March 5, 1940. B. E. GETCHELL 2,192,586

SWITCH RATING INDICATOR

Filed July 27, 1938

Fig. 1.

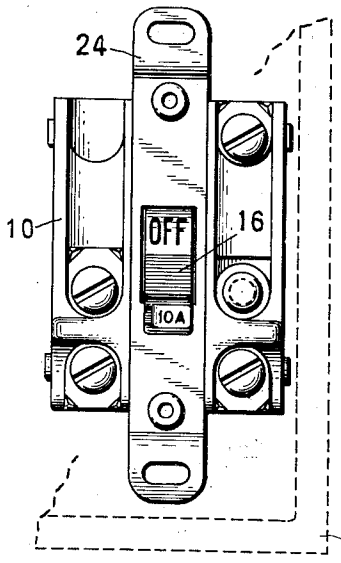


Fig. 2.

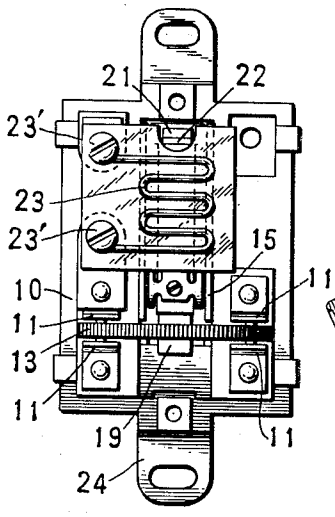


Fig. 3.

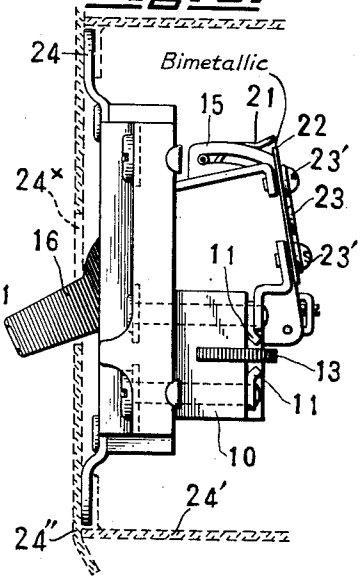


Fig. 8.

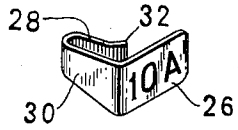


Fig. 4.

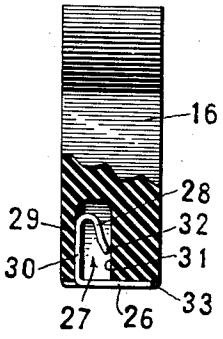


Fig. 5.

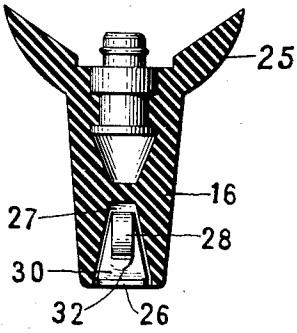


Fig. 6.

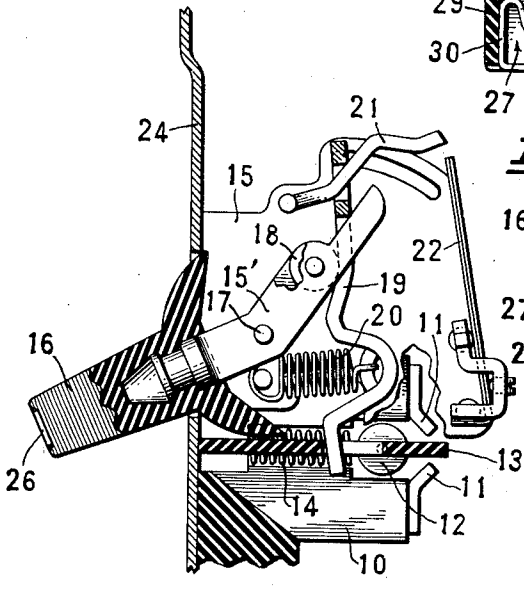


Fig. 9.

