No. 615,420. Patented Dec. 6, 1898.

# W. E. BAKER.

## ELECTRICAL CONNECTION.

(Application filed July 13, 1896.)

(No Model.)

Fig. 1.

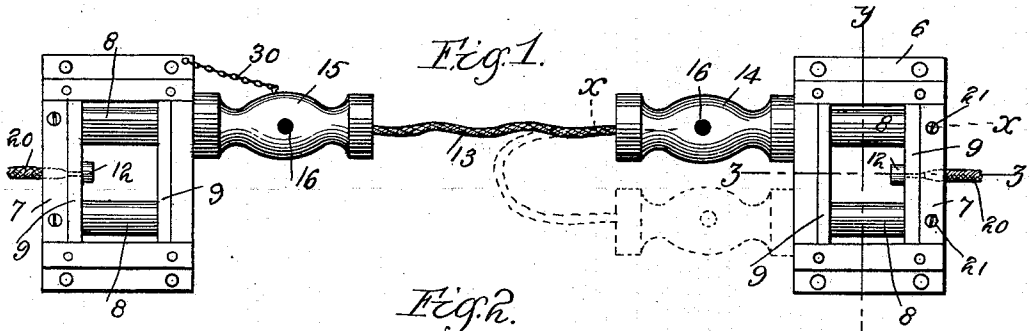



Fig. 2.

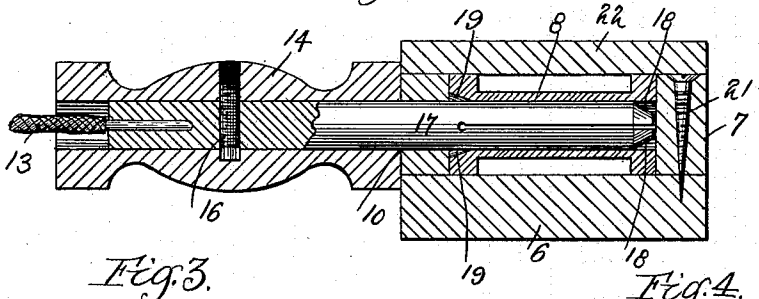



Fig. 3.

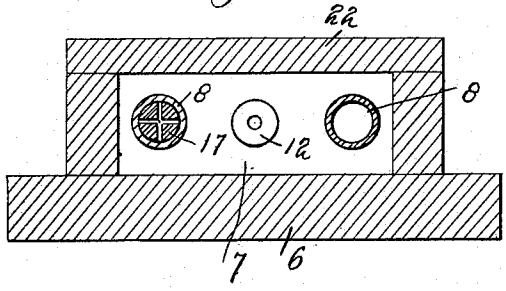



Fig. 4.

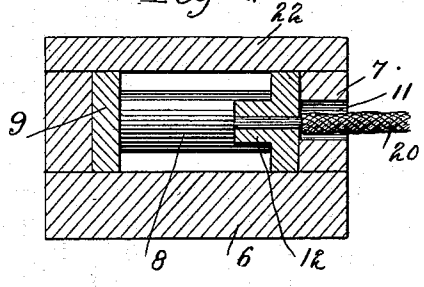
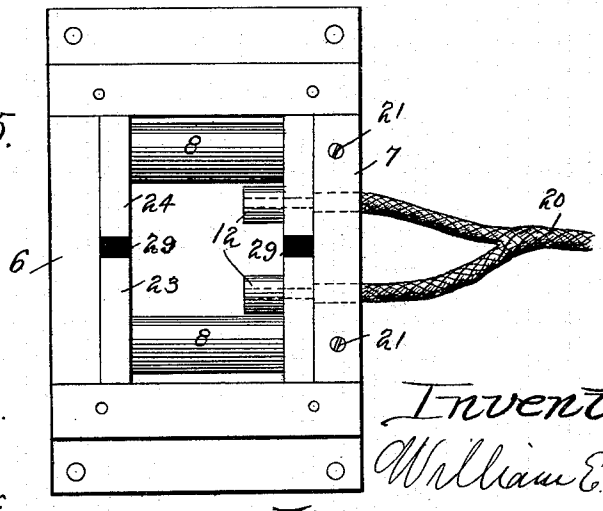



Fig. 5.




Witnesses.

Wm. M. Rheems.

