

(No Model.)

2 Sheets—Sheet 1.

M. J. WIGHTMAN & H. LEMP.

LIGHTNING ARRESTER.

No. 363,567.

Patented May 24, 1887.

Fig. 1.

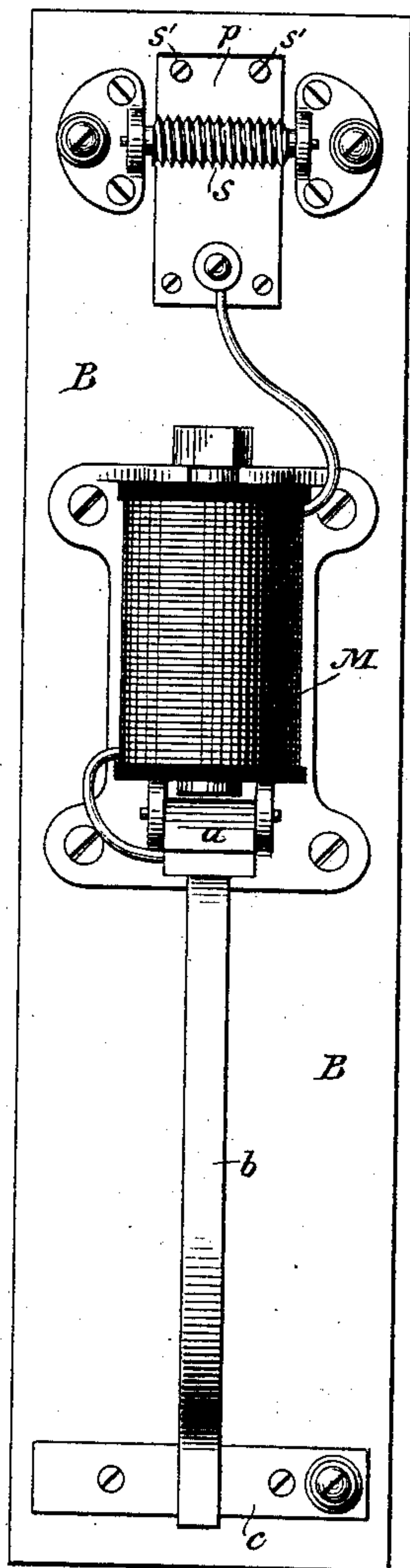
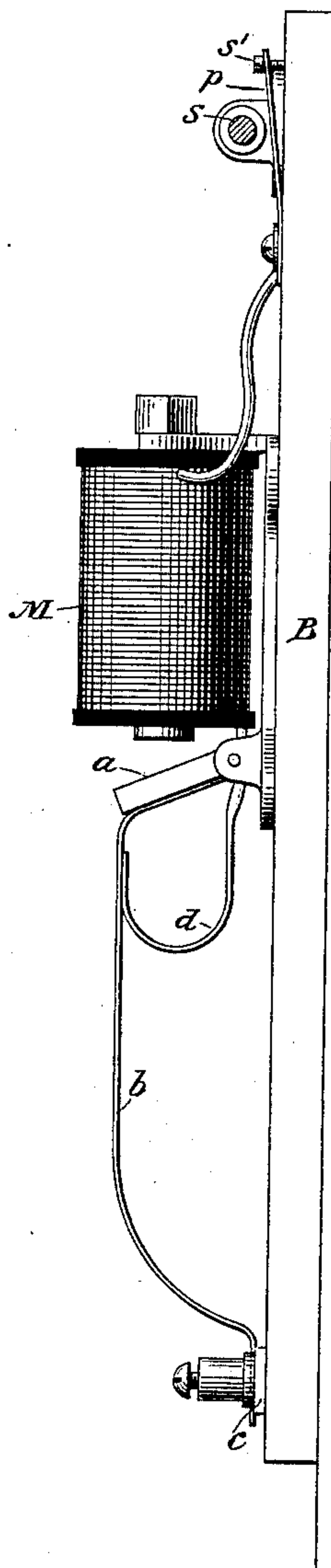


Fig. 2.



Witnesses

Geo. W. Breck.  
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Merle J. Wightman  
Herman Lemp,  
By their Attorneys  
Fowler & Fowler

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2 Sheets—Sheet 2.

