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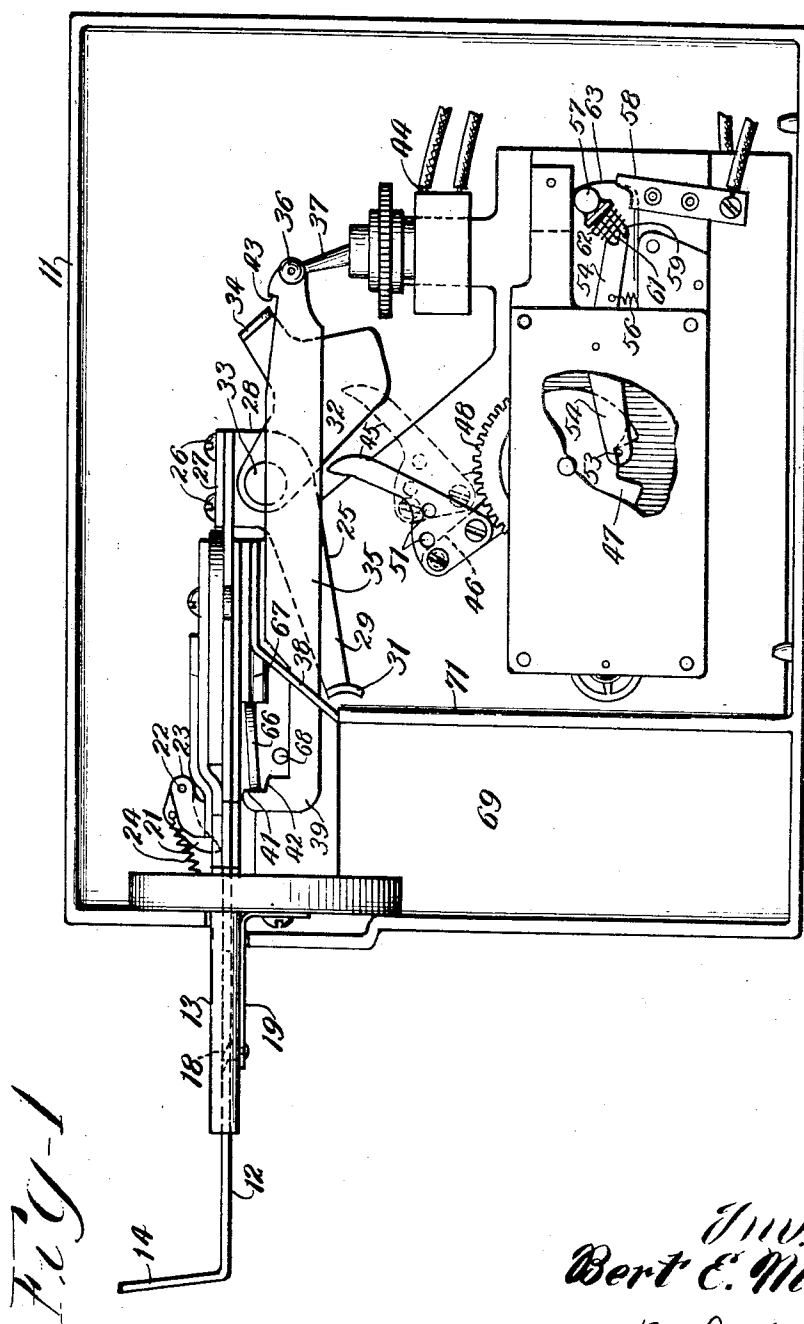
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2,102,372

