

H. H. HOFFMAN.

CIRCUIT CLOSER.

No. 343,372.

Patented June 8, 1886.

Fig. 3.



Fig. 4.

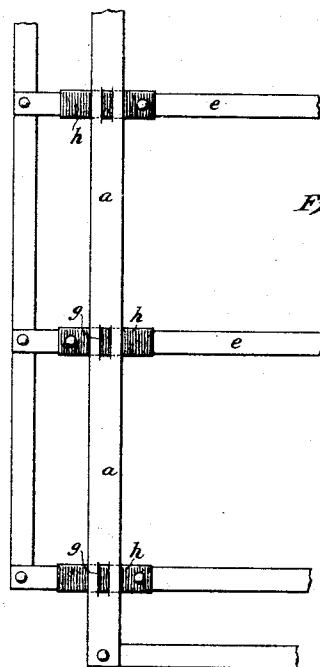
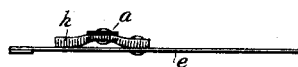


Fig. 5.



Witnesses

Geo. W. Breck.
Edwin Seger.

Inventor

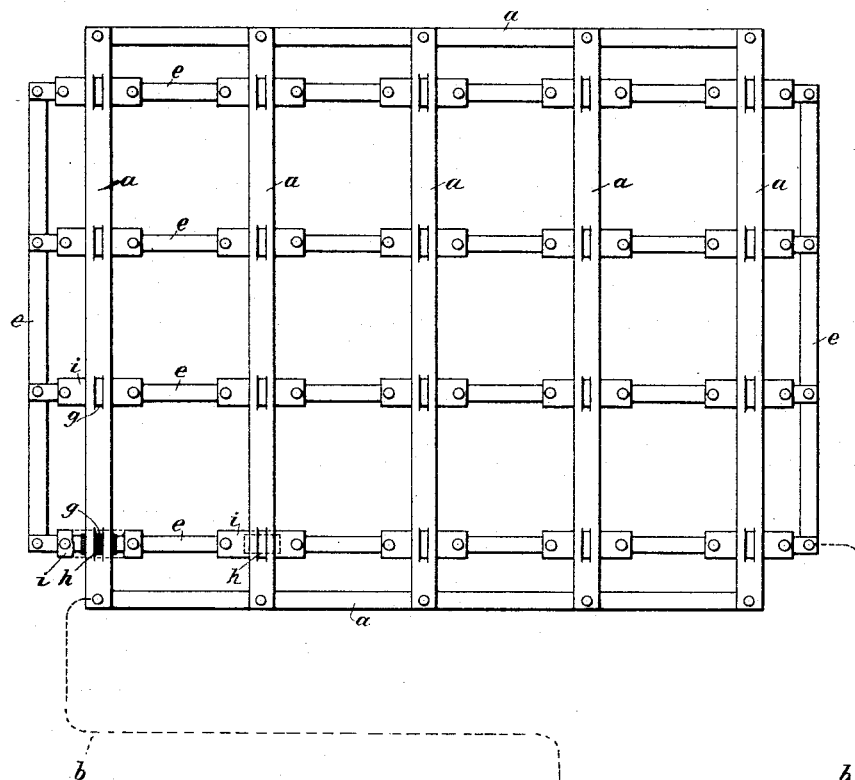
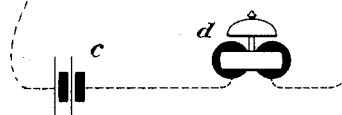
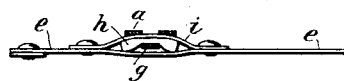
Harvey H. Hoffman.
By his Attorney
W. C. Witter.

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Fig. 1.*Fig. 2.*

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UNITED STATES PATENT OFFICE.

HARVEY H. HOFFMAN, OF NEW YORK, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO BROWN & BROWN, OF ROCHESTER, N. Y.

CIRCUIT-CLOSER.

SPECIFICATION forming part of Letters Patent No. 343,372, dated June 8, 1886.

Application filed March 6, 1886. Serial No. 194,278. (No model.)

To all whom it may concern:

Be it known that I, HARVEY H. HOFFMAN, a citizen of the United States, and a resident of New York, in the county and State of New York, have invented a new and useful Improvement in Circuit-Closers; and I declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and the figures and letters marked thereon, which form a part of this specification.

My invention relates to an improvement in circuit-closers, and its object is to provide a simple and economical circuit-closing device that can be placed in any position desired, and so constructed that when pressure is brought to bear upon it the circuit will be closed and the alarm given.

My invention is shown in the accompanying drawings, in which Figure 1 is a top view of my improvement, and Fig. 2 is a sectional view showing the mode of attachment of the terminal wires of the circuit to each other. Figs. 3, 4, and 5 show various modifications of my invention.