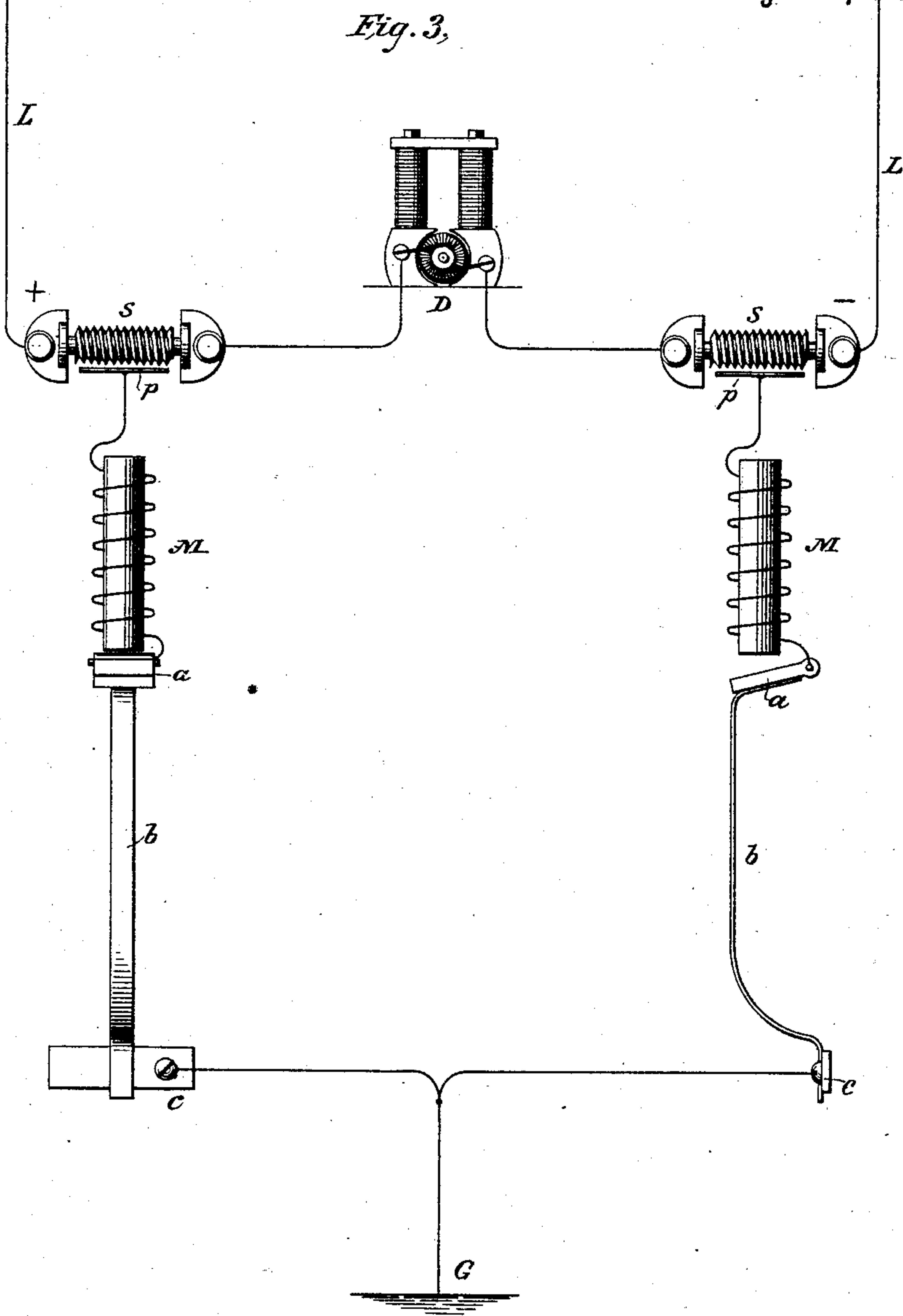
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*Fig. 3,*



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# UNITED STATES PATENT OFFICE.

MERLE J. WIGHTMAN AND HERMANN LEMP, OF HARTFORD, CONNECTICUT.

## LIGHTNING-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 363,567, dated May 24, 1887.

Application filed August 19, 1886. Serial No. 211,315. (No model.)

*To all whom it may concern:*

Be it known that we, MERLE J. WIGHTMAN and HERMANN LEMP, citizens of the United States, residing at Hartford, in the county of  
5 Hartford and State of Connecticut, have invented a new and useful Lightning-Arrester, of which the following is such a full and exact description as will enable any person skilled in the art to which it appertains to make, construct, and use the same.

