

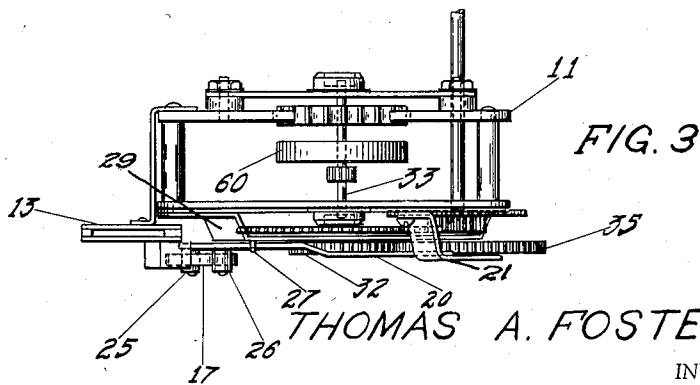
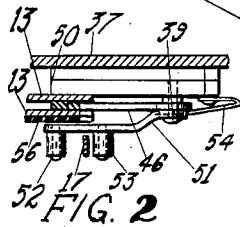
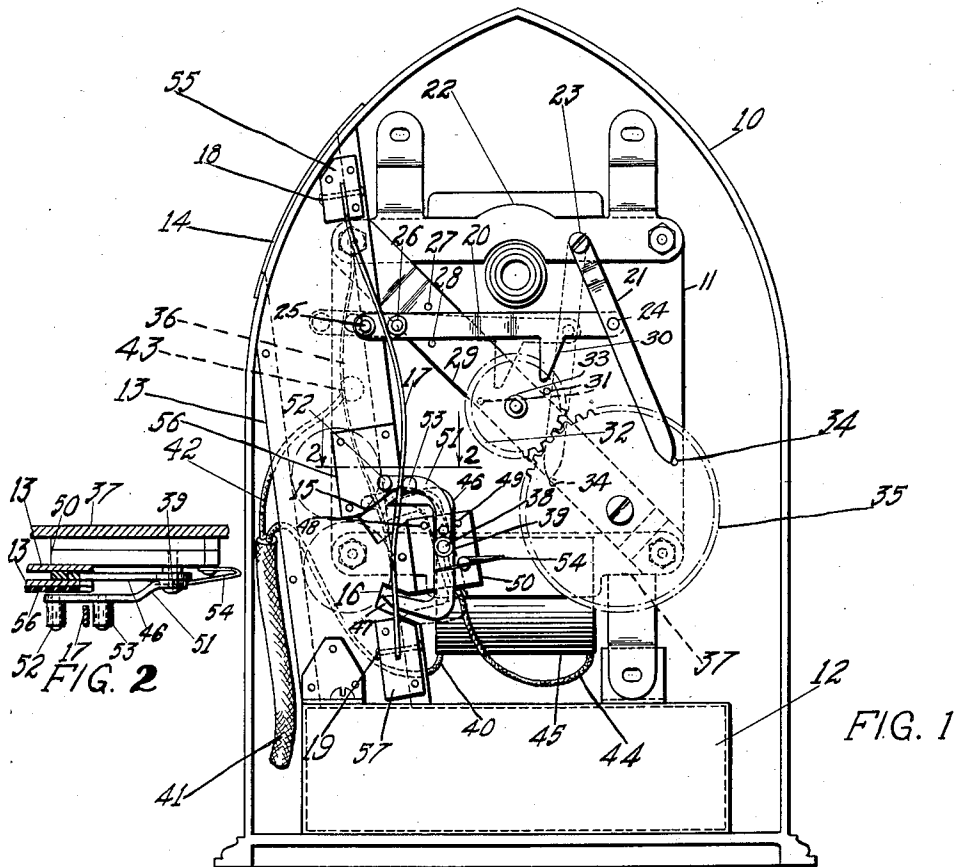
Jan. 22, 1935.

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1,988,786

COIN CONTROLLED ELECTRICAL CLOCK

Filed April 20, 1933



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# UNITED STATES PATENT OFFICE

1,988,786

## COIN CONTROLLED ELECTRICAL CLOCK

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Application April 20, 1933, Serial No. 667,092

10 Claims. (Cl. 194—6)

This invention relates to an electrically operated clock which shall at the same time be used as a savings bank by the owner or user, and is primarily designed for use by banking institutions, insurance underwriters, and the like, as an advertising and business-stimulating medium.

