

(No Model.)

A. C. COCKBURN.

SAFETY DEVICE FOR USE IN ELECTRIC CIRCUITS.

No. 395,421.

Patented Jan. 1, 1889.

Fig. 3.



Fig. 1



Fig. 2.

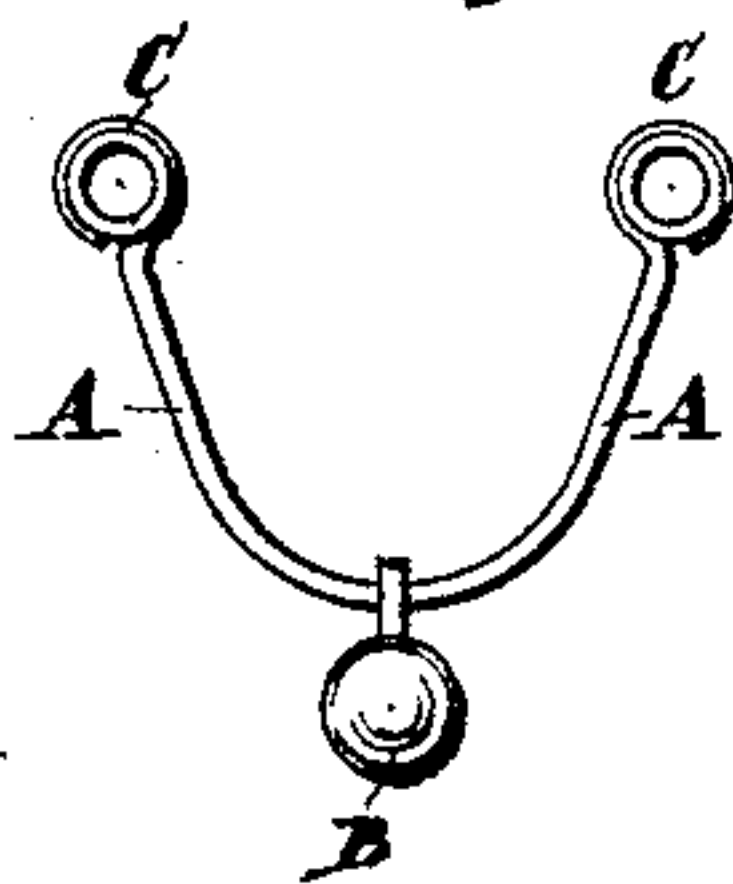


Fig. 4.



ATTEST =

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ARTHUR CECIL COCKBURN, OF LONDON, ENGLAND.

SAFETY DEVICE FOR USE IN ELECTRIC CIRCUITS.

SPECIFICATION forming part of Letters Patent No. 395,421, dated January 1, 1889.

Application filed July 18, 1888. Serial No. 280,342. (No model.) Patented in England March 19, 1887, No. 4,138; in France August 30, 1887, No. 185,565, and in Germany September 1, 1887, No. 42,912.

To all whom it may concern:

Be it known that I, ARTHUR CECIL COCKBURN, a subject of the Queen of England, residing at London, England, have invented
5 certain new and useful Improvements in Safety Devices for Use in Electric Circuits, (for which I have obtained patents in England, No. 4,138, March 19, 1887; France, No. 185,565, August 30, 1887, and Germany, No.
10 42,912, September 1, 1887,) of which the following is a specification.

My invention relates to safety devices or fusible cut-outs in electric circuits. In the well-known usual form of fusible cut-out or
15 safety-catch the fuse consists of a wire or strip of lead, tin, copper, or other metal or alloy, which ruptures under the heating effect of the current when the strength of the current becomes excessive. Now I have found by
20 experience that where strips or wires of lead, tin, or other similar material are used, if the current is increased beyond its normal value in a gradual manner, rupture does not occur for a long time after the wire is in a molten
25 condition, its surface becoming coated with a semi-rigid layer of oxide; hence such cut-outs are unreliable, as it is impossible to state with certainty what percentage of excess of current will cause them to act. My invention
30 removes this unreliability and enables me to make cut-outs or safety devices which are more reliable in action.

The accompanying drawings show four forms of this device.

35 I employ a wire or strip of metal or alloy, A, in one or more pieces and capable of being fused by the passage through it of a current exceeding the normal strength, the wire or strip A being weighted at its middle or other
40 point or points by one or more weights, B, fixed to or movable along it in such a manner that upon the wire or strip becoming plastic or molten by heat the weight assists its rupture. I use as a weight either a mere thick-
45 ening of the strip or wire near its middle or other point, or a fixed or suspended piece of lead or other suitable heavy material attached to or slung upon the strip or wire. The effect of my device is to insure with certainty a
50 break of the wire or strip at the first moment

when it is softened by heat. The fuse is adapted for use either against wall or ceiling, or upon or under the floor, being attached to a suitable frame to meet the varying require-
ments. It may be used in every kind of elec- 55 tric circuit, whether for lighting, for transmission of power or heat, for electro-deposition, or any other service for which electric currents, whether direct or alternating, can be employed, the diameter and cross-section 60 of the wire or strip and the size of the weight being proportioned suitably according to the conditions of the electric circuit in which they are to be used.

In the accompanying drawings, Figure 1 65 shows a straight strip with the weight fixed upon it. Fig. 2 shows a curved strip with a movable weight slung upon it. Fig. 3 shows the wire thickened in the center; and Fig. 4 shows the knotted wire, the object of these 70 being the same.

The end of the strip or wire A is shown turned into a loop around an eyelet, C. This serves to protect the softer metal from the binding-screw or line-wire. 75

I claim—

1. A safety device for electric circuits, consisting of a rod fusible by an excess of current passing through it, secured at its ends, and having a weight arranged thereon be- 80 tween the ends for the purpose of breaking the rod the moment it reaches the molten state, substantially as described.

2. A safety device for electric circuits, consisting of a rod fusible by an excess of cur- 85 rent passing through it, having a thickened weighted portion between its ends, substantially as and for the purpose described.

3. A safety device for electric circuits, consisting of a fusible wire or strip having a 90 knotted thickened portion between its ends, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ARTHUR CECIL COCKBURN.

Witnesses:

ALFRED J. BOULT,
HAROLD WADE.