TIMING DEVICE FOR ELECTRICALLY CONTROLLED APPARATUS

Filed June 30, 1933

3 Sheets-Sheet 1



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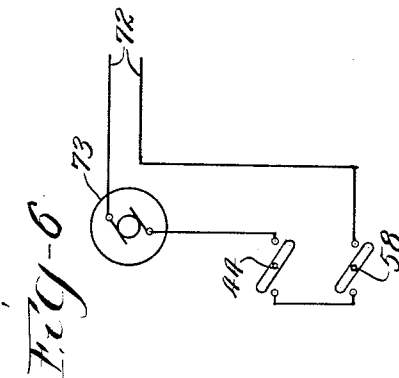
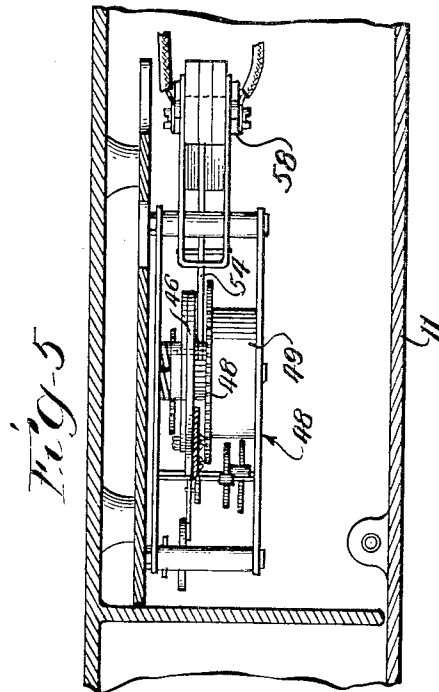
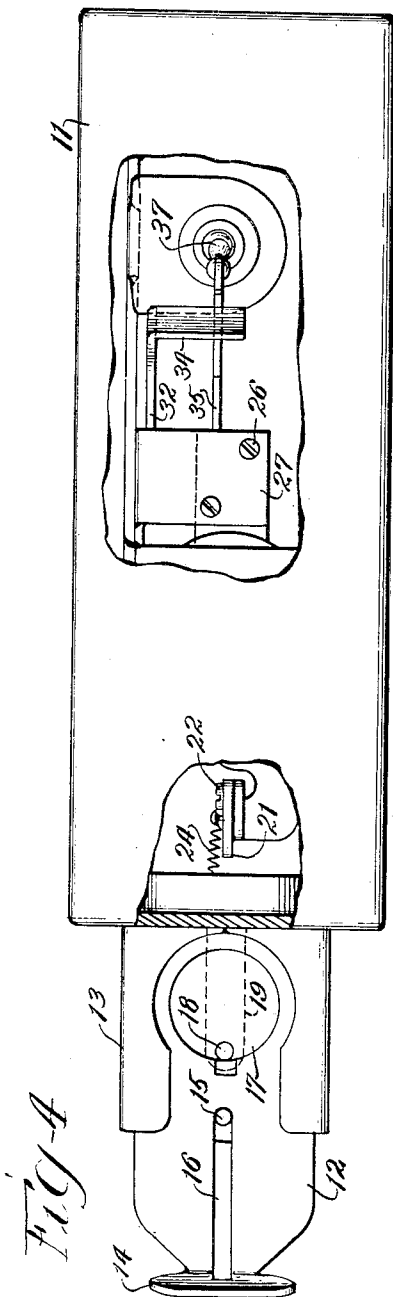
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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

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TIMING DEVICE FOR ELECTRICALLY CONTROLLED APPARATUS

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3 Claims. (Cl. 194—9)

This invention relates to timing devices for determining the period of operation of electrically operated machines or apparatus and has for its primary object the provision of a device of this character which is particularly adapted for operation by means of deposited coins, whereby a predetermined period of operation of the machine can be obtained for each coin inserted.

A further object of the invention is the provision of a device of this type which will be simple, durable and inexpensive in construction, as well as convenient, practical, serviceable and efficient for its intended use and which cannot be operated without the deposit of an appropriate coin for each actuation thereof.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts, and in the details of construction hereinafter described and claimed, it being understood that various changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed, without departing from the spirit of the invention.

The preferred embodiment of the invention is illustrated in the accompanying drawings, wherein:

Fig. 1 is an elevational view of a device in which my invention is embodied, the same being shown with the cover plate removed and the front plate of the clock mechanism being broken away for convenience in illustration;

Fig. 2 is a similar view showing the parts in a different position;

Fig. 3 is a detailed view of the mechanism employed for winding up the clock mechanism and for actuating the clock switch to be hereinafter described;

Fig. 4 is a top plan view of the device with portions of the housing broken away to show certain of the interior parts;

Fig. 5 is a sectional and plan view of the clock mechanism, being taken substantially on the plane indicated by the line 5—5 in Fig. 2; and

Fig. 6 is a wiring diagram showing the relation of the clock switch and the coin controlled switch to the circuit and to each other.

