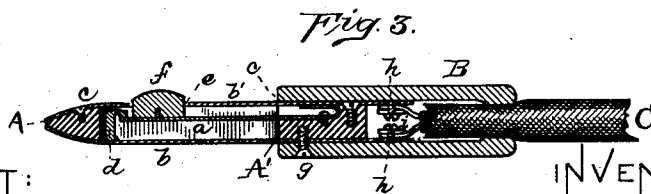
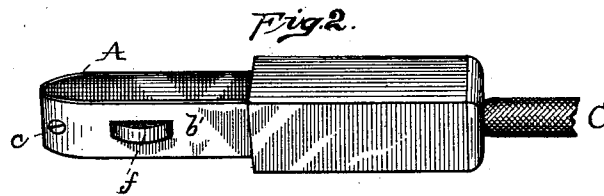
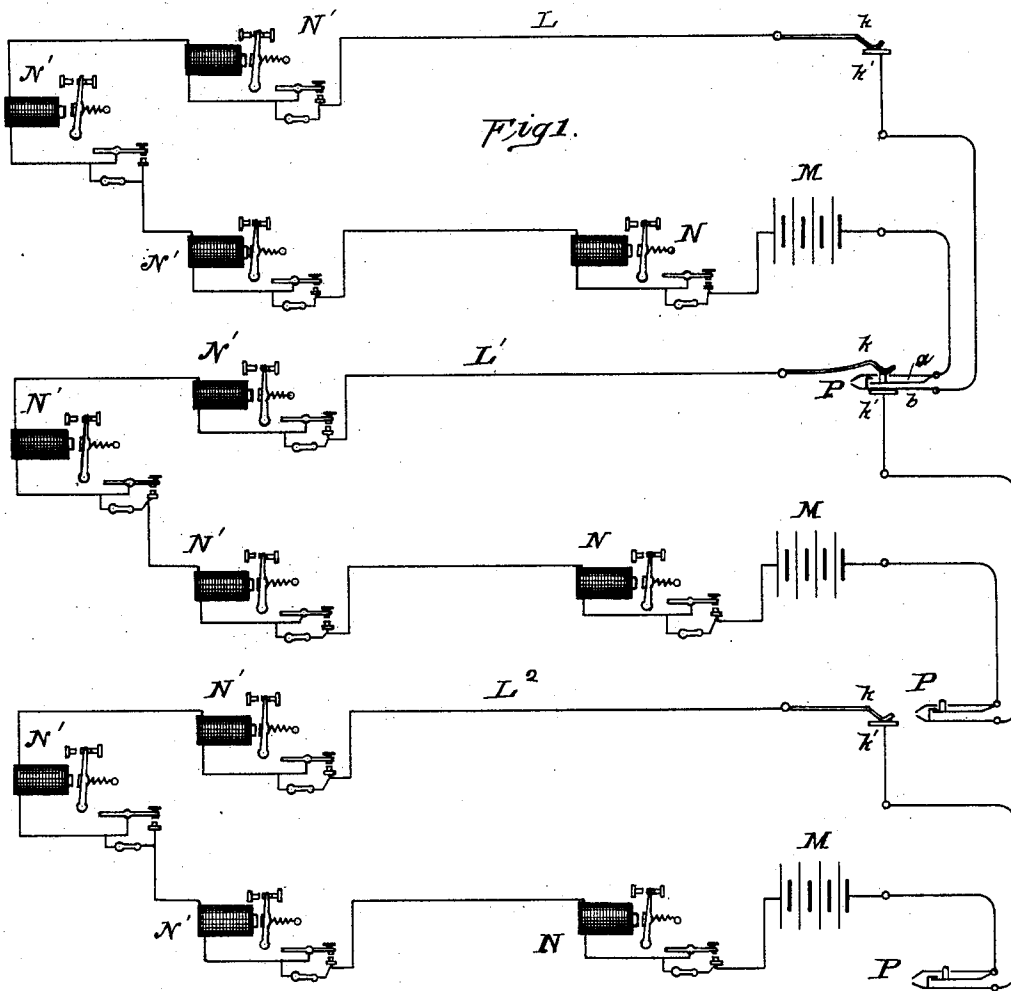


(No Model.)

J. F. MEHREN.
ELECTRICAL CIRCUIT.

No. 357,726.

Patented Feb. 15, 1887.



ATTEST:
E. C. Rowland
Att. Fiddle

INVENTOR:
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UNITED STATES PATENT OFFICE.

JACOB F. MEHREN, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE WESTERN
ELECTRIC COMPANY, OF SAME PLACE.

ELECTRICAL CIRCUIT.

SPECIFICATION forming part of Letters Patent No. 357,726, dated February 15, 1887.

Application filed May 6, 1886. Serial No. 201,224. (No model.)

To all whom it may concern:

Be it known that I, JACOB F. MEHREN, of Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Electrical Circuits and Connecting Devices Therefor, of which the following is a specification.

My invention relates to electrical systems—such as fire-alarm systems, telephone systems, &c.—in which round metallic circuits are employed, and in which two or more such circuits extend from the same central station. My object is mainly to provide simple and efficient means whereby each of such circuits will be normally maintained continuous; but, if desired, two or more or all of said circuits may be connected together in series, so that communication may be had between telegraphic or telephonic instruments on one circuit and those on any other.

