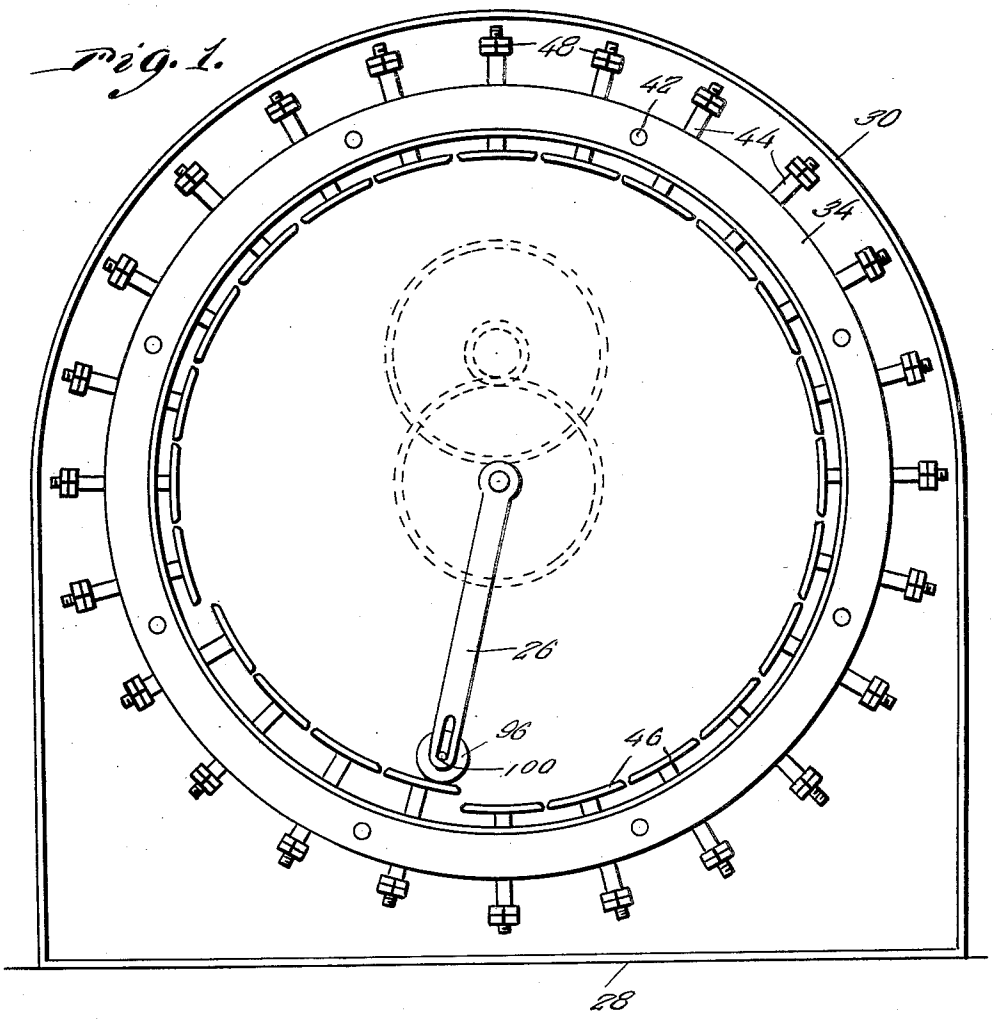
Sept. 19, 1933. F. E. HOLLINGSWORTH ET AL 1,927,440

SWITCH

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Fig. 1.



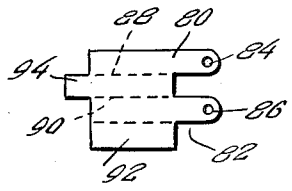


Fig. 3.

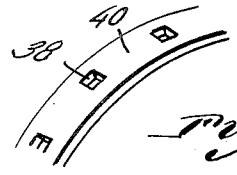


Fig. 4.

