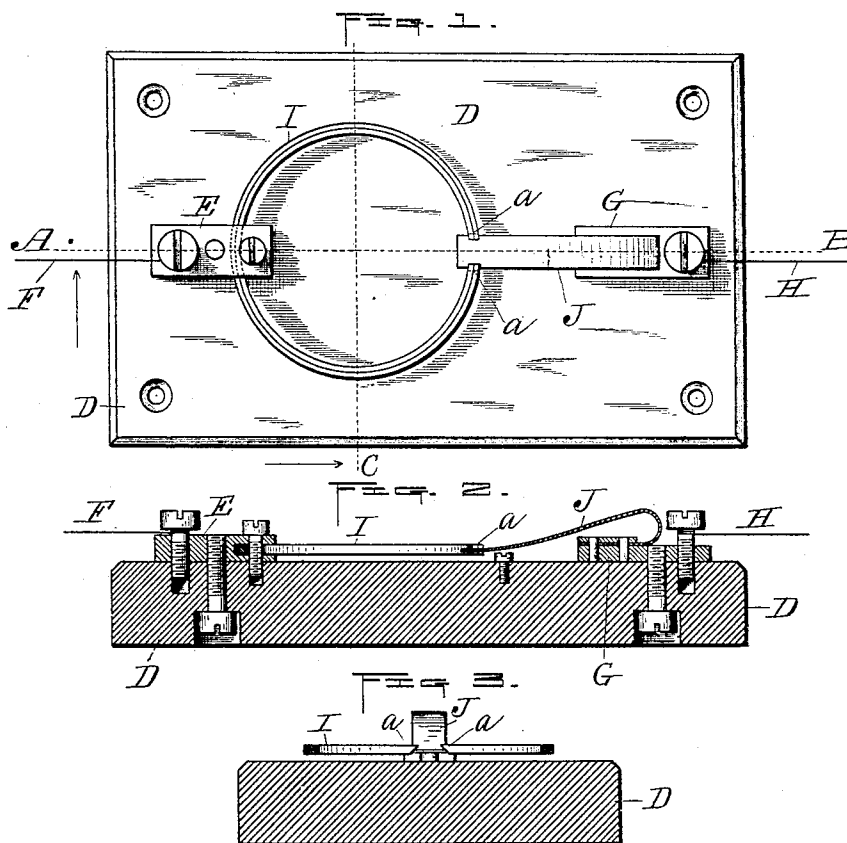


(No Model.)

E. F. HAMMARSTRÖM.
COMBINED CUT-OUT AND LIGHTNING ARRESTER.

No. 493,380.

Patented Mar. 14, 1893.



Witnesses,
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UNITED STATES PATENT OFFICE.

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COMBINED CUT-OUT AND LIGHTNING-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 493,380, dated March 14, 1893.

Application filed June 3, 1892. Serial No. 435,445. (No model.)

To all whom it may concern:

Be it known that I, ERNST FREDRIK HAMMARSTRÖM, a subject of the King of Sweden and Norway, residing in the city and Province of Stockholm, Sweden, have invented certain new and useful Improvements in a Combined Cut-Out and Lightning-Arrester; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 represents a top or plan view of my improved cut-out and lightning arrester. Fig. 2 is a central, longitudinal section thereof, taken on line A. B. Fig. 1, and Fig. 3 is a transverse section taken on line C, Fig. 1.

The main object of my invention is to provide a cut-out and lightning arrester which may be tested at any time without renewal of any of the parts, which shall require renewal only at long intervals, and which shall be more sure and positive in its action than the usual cut outs and lightning arresters in which a fuse-wire is employed.

Said invention consists of an open bow-spring or ring composed of two different kinds of metal welded together and rigidly connected with a bearing on the main support, and with which bearing the main line wire is also connected; and of a light spring or latch connected with the other bearing, to which the wire communicating with the telephone or other electrical instrument connects, said spring or latch being adapted to engage at its outer end with the open ends of the aforesaid bow-spring or ring. The connection being broken through the expansion of the bow-spring or ring by an electric current of unusual power which releases the spring or latch, and by said disconnection, breaks the current without loss or injury to any of the parts.

In order that those skilled in the art to which my invention appertains may better understand the nature and purpose thereof, I will now proceed to describe it more in detail.

In the drawings, D represents the main support or back-board to which the device is secured.

E, is the bearing with which the main, line

wire F connects, and G the bearing to which is attached the wire H, which communicates with the telephone or other electrical instrument.

The bow-spring I is preferably made in the form of a split ring; that is, cut apart transversely at one point, leaving an opening between the two ends *a a*, a little less in distance apart than the width of the spring J, whose outer end lies horizontally between the said two ends and is there held by the slight pressure of the bow-spring at each side thereof, until such time as said bow-spring shall be expanded to release said spring.

The parts are so adjusted that the usual strength of current employed for telephone and telegraph purposes may pass through uninterrupted, not being of sufficient strength or power to expand the bow-spring a sufficient distance to release the light spring which forms the connection with the other wire; but when a strong electric current comes in contact with the main line as is frequently the case in a thunder storm, it passes along the wire and when it comes in contact with the bow-spring, the powerful current causes said bow-spring to expand and releases the spring held between the two ends of said bow-spring, when said light spring flies up out of the way, and thereby, as will at once be seen, cuts off the farther progress of said strong current. The reason for said expansion of the bow-spring is on account of its being composed of two different metals, one outside of the other, as shown in the drawings, which are in practice welded together.

The inner ring of the completed, welded ring being composed of metal which has greater expanding power under heat than the outer one, consequently causes the two ends to be forced out laterally with the result above stated.

It will be observed that to re-connect the lines, it is simply necessary to force out the bow-spring and adjust the spring or latch in position, when the device is again in readiness for operation, without renewal of any of its parts, and at the expenditure of but little time or trouble. It will also be observed that the device may be tested at any time without

the cost of renewal of any of the parts, said testing operation resulting simply in the disconnecting of the parts which may be readily connected again after said testing operation,
5 as above described.

I have found in practice that the device will work with absolute certainty at a temperature much below that required for melting the usual fuse-wire in similar devices.

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

An improved electric cut-out, comprising in combination the main, line wire bearing E;

the expansible open ring or bow-spring I at- 15
tached at a convenient point between its ends to said bearing E; the spring-latch J attached to the other line-wire bearing G and adapted to be engaged with the ends of ring I to close the circuit, said circuit being broken through 20
the expansion of said ring and release of the spring-latch by the electric current, substantially as and for the purpose set forth.

ERNST FREDRIK HAMMARSTRÖM.

Witnesses:

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