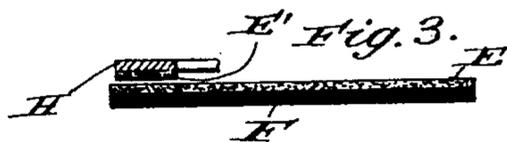
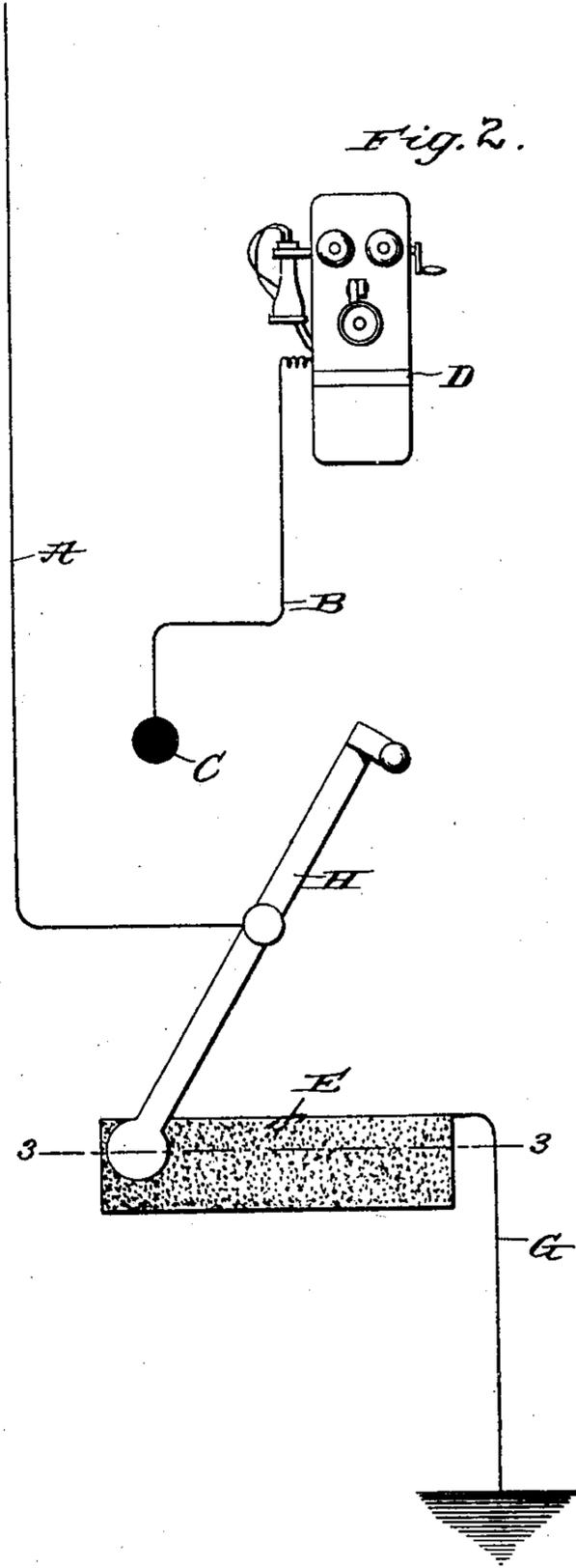
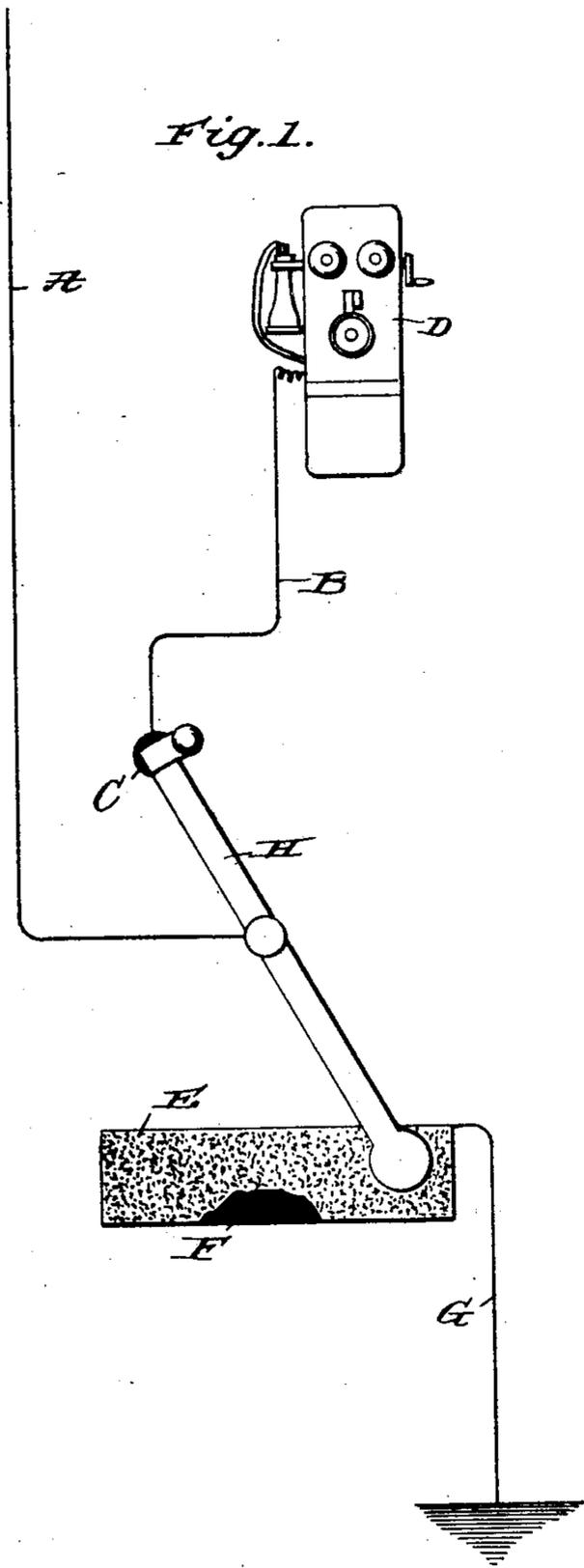