Referring to the drawings, the numeral 11 indicates a casing in which the device is housed, the same being adapted, when in use, to be closed by means of a cover plate (not shown), which may be locked in place so that the device cannot be tampered with, being accessible only to one having a key.

A coin slide 12 protrudes from one end of the casing, being mounted in a guide-way 13, and having a finger piece 14 at the end thereof for convenient operation of the slide. The outer

position of the slide is determined by means of a stud 15, extending upwardly from the base of the guide-way 13, and being disposed in a slot 16 formed in said slide 12. An opening 17 is provided in the slide and is of the proper diameter to receive a coin of the denomination required for operation of the device.

A beveled pin 18, carried by a spring 19, is normally positioned in the opening 17 to prevent advance of the slide unless a coin has been inserted in said opening 17. If a proper coin has been inserted said pin is depressed by pressure of the coin thereon and the slide 12 is allowed to move forward. To prevent operation of the device by depressing the pin 18 and advancing the slide without inserting a coin in said opening, a detent 21 is provided above the slide, being pivoted at 22 to a frame part 23 and being normally drawn downwardly by means of a spring 24, which is secured at one end to said detent and at the other end to a fixed point on the casing beneath the point of attachment of said spring to the detent.

A bracket 25 is secured to the forward end of the slide by means of screws 26 extending through a horizontal portion 27 of said bracket, the bracket being turned downwardly beyond the point of attachment with said slide to provide a vertical portion 28 and a rearwardly inclined portion 29, on the end of which is provided a cam element 31. An arm 32 is freely pivoted at 33 to the vertical portion 28 of the bracket 25 and is formed with a lug 34 extending at right angles from the body of said arm and being adapted to be moved downwardly by the weight of the latter, said arm being so formed as to provide substantial weight for this purpose.

A bar 35, is positioned beneath the forward end of the coin slide and at its forward end is pivotally connected at 36 with a switch arm 37, the rear end of said bar extending through a slot in a bracket 38 fixedly secured to the underside of the slide frame, said bar having an upwardly extending piece 39 formed at its rear end and said piece being cut away at the top to provide a vertical contact point 41 and a shoulder 42 for a purpose which will presently appear.

Upon a full forward stroke of the coin slide 12, the lug 34 on the arm 32 engages a shoulder 43 on the front end of the bar 35 and pushes said bar forwardly causing the same to operate the switch arm 37 to open a switch generally indicated at 44. After actuating the bar 35 for this purpose, the lug 34 passes beyond said bar, as indicated in Fig. 2 of the drawings, and the cam part 31 on the bracket 29 engages and actuates an arm 45 adjustably secured to an arm 46 formed on a disk 47 forming a part of the clock mechanism generally indicated at 48. The forward movement of said arm, as shown in Figs. 1 and 2,

winds up the clock mechanism in manner which will be well understood, and causes the same to begin operating under the action of a clock spring contained in a housing 49. The arm 45 is provided with a series of screw holes 51 so that the same may be adjusted on the arm 46, thereby changing the extent of the winding action upon each forward stroke of the slide. Said disk 47 has a cam recess 52 formed in the periphery thereof and a pin 53 carried by a lever 54 normally dwells in said recess. Said lever 54 is pivoted at 55 to a fixed point on the frame and the pin 53 is normally urged toward the disk 47 by means of a spring 56, secured at one end to the lever 54 beyond the pivot point 55, and at the other end to the frame. Said lever carries at its rear end a bridging element 57 of a switch generally indicated by the numeral 58, which switch is in the same circuit as the switch 44. Said bridging element 57 is normally in the position shown in Fig. 1 and is carried upon a fork 59 in which a pin 61 on the lever 54 is disposed, a spring 62 being mounted on said fork and being adapted to be compressed by the pin 61 when the rear end of the lever 54 is raised by rotation of the disk 47 causing the pin 53 to ride out of the recess 52 to the position shown in Fig. 2. This action causes the bridging element 57, which normally is held against an arcuate wall 63 made of insulating material, to snap from the position shown in Fig. 1 to that shown in Fig. 2, thereby closing the switch 58.