An important object of the invention is to provide an electric clock which shall also be a good medium for encouraging regular saving of small amounts of money for specific purposes as well as for general purposes, inasmuch as the same is constructed so as to be inoperable unless coins are regularly deposited therein.

Another object of the invention is the provision of a very novel coin-operated switch which is of simple construction and efficient of operation, and not likely to get out of order, even under long continued use.

Other and further important objects of the invention will be apparent from the disclosures in the accompanying drawing and following specification.

The invention, in a preferred form, is illustrated in the drawing and hereinafter more fully described.

In the drawing:

Figure 1 is a front elevation of an electric clock constructed in accordance with the principles of this invention, the dial and front wall of same having been removed.

Figure 2 is a sectional view taken on the line 2—2 of Figure 1, looking in the direction indicated by the arrows.

Figure 3 is a top plan view of the clock mechanism when removed from the casing.

As shown in the drawing:

The reference numeral 10 indicates the outer casing of an electric clock, in which is shown positioned a clock chassis 11 mounted over a drawer or compartment 12 for the reception and storage of coins.

The clock design employed to illustrate the present invention is a type generally known and readily available in the market. It will be obvious, however, that the invention can be applied to other clock movements as well. The drawing, therefore, shows only such parts of the regular clock movements as are essential in disclosing this invention.

Mounted between the dial (not shown) and the clock movement, and securely attached to the chassis 11 of the latter, is a coin chute 13 of metal, the upper open end of which is in registration with a corresponding slot opening 14 cut into the upper portion of the clock's cabinet 10. The low-

er opening of the coin chute 13 is located at and securely attached to the coin compartment 12.

Two notches 15 and 16 are cut out of the material of the coin chute 13, at an angle to each other, as shown in Figure 1.

Mounted on the forward wall of the coin chute 13 is a long leaf spring 17 which is securely anchored to the chute by means of rivets 18 and 19, at its upper and lower ends respectively, between which points it is flexed as best shown in Figure 1.

Also mounted on the forward portion of the clock chassis is a lever assembly composed of two metal lever members 20 and 21. The lever 21 is pivotally attached to the upper cross member 22 of the clock chassis by means of a screw or the like 23. The other lever member 20 extends horizontally from the member 21, to which it is pivotally attached at 24, to a point in conjunction with the leaf spring 17. At this point the lever 20 is provided with a pair of insulated projecting studs or the like 25 and 26, between which projections the leaf spring 17 is arranged, as best shown in Figure 1.

The member 20 also rides between a pair of pins 27 and 28 extending outwardly from a diagonally positioned chassis frame member 29.

Integral with the member 20, and extending downwardly therefrom is a V-shaped projection 30, the lower left edge of which is adapted to contact a stud or the like 31 projecting forwardly from a small timing gear 32 located on the main driving shaft 33 of the clock movement.

The lower end of the member 21 is tapered, and its right lower edge is adapted to contact a stud 34 projecting from a second and larger timing gear 35, which second timing gear is in mesh with the smaller timing gear 32.

When the clock movement is in operation the gear 32 moves clockwise, while the second gear 35 rotates in a counterclockwise direction. Thus it will be noted that when the stud 34 has contacted the lever member 21 while the clock is in operation, this lever will be forced toward the left, the stud 26 of the other lever 20 in turn forcing the leaf spring 17 toward the left and across dead center, whereupon the spring 17 suddenly moves into the flexed position shown by the dotted lines at 36 in Figure 1. The assembly 20—21—25—26—30 and the gears 32 and 35 with their attached projections will then have assumed the respective positions shown by the dotted lines in Figure 1.

The return of the spring 17 and lever assembly 20—21 to their original position is accomplished

when the stud 31, which travels with its gear in a clockwise direction, contacts the V-shaped member 30 from the left, whereupon the forcing of the spring 17 toward the right and across the dead center by the stud 25 causes the same to move suddenly into the original position shown by the solid lines in Figure 1.

If the gears 32 and 35 are provided with only one stud each, it will be apparent that the reciprocating motion of the spring 17 will take place whenever the gears 32 and 35 have completed one full revolution.