Wm. F. Fleming

Inventor

William E. Baker

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

# UNITED STATES PATENT OFFICE.

WILLIAM E. BAKER, OF CHICAGO, ILLINOIS, ASSIGNOR TO CARTER H. FITZ HUGH, OF SAME PLACE.

## ELECTRICAL CONNECTION.

SPECIFICATION forming part of Letters Patent No. 615,420, dated December 6, 1898.

Application filed July 13, 1896. Serial No. 598,975. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM E. BAKER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Electric Connection, of which the following is a specification.

This invention relates to electric connections.

The object of the invention is to provide an electric connection of simple and improved construction.

The invention consists, substantially, in the construction, combination, location, and relative arrangement of parts, all as will be more fully hereinafter set forth, as shown in the accompanying drawings, and finally pointed out in the appended claims.

This application is filed to take the place of application Serial No. 541,277, filed March 11, 1895.

Referring to the accompanying drawings and to the various views and reference-signs appearing thereon, Figure 1 is a view in side elevation of an electrical connection coupled up embodying the principles of my invention, the top or cover of the box being removed. Fig. 2 is a broken detail sectional view taken on the line *x x*, Fig. 1. Fig. 3 is a detailed sectional view taken on the line *y y*, Fig. 1. Fig. 4 is a detailed sectional view on the line *z z*, Fig. 1. Fig. 5 is a detail view showing the adaptation of my invention to two-wire circuits.

The same reference-sign is employed throughout the several views to designate the same part wherever it occurs.

In carrying out my invention I provide a suitable box 6 of suitable insulating material, (a wooden box answering the purpose,) one of the side or end pieces thereof, as at 7, being removable for a purpose that will more fully hereinafter appear.

In the box 6 I mount socket 8 of suitable conducting material. If desired, and preferably, a pair of sockets 8 8 are arranged in each box and suitably connected to each other electrically in the case of single-wire circuits, as by cross-bars 9 9. In practice the sockets 8 8 are usually made in the form of hollow cylinders, though it is obvious that any other convenient or desirable shape may be used, and, if desired, though I do not desire to be limited thereto, the sockets connecting the bars 9 may all be formed in a single casting. The side of the box 6 is suitably perforated or bored, as at 10, (see Fig. 2,) to register with the open end of the sockets 8, for a purpose that will presently more fully appear. A passage 11 is formed in the side 7 of the box 6, which passage communicates with a boss or other suitably-formed binding-post 12, formed in the connecting-bar 9, as shown, in order to receive the line-wire, as will be readily understood.

To coöperate with the box constructed as above described, I provide a suitable connecting-link 13, preferably flexible and in the form of a wire, as shown, carrying at the respective ends thereof a handle 14 15, of suitable insulating material, (a wooden handle answering the purpose,) in which is secured in any suitable or convenient way, as by pin 16, a contact-plug 17. (See Fig. 2.) In practice the connecting-link 13 may be connected electrically in any suitable way with the contact-plug 17. In the form shown in Fig. 2 a socket is formed in one end of the plug and is adapted to receive in any suitable manner the end of the connecting link or wire 13. The opposite end of the plug is preferably composed of split sections, the end of each section being beveled, as shown at 18, Fig. 2, in order to facilitate the insertion of the plug in the socket 8, the mouth of the socket being correspondingly flared or beveled outwardly, as shown at 19, Fig. 2, to the same end.

In practice the slotted or segment end of plug 17 is formed by suitably slitting the plug longitudinally on transverse lines (see Figs. 2 and 3) a suitable distance, thereby forming practically a series of spring-arms, and as the internal diameter of the sockets 8 is designed to be a shade smaller than the external diameter of the plug 17 it will be seen that a perfect electrical contact is effected by the insertion of the plug in the socket, while at the same time permitting the easy withdrawal of the same from the socket.

In Fig. 5 I have shown my invention as applied to two-wire circuits. In this embodiment the arrangement is similar to that above

described, except that a single casting 23 24 is employed for each line-wire, and each casting has its own socket 8 and each has its own boss or binding-post 12, the castings being insulated from each other, as indicated at 29.

