T. E. MURRAY.

CONNECTING DEVICE.

APPLICATION FILED OCT. 16, 1913.

1,103,991. Patented July 21, 1914.

Fig. 1.

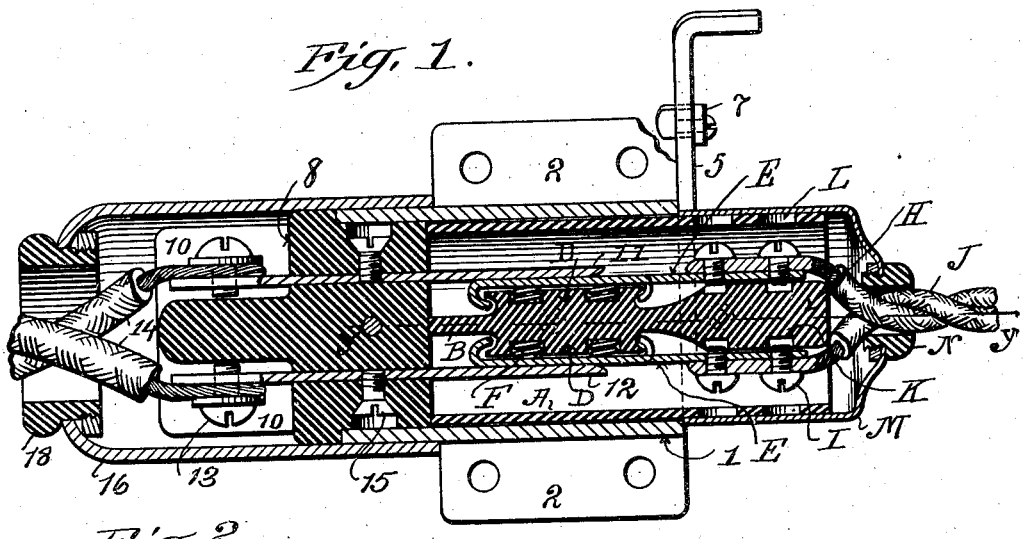


Fig. 2.

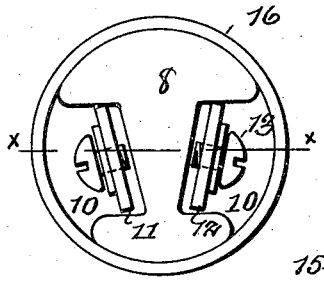


Fig. 3.

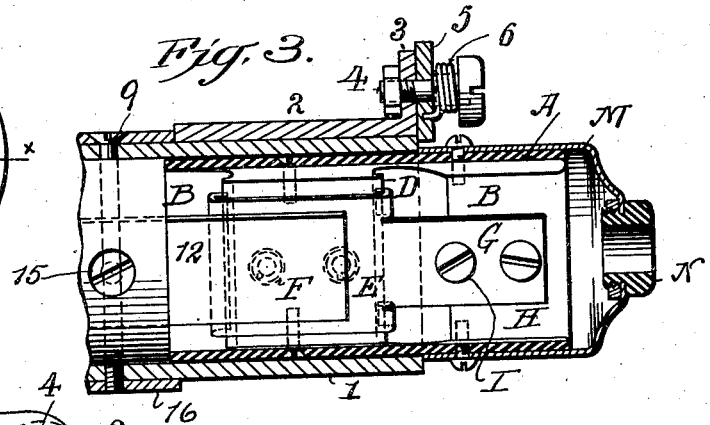


Fig. 4.

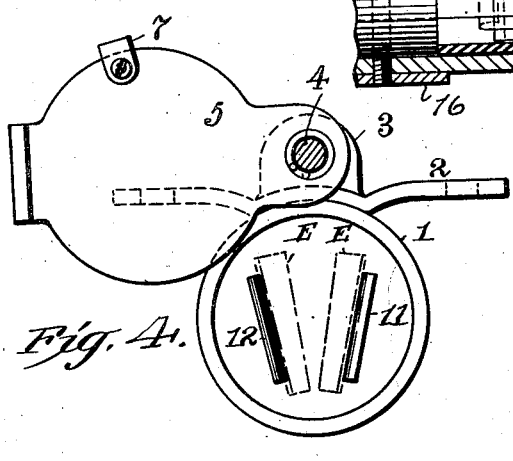
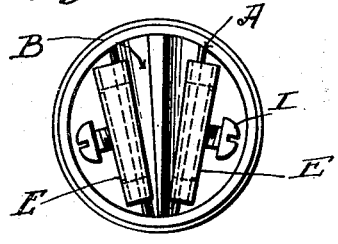


Fig. 5.



Witnesses:
Gertrude A. Peter.
May T. McHarry

Inventor
Thomas E. Murray
By his Attorney
Paul Benjamin

UNITED STATES PATENT OFFICE.

THOMAS E. MURRAY, OF NEW YORK, N. Y.

CONNECTING DEVICE.

1,103,991. Specification of Letters Patent. Patented July 21, 1914.

Application filed October 16, 1913. Serial No. 795,406.

To all whom it may concern:

Be it known that I, THOMAS E. MURRAY, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a certain new and useful Improvement in Connecting Devices, of which the following is a specification.

The invention is a connecting device, comprising a fixed socket and a removable plug adapted to enter said socket and establish circuit from the source of charging current to the battery.