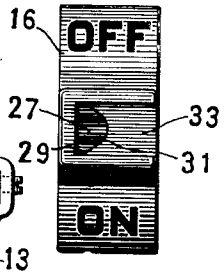
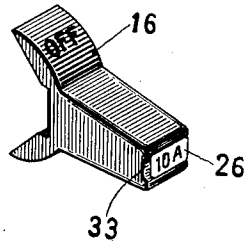


Fig. 7.



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SWITCH RATING INDICATOR

Benjamin E. Getchell, Plainville, Conn., assignor to The Trumbull Electric Manufacturing Company, Plainville, Conn., a corporation of Connecticut

Application July 27, 1938, Serial No. 221,631

6 Claims. (Cl. 200—122)

My invention relates generally to enclosed switches and more particularly to rating indicating means for switches having automatic overload release means.

Such switches are commonly mounted in steel boxes or wall receptacles and protected by front or cover plates through which the operating lever projects.

Ordinarily if it is desired to know the rating of the switch, it is necessary to take off the cover and sometimes to remove switch parts.

It has also been proposed to form an opening in the switch body in order to provide a window to view the rating. This is objectionable as it weakens the enclosure and provides unnecessary access to and exposure of the switch parts. Furthermore, this form of device is not applicable to some types of switches.

It is an object of my invention to provide an indicating device which is always visible from the outside of the switch housing when mounted in the usual way.

Another object is to provide such an indicating device at a convenient place on the exterior of the switch casing.

Still another object is to provide such an indicating device that is easily mounted and demounted.

Yet another object is to provide such an indicating device that is simple in construction and economical to manufacture.

These objects are attained by the simple expedient of providing the switch with an exposed finger piece for the actuator to which is detachably secured a special indicator of the rating.

In the drawing,

Fig. 1 is a front view of a switch with an indicator embodying my invention.

Fig. 2 is a rear view of the same.

Fig. 3 is a side view showing parts of the device in the normal open circuit position.

Fig. 4 is an edge view of the switch handle partly in section and showing my improved indicating device.

Fig. 5 is a section of the handle with the improved indicating device in place.

Fig. 6 is a side sectional view showing switch actuating mechanism, the parts being in an open circuit position which they would occupy upon manual tripping.

Fig. 7 is a perspective view of the handle and indicating device.

Fig. 8 is a perspective view of the indicating device.

Fig. 9 is an end view of the finger piece showing the recess for the indicator.

The form of switch illustrated is similar to that shown in my application for patent, Serial Number 208,428, now Patent #2,166,545, granted July 18, 1939, and includes the insulating body 10 and pairs of stationary contacts 11, 11. Each pair of contacts has a roller switch member or disc 12 carried by an insulating slide 13 under pressure of one or more springs 14 tending to close the circuit. The slide 13 is suitably guided in the body 10. A metal frame 15 is secured to the body in some suitable manner and carries the switch actuating parts and the enclosed release device.

In the form shown, the actuating lever consists of a pivoted metal lever 15' to which is secured a molded non-metallic finger piece 16. The lever is pivoted at 17 to the usual frame and has a roller 18 engaging the floating lever 19. The latter is biased by a spring 20 and coacts with the slide 13 and with the latch 21. The latter coacts with the bimetallic thermostatic arm 22. The switch is actuated by means of the finger piece 16 in the usual manner.

The overload release is accomplished in a suitable manner by heating the arm 22. This is accomplished by a heater 23 which may be removably secured in place for instance by screws 23' as shown in my application Serial Number 208,428 or for instance in the Hammerly Reissue Patent No. 20,649. These heaters are customarily replaceable and may be provided with indicators to show the rating. Although the indicator in these prior devices is replaceable without the necessity of replacing the thermostatic arm, in neither of them however is the indicator visible when the switch is in use in the normally constructed installation.

The front piece 24 of the frame resembles the usual strap which is secured to the lugs of a wall box 24' (indicated by dotted lines) and to which the usual face plate or cover 24'' is secured. The finger piece 16 extends through this front piece 24 and through the face plate of the switch in the usual manner and the arcuate shaped portions 25 of the finger piece are provided with the usual "on" and "off" words.