Our invention relates to devices which are designed to protect electro-magnetic apparatus from discharges of lightning, and which convey the lightning-charge to ground before  
15 reaching the apparatus to be protected.

Our invention consists in certain details, to be hereinafter described, and which will be specifically pointed out in the claims hereto annexed.

20 In the accompanying drawings, forming part of this specification, in which like letters of reference indicate the same parts in the three figures of the drawings, Figure 1 shows a plan of our invention; Fig. 2, a side elevation thereof,  
25 and Fig. 3 a diagrammatic view of our invention for protecting a dynamo from discharges of lightning.

In Fig. 3, D represents a dynamo machine, and L the main or external circuit thereof,  
30 in which circuit, and on each side of the dynamo, is placed a rotatable spindle, *s*, having a screw-thread cut thereon. Contiguous to this screw-threaded spindle is a conducting-plate, *p*, which is connected to ground  
35 through the circuit of the electro-magnet M, which circuit is in electrical connection with the armature *a*, having extending therefrom a conducting-arm, *b*, which makes contact with a metal plate, *c*, which is directly connected to  
40 the ground G.

The construction of the lightning-arrester is shown in Figs. 1 and 2. The metal plate *p*, as will be seen in these figures, is adjustable to and from the spindle *s* by means of screws *s'*.  
45 Upon the standard upon which the spindle is mounted are binding-posts, to which the circuit to be protected is connected. The plate *p* and the contact *c* are also each provided with a binding-post or screw for making the electrical connection. The sharp points afforded  
50 by the screw-thread on the spindle *s* permit

the lightning-charge to readily escape to the plate *p* and to ground, and the rotatable feature of this spindle subserves the useful function of bringing a fresh portion of the spindle opposite the plate *p* after the portion previously opposite the plate has been burned out or destroyed by the discharge of the lightning-charge.

We make the electro-magnet M of low resistance and sluggish, so that it will not act to break the circuit at the contact *c* until after the charge is passed.

The object of breaking the circuit will be understood by reference to Fig. 3, when it is  
65 known that after a discharge has taken place, and an arc has formed between the spindle *s* and the plate *p*, there is a tendency of the current from the dynamo to become short-circuited at these points, thus depleting the external circuit of its current, in this case having the tendency to pass from one terminal of the dynamo to the other through the ground-circuit. It becomes necessary, therefore, to break this ground-circuit after the charge has  
75 passed, in order to obviate the above trouble. It will be noticed that the proximity of the plate *p* is such as not to allow the current normally flowing on the line to pass to ground, but that this tendency arises only after an arc  
80 is formed. The plate *p* is, however, arranged near enough to the spindle to allow the charge of the lightning to pass to ground.

We do not wish to limit ourselves to the exact construction shown, and reserve the right  
85 to embody our invention in any form of apparatus that operates upon the principle of our invention; but

What we desire to claim, and secure by Letters Patent, is—

1. The combination, with an electric circuit,  
90 of a lightning-arrester consisting of a rotatable screw-threaded spindle in said circuit, an adjustable conducting-plate contiguous thereto, but separated therefrom by a space, over which  
95 a lightning-charge may pass, a ground connected with said plate, and an electro-magnet, its armature, and contact-plate in the circuit of said ground, operating as and for the purpose set forth.

2. A lightning-arrester consisting of a rotatable screw-threaded spindle in the circuit

of the line and an adjustable plate contiguously mounted, but separated therefrom, connected to a ground-circuit.

3. A lightning-arrester consisting of a rotatable screw-threaded spindle in the circuit of the line, constituting a series of sharp points for the escape of a lightning-charge, and a plate in a ground-circuit mounted contiguously thereto, as set forth.

10 4. A lightning-arrester consisting of a rotatable screw-threaded spindle in the circuit of the line, an adjustable plate contiguously mounted, but separated therefrom, connected

to a ground-circuit containing an electro-magnet, armature, and contact therein, for the purpose specified. 15

In testimony whereof we have hereunto set our hands and seals, this 27th day of July, 1886, in the presence of the two subscribing witnesses:

MERLE J. WIGHTMAN. [L. S.]  
HERMANN LEMP. [L. S.]

Witnesses:

WM. E. SHEPARD,  
OLOF OFFREU.