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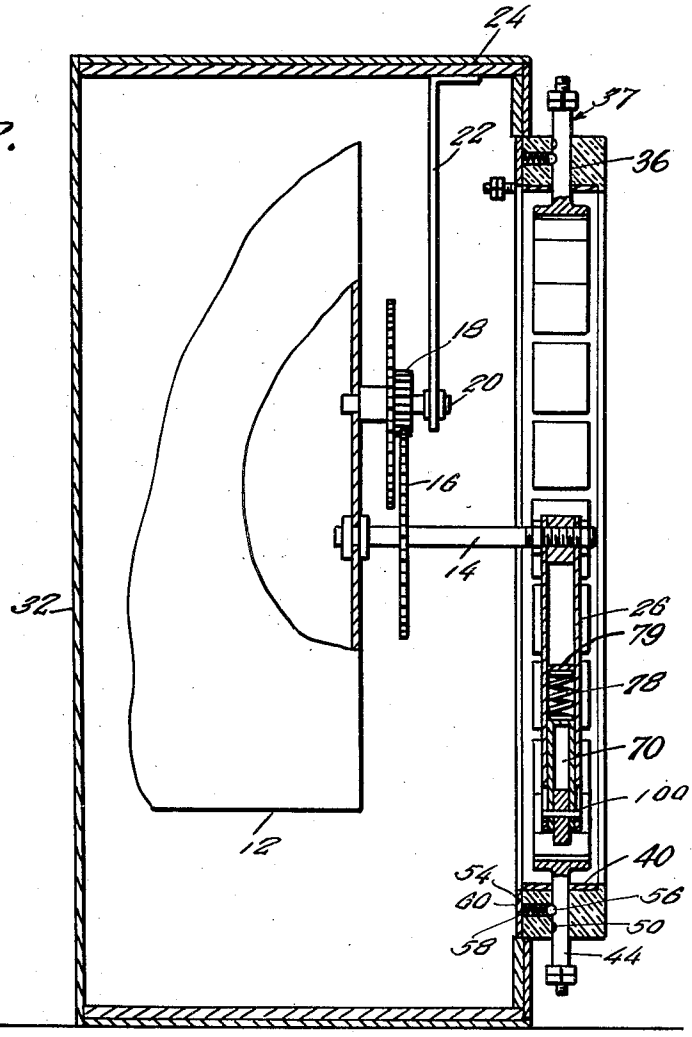
Attorney

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SWITCH

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Fig. 2.



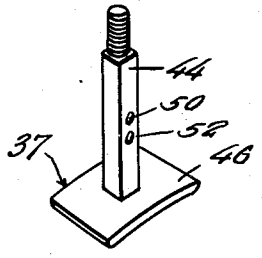


Fig. 5.

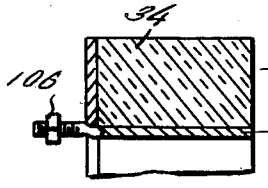


Fig. 6.

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UNITED STATES PATENT OFFICE

1,927,440

SWITCH

Fred E. Hollingsworth and Ellis Wilson Davis, Mexico, Mo.

Application October 25, 1932. Serial No. 639,476

2 Claims. (Cl. 200—37)

This invention relates to a switch and more specifically, to an electrical time switch adapted to be actuated by means of a clock or the like.

One of the objects of the present invention is to provide an electrical switch which is associated with and actuated by the mechanism of a clock or the like to control the opening and closing of an electrical circuit or circuits, at predetermined time intervals.

Another important object of the invention is to provide a switch of the character described which will permit of the closing of an electrical circuit for a predetermined period of time.

The present invention contemplates the provision of a circular ring constructed of insulating material having on the inner periphery thereof a metallic ring and a plurality of radial contact members in the ring, which are manually positioned. The contact rings are provided on their inner ends with arcuate shaped contact members which are adapted to be brought into the path of a contact wiping arm actuated by means of a clock mechanism.

In the accompanying drawings forming a part of this application and in which like parts are designated by corresponding reference numerals,

Figure 1 is a front elevational view of the device,

Figure 2 is a vertical sectional view,

Figure 3 is a view of the blank from which the slidable plunger carrying the roller in the wiper arm is constructed,

Figure 4 is a perspective view of a portion of the inner metallic ring which is secured to the inner periphery of the insulating ring,

Figure 5 is a perspective view of one of the contact members, and

Figure 6 is a vertical section illustrating the manner in which the electrical binding post is connected to the inner ring.

In the accompanying drawings, wherein for the purpose of illustration there is shown a preferred embodiment of the invention, the numeral 12 generally designates a clock of any desired shape or construction. A shaft 14 is pivotally mounted to the rear of the clock 12 and is driven through gear 16 which is keyed to the shaft 14 with reducing gears 18 keyed to shaft 20 which is actuated by means of the clock mechanism. The shaft 20 is supported by means of a depending arm 22 connected to the top of the frame 24 of the switch. The gears 16 and 18 are of such size that the tubular wiping arm 26 secured to the end of the shaft 14 will rotate once in twenty-four hours. It is to be understood that the invention is not limited to this particular type of driving mechanism, inasmuch as an electrical clock or any other type may be employed.