To the outer end of the finger piece is secured an indicating device in the form of a spring clip or tab. This consists of a plate portion 26 bearing the rating indicia, for instance 10A. The end of the finger piece is provided with a recess 27 and the clip has a spring finger 28 which fits into this recess. The recess has a flat wall 29 against which the stem 30 of the clip rests and

a curved wall 31 against which the corners 32 of the tip of the clip engage to frictionally hold the clip in place. The outer end of the finger piece has a shallow recess 33 to receive the edges of the plate portion 26 of the clip so that when in place the plate is substantially flush with the end of the finger piece. The stem is tapered somewhat and the recess corresponds so that when the stem is inserted it will automatically center the plate 26 in the recess 33. The spring finger is biased so as to require its contraction when inserting it into the recess. This holds the clip securely in place but permits the withdrawal when necessary.

In order to insure proper indication a properly marked indicator is sold with every heater unit. Whenever a new heater is applied to a switch or when a heater is exchanged on a switch, the clip which is sold with it is inserted into the end of the handle or finger piece of the switch so that an operator or inspector will at at all times know the proper rating of the switch.

To remove the clip it is necessary only to press it to one side so that the angle of the stem is changed and the tip of the spring will be released so as to permit the clip to be lifted out. In case the clip should stick, it is merely necessary to insert some thin object or tool such as a knife blade or small screw driver beneath the edge of the plate to loosen it.

With such an indicator, the rating of the switch is instantly observable without the necessity of removing the face plate or disconnecting the switch and without providing a window or opening in the switch casing.

Such a switch may be mounted in a steel box or receptacle 24' in the usual manner. A face plate or cover 24'' is also secured to the box in the usual manner and has an opening 24x for the finger lever 16. As the indicator 26 is on the outer end of the lever 16 it is always visible and there is no necessity of mutilating the cover in order to disclose an interior indicator such as has been heretofore proposed. The improved switch can therefore be mounted in the usual conventional box with the standard type of face plate without requiring any special face plate or alterations. This type of rating indicator is applicable to many different switch structures.

I claim:

1. In a switch adapted to be mounted in a box having a removable cover, a housing carrying the switch mechanism and including an actuating finger lever mounted to protrude through the cover when the switch is mounted in the box, and a rating indicator device carried by a protruding portion of the lever and movable therewith and attachable thereto and detachable therefrom independently of the cover of the box.

2. A switch lever having a recess in its outer end with oppositely disposed walls and an indicator having a stem with a reversely bent spring tip compressed between said walls.

3. A thermostatically controlled switch including a housing for enclosing the switch contacts and adapted to be mounted in a box having a detachable cover, a handle extending from the housing and adapted to protrude through the cover when the switch is installed in the box so that the switch can be actuated by means of the handle from outside the box, a heater unit removably carried by the housing for cooperating in the automatic opening of the circuit upon an overload and a discrete readily detachable indicating device carried by a protruding portion of the handle and carrying indicia of a distinguishing characteristic of the heater unit.

4. A thermostatically controlled switch including a housing, stationary and movable switch contacts in said housing, a heater unit in the housing for automatically actuating the movable contact upon an overload, a handle protruding exteriorly of the housing for actuating the movable contact and having a pocket in its outer protruding portion and a separate, one-piece device detachably mounted in said pocket and carrying indicia to indicate the amperage rating of the switch.

5. An electric switch having a housing carrying the switch contacts, handle and actuating mechanism and adapted to be mounted in a box having a removable cover with an opening for the switch handle, said handle having a pocket in a portion which protrudes through the cover when the switch is in the box and the cover is in place, and a discrete indicator member mounted in said pocket and carrying distinguishing indicia visible from the front of the switch, said indicator member being detachably supported by and removable from the handle without removing the cover of the box.

6. As an article of manufacture, a rating indicator including a strip of flat metal and an integral stem bent on itself to form a spring portion adapted to be inserted into a recess in the end of a switch actuating lever.

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