In assembling the parts the removable part 7 of the box may be strung on the line-wire 20, and the end of said wire is then secured in any suitable manner, as by brazing or soldering, in the boss or binding-post 12 in the casting. Then the casting, including the sockets 8 and the conducting-bar 9, is placed within the box 6 and the removable part 7 of the box placed in position and secured therein in any suitable manner, as by securing devices 21. The top or cover 22 is then placed in position and suitably secured. The plug 17 of one end of the connecting-link is inserted in a socket 8 in one box and the plug carried by the opposite end of such link is inserted in its corresponding box, and the circuit through the line-wires through said boxes is completed.

While my invention is designed for general application where electrical connection is required, it is designed more particularly for use in connecting the lighting, heating, or other circuits through a train of cars. To this end a box 6 is placed at the rear end of a front car and another and similar box is placed at the front end of a rear car. In this way the circuit through the cars may be expeditiously and effectively completed.

From the above description it will be seen that should two cars through accident pull apart no damage will result to the connection, as the plug 17 of one or the other car will be merely withdrawn from its corresponding socket. Should the rear car be entirely cut off, in order to avoid having the end of the connection dangling from the rear of the train, and especially if it is a live wire, to avoid danger said end may for convenience be inserted in the other portion of the box, as indicated in dotted lines in Fig. 1. If desired and in order to avoid the danger of the connection being accidentally broken by jarring, the handle may be secured to the box 6 by means of a suitable detached connection, as 30. In this manner should a part occur between adjacent cars of a train the handle carrying the plug will be withdrawn from the box on that car adjacent to the end of the connecting-link 13, which is not so connected, thereby avoiding danger of dangling live wires on the one car or the other, as the case may be.

I do not desire to be limited or restricted to the exact details shown and described, as many variations and changes in the relative size, proportion, and arrangement of parts would readily suggest themselves to persons skilled in the art and still fall within the spirit and scope of my invention; but,

Having now explained the object and nature of my invention and a form of apparatus embodying the same and having explained the function and mode of operation thereof, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In an electrical coupling for railway-cars, a box mounted on each car, each box having a removable perforated side and a fixed perforated side, a casting adapted to be received within said box, and comprising a contact-making device, a line-wire adapted to be passed through the perforation in one of the sides of said box and electrically connected to said contact-making device, a connecting-link having a coöperating contact device at each end thereof, adapted to be received in said box through the perforation in the other side thereof upon the adjacent ends of two railway-cars, whereby the sections of line-wires carried by said cars are coupled up, one of said contact devices comprising a socket and the other a plug; as and for the purpose set forth.

2. In an electrical connection for railway-cars, the combination with adjacent cars of a train, of a box mounted on the adjacent end of each car, a casting mounted therein, provided with a pair of contact-making devices, a link provided with coöperating contact-making devices at each end thereof, one of said contact devices comprising a cylindrical sleeve forming a socket, and the other comprising a plug adapted to be received in the sleeve when in use; as and for the purpose set forth.

3. In an apparatus for electrically coupling up the meeting ends of a line-wire between adjacent cars in a train of cars, a pair of contact-making devices mounted upon each car and each contact device in electrical connection with the section of line-wire of said car, in combination with a connecting-link carrying a coöperating device at each end thereof, one of said contact devices comprising a socket and the other a plug adapted to be received in said socket, and means for preventing the withdrawal of one of said plugs from its socket in case the car carrying the same is detached from the train; as and for the purpose set forth.

4. In an electrical connection for railway-cars, an insulating-box mounted upon each car, a casting arranged therein, contact-making devices carried by the casting, said casting in electrical connection with the line-wire of the car upon which said casting is mounted, a connecting-link carrying at each end thereof a contact-making device arranged to coöperate with the contact-making devices carried in the insulating-boxes on the adjacent ends of the cars, one of said contact-making devices comprising a sleeve and the other a plug adapted to be received in said sleeve, as and for the purpose set forth.

5. In an electrical connection for railway-cars, an insulating-box arranged to be mounted on the adjacent ends of each car of the train, a contact-making device arranged in

each box, each contact-making device being in electrical connection with the line-wire of the car on which said device is mounted, a connecting-link, a coöperating contact-making device carried at each end of said link, and in electrical connection with each other, one of the members of each of said pairs of contact-making devices comprising a sleeve and the other a cylindrical plug adapted to be received in said socket, as and for the purpose set forth.

In witness whereof I have hereunto set my hand this 11th day of July, 1896.

WILLIAM E. BAKER.

Attest:
FRANK T. BROWN,
CARTER H. FITZ-HUGH.