

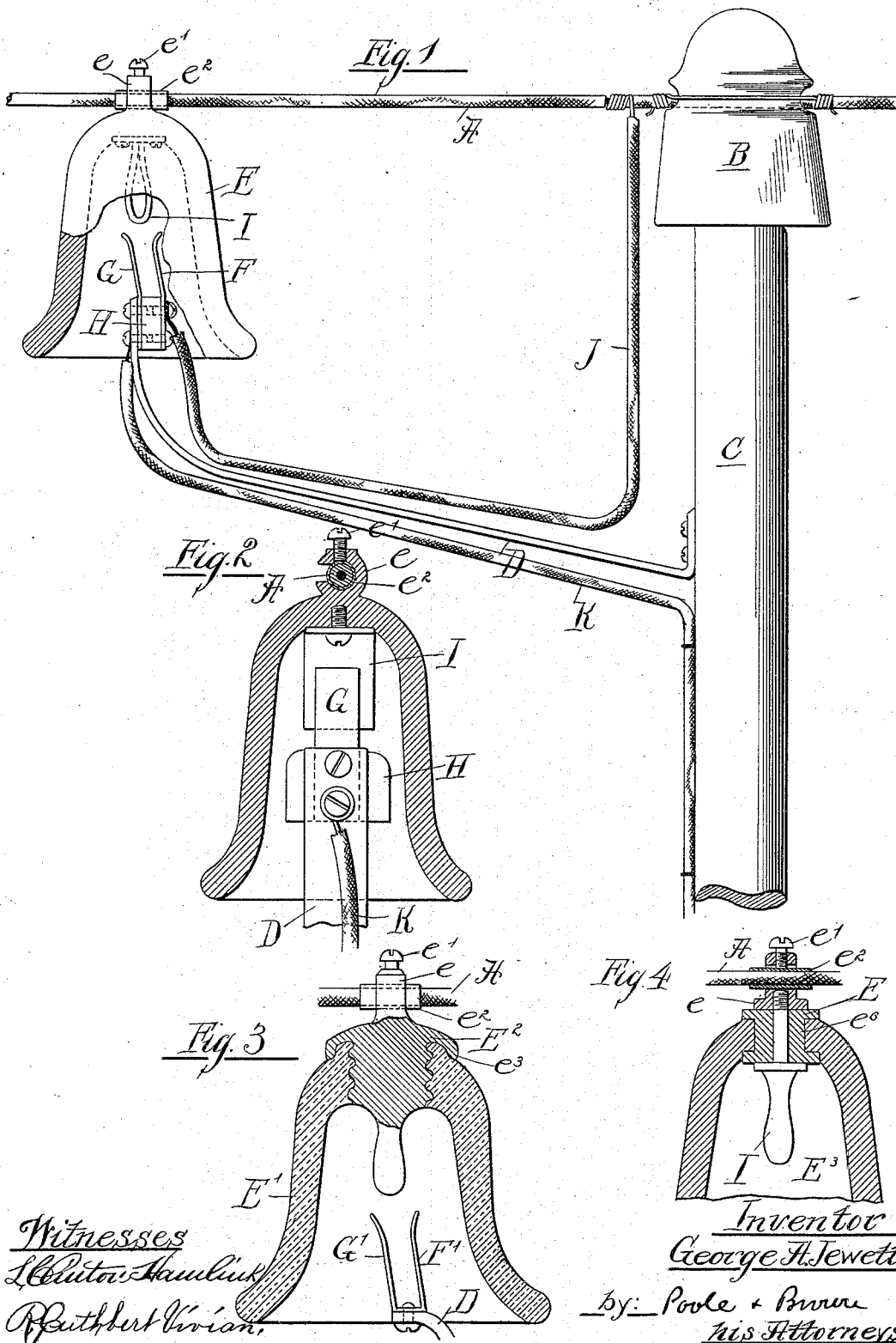
(No Model.)

G. A. JEWETT.

AUTOMATIC GROUNDING DEVICE FOR ELECTRIC CONDUCTORS.

