No. 758,954. PATENTED MAY 3, 1904.

F. P. BELL.

AUTOMATIC CUT-OFF IN TIME OF STORM.

APPLICATION FILED APR. 24, 1903.

NO MODEL.

Fig. 1.

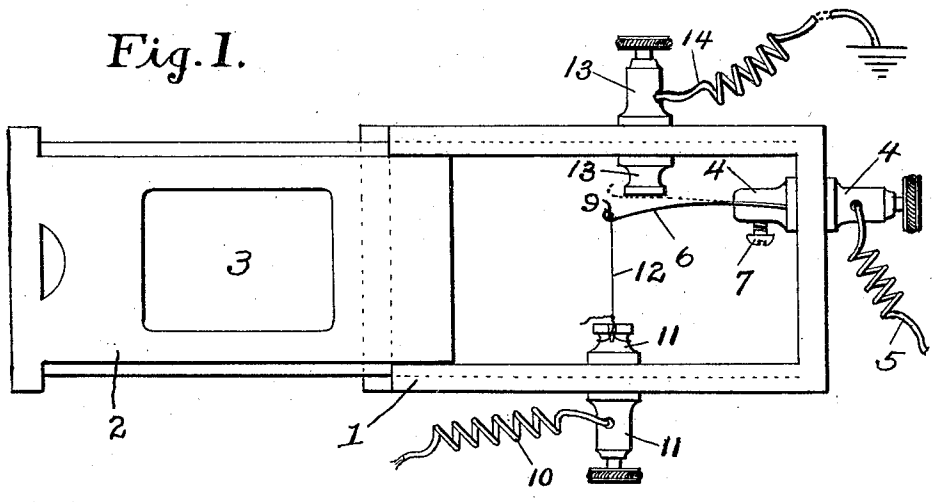


Fig. 2.

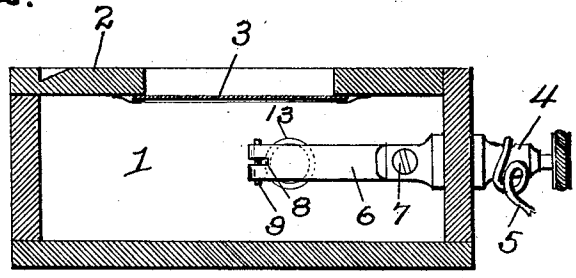
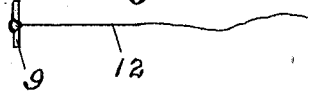


Fig. 3.



WITNESSES:

D. E. Waterfield

E. L. Bloom.

Frank P. Bell INVENTOR

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No. 758,954. Patented May 3, 1904.

UNITED STATES PATENT OFFICE.

FRANK P. BELL, OF FAIRFIELD, WASHINGTON.

AUTOMATIC CUT-OFF IN TIME OF STORM.

SPECIFICATION forming part of Letters Patent No. 758,954, dated May 3, 1904.

Application filed April 24, 1903. Serial No. 154,150. (No model.)

To all whom it may concern:

Be it known that I, FRANK P. BELL, a citizen of the United States, residing at Fairfield, in Spokane county, State of Washington, have invented a new and useful Automatic Cut-Off in Time of Storm, of which the following is a specification.

The object of my invention is to protect operators and all persons using telephones, telegraph instruments, electric cars, or any other machine, instrument, or device operated by or used in connection with electricity from danger or harm resulting from unusual and heavy voltage of electricity—that is, from voltage greater than the respective machines or instruments (whether telephone, telegraph instrument, electric car, &c.) are intended for—and also to protect the machine or instrument itself from such increased voltage.

The nature of my invention, in brief, is to divert and ground such unusual and heavy voltage (resulting from an electric storm, defect in machinery, accident, or otherwise) before it reaches the instrument in use or before it reaches the vital part of the machine or instrument intended to be protected. This object is attained and these results are accomplished by means of the instrument or appliance illustrated in the accompanying drawings, to which reference is hereby made.

