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PATENT SPECIFICATION



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PROVISIONAL SPECIFICATION.

Improvements relating to Trip or Release Mechanisms for Electric Circuit Breakers and like Apparatus.

We, GEORGE ELLISON and THOMAS BROWN, British subjects, both of Well-head Lane Works, Perry Barr, in the City of Birmingham, do hereby
5 declare the nature of this invention to be as follows:—

This invention relates to trip or release mechanisms for electric circuit breakers and the like, and has for its object to
10 provide an improved anti-friction device between the interengaging elements of such mechanisms. In one form of mechanism a pair of catch levers are used, one connected to the movable member of the switch, and the other
15 arranged in conjunction with a releasing device, such as the plunger of an overload or no-voltage coil. The inter-engagement of the two catch levers, whereby the switch is held in action, is sometimes effected through the medium of a flat step or shoulder on one lever which engages a corresponding part on the other lever. When one of the levers
20 is actuated for the release of the other a relative sliding movement occurs between the said interengaging parts. Due to the pressure between those parts a certain amount of frictional resistance is set up. In small apparatus the pressure is comparatively small and the frictional resistance to movement is also small, so that no special provision for minimising the resistance is necessary. But in
35 larger apparatus the frictional resistance between interengaging parts as above described is sufficient to interfere with the proper action of the mechanism, and in consequence it has long been the practice to provide on one of the parts a
40 roller which is carried on a pivot pin and is engaged by a step or shoulder on the other part. In still larger apparatus it is found that the reduction of frictional

resistance which is possible by means of a roller carried on a pivot pin is not sufficient, owing largely to the sliding friction between the roller and its pin, and in consequence much difficulty has been encountered in constructing mechanism which is capable of withstanding heavy pressure and which is also capable of being released by a small effort.
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The object of the present invention is to still further reduce frictional resistance to motion and to effect the desired result in the simplest possible manner.
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The invention comprises the employment of a flat or curved step, shoulder or other fixed surface on each of the levers, and the provision of a roller which cooperates with both surfaces and is free to roll relatively to each.
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For example, the lever which is actuated by the releasing mechanism, has formed on one side of it a projecting shoulder for co-operating with one side of a roller. On the other lever, which is connected to the switch mechanism, is provided a flat surface which contacts with the other side of the roller. The roller is formed with a large central aperture, and through this passes a pin of relatively small diameter which is secured to the second lever 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 that when the levers are engaged the centre of the roller coincides with the line of pressure between the interacting parts of the lever, such line passing through the pivot centre of the lever 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
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