The reference numeral 28 denotes the bottom of the switch casing which is provided with an upper, arcuate-shaped cover 30 and a back 32. To the front of the casing, there is secured a circular ring 34 constructed of insulating material which is provided with twenty-four radially disposed spaced apertures 36 in which the contact members 37 are slidable. On the inner periphery of the ring 34 there is secured by any suitable means a metallic ring 40 which is similarly provided with spaced apertures 38 which register with the apertures 36 in the non-conducting ring 34. The ring 34 is secured to the front portion of the frame by means of spaced bolts or the like 42.

As clearly illustrated in Figure 10, the contact members 37 which are slidable in the apertures 36 and 38 are provided with pins 44 which extend through the apertures and have integral therewith an arcuate shaped wiping surface 46. The contact members as illustrated in Figure 1 are inserted in the apertures in the rings 34 and 40 with the wiping surface disposed on the inner side thereof and are prevented from being removed therefrom, by means of the nuts 48 which are screwed on the terminal ends thereof. The contacting surfaces 46 of the contacts are of such a dimension that the adjacent edges of the adjacent contact members do not contact. The pins 44 of each of the contact members are provided with spaced recesses or sockets 50 and 52. The conducting ring is provided with laterally extending bores 54 registering with each of the apertures 36 therein and as illustrated in Figure 2, a ball bearing 56 is urged into contacting engagement with the pins 44 by means of the spring 58, to the end that the pin may be maintained in its inner or outer position depending upon the engagement with either of the recesses 50 or 52.

The springs are held in the bores by means of a ring 60 secured to the inner side of the non-conducting ring.

In Figure 3 there is illustrated a blank from which a roller carrying plunger 70 is formed. The roller carrying arms 80 and 82 having apertures 84 and 86 are bent at right angles on lines 88 and 90 in the same manner. The outer edge portion 92 is then bent to form the closure and the tab 94 is bent downwardly and the adjacent open edges welded or otherwise soldered to form the completed plunger.

The plunger 70 is slidably mounted in the outer

end portion of the wiper arm 26 and is normally urged outwardly by means of a spring 78 interposed between a stop member 79 on the wiper arm and the inner end of the plunger. As shown in Figs. 1 and 2, a roller 96 is rotatably mounted in the outer end of the plunger 70 by means of a pin 100 which pin also extends through longitudinal slots 102 in the wiper arm for slidably connecting the plunger thereto.

As clearly illustrated in Figure 1, when the contact members 37 are in their lowermost position out of electrical contact position, the roller 96 is out of engagement with the contacting surface 46 thereof. However, when the contact members are pushed inwardly, the contact roller 96 upon rotation of the contact arm electrically contacts the contacting surface 46 to complete the electrical circuit.

In this connection it is to be noted that one of the conductors of the electrical circuit is connected to the binding post 106 which is secured to the conducting ring 40 on the inner periphery of the non-conducting ring which is in electrical contacting engagement with each of the contacting pins 44. The other conductor is connected to the contact arm through the shaft 14. It will thus be seen that either one or several of the contacting pins may be pushed inwardly to control an electrical circuit at different intervals or through a short or long period of time.

It is to be understood that the form of invention herewith shown and described is to be taken merely as a preferred example of the same and that such minor changes in arrangement and construction of parts may be made as will remain within the spirit of the invention and the scope of what is claimed.

Having thus described the invention, what is claimed is:—

1. A time control switch comprising a ring of non-conducting material, having a plurality of spaced radially disposed contact members therein, said contact members being slidable in said ring and means for maintaining said contacts in a predetermined inner or outer position, a pivotally mounted arm disposed at the center of said ring and having a roller on the end thereof adapted to electrically contact the electrical contacts in said ring when the contacts are disposed at their innermost position, a metallic ring disposed on the inner periphery of said non-conducting ring and electrically contacting said electrical contacts, and time-controlled means for rotating said wiper arm.

2. A time controlled switch comprising a non-conducting ring having a series of spaced radially extending bores and series of spaced transversely extending bores intersecting said radial bores and extending out through one side of said ring, radially disposed contact members slidably mounted in the radial bores, means for maintaining said contact members in predetermined inner and outer position embodying spring pressed detents positioned in the transversely extending bores of said ring and engageable with said contact members, a ring secured to the side of said non-conducting ring through which said transverse bores extend for holding said spring pressed detents in place, a metallic ring secured to the inner periphery of the non-conducting ring and electrically contacting said contact members, a rotatable wiper arm for electrically contacting said contact members, and time controlled means for rotating said wiper arm.

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