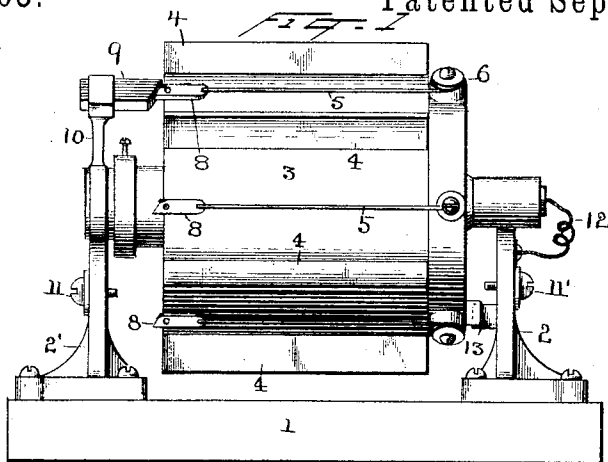
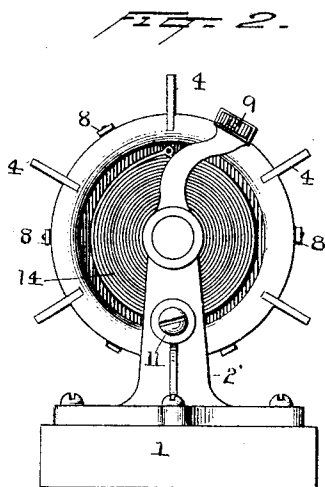
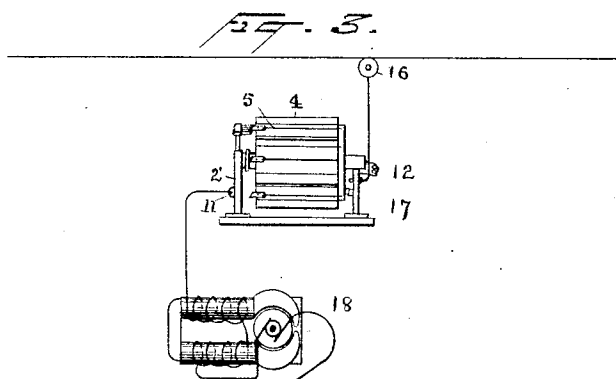


(No Model.)

C. S. VAN NUIS & J. H. VAIL.
FUSIBLE CUT-OUT.

No. 458,603.

Patented Sept. 1, 1891.



Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES S. VAN NUIS, OF NEW BRUNSWICK, NEW JERSEY, AND JONATHAN H. VAIL, OF NEW YORK, N. Y.

FUSIBLE CUT-OUT.

SPECIFICATION forming part of Letters Patent No. 458,603, dated September 1, 1891.

Application filed October 16, 1890. Serial No. 368,326. (No model.)

To all whom it may concern:

Be it known that we, CHARLESS. VAN NUIS, residing at New Brunswick, in the county of Middlesex and State of New Jersey, and JONATHAN H. VAIL, residing at New York city, in the county and State of New York, both citizens of the United States, have jointly invented a certain new and useful Improvement in Fusible Cut-Outs, of which the following is a specification.

Our invention relates to safety devices adapted to be placed in electrical circuits in which there is danger of burning out the instruments employed by abnormally heavy currents.

Our object is to provide an improved apparatus for automatically throwing a new fusible wire into circuit when the wire previously in circuit is fused, and especially to provide such an apparatus so constructed that it may be successfully used with heavy currents, such as employed in electric lighting and electric locomotion.

Our invention consists in an apparatus for accomplishing the above objects, and in certain combinations, as clearly pointed out in the following description and claims.

In the accompanying drawings, which illustrate our invention, Figure 1 is a side view of the apparatus. Fig. 2 is an end view thereof, and Fig. 3 a diagram showing the cut-out in circuit.

