for swinging said pivotally hung member first in one direction towards said movable contact and then in an opposite direction so that it projects into said chute, a second pivotally hung member disposed between said chute and said movable contact in vertically spaced relation from said first pivotally hung member, said last mentioned pivotally hung member being weighted heavier at the side of its pivot adjacent said movable contact than at its other side, and normally disposed in the path of a coin traveling through said chute, said means operated from said motor being adapted to swing said second mentioned pivotally hung member first towards said chute and then to a position where it no longer stands in the path of a coin inserted in said coin slot, and means for tipping said first mentioned pivotally hung member upwardly out of engagement with said movable contact to release the same as the weighted end of said second mentioned pivotally hung member is tipped upwardly, the weight of a coin inserted within said coin chute being adapted to tip the weighted end of said second mentioned pivotally hung member upwardly.

13. A coin controlled electric time switch including in combination, an electric motor, a fixed electrical contact, a cooperating movable electrical contact, resilient means normally urging said movable contact into engagement with said fixed contact, a power circuit adapted to be established when said contacts are engaged, a coin chute, first and second oppositely disposed hanger arms pivotally mounted between said coin chute and said switch, first and second pivoted bars respectively carried at the lower ends of said hanger arms and generally horizontally disposed, both of said bars being weighted heavier at the sides of their pivots adjacent said switch than at the other side thereof, a shaft disposed between said arms and adapted to be driven from said motor when said contacts are engaged, a double acting cam mounted on said shaft between said arms, means maintaining said arms in engagement with said cam, said two arms being mounted for alternate disposal partially across said coin chute and said first arm being held by gravity so that during the course of its movement it will strike said movable contact to throw the same out of engagement with said fixed contact, and means disposed between said two bars for lifting said first bar so that it will not strike said movable contact during its travel when the heavy end of said second bar is raised, whereby upon insertion of coins in said chute, the lowermost coin will strike said second bar to raise the heavy end of the same and thereby force the heavy end of said first bar out of engagement with said movable contact to throw said contacts into engagement and establish said power circuit and as said cam is rotated, said second bar will be carried out of said chute and said first bar will be carried into said chute thereby permitting the release of the coin and allowing said first bar to swing to such a position that it will support all but the lowermost coin in said chute.

14. A coin controlled electric metering device having in combination, an electric switch, an electric power circuit adapted to be established when said switch is closed, a rotatable element, an electric motor, means for driving said element from said motor when said switch is closed, a coin chute, a reciprocating member, means for reciprocating the same as said element is rotated, said switch including a movable contact normally disposed in the path of reciprocation of said member to open said switch during the movement of said member, means urging said contact to a position to close said switch and means for tipping said member to a position where it will not strike said contact as a coin is inserted in said chute.

15. A coin controlled electric metering device having in combination, an electric switch including a movable contact, an electric power circuit adapted to be established when said switch is closed, a rotatable element, an electric motor means for driving said element from said motor when said switch is closed, a coin chute, a gravity hung member reciprocable to and from said movable contact as said element is rotated, said member normally bearing against said movable contact to hold said switch open but capable of being tipped to release said movable contact and means for tipping said member from its normal position as a coin is inserted in said chute.

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