Similar letters refer to similar parts in the different figures.

a a a are a number of flat strips or wires, preferably parallel and placed at a short distance from one another, and joined together by connecting-wires at their ends, or at any other suitable place. These wires *a a a* thus connected with one another form one of the terminals of the wires *b*, connected to a battery, *c*, with a bell, *d*, in circuit. The wires *a a a* are laid transversely across the wires *c c c*. These wires *c c c* are connected together like wires *a a a*, and form the other terminal of the wires *b*. The wires *a* and *c* are so attached to each other that when free from pressure they are not in contact, but when pressure is brought to bear upon them they are brought into contact, the circuit is closed, and the alarm is sounded. To accomplish this, I attach the wires *a* and *c* together in the manner shown in detail in Fig. 2. The wire *a* has two longitudinal slits made in it in that part which is just over the wire *c*. The slits are preferably a little longer than the wire *c* is wide. The wire *a* is divided by these slits into three strips just at this part. The middle strip, *g*, is then bent

down and the two side strips are bent up slightly. Then a piece of rubber, *h*, is forced between these strips, so that the middle strip is below the rubber, while the two side strips are above the rubber. The rubber is made to extend a little beyond the edges of the wire *a* on both sides. The rubber is made of such a thickness that it is held firmly between the middle strip, *g*, and the two outside strips of the wire *a*, and is moreover compressed immediately above the middle strip, *g*. On either side of the strip *g* the rubber is not compressed, and hence these two end portions of the rubber serve as a spring to hold the middle strip, *g*, up and away from the wire *c*. When, however, pressure is brought to bear on the wires, the two spring ends of the rubber are compressed and the strip *g* comes into contact with the wire *c*, and thus the circuit is closed and the alarm sounded.

The wires *a* are held in their proper relative position with respect to the wires *c* by the bands *i*, which may be made of leather or any suitable non-conducting material. These bands pass over the rubber piece *h* and between the middle strip, *g*, and the outside strips of the wire *a*. The ends of the bands are fastened to the wire *c*, Fig. 2. The bands *i*, however, need not be used; but the rubber spring may be prolonged at both ends, and these ends may themselves be fastened to the wire *c*, as shown in Fig. 3. When the rubber is used alone, it is not necessary to fasten both ends of each piece to the wire *c*, as it would be sufficient to fasten one end of one rubber piece and the opposite end of the next rubber piece used to fasten the same wire *a* at the next point of contact, as in Fig. 4.

I do not confine myself to the use of rubber in the piece *h*. This piece may be made of any suitable elastic non-conducting substance.

One great advantage of my improvement lies in the fact that it does away with the necessity of using any supporting mechanism for the wires and circuit-closing devices—such as slats or boards or mats—and accomplishes the entire purpose of a circuit-closer by using simply the wires themselves and intervening spring-pieces arranged as described. By the simplicity of its structure it is rendered much more economical and serviceable.

By using a number of wires *a* and a number of wires *e* a great many points of contact are secured.

Any well-known battery and bell or sounding apparatus may be used with this alarm.

The rubber piece *h* may be fastened to the wire *a* in any other suitable manner than by being held between the strips of the wire *a*. For example, the rubber piece may be riveted to the wire *a*, in which case the head of the rivet is brought into contact with the wire *e* when pressure is applied. (See Fig. 5.)

What I claim as new, and desire to secure by Letters Patent, is—

1. A circuit-closer consisting of a wire or series of connected wires crossing a second wire or series of connected wires and separated at their points of crossing by an intervening elastic non-conducting material so applied

as to hold the wires in juxtaposition and allow them to come into contact when pressure is applied, but at other times to hold them apart, substantially as and for the purposes set forth.

2. A circuit-closer consisting of the connected wires *a*, crossing the connected wires *e*, the pieces *h*, fastened to the wires *a* by means of the strips *g* and the bands *i*, substantially as and for the purposes set forth.

3. A circuit-closer consisting of the connected wires *a*, crossing the connected wires *e*, and the pieces *h*, fastened to the wires *a* by means of the strips *g*, substantially as and for the purposes set forth.

HARVEY H. HOFFMAN.

Witnesses:

ROBERT N. KENYON,
EDWIN SEGER.

It is hereby certified that the residence of the assignees in Letters Patent No. 343,372, granted June 8, 1886, upon the application of Harvey H. Hoffman, for an improvement in "Circuit-Closers," was erroneously written and printed "Rochester, New York," whereas said residence should have been written and printed "*New York, New York;*" and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 22d day of June, A. D. 1886.

[SEAL.]

D. L. HAWKINS,
Acting Secretary of the Interior.

Countersigned:

M. V. MONTGOMERY,
Commissioner of Patents.