Figure 1 is a top plan view of my device, showing the lid of the receptacle or housing partly open. Fig. 2 is a longitudinal vertical section thereof with the lid closed, and Fig. 3 is a detail view of the fuse proper removed from the remainder of the device.

Referring to the drawings, in which similar reference characters designate corresponding parts throughout the several views, 1 indicates a receptacle or housing having a sliding-lid section 2, which is in turn provided with an opening 3, such opening being preferably covered with transparent material—such as mica, glass, or the like—and by which means a view of the interior of the box may be readily obtained without the necessity of removing said lid. One end of the box 1 is provided with a suitable binding-post 4, to the outer end of which is attached one end of the main or line wire 5, the inner end of said post being provided with a slot adapted to receive one end of a metallic spring member 6, said member 6 being secured in said slot by means of a binding-screw 7. The free end of said spring member 6 is provided with a slot 8, the bifurcated ends formed thereby being bent to form a retaining-seat for the cross-bar 9. The opposite pole 10 of the main wire is secured to the binding-post 11, attached to one side of the box 1, said post being in a direct line with the slot 8 in the end of the member 6. Interposed between said post 11 and member 6 is a fuse 12, one end of which is secured to the bar 9 in any preferred way, but preferably soldered, the opposite end thereof being secured to the inner end of the binding-post 11, thus completing the circuit between the wires 5 and 10. Secured to the opposite side of the box 1 and in juxtaposition to the member 6 is a binding-post 13, to the outer end of which is secured in the usual way the ground-wire 14.

In operatively assembling the several parts of my device the fuse 12, which is preferably constructed of lead or thin copper wire, is secured at one end to the bar 9. Said bar is then placed in the seat formed by bending the bifurcated ends of the member 6, the fuse proper passing through the slot 8. The member 6 is then drawn away from the post 13, as shown more clearly in Fig. 1 of the drawings, when the fuse 12 is drawn taut and the free end thereof secured to the binding-post 11, suitable compensating slots being provided in said post for the accommodation of the free end of said fuse. The current normally passes through the wire 5, post 4, member 6, fuse 12, post 11, and wire 10 into the telephone or other instrument being used, and the fuse 12 is capable of withstanding the usual voltage required to operate the instruments; but it will readily be seen that should an unusual voltage enter the wire 5 the fuse 12 would be burned off and the member 6 released and permitted to come in contact with the post 13, from whence the current will pass into the wire 14 and be conducted to the ground. By this arrangement it will be seen that when an unusual voltage passes through the wires the fuse 12 will be instantly burned

out and the member 6 released, permitting said member to contact the post 13, as shown by dotted lines in Fig. 1, and the current thus conveyed to the ground.

My device is designed more particularly to intercept the unusual voltage caused by lightning, as if a device of this class were not used the unusual voltage tends to destroy the instrument attached to the main or line wire, as well as rendering it extremely dangerous for the operator. It will be understood, however, that any increased voltage from any cause will destroy the fuse and be instantly grounded. A further advantage of my device is the rapidity with which a fuse may be replaced after it has been destroyed, the operation requiring but very little skill and time. The device is designed to be used with all classes of electrical instruments wherein the current-wires are exposed to sudden and unusual voltage, but more especially in connection with telephones, telegraph, and like instruments.

While I have described the preferred combination and construction of parts deemed necessary in materializing my invention, I wish to comprehend all substantial equivalents and substitutes which may be considered as fairly falling within the scope of my invention.

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

The herein-described automatic cut-off comprising the combination with a pair of suitable binding-posts and line-wires attached thereto, of a spring member secured to the inner end of one of said posts, said member having a slot cut in its free end, a seat formed at the outer end of said member, a bar adapted to fit in said seat, a fuse, one end of which is attached to said bar and the opposite end thereof to the other binding-post, and an additional binding-post connected with the ground through the medium of a ground-wire, whereby when the fuse is burned out, said member will contact with said additional post and the current ground, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANK P. BELL.

Witnesses:
R. E. PORTERFIELD,
H. M. THATCHER.