Situated near the lower end of the coin chute 13 and fastened to the lower cross member of the clock chassis 37 but insulated therefrom is a bifurcated metal element 38 which pivots on a shaft 39, one end of which shaft acts as a binding post for contact with one end 40 of an electric line 41, the other end 42 of which is grounded to the clock chassis at another point 43, all as best illustrated in Figure 1. An additional wire 44 conveys electric current from the element 38 to a coil or the like 45.

The element 38 has an upper prong 46 and a lower prong 47 which extend into the notches 15 and 16 respectively of the coin chute 13, and move into or out of the same according to the motion of the element 38 upon its shaft 39 and within the limits imposed by a pair of studs 48 and 49 which project from the insulation block 50 which is positioned between the element 38 and the chassis cross member 37. The prongs 46 and 47 are of lesser thickness than the width of the coin chute interior, so that they at no time directly contact the latter.

To the upper prong 46 of the element 38 is rigidly affixed a laterally offset arm or the like 51, to the extreme outer end of which are attached two studs 52 and 53, between which the spring 17 is arranged, as best shown in Figures 1 and 2.

It will be obvious, therefore, that the throwing of the spring 17 toward the left will cause the bifurcated element 38 and prongs to assume the position shown by the dotted lines in Figure 1, while if the spring is thrown toward the right the element 38 with its prongs 46 and 47 will snap into the position shown by the solid lines in Figure 1.

A small wire spring element 54 is provided to prevent any sidewise rocking motion of the element 38.

It will be apparent that a clock of the above construction would be inoperable unless some means be provided to fill the gap between the coin slot 13 and the bifurcated element 38 for closing the circuit and allowing current to be supplied to the clock movement. The mechanism is insulated at 50—55—56 and 57 to avoid closing of the electrical circuit through means other than the coin connection.

It is intended that the necessary connection shall be made by a coin, which the owner or user of the clock-bank desires to deposit therein as savings. In accomplishing this purpose, the invention also provides, by a single mechanism, means for automatically stopping the clock movement if an additional coin has not been deposited within a specified time after the original deposit, and the device additionally causes the various coins to be delivered to the coin compartment 12 after use.

When it is desired to begin use of the clock-bank, the spring 17 and appurtenances may be in either of the positions heretofore specified, and a connection having previously been established by connecting the electric cord 41 to a source of cur-

rent, a coin is dropped into the coin chute 13. The coin will then fall downward until it comes to rest upon either the upper prong 46 or lower prong 47 of the element 38, depending upon the position of the element 38 at the time.

If the element 38 be in the position shown in Figure 1, the coin passes the retracted upper prong 46 and comes to rest upon the lower prong 47 and against the side walls of the coin chute 13 as shown by the lower dotted circle in Figure 1, thus completing the electrical circuit by which the clock may be operated. To start the clock movement it is then only necessary to manually impart motion to the flywheel 60 through a slight manipulation of the proper handle provided at the back of the clock by the manufacturer.

The clock will then continue to run for a predetermined period of time regulated by the position of the studs 31 and 34 on the gears 32 and 35.

When the time has arrived for deposit of the first coin into the coin receptacle 12, this will be accomplished by the stud 34 throwing the levers 20 and 21 and the spring 17 into the positions as illustrated by the dotted lines in Figure 1, whereupon the element 38 will pivot so as to withdraw its lower prong 47 from support of the coin and allowing the upper prong 46 to incline toward the interior of the coin chute 13. The coin so released will, of course, fall out of contact with the element 38 and into the receptacle 12 and the electrical circuit will thus be broken, stopping the clock movement, unless there be a second coin above it in the coin slot, the latter condition being indicated in Figure 1 by the positioning of a second coin therein over the first coin as shown by the dotted lines, in which case the upper coin would immediately become obstructed from further descent by the upper prong 46 which has entered the slot 13 at the same time the lower prong 47 was withdrawn. The action of the pronged element 38 is so rapid during the change in coin contacts that the momentary disconnection of power does not stop the clock movement in the interim, as the flywheel 60 causes the movement to proceed uninterrupted for several seconds after the first electrical contact is broken.

The action is preferably timed to permit the clock movement to run for twenty-four hours in one cycle and the dropping of coins into the coin receptacle at some suitable time in the interim.