To this end my invention consists in a novel construction of spring-jack plug, and in the arrangement and use of such plug in connection with circuits such as above mentioned.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a diagram showing the arrangement of three circuits with which my invention is employed; Fig. 2, a perspective view, and Fig. 3 a longitudinal section, of the jack-plug embodying said invention.

I will first describe the construction of said plug.

A A' is a piece of insulating material, which has an open space within it to form a receptacle for the spring *a*.

b b' are metal plates or strips separated by said insulating-piece and closing such receptacle, and secured to such insulating-piece by screws *c c*.

d is a metal post rising from strip *b*. Strip *b'* has an aperture, *e*. The spring *a* is secured to A' by a screw and carries the metal button or projection *f*, which passes through aperture *e*. The spring has an upward tension, keeping it normally in contact with post *d*. At its inner end the spring is connected with strip *b'*. The end of A is made wedge-shaped, and the metal strips are bent to conform thereto, so that the plug may readily enter the jack.

B is a tubular handle, of insulating material, placed over the part A' and the ends of strips *b b'* and secured by a screw, *g*. Binding-screws *h h* are attached to such strips, to which the wires *i* of flexible cord C are connected. Such cord extends into the handle, as shown, and the wires are thereby protected from external contact and from injury. This plug may be used with any usual form of spring-jack. Normally the circuit in which the plug is placed is complete by the contact of spring *a* with post *d*; but the insertion of the plug between the parts of the spring-jack causes the pressing down of button *f* and separates *a* from *d*, breaking this plug-circuit, but completing a circuit from the jack through the button and spring, as will be hereinafter more fully explained.

In Fig. 1 L, L', and L'' represent round metallic circuits all extending from the same central station, and each having a main battery, M, a spring-jack composed, as usual, of two parts, *k k'*, adapted to be separated by the insertion of a plug, and a plug, P, at such station, said plugs being of the same or substantially the same construction as above set forth.

In each circuit are shown several sets of Morse telegraphic instruments, one, N, at the central station, and others, N', at various points in the line. The local circuits and sounders of the Morse sets are omitted for convenience. These circuits may be for any purpose in which it is desired to communicate from the central station to points upon the different lines, or from a point on one line to one or more points on one or more of the other lines. The character of instruments in the circuits is of course dependent upon the character of communication required. They may be telephones or any form of signaling-instruments.

As shown in the drawings, line L'' is complete in itself through its spring-jack *k k'* and its plug P. Lines L and L' are shown as connected together, to enable one of the instruments on line L to communicate with one of those on line L', this connection being accomplished by the operator at the central station inserting the plug of line L in the jack of line L', whereby the circuit is made from L by spring *a* to *k*, through L', and back to *k'* and strip *b*,

spring *a* being forced away from *d* and connected with *k* by such insertion of the plug.

It is evident that by placing the plug of *L'* in the jack of *L*² these two lines may be connected together, or line *L* and *L*² may be similarly connected, or all three of the lines may be connected together. The jacks and plugs are of course so arranged at the station that these connections may be readily made, the plugs being, as already described, provided with flexible conducting cords.

I would here say that I am aware of patent to Walker and Egerton, No. 206,154, dated July 16, 1878.

15 What I claim is—

1. A jack-plug adapted to be used in combination with a spring-jack having two external conducting parts on opposite sides of the plug and normally in spring-connection with each other, in combination with the wires of an electrical circuit attached one to each of said conducting parts, whereby when such plug is inserted in a spring-jack said parts are separated and the circuit is closed through the spring-jack, substantially as set forth.

2. The combination of two or more electrical circuits, each having a spring-jack and a separate jack-plug provided with two external conducting parts on opposite sides of the plug and normally in spring connection with each other, the wires of each circuit being attached one to each of said conducting parts of its jack-plug, whereby each circuit is normally closed, but when the plug of one circuit is inserted in the jack of the other the two circuits will be connected in series, substantially as set forth.

3. In a spring-jack plug, the combination of the metal plate, the post rising therefrom, the

spring normally in contact with said post, said spring and plate being each connected with a circuit-wire, and the metal button on said spring, substantially as and for the purpose set forth.

4. In a spring-jack plug, the combination of an inclosing-receptacle, a metal plate on one side thereof, a spring within said receptacle, said spring and plate being each connected with a circuit-wire, and being normally in electrical connection, and the metal button on said spring working through an aperture in the opposite side of said receptacle, substantially as set forth.

5. In a spring-jack plug, the combination of a hollow rigid insulating-handle, conducting-strips secured within said handle and projecting therefrom, circuit-wires entering said handle, and connecting devices on said conducting-strips within the handle for securing said wires thereto, substantially as set forth.

6. In a spring-jack plug, the combination of an insulating piece or block having an open space within the same, metal strips closing said space on opposite sides, a spring within said space permanently connected with one of said strips and normally with the other and having a button working through an aperture in the former of said strips, and a circuit-wire connected with each of said strips, substantially as set forth.

This specification signed and witnessed this 3d day of May, 1886.

JACOB F. MEHREN.

Witnesses:

CHARLES F. STRUBBE,
CHAS. EDW. GOOD.