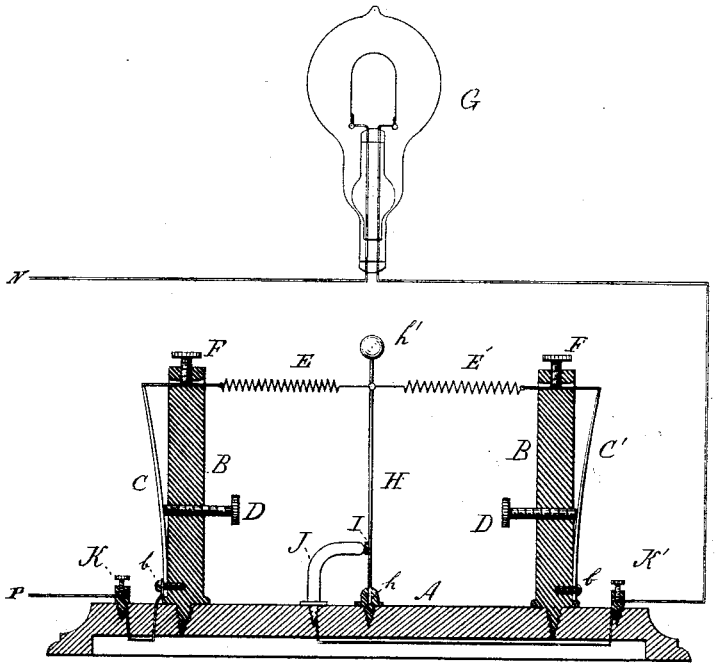
(No Model.)

J. H. IRWIN.

SAFETY DEVICE FOR ELECTRIC LAMPS.

No. 262,423. Patented Aug. 8, 1882.



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UNITED STATES PATENT OFFICE.

JOHN H. IRWIN, OF MORTON, PENNSYLVANIA.

SAFETY DEVICE FOR ELECTRIC LAMPS.

SPECIFICATION forming part of Letters Patent No. 262,423, dated August 8, 1882.

Application filed April 24, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. IRWIN, of Morton, county of Delaware, and State of Pennsylvania, have invented certain new and useful Improvements in Safety Devices for Electric Lamps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

My invention relates especially to devices for preventing the destruction of the incandescing filament of carbon in incandescent electric lamps, caused by an excess of current, and has for its object the production of a device which will automatically break the circuit to the lamp in case the current becomes too strong.

It consists essentially in locating in the lamp-circuit a device whereby the heat generated by a current of too great strength allows a metallic conducting-spring forming a part of said circuit to elongate or lose its elastic tension, such heat taking out the temper of the spring, breaking the circuit; and my invention involves certain novel and useful combinations or arrangements of parts and peculiarities of construction and operation, all of which will be hereinafter first fully described, and then pointed out in the claims.

In the drawing, the figure is a vertical sectional view of a device constructed in accordance with my invention, the same being shown as connected with a lamp.

A is a base, of non-conducting material, to which are secured two upright posts, B.

C C′ are metallic arms affixed to the base of posts B by means of screws *b*.

D are set-screws for regulating the position of arms C and C′ and the tension of springs E and E′, secured to the free ends of said arms. Springs E and E′ are shown in the drawing as having a spiral form; but they may be made elliptical or any other desired shape.

F F are set-screws for securing springs E and E′ in position after they are drawn to the requisite tension.

H is an upright rod or bar of conducting material, hinged or supported at bottom by a socket, *h*, affixed to base A, and surmounted by a weight, *h′*. The inner extremities of springs E and E′ are secured to rod H, as shown.

At I is a contact-piece affixed to rod H, which, when said rod is in a vertical position, bears against the extremity of a conducting-arm, J.

K and K′ are binding-posts affixed to base A, post K having connection with the positive line-wire and arm C, and K′ with arm J and the conductor to lamp G.

When constructed and arranged in accordance with the foregoing description and placed within a lamp-circuit the course of the current is from conductor P to post K, through arm C, spring E, bar H, contact-piece I, arm J, and to the lamp. Should the current passing through the device become too strong, endangering the lamp in the circuit, spring E becomes heated. Spring E has greater initial strength than spring E′, thereby insuring close contact at I, and has sufficient electrical resistance, when compared with the lamp in circuit, to become heated and render the device operative. Spring E′ does not conduct the current, and the heating of E softens the metal, weakening the elastic tension of said spring. Spring E′ contracts, drawing bar H to the right, breaking the circuit at contact I and arm J, shutting off the current to the lamp, and preventing the destruction of the incandescing filament therein.

Having now fully described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. In combination with an incandescent electric lamp having a carbon incandescing filament, a safety device in the main circuit, consisting of a spring having a resistance equal to the normal resistance of the circuit, adapted and arranged to be thrown out of circuit by another spring when the resistance of the main circuit is abnormally increased, substantially as described.

2. In combination with an incandescent electric lamp having a carbon incandescing filament, a safety device in the main circuit, consisting of the springs E E′, rod H, having a contact-piece, and the arm J, with electrical connections, substantially as and for the purpose set forth.

3. In combination with an incandescent electric lamp having a carbon incandescing filament, a safety device in the main circuit, having the springs E E′, provided with adjusting

set-screws F F′ for securing said springs at the requisite tension, substantially as described.

4. In a safety device for electric lamps, base A, posts B, arms C and C′, set-screws D and F, rod H, contact-piece I, arm J, and binding-posts K and K′, the whole combined and arranged to operate substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of two witnesses.

JOHN H. IRWIN.

Witnesses:
F. W. HANAFORD,
A. M. PIERCE.