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CURRENT FAILURE INDICATOR

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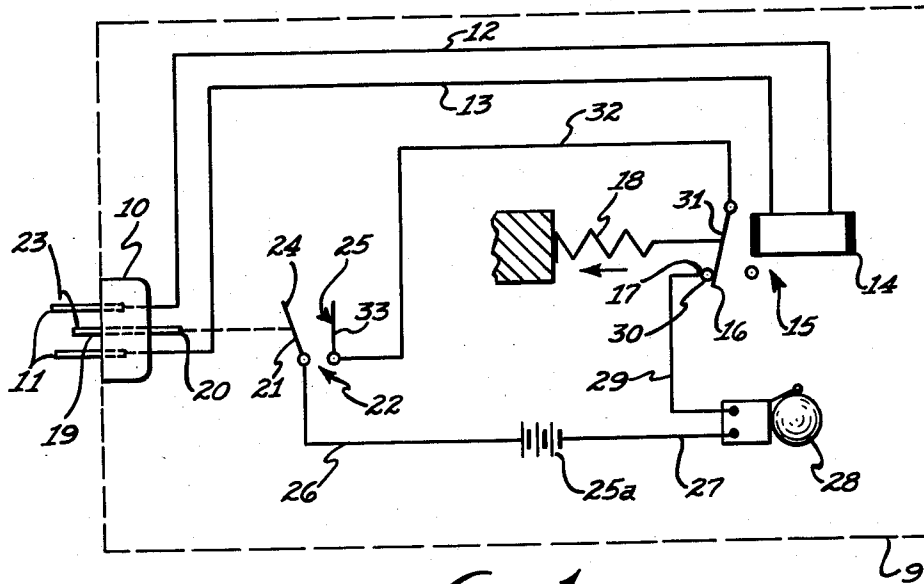


Fig. 1

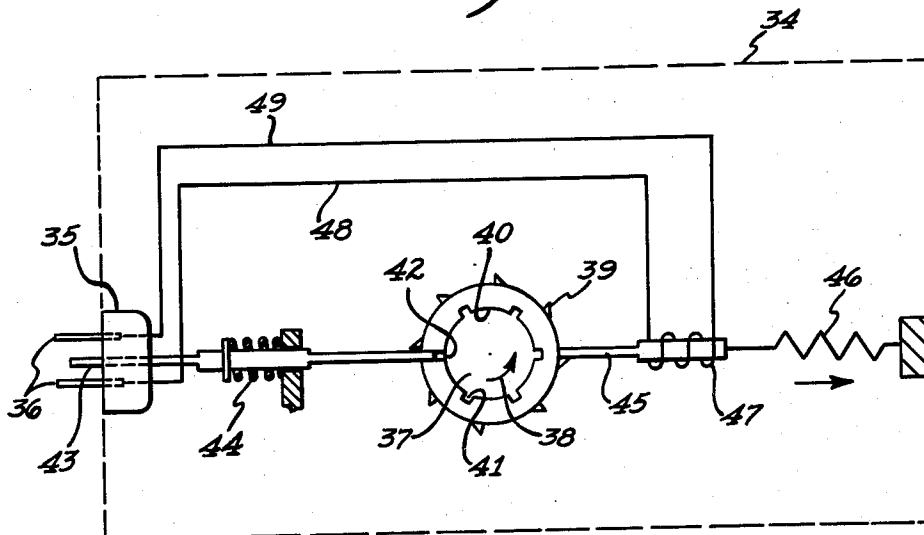


Fig. 2

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CURRENT FAILURE INDICATOR

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Original application Aug. 1, 1957, Ser. No. 675,585, now Patent No. 2,931,019, dated Mar. 29, 1960. Divided and this application Feb. 4, 1960, Ser. No. 6,767

1 Claim. (Cl. 340—253)

This invention pertains to improvements in current failure indicators.

This application is a divisional application of original Serial No. 675,585, filed August 1, 1957, now Patent 2,931,019 issued March 29, 1960.

One of the objects is to provide a self-contained unit which may be plugged into a convenience outlet to automatically give an indication of current failure or interruption so that time clocks on the circuits and other apparatus may be reset.

Another object is to provide in the recited device, a means to automatically render the device inoperative should it be removed from the convenience outlet.

