

(No Model.)

O. GIESEKE.
LIGHTNING ARRESTER AND CUT-OUT.

No. 546,523.

Patented Sept. 17, 1895.

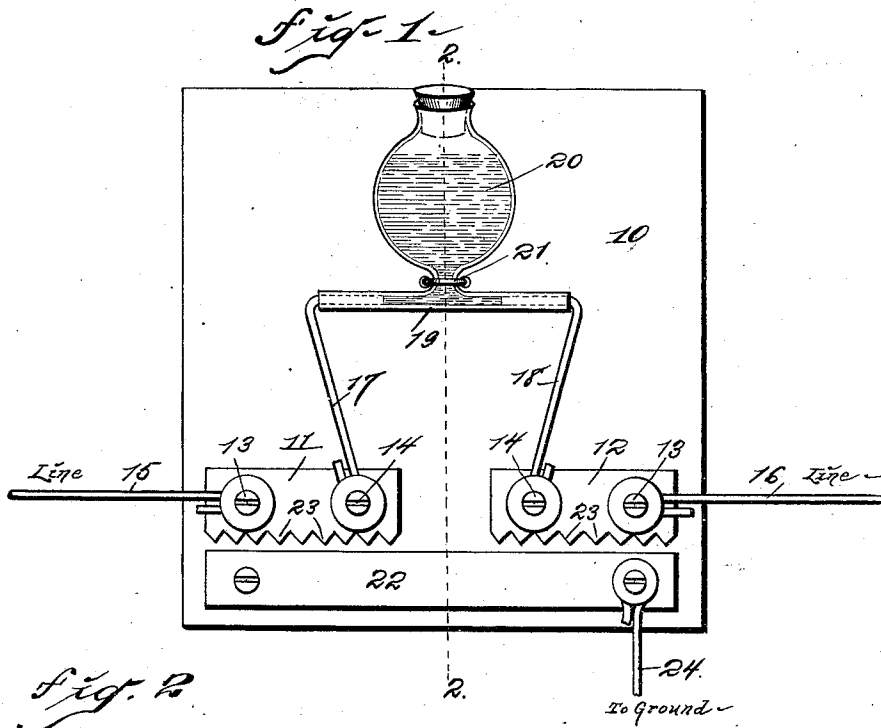


Fig. 2.

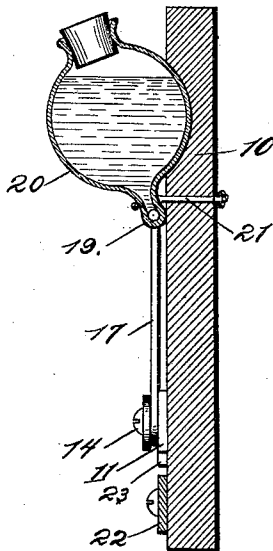
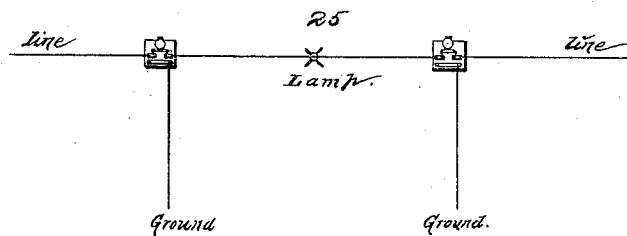


Fig. 3.



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UNITED STATES PATENT OFFICE.

OTTO GIESEKE, OF LAKE CHARLES, LOUISIANA.

LIGHTNING-ARRESTER AND CUT-OUT.

SPECIFICATION forming part of Letters Patent No. 546,523, dated September 17, 1895.

Application filed March 26, 1894. Serial No. 505,160. (No model.)