W. J. BELL.

COMBINED SWITCH AND LIGHTNING ARRESTER.

(Application filed Mar. 26, 1902.)

(No Model.)



Witnesses
[Signature]
N. C. Healy

Inventor
William J. Bell.
 By *James J. Sheehy* Attorney

UNITED STATES PATENT OFFICE.

WILLIAM J. BELL, OF BARABOO, WISCONSIN.

COMBINED SWITCH AND LIGHTNING-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 703,980, dated July 8, 1902.

Application filed March 26, 1902. Serial No. 100,053. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. BELL, a citizen of the United States, residing at Baraboo, in the county of Sauk and State of Wisconsin, have invented new and useful Improvements in a Combined Switch and Lightning-Arrester, of which the following is a specification.

My invention relates to lightning-arresters—*i. e.*, means for removing atmospheric electricity from telephone and other wires with a view of preventing injury to the instruments; and it has for its general object to provide a peculiar and advantageous combined switch and lightning-arrester calculated at all times to effectually prevent heavy charges of atmospheric or other electricity from passing from the line-wire of a telephone system to a telephone instrument.

With the foregoing in mind the invention will be fully understood from the following description and claims when taken in conjunction with the accompanying drawings, in which—

Figure 1 is a diagrammatic view of so much of a telephone system embodying my improved switch and lightning-arrester as is necessary to illustrate the utility of the latter, the lever of the combined device being illustrated in a position to effect electrical connection between the line-wire and the instrument. Fig. 2 is a similar view with the lever of the switch and arrester in position to interrupt the connection between the line-wire and the telephone; and Fig. 3 is a detail transverse section taken in the plane indicated by the broken line 3 3 of Fig. 2.

Similar letters of reference designate corresponding parts in all of the views of the drawings, referring to which—

A is the line-wire of a telephone system; B, a conductor leading from a contact-piece C to a telephone instrument D; E, a carbon plate mounted on rubber F or otherwise suitably insulated and electrically connected by a wire G or other suitable means with the ground, and H a lever, preferably of metal, which, in conjunction with the carbon plate E, connected with the ground, constitutes my improved combined switch and lightning-arrester. The said lever is electrically connected with the wire A, and consequently it

will be seen that it will effect electrical connection between the wire A and instrument D when it is in the position shown in Fig. 1 and interrupt such connection when it is in the position shown in Fig. 2. On its arm remote from the contact-piece C the lever is provided with a carbon portion E'. This latter rests close to the carbon plate E, as best shown in Fig. 3, when the lever H is in the position shown in Fig. 1 and also when said lever is in the position shown in Fig. 2. By virtue of this it will be observed that irrespective of the position of the lever H any heavy charge of atmospheric or other electricity received by the wire A will be conducted through the lever H, carbon portion E', carbon plate E, and wire G to the ground, and hence effectually prevented from shunting across to and injuring the instrument D. It will also be observed that incident to the movements of the lever H to make and break connection between the wires A and B the carbon pieces E E' will be cleaned of any substance left thereon by the previous passage through said pieces of a heavy charge of electricity. From this latter it follows that the said carbon pieces will always be in condition to prevent a heavy charge of electricity from shunting across to the instrument, which is an important advantage.

I have entered into a detailed description of the construction and relative arrangement of parts embraced in the present and preferred embodiment of my invention in order to impart a full, clear, and exact understanding of the same. I do not desire, however, to be understood as confining myself to such specific construction and arrangement of parts, as such changes or modifications may be made in practice as fairly fall within the scope of my claims.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a combined switch and lightning-arrester, the combination of the line-wire of a telephone or other electrical system, an instrument, a carbon plate electrically connected with the ground, and a movable device for making and breaking electrical connection between the line-wire and the instrument;

the said device having a portion of carbon, movable in close proximity to the carbon plate.

2. In a combined switch and lightning-ar-
5 rester, the combination with the line-wire of
a telephone or other electrical system, and an
instrument; of a carbon plate electrically con-
nected with the ground, and a lever for mak-
ing and breaking electrical connection be-
10 tween the line-wire and the instrument; the

said lever having a portion of carbon movable over the carbon plate, substantially as and for the purpose specified.

In testimony whereof I have hereunto set my hand in presence of two subscribing wit- 15
nesses.

WILLIAM J. BELL.

Witnesses:

EVAN A. EVANS,
ROSE A. ENNIS.