Further features and advantages of this invention will appear from a detailed description of the drawings in which:

Fig. 1 is a schematic diagram of one form of the apparatus incorporating the features of this invention.

Fig. 2 is a schematic diagram of another form of the apparatus having the features of this invention.

As an example of one embodiment of this invention there is shown a unit 9 having an electric plug 10 fixed thereto including the prongs 11 for insertion in the usual convenience outlet (not shown) of the 110 volt A.C. lighting circuit. Each of the prongs 11 are connected through leads 12 and 13 to a solenoid coil 14 of a relay 15 so as to maintain the contacts 16 and 17 open so long as the coil 14 is energized. A suitable tension spring 18 serves to close the contacts 16 and 17 when the coil 14 is deenergized.

A plunger 19 axially slidable in the plug 10 has its inner end 20 in engagement with the contact arm 21 of the switch 22 so that when the unit is plugged in the outer end 23 of the plunger 19 engages the face of the convenience outlet to close contacts 24 and 25. A suitable battery 25a is connected by a lead 26 to the contact arm 21 of the switch 22 while the other terminal of the battery 25 is connected by a lead 27 to a suitable warning device such as the bell 28. The bell in turn is connected by a lead 29 to the contact arm 30 of the switch 15. Contact arm 31 of the switch 15 is connected by lead 32 to the contact arm 33 of the switch 22.

When the unit 9 is pulled from the convenience outlet, contacts 24 and 25 open so that the battery cannot energize the warning bell, even though contacts 16 and 17 are closed at this time. With the unit 9 plugged in contacts 24 and 25, should power failure occur, coil 14 becomes deenergized closing contacts 16 and 17 causing warning bell 28 to be energized.

Still another arrangement is that shown in Fig. 2 wherein the unit 34 has a plug 35 fixed thereto having prongs 36 for insertion in the usual convenience outlet (not

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shown). A clock mechanism of usual construction having an escapement (not shown) and the main winding drum 37 journaled in the unit 34 and interconnected therewith by the usual main spring (not shown) which normally rotates the drum in the direction indicated by the arrow 38 has a ratchet wheel 39 fixed thereto. The ratchet wheel has a bore 40 including a series of notches 41 in which a pin 42 fixed on the end of the plunger 43 engages, the plunger 43 being normally yielding urged by the compression spring 44 to engage the pin in a slot 41 to prevent unwinding of the drum 37. A ratchet plunger 45 suitably slidably mounted in the unit 34 is normally yielding withdrawn from the ratchet wheel by a tension spring 46 connected between the plunger 45 and the unit 34. A solenoid coil 47 surrounding the plunger 45 is adapted when energized to hold the plunger 45 into engagement with the ratchet wheel 39 preventing unwinding of the drum 37. The solenoid coil is connected by leads 48 and 49 to the prongs 36. Suitable warning apparatus such as bell ringing mechanism of conventional type (not shown) may be connected to the rotating drum 37 as desired.

When the unit 34 is plugged in, coil 47 is energized holding plunger 45 in engagement with the ratchet wheel 39 and this condition prevails so long as coil 47 remains energized from prongs 36. Also, as the unit is plugged in the outer end 50 of the plunger 43 engages the face of the convenience outlet (not shown) compressing spring 44 to release the pin 42 from a notch 41 to condition the drum 39 for free rotation. Should a current interruption occur when the unit is plugged in coil 47 is deenergized allowing spring 46 to withdraw plunger 45 starting drum 37 rotating to actuate the warning device connected to the drum.

While the apparatus herein disclosed and described constitutes a preferred form of the invention, it is also to be understood that the apparatus is capable of mechanical alteration without departing from the spirit of the invention and that such mechanical arrangement and commercial adaptation as fall within the scope of the appended claim are intended to be included herein.

Having thus fully set forth and described this invention what is claimed and desired to be obtained by United States Letters Patent is:

In a current failure indicator unit, a plug having prongs for insertion in a convenience outlet, a first switch having normally open contacts in said unit, a plunger in said plug adapted to engage the face of a convenience outlet when plugged in to close the contacts of said first switch, a second switch having normally closed contacts in said unit, electrically energized means in said unit connected to said prongs of said plug to hold said second switch contacts open, means connecting said first switch, said second switch, a battery in said unit, and an electrically energizable warning device in said unit in series.

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