In the event the first coin is inserted while the apparatus is in the position shown by the dotted lines in Figure 1, the coin would, of course, come to rest upon the upper prong 46 of the member 38, forming the necessary electrical contact. At the proper time intervening within a given twenty-four hour period, the stud 31 would cause the mechanism to assume the position shown by the solid lines in Figure 1, and the coin would thus drop past the upper prong 46 and come to rest upon the lower prong 47, to remain in such position until the close of the given twenty-four hour period, at which time it would be released by the action of the stud 34 upon the lever assembly 20—21 and dropped into the coin receptacle.

The coin receptacle or drawer 12 is preferably equipped with a lock arrangement which would prevent withdrawal of accumulated coins by unauthorized persons.

I am aware that many changes may be made and numerous details of construction varied throughout a wide range without departing from the principles of this invention, and I, therefore,

do not purpose limiting the patent granted hereon otherwise than as necessitated by the prior art.

I claim as my invention:

1. A coin-controlled electric clock, comprising  
5 the usual clock mechanism including gears, and means for delivering current to the mechanism for a predetermined time, said means including a coin chute, and a combined coin supporting and delivery means adjacent the chute, together  
10 with elements for operating said coin supporting and delivery means, said elements including pins on the clock gears, a leaf spring associated with the coin supporting and delivery means, and a system of links and levers operatively associating  
15 the gear pins and the leaf spring.

2. A coin-controlled electric clock, comprising the usual clock mechanism including gears, and means for delivering current to the mechanism for a predetermined time, said means including a  
20 coin chute, and a combined coin supporting and delivery means adjacent the chute, together with elements for operating said coin supporting and delivery means, said elements including pins on the clock gears, a leaf spring associated with the  
25 coin supporting and delivery means, and a system of links and levers operatively associating the gear pins and the leaf spring for flexing the same into and out of coin delivering position.

3. A coin-controlled device, including a coin  
30 chute, coin supporting and delivery means adjacent the chute, a leaf spring connected with said coin supporting and delivery means for shifting the same into and out of coin supporting and delivering position and means for instituting a snap  
35 action of the leaf spring.

4. A coin-controlled device, including a coin  
40 chute, coin supporting and delivery means adjacent the chute, a leaf spring connected with said coin supporting and delivery means for instantaneously shifting the same into and out of coin supporting and delivering position and means for instituting a snap action of the leaf spring.

5. A coin-controlled device, including a coin  
45 chute, coin supporting and delivery means adjacent the chute, and a leaf spring connected with said coin supporting and delivery means for shifting the same into and out of coin supporting and delivering position, and means for operating the spring.

6. A coin-controlled device, including a coin  
50 chute, coin supporting and delivery means adjacent the chute, and a leaf spring connected with

said coin supporting and delivery means for shifting the same into and out of coin supporting and delivering position, and means for operating the spring, said means comprising a system of links and levers.

7. A coin-controlled device, including a coin  
5 chute, coin supporting and delivery means adjacent the chute, a leaf spring connected with said coin supporting and delivery means for shifting the same into and out of coin supporting and delivering position and means for instituting a  
10 snap action of the leaf spring, and electrical means associated with the chute whereby the insertion of a coin thereinto completes an electrical circuit.

8. A coin-controlled device, including a coin  
15 chute, coin supporting and delivery means adjacent the chute, a leaf spring connected with said coin supporting and delivery means for shifting the same into and out of coin supporting and delivering position and means for instituting a  
20 snap action of the leaf spring, and electrical means associated with the chute whereby the insertion of a coin thereinto completes an electrical circuit, and whereby the dropping of the  
25 coin therefrom breaks the circuit.

9. A coin-controlled device, including a coin  
30 chute, coin supporting and delivery means adjacent the chute, a leaf spring connected with said coin supporting and delivery means for shifting the same into and out of coin supporting and delivering position and means for instituting a  
35 snap action of the leaf spring, and electrical means associated with the chute whereby the insertion of a coin thereinto completes an electrical circuit, and whereby the dropping of the coin therefrom breaks the circuit unless two or more coins are in the chute.

10. A coin-controlled device, including a coin  
40 chute, coin supporting and delivery means adjacent the chute, a leaf spring connected with said coin supporting and delivery means for shifting the same into and out of coin supporting and delivering position and means for instituting a  
45 snap action of the leaf spring, and electrical means associated with the chute whereby the insertion of a coin thereinto completes an electrical circuit, and whereby the dropping of the coin therefrom breaks the circuit unless two or more coins are in the chute, said delivery means  
50 allowing of the dropping of a single coin at a time.

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