No. 573,222.

Patented Dec. 15, 1896.



UNITED STATES PATENT OFFICE.

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AUTOMATIC GROUNDING DEVICE FOR ELECTRIC CONDUCTORS.

SPECIFICATION forming part of Letters Patent No. 573,222, dated December 15, 1896.

Application filed December 6, 1895. Serial No. 571,203. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. JEWETT, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful
5 Improvements in Automatic Grounding Devices for Electric Conductors; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the
10 letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in short-circuiting devices for suspended electric conductors or wires, and more especially
15 to that class of such devices intended for use in connection with exposed wires for bringing same into electric connection with the ground in case the conductor be broken.

The invention consists in the matters hereinafter fully set forth, and particularly pointed out in the appended claims.

The short-circuiting device embodying my invention embraces a switch or contact device consisting of two relatively-movable
25 parts adapted for engagement with each other and an open-bottomed shield or hood which is attached to the movable part of the contact device and which, together with said movable part, is connected with and supported by the
30 main-line wire in such position over the stationary part of the contact device that in case of breakage of the wire the movable part will descend by gravity into engagement with the said stationary part and thus complete a circuit
35 between the main-line conductor and the ground. The said hood or shield serves both as a guide to insure the engagement of the contact-pieces with each other and as protecting-covering to shield the parts of the
40 contact devices from the weather.

In the accompanying drawings, illustrating my invention, Figure 1 is a view in side elevation of a short-circuiting device constructed in accordance with my invention applied
45 to an electric-light supply-wire or similar electric conductor. Fig. 2 is a sectional view of the movable and stationary parts of the contact device and its protecting-hood. Fig. 3 is a sectional view illustrating a modified form
50 of construction in the hood and contact de-

vice. Fig. 4 is a sectional view showing another form of construction in the hood.

In said drawings, A indicates a line-wire or conductor, such, for instance, as the supply-wire for an electric light, the same being provided with the usual insulated covering.

B indicates one of the glass insulators which may be used to support such a wire, and C a pole or other support for sustaining the insulator.

D indicates a metal arm or bracket which is attached to the pole C for sustaining one part of the contact device, and E a hood or shield having the form of an inverted cup and which is attached to the wire A at a point
65 above the free end of the supporting-arm D, said hood having within it another part or member of the contact device.

The contact device by which connection is established between the conductor A and the ground in case of breakage of said conductor consists of two parts, one of which is stationary and the other movable, the stationary part being attached to the free end of the supporting-arm D beneath or within the hood E, while the movable part is located within the hood E and is adapted to engage the stationary part in case of breakage of the wire by descending into contact with stationary part.

In the particular construction illustrated in Figs. 1 and 2 as embodying my invention the contact devices are made as follows: The stationary part of the contact device in this instance embraces two spring-plates F G, which are attached to the upper end of the arm D and insulated from each other by means of an interposed block H of hard rubber or other insulating material. Said contact-plates F and G constitute the prongs of a
90 spring-fork which are adapted to receive between them a metal tongue I, which is secured within the hood E and depends from the top of the same in a position to enter between the plates or prongs F and G when no longer supported above the same by the tension of the conductor A. The interposition of the tongue I between the plates F and G establishes a circuit between the line-wire and the ground by means of suitable conductors connecting
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said plates with the wire and ground respectively. In the drawings an insulated wire J is shown as leading from the line-wire A to the plate F and a second insulated wire K as leading from the plate G to the pole C and thence to the ground. In said Figs. 1 and 2 the hood E is shown as made of a single piece of metal and of bell shape and as connected with the line-wire by means of an apertured integral lug *e* at the top of the hood, through which lug is inserted a binding-screw *e'*, by which the wire may be clamped in the aperture of the lug, said aperture having a lateral opening permitting the lug to be easily engaged with the wire.

