(No Model.)

C. LAMBDIN.

ELECTRICAL CONTACT MAKER AND BREAKER.

No. 379,074. Patented Mar. 6, 1888.

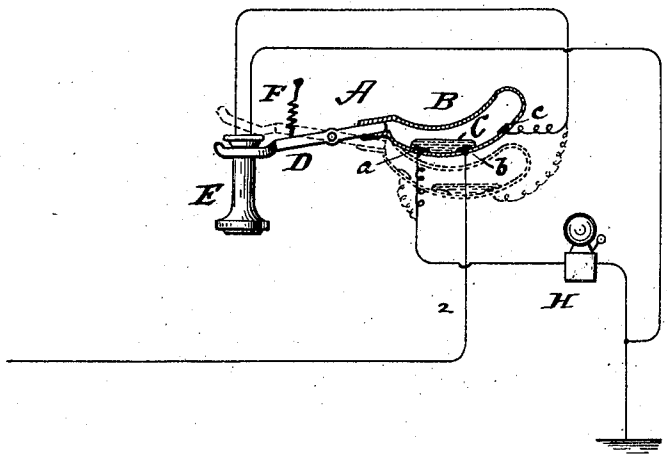


Fig. 1.

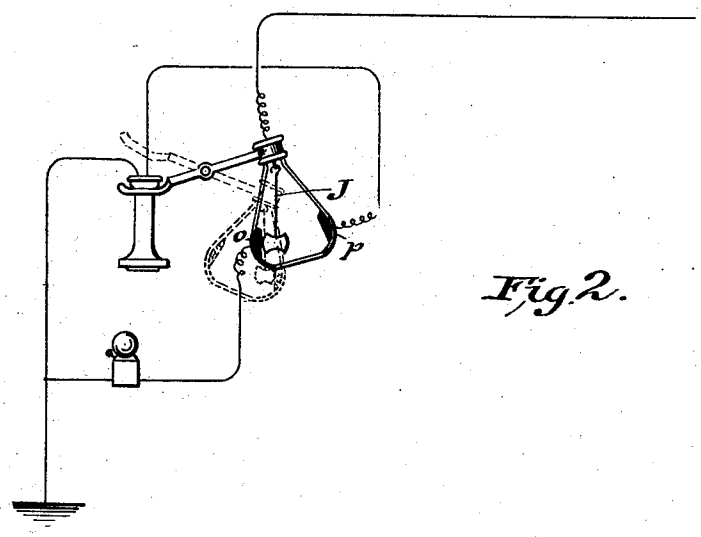


Fig. 2.

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UNITED STATES PATENT OFFICE.

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ELECTRICAL CONTACT MAKER AND BREAKER.

SPECIFICATION forming part of Letters Patent No. 379,074, dated March 6, 1888.

Application filed November 14, 1887. Serial No. 255,063. (No model.)

To all whom it may concern:

Be it known that I, CARVOSSO LAMBDIN, a citizen of the United States, residing at Barranquilla, in the United States of Colombia, South America, have invented certain new and useful Improvements in Electrical Contact Makers and Breakers, of which the following is a description.

My invention is designed to provide means whereby the making and breaking of electrical contacts can be accomplished without sparking, and whereby the contact-surfaces may be kept free from dust and moisture.

I will illustrate my invention as applied to the contacts of a telephone-circuit; and my special object is to provide a good circuit maker and breaker for such use.

My circuit maker and breaker consists, broadly, of a sealed inclosing-case, preferably of glass, in the walls of which contact pieces are fixed, and a relatively movable conductor within the case capable of making connection between the said contacts or a selected number of them.

In the drawings, Figures 1 and 2 represent different forms of circuit-controller applied to a telephone-circuit.

In Fig. 1, A is my circuit-controller, consisting of a sealed inclosing-case, B, of glass, contact-pieces *a*, *b*, and *c* in the inner walls thereof, and mercury or other conducting-liquid, C, within the case. The case is secured to the arm-support D of a telephone, E, the support being acted upon in the usual manner by a spring, as F, in opposition to the weight of the telephone. The contact piece *b* is joined by a wire, 2, to the line. The other contact-pieces, *a* and *c*, are connected to ground or to the line in the other direction through the bell H and the receiver E, respectively.

When the telephone is on the hook, the circuit-controller is thrown into the position shown in full lines in Fig. 1, thus throwing the mercury into contact with contacts *a* and *b* and putting the bell in circuit. When the telephone is taken off the hook, the parts take the position shown in dotted lines, allowing the mercury to close connection between *b* and *c* and throwing the telephone into circuit.

In Fig. 2 the mercury is replaced by a pendent conducting-lever, J, having an enlarged head for the purpose of presenting a wide surface of contact and to give such weight to the lever as will make it always assume a perpendicular position. In the two positions of the telephone the lever makes contact with one or the other of two contacts, *o* and *p*, the same results as before being accomplished.

The advantages of my circuit-controller are that the contact-surfaces are within a sealed air-tight case, where it is impossible for dust or moisture to enter. This obviates the danger of sparking, at least after the first few contacts, and also prevents danger of corrosion from other causes. The contacts are made broad to contribute to the avoidance of sparking, and furnish ample surface for good contact even should one edge become corroded from sparking. It should be noted, too, that the mercury contact takes place with the bottom of the mercury and not with the top, where dust or other light particles accidentally on the mercury when put in place might interfere with the proper working of the apparatus. In some instances I shall make a vacuum within the sealed chamber for still greater security, and I may remove the air and substitute some other gas, as nitrogen, for obvious reasons. These modifications apply to both the forms of circuit-controller illustrated.

The special advantages of having good contact in a telephone-circuit are well understood. With an instrument of such sensitiveness as the telephone, any slight imperfection of action may make all the difference between a successful and an unsuccessful apparatus. My invention will, however, be found useful for all sorts of electrical contacts, and especially in damp or dusty regions.

Having described my invention, I claim—

1. The combination, with a telephone and its support and the usual bell and receiver circuits, of a circuit-controller connected with the latter, the said circuit-controller consisting of a sealed chamber secured to and moved by the receiver-support, containing a line-terminal, and also the terminals of the said bell and receiver circuits, and a relatively-movable conductor within the said chamber adapted to be moved by the movements of the support,

so as to connect the line and the bell circuit terminals or the line and the telephone circuit terminals, as and for the purpose set forth.

2. A circuit-controller consisting of a sealed chamber containing circuit-terminals in line with a poised terminal, with which either of the said terminals may be brought into contact when the chamber is moved, the said controller being connected with and moved by the telephone-support, as and for the purpose set forth.

3. The combination, with a pivoted telephone-support, of a telephone supported on one side of the pivot, and a sealed chamber carrying circuit-terminals, and a movable conductor or connector supported on the opposite end of the support, as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

CARVOSSO LAMBDIN.

Witnesses:
G. G. GÓMEZ, P.,
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