The device is more especially designed for use in charging the storage batteries of electric automobiles. A hollow cylindrical socket has two longitudinally placed contact plates which are wholly inclosed therein, and similarly there are two contact plates wholly inclosed in the plug but which cooperate with the socket contact plates when the plug is placed in the socket. The inclosing of the contact plates in the socket and plug prevents all danger of chance contact with them both when socket and plug are separated and when they are in coöperative position. The construction is further such that the plates in the plug are disposed in two mutually insulated compartments, so that when the plates in the socket are in cooperation with them, the insulating partition forming the barrier between said compartments and extending diametrically across the plug prevents any jumping of spark between the pairs of coöperating contact plates.

In the accompanying drawings Figure 1 is a longitudinal section of my connection device on the line x, x of Fig. 2. Fig. 2 is an end elevation of the socket, the shell 16 being removed. Fig. 3 is a longitudinal section of the plug and a part of the socket on the line y, y, of Fig. 1, the partition and contact plates being in elevation and the battery conductors being removed. Fig. 4 is an end elevation of the socket showing the pivoted cover, and in dotted lines the plug contact plates coöperating with the socket contact plates. Fig. 5 is an elevation of the open end of the plug.

Similar numbers and letters of reference indicate like parts.

The device is in two parts, namely, a fixed socket containing contact plates communicating with the source of charging current, and a plug adapted to enter said socket and having contact plates coöperating with the contact plates therein, the plug contacts being connected to suitable conductors leading to the battery to be charged.

The socket portion is constructed as follows: 1 is a tubular casing of metal, with which may be integrally formed the projecting side plates 2, having openings for the reception of bolts or screws, by which the device is secured to a wall or other suitable support. On one end of the casing 1 is formed a lug 3, which receives the pivot bolt 4 of a cover 5. On bolt 4 is a spring 6 which engages with said cover and said lug and normally tends to hold said cover in position to close the end of the casing. A stop 7 on the cover strikes the casing when the cover is in closed position, and prevents it being carried past said position by the action of the spring. A cylindrical block 8 of porcelain or other suitable insulating material is inserted in casing 1, so that the end of said casing bears upon a shoulder on said block. The casing is secured to the block by a transverse bolt 9. The block beyond the shouldered portion has recesses 10 on opposite sides, as shown in Figs. 1 and 2. Extending through block 8 and projecting into said recesses 10 are parallel metal contact plates 11, 12, to which are secured by binding screws 13 the conductors 14 leading from source of charging current. The contact plates 11, 12 are secured to block 8 by countersunk screws 15 and project beyond the end face of said block to receive between them the plug, hereafter described. A tubular metal shell 16 covers the block 8 and is provided with an insulating bushing 18, through which pass the conductors 14. It is to be observed that the contact plates 11 and 12 are inclosed in the socket.

The plug is constructed as follows: A is a tube of insulating material, having a longitudinal partition B, wedge-shaped in cross section and extending diametrically across said tube. Said partition is suitably shaped to produce on opposite sides and at a distance from its inner thin edge, two projections D which are undercut on their transverse sides. Contact plates E cover the faces of said projections and are bent at their opposite edges to engage with the undercut sides of projections D with a loose fit, so that said plates may be supported and set out resiliently by the helical springs F seated in countersinks in the faces of

plates E. The plates E have extensions G which extend in front of the opposite faces of the body portion H of the partition. To extensions G are fastened by means of the screws I, the terminals of conductors J which lead to the battery to be charged. Countersinks K are provided in the faces of body portion H to allow of play for protruding ends of the screws due to inward and outward movement of the resiliently supported plates E. Openings L in tube A permit the insertion of a screw driver for the adjustment of screws I. The end of the plug is covered by a metal shell M, having an insulating bushing N, through which the conductors J pass. It is to be observed that the contact plates E are inclosed in the plug. In using the device, the cover 5 is opened and the plug is inserted into the socket, so that the contact plates E enter between the contact plates 11, 12, thus closing circuit from conductors 14 to conductors J. The contact plates are set inclined so as to make them coöperative in only one position of the inserted plug, and when the plug is in place in the socket, as shown in Fig. 1, the coöperating contacts become wholly inclosed.

The partition B divides the space within the plug into two compartments, and when the plug is in place, as shown in Fig. 1, the end of said partition meets the insulating block 8 in the socket. The pairs of coöperating contact plates, therefore, become inclosed in mutually insulated compartments, so that jumping of sparks between said pairs is prevented.

I claim:

1. A connecting device, comprising a socket, and a removable plug; the said socket comprising a cylindrical casing, a block of insulating material closing one end of said casing, contact plates extending through said block and into said casing, and means for connecting circuit terminals to said plates, and said plug comprising a tubular shell fitting in said socket casing, a longitudinal partition in and extending diametrically across said shell, projections on opposite sides of said partition having undercut transverse opposite ends, contact plates covering the faces of said projections and bent at their edges to engage said undercut ends, and means for connecting circuit terminals to said plates: the contact plates in said plug coöperating with the contact plates in said socket.

2. A connecting device, comprising a socket, and a removable plug: the said socket comprising a cylindrical casing, a block of insulating material closing one end of said casing, contact plates extending through said block and into said casing, and means for connecting circuit terminals to said plates, and said plug comprising a tubular shell fitting in said socket casing, a longitudinal partition in and extending diametrically across said shell, projections on opposite sides of said partition having undercut transverse opposite ends, springs seated in recesses in the faces of said projections, contact plates covering said faces and compressing said springs and bent at their edges to engage said undercut ends, and means for connecting circuit terminals to said plates: the contact plates in said plug coöperating with the contact plates in said socket.

In testimony whereof I have affixed my signature in presence of two witnesses.

THOMAS E. MURRAY.

Witnesses:

GERTRUDE T. PORTER,

MAY T. MCGARRY.