On a suitable base 1 are placed metal standards 2 2', having journal-bearings for the journals of the drum 3. Said drum is preferably of insulating material, and has at intervals around its periphery projecting vanes or flanges 4. Around the periphery and between the vanes are placed several fusible wires 5. One end of each of said wires is connected to binding-post 6 on the metal cap 7, which is integral with or in electrical contact with the journal at this end of the apparatus. The other end of each of said wires is connected with a pivoted arm or lever 8, and is taut, whereby the outer end of said pivoted lever is held forward.

9 is a circuit-terminal supported by a projection 10 from the standard 2'. Said terminal is preferably constructed of several cop-

per strips, in a manner similar to a commutator-brush. This terminal is so placed that the outer end of the adjacent lever 8 will bear flat and firmly against it in order to provide good conducting-contact. The standard 2' is provided with a connecting device 11, by means of which a circuit-wire may be connected thereto. A similar connecting device 11' is provided on the other standard.

12 is a flexible wire or, preferably, a flexible cable made up of several small wires, one end of which is inserted in a hole bored in the end of the journal and soldered therein, the other end of which is connected to the standard 2 for the purpose of making a better conducting path from the journal to the bearing. Since the drum is prevented from turning more than one revolution by the stop 13, there is no danger of twisting this cable sufficiently to injure it.

14 is a spring or other motor adapted to turn the drum when released.

In Fig. 3, 15 is supposed to be a circuit-wire—for example, the overhead conductor of an electric railway; 16, a trolley for taking current therefrom; 17, a cut-out constructed as above described, and 18 a motor in series therewith.

The operation of the apparatus described is as follows: When an abnormally heavy current passes through the cut-out, the wire 5, which is in circuit, is fused, thereby allowing the lever 8 to move on its pivot, as indicated in dotted lines, Fig. 1. The spring or motor, which is under tension, is thus allowed to turn the drum until the next lever 8' strikes the terminal 9. The wire connected to this pivoted lever being whole, the drum is brought to rest. In this form of apparatus the pivoted levers 8 8', &c., successively act as detents for the motor. It will be seen that a very good electrical contact will be produced between the lever 8 and the terminal 9, since they are pressed together by the full force of the spring or motor.

We do not desire to be limited to the precise construction and arrangement shown and specifically described; but

What we claim as our invention is—

1. The combination, in a fusible cut-out, of

a drum, a motor therefor, pivoted conducting devices at one end of the drum, normally held forward by fusible wires adapted for connection to an electrical circuit, and a stationary circuit-terminal supported near one end of the drum and in the path of the movable conducting devices and in contact with one of them, whereby when one fusible wire burns out the motor turns the drum, bringing the next device against the stationary terminal, substantially as described.

2. The combination, in a fusible cut-out, of a drum having projecting vanes or flanges, a motor for the drum, pivoted conducting devices at one end of the drum between the vanes, normally held forward by fusible wires, and a stationary circuit-terminal supported near the drum and in the path of the movable conducting devices, whereby when one fusible wire burns out the motor turns the drum, bringing the next device against the stationary terminal, substantially as described.

3. The combination, in a fusible cut-out, of a drum, a motor therefor, pivoted conducting-pieces at one end of the drum, fusible wires connected to said pieces and at the opposite end to suitable binding-posts adapted for connection to a circuit, and a stationary terminal

against which the pivoted levers may successively bear, substantially as described. 30

4. The combination, in a fusible cut-out, with a drum and means for revolving the same, of fusible wires at intervals on the periphery of the drum, one end of each wire being connected to a common circuit-terminal and the opposite end of each of said wires being connected to and holding a pivoted lever, and a stationary terminal supported in operative relation to said lever, substantially as described. 35 40

5. The combination, with a journal having a limited movement only in either direction and a journal-bearing connected in an electrical circuit, of a flexible conductor or cable connected rigidly to the end of the journal and connected to the bearing for improving the electrical connection, substantially as described. 45

This specification signed and witnessed this 26th day of September, 1890.

CHARLES S. VAN NUIS.
JONATHAN H. VAIL.

Witnesses:

CHARLES M. CATLIN,
E. COURAN.