It will be noted by reference to Fig. 3 that a segmental disk 64, is mounted on the disk 47, to which it is secured by means of a spring 65, said segmental disk having a recess therein corresponding to the recess 52 in the disk 47, but slightly out of registration therewith so that, upon rotation of the disk 47, a yielding pressure is exerted by said disk 64 upon the pin 53. It will be noted that the side walls of the recess in the disk 64 are abrupt so that the pin 53 will snap into said recess when the disk returns to starting position, thereby operating the switch element 57 with a snap action.

Upon the return stroke of the slide 12, the coin, which is indicated in Fig. 1 by the reference numeral 66, drops from said slide to a carriage 67, and is forced against the point 41 on the vertical piece 39 on the rear end of the bar 35, thus forcing said bar toward the rear drawing with it the switch arm 37 and closing the switch 44. The coin, after being released from the carriage 67, falls by gravity and is deflected by means of a pin 68, into a compartment 69 which is formed at the front of the casing 11 by means of a partition 71.

It will thus be evident that the electric circuit to be controlled, which is indicated in Fig. 6 by the reference numeral 72 and which includes a motor 73, is not closed until after the return stroke of the slide, thus making it impossible to actuate the device a second time by holding the slide in a forward position and manipulating it as it might be possible to do if provision were not made for keeping the circuit open by means of the switch 44 until the coin slide has reached its fully retracted position, after which another coin must be inserted before the device can again be operated.

After the clock mechanism has run for a predetermined time, the disks 47, 64 will be returned to position to allow the pin 53 on the lever 54, to

again enter the recess 52, at which time the rear end of said lever is drawn downwardly by the spring 56, causing the bridging element 57 of the said switch to be snapped from the position shown in Fig. 2, to that shown in Fig. 1, the device thereby being restored to its initial condition and the circuit 72 remaining closed until said device is again actuated. It will be evident that if a second coin is inserted before the clock mechanism has unwound sufficiently to open the circuit, the disk 47 will be turned further in clockwise direction (viewing Figs. 1 and 2), thereby increasing the period of operation before the circuit is opened in the manner just described, so that full value will be obtained for all coins inserted.

I am aware that the invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and I therefore desire the present embodiment to be considered in all respects as illustrative and not restrictive, reference being had to the appended claims rather than to the foregoing description to indicate the scope of the invention.

What I regard as new and desire to secure by Letters Patent is:

1. A timing device for controlling an electric circuit comprising a coin slide having an advancing stroke and a return stroke, two switches in the circuit to be controlled, means for opening one of said switches on the advancing stroke of said slide, means for closing the other switch on such advancing stroke, means operable by the coin on the return stroke of the slide for closing said first mentioned switch, and timing mechanism adapted to be set by operation of said slide, said mechanism being operably connected to said second mentioned switch and adapted to open the same after a predetermined time.

2. In a coin slide operating mechanism, a coin slide therein adapted to receive a coin which may be placed therein, a second coin slide in said mechanism positioned alongside of and parallel to said first mentioned slide, means for propelling such coin along said first mentioned slide until said coin drops to the second mentioned slide, means comprising a projection on the first propelling means for propelling said coin along said second mentioned slide, a pawl adapted to be engaged and operated by said coin as said coin is propelled through said second slide, said pawl being adapted to operate an associated mechanism.

3. A timing device for controlling an electric circuit comprising a coin slide having an advancing stroke in a straight line and a return stroke, two switches in the circuit to be controlled, a member connected with one of said switches, means carried by the slide adapted to operatively engage said member after predetermined advancing movement of the slide and, upon further movement, to cause said member to open said switch, means operable by said slide for closing the other switch on such advancing stroke, said member being operable through the instrumentality of said slide upon its return stroke for closing said first-mentioned switch, and timing mechanism adapted to be set by operation of said slide, said mechanism being operatively connected to said second-mentioned switch and adapted to open the same after a predetermined time.

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