In the accompanying sheet of explanatory drawings:—

Figures 1 and 2 illustrate diagrammatically two methods of carrying the invention into effect.

Referring to Figure 1, the lever *a* which is actuated by the releasing mechanism, has formed on one side of it a projecting shoulder *b* for co-operating with one side of a roller *c*. On the other lever *d*, which is connected to the switch mechanism, is provided a flat surface *e* which contacts with the other side of the roller. The roller is formed with a large central aperture *f*, and through this passes a pin *g* of relatively small diameter which is secured to the second lever *d* and serves mainly to connect the roller to the lever; the pin also serves to limit the extent to which the roller can move. The position of the said pin is such, as shown, that when the levers are engaged the centre of the roller coincides with the line of pressure between the interacting parts of the levers, such line passing through the pivot centre of the lever *a* which is actuated by the releasing mechanism. When the latter lever moves relatively to the other the roller also moves, owing to the freedom of its axis, and in consequence the frictional resistance to be overcome is very small.

It will be apparent that our invention comprises features belonging to both the above described constructions which have previously been employed, and the combination enables us to achieve a result which is unattainable by either of them.

In all cases to which our invention is applied, we employ a pair of surfaces with a freely movable roller contacting with both. But the manner of attaching the roller to one of the levers may be varied in a number of ways. For example trunnions on the ends of the rollers may be free to move in retaining grooves in the lever. Preferably the construction shown in Figure 1 is carried out by attaching a cylindrical piece to one side of the lever *d* connected to the switch mechanism, and forming in such piece a transverse groove the base of which provides the flat surface on which the roller can run. The roller is held in position by a small pin passing through it and the sides of the groove. The said cylindrical piece is also capable of rotational or angular adjustment to enable the flat surface to be brought readily into correct relationship with that on the other lever.

Instead of flat surfaces, curved surfaces may be used on one or both levers. For example, as shown in Figure 2, a useful arrangement for some purposes comprises a flat step or shoulder *b* on one of the levers as *a*, a fixed cylindrical peg *h* on the other lever as *d*, and a roller *c* arranged to operate between them, the roller contacting with the outer cylindrical surface of the peg. Any suitable provision, such as those above described, is used for holding the roller in position.

Whilst primarily intended for the trip mechanisms of circuit breakers it may be applied to other kindred mechanisms.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. In trip or release mechanisms for electric circuit breakers and like apparatus, the employment of a flat or curved step, shoulder or other fixed surface on each of a pair of interengageable levers, and the provision of a roller which co-operates with both surfaces and is free to roll relatively to each, substantially as and for the purpose described.

2. In trip or release mechanisms for electric circuit breakers and like apparatus, means for effecting engagement between a pair of levers or the like with a minimum of friction, substantially as described and illustrated.

Dated this 12th day of January, 1925.

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