To all whom it may concern:

Be it known that I, OTTO GIESEKE, of the city of Lake Charles, Calcasieu parish, State of Louisiana, have invented certain new and

5 useful Improvements in Lightning-Arresters and Cut-Outs, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

10 The object of my invention is to be found in the provision of improved means to be employed conjunctively with an electric instrument in a light or power circuit, whereby upon the occurrence of an excess of current on a

15 given line from which injury to the instruments or plant normally would follow such excess of current will automatically cut-out the given line and then be grounded, such short circuit and ground being maintained a

20 length of time dependent upon the life and strength of said excess of current, the normal or working circuit being re-established automatically upon the expiration of such time without appreciable loss by damage to the in-

25 struments or plant.

My invention consists in the novel construction, combination, and arrangement of parts, hereinafter described and claimed.

Referring to the accompanying drawings,

30 Figure 1 is a front elevation of the complete device. Fig. 2 is a sectional elevation on the line 2 2 of Fig. 1. Fig. 3 is a diagrammatic illustration of a lighting system in which the device is employed.

35 In the construction of the device as shown the numeral 10 designates a support having binding-plates 11 12 thereon, said binding-plates each having binding-posts 13 14. The binding-posts 13 13 are fixed to the adjacent

40 end portions of line-wires 15 16, respectively, which wires 15 16 conjunctively form the working line of the system. The binding-posts 14 14 are respectively connected with the lower end portions of wires 17 18, the up-

45 per end portions of which wires are respectively inserted in the opposite end portions of a transversely-located tube 19 of non-conductive material. The tube 19 contains fluid, preferably mercury, of normally great con-

50 ductivity and adapted to assume a quality of great resistance under higher degrees of tem-

perature—such as water, mercury, potassium, or cadmium—in that portion thereof not occupied by the end portions of the wires 17 18, a constant supply of said fluid being contained 55 in and fed from a reservoir 20, located above and communicating with the central portion of the said tube 19. The reservoir 20 is provided with a normally closed ingress-opening in its upper portion, through which access may be 60 had to the interior of said reservoir for cleansing or filling the same. The tube 19 and reservoir 20 are secured to the support 10 by a staple or tie 21. A discharge-plate 22 is mounted upon the support 10 adjacent and 65 approximately parallel to the binding-plates 11 12, the edges of the binding-plates contiguous to the discharge-plate being serrated or sinuous and presenting a large number of projecting points 23, wherefrom the current 70 is short-circuited to the discharge-plate. A ground-wire 24 is connected to a binding-post 25 on the discharge-plate 22 and leads therefrom to a "ground" at some convenient point.

In Fig. 3 is shown a system in which is 75 employed a lamp and an arrester on either side of said lamp, or, in other words, one arrester in the supply-circuit and one in the return-circuit, thus providing for the protection of the lamp irrespective of the point on the 80 working line at which the excess of current is induced.

Upon the occurrence of an excess of current the heat generated thereby raises the temperature of the fluid in the tube 19 and reservoir 20 to a degree at which said fluid will be vaporized and present a high resistance to and break the current in the working line, and at this time the entire current will follow the line of least resistance and short-circuit from the projections 23 of the plates 11 12 to the discharge-plate 22 and thence to ground. The excess of current having abated the fluid rapidly assumes a lower or normal degree of temperature, and again offering the 95 line of least resistance to the current said current will reassume its normal line of travel automatically and without damage to the plant. The opening at the upper end of the reservoir 20 being loosely closed by a cork or 100 plug, as shown, said cork or plug will act as a "safety-valve" when the mercury boils, and

said cork or plug will thereby be discharged and will prevent bursting of said reservoir, which might otherwise occur.

What I claim is—

- 5 The improved thermal cut-out, having a glass reservoir 20 provided with an opening, a plug or stopper loosely mounted in said opening, an integral transversely-extending tube 19 the interior of which communicates
10 with the interior of said reservoir, the line-terminals inserted in the opposite outer ends of

said tube, and a body of conducting-fluid located in the reservoir and said tube and normally forming a connection between said terminals, substantially as herein specified. 15

In testimony whereof I affix my signature in presence of two witnesses.

OTTO GIESEKE.

Witnesses:

R. E. McDONALD,

HOWARD ACKERMAN.