In order to protect the insulating covering of the wire A from injury by the screw *e'*, the said wire is shown as surrounded by a protecting-sleeve *e''*, which may be constructed of sheet metal or of some insulating material if the use of the latter be found necessary or desirable for better insulation of the hood from the wire. The hood is preferably made of considerable weight conveniently by making its walls somewhat thick or heavy, as shown, thereby not only giving strength to the hood, but such weight as will insure the prompt descent of the upper member of the contact device into contact with the lower member thereof in case of breakage of the wire. The tongue I is shown as consisting of a piece of heavy sheet metal bent into U form and secured by screws to the upper part of the hood; but the said tongue may be attached to the hood in any other manner found convenient or desirable.

It will be observed that in the construction described, in which the hood E is made entirely of metal and the hood is secured to an insulated wire by means embracing the insulating-covering thereof, so that there may be no metallic connection between the wire and the hood, the current is not transmitted through the hood itself, but only through the tongue I from the two contact-plates F and G, so that there is no liability of current passing through said hood to other objects which may come into contact therewith or to the arm D in case the hood should come into contact with the plate G or said arm. The possibility of contact of the hood with both plates F and G at one time, and consequent short-circuiting thereby, may be easily avoided by extending the insulating-block H beyond the sides of said strips F and G in the manner seen in Fig. 2.

The operation of the device constructed as described is as follows: Normally the movable upper part or tongue I of the contact device is located above and free from the lower part or contact-plates F and G, and these plates being insulated from each other no current can pass from the line-wire to the ground through the wires J and K or otherwise. When the parts are in the position described, the possibility of their being displaced or

thrown out of operative position by lateral movement or swaying of the wire under the effect of winds or otherwise is prevented by the hood E, which, through its contact with the lower contact device, will maintain the tongue I at all times vertically over the space between the prongs or contact-plates F and G. If the wire be broken, the weight of the hood and connected parts immediately carries the tongue I downwardly into engagement with the contact-plates F and G, and thus the parts must necessarily engage each other, because the side walls of the hood, which surround the lower part of the contact device, prevent any lateral displacement sufficient in extent to throw the parts out of engaging position.

In Fig. 3 is shown another form of construction adapted for securing the same general results, in which the movable part of the contact device, instead of being insulated from the wire A, is in electric connection therewith, so that the current is short-circuited directly from the wire through the members of the contact device, the hood in this instance being insulated from the movable part of the contact device conveniently by making the entire body of the hood of insulating material. In said Fig. 3 the body E' of the hood is made of heavy glass, such as is used for insulators, or of porcelain, micanite, or other suitable insulating material. The body part E' thus made is fitted to a suitably-shaped stem E², having on it the means for securing the hood to the wire and also the movable part or tongue I of the contact device. Said body E' and stem E² are shown as connected by means of a screw-joint, the stem having on it a flange *e''* with a depending edge adapted to embrace the upper part of the insulating-body E', and thereby exclude water from the interior of the hood. Attached to the arm D in this instance are two spring plates or prongs F' G', both of which are directly secured to said arm and between which the tongue I enters when the hood is allowed to fall by the breaking of the wire. The arm D is suitably connected with the ground, and on the breaking of the wire A a circuit is formed from the wire through the stem E and contact device to the said arm.

The body of the hood being made of insulating material, possibility is avoided of short-circuiting by the swinging of the hood laterally against the stationary part of the contact device or by contact with the hood of external objects.

The making of the hood of insulating material, as shown in Fig. 3, will also be of advantage in connection with the construction shown in Figs. 1 and 2, for the reason that, in case of weakening of the insulation at the point where the wire is gripped by the clamping device, escape of current to external objects brought into contact with the hood or

to the arm D (in case the hood should be swung by the wind or otherwise into contact with the plate G or the body of the arm) is prevented. Another advantage gained by making the hood of insulating material when the contact devices are made as shown in Figs. 1 and 2 is that it affords further security against short-circuiting by lateral swinging of the hood into contact with both of the plates F and G at one time in case the construction shown in said figures should be deemed insufficient for proper security in this respect.

In Fig. 4 is shown another form of construction in which the body E³ of the hood is made of metal and is insulated from the wire A and the movable part of the contact device by a body of insulating material, so as to avoid liability of short-circuiting by contact of said hood with other objects or with the stationary part of the contact device. In said Fig. 4 a body E⁴, of micanite or other suitable insulating material, is inserted and secured in an opening in the top of the metal body of the hood, and the tongue I and a fastening-lug e⁵ are secured to the said block E⁴ by means of a stem e⁶ passing through said block.

The insulation of the body part of the hood from the part of the contact device carried by the hood, whether obtained by the employment of an insulating mass or block or by making the entire body part of the hood of insulating material, produces the same general result of enabling the current to pass directly from the wire through the contact devices and of avoiding the necessity for insulation between the wire and the contact devices. The construction shown in Figs. 1 and 2, however, has the advantage of being both cheap and durable, and may for these reasons be preferred for some uses or purposes.

The hood arranged as described, whether made of metal or insulating material, serves the purpose of a guide to insure against the displacement of the parts of the contact device and to make certain that the movable part of the contact devices shall come properly into position to engage the stationary part thereof upon the breaking of the wire. Said hood also serves the important purpose of protecting the contact device from rain, snow, or sleet, so that it will always be in condition for effective operation. That the said hood may better carry out the purposes mentioned, it is preferably made long enough or deep enough to surround the lower part of the contact device when the parts are in their usual position.

Aside from its purpose as a guide for securing engagement of the parts of the contact device and to protect the same from the weather, said hood by its weight tends to secure the prompt and immediate descent of the upper or movable part of the contact de-

vice into engagement with the lower or stationary part upon the breaking of the wire.

I claim as my invention—

1. The combination with a suspended main conductor and its supports, of a contact device embracing stationary and movable parts, through which said conductor may be connected with the ground, and an open-bottomed hood surrounding both parts of the contact device, said hood and the movable part of the contact device being attached to the conductor at a distance from its supports, and the movable part of the contact device being supported by the conductor above the stationary part thereof and in a position to be engaged by the same in its descent, the parts being so arranged that the hood will act as a weight to aid in bringing the movable part of the contact device into engagement with the stationary part thereof, and also as a means for holding the parts of the contact device in operative relation, substantially as described.

2. The combination with a suspended main conductor and its supports, of a contact device embracing stationary and movable parts, through which the conductor may be connected with the ground, and an open-bottomed hood surrounding both parts of the contact device and having insulated attachment to the movable part thereof; said hood and said movable part of the contact device being attached to the conductor at a distance from its support, and the movable part of the contact device being supported by the said main conductor above the stationary part thereof, substantially as described.

3. The combination with a suspended main conductor and its supports, of a contact device embracing stationary and movable parts, through which the said conductor may be connected with the ground, and an open-bottomed hood of insulating material surrounding both parts of the contact device, said hood and the movable part of the contact device being attached to the conductor at a distance from its support, and the said movable part of the contact device being supported by the conductor above the said stationary part thereof, substantially as described.

4. The combination with a suspended main conductor and its supports, of a contact device embracing stationary and movable parts, a branch wire connecting the main conductor with the stationary part of the contact device and a wire connecting the stationary part of the contact device with the ground, and an open-bottomed hood surrounding both parts of the contact device, said hood and the movable part of the contact device being attached to the conductor at a distance from its supports, and the said movable part of the contact device being supported by the conductor above the said stationary part thereof, substantially as described.

5. The combination with an electric conductor of a contact device embracing a sta-

tionary and a movable part, said stationary
part comprising two contact-plates insulated
from each other and connected one with the
conductor and the other with the ground and
5 the movable part consisting of a tongue
adapted to enter between said plates and a
hood also attached to the conductor and sur-
rounding the said tongue, substantially as
described.

In testimony that I claim the foregoing as my
invention I affix my signature, in presence
of two witnesses, this 3d day of December,
A. D. 1895.

GEORGE A. JEWETT.

Witnesses:

E. CLARENCE POOLE,
WILLIS D. SHAFER.