

M. O. SPRING.
CONNECTOR.

APPLICATION FILED NOV. 12, 1904.

904,097.

Patented Nov. 17, 1908.
2 SHEETS—SHEET 1.

Fig. 1.

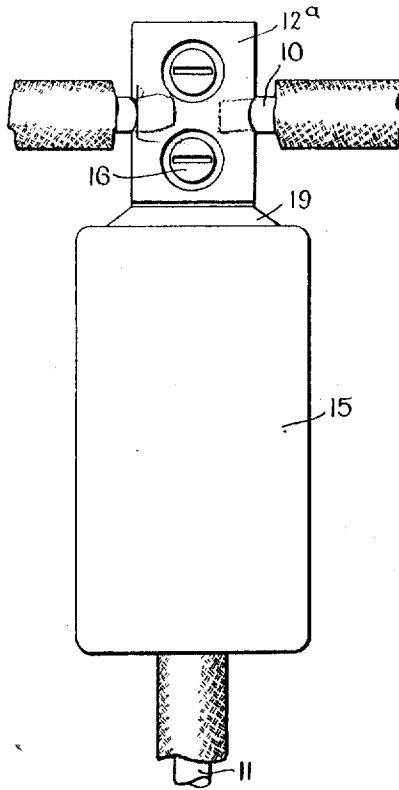


Fig. 2.

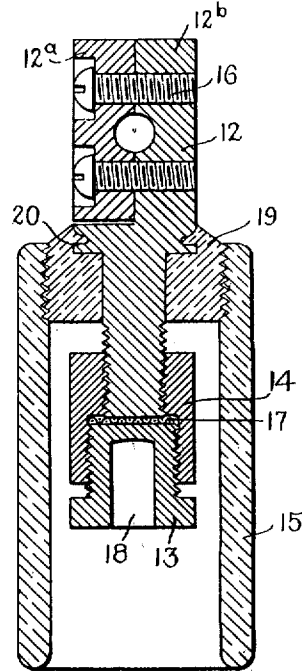


Fig. 3.

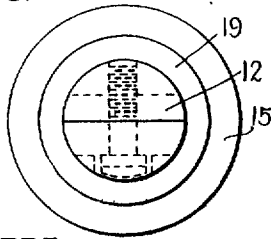
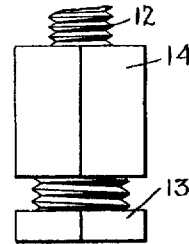


Fig. 4.



WITNESSES

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2 SHEETS—SHEET 2.

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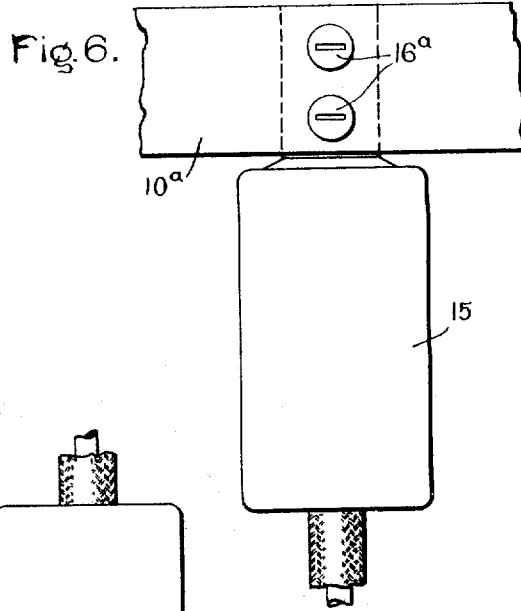
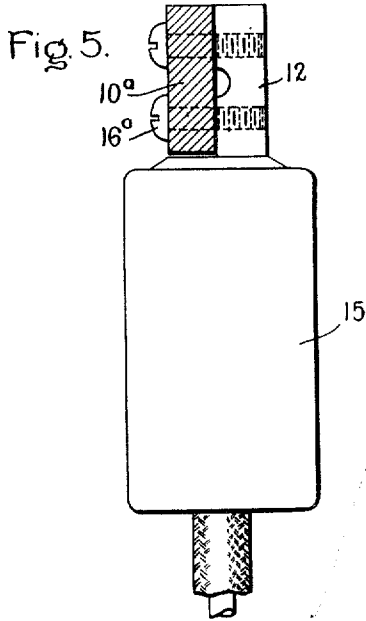
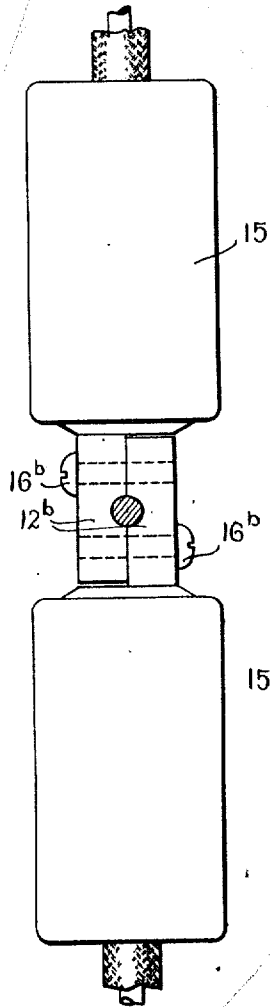


Fig. 7.



WITNESSES

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UNITED STATES PATENT OFFICE.

MERTIE ONG SPRING, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

CONNECTOR.

No. 904,097.

Specification of Letters Patent.

Patented Nov. 17, 1908.

Application filed November 12, 1904. Serial No. 232,462.

To all whom it may concern:

Be it known that I, MERTIE O. SPRING, a citizen of the United States, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Connectors, of which the following is a specification.

The present invention relates to connectors for electrical conductors and has for its object to provide a connector which is simple and economical in structure and capable of being easily manipulated to connect and disconnect the conductors, and at the same time rendered safe by a protective covering of insulating material.

The character of the invention will be best understood upon reference to the following description taken in connection with the accompanying drawing in which the preferred embodiment of the invention is disclosed.

In said drawing Figure 1 is a side elevation of the connector connected between a bus-bar and a lead extending therefrom; Fig. 2 is a central section of the same; Fig. 3 a plan view; Fig. 4 an enlarged detail view illustrating the threaded portions of the connector terminals and the connecting nut; Figs. 5 and 6 are elevations illustrating the connector attached to the bus-bar of varying cross-section; and Fig. 7 is a view illustrating two connectors attached to a bus-wire at a common point.

The present invention is particularly applicable to connecting switch leads to bus-bars and in Fig. 1 I have shown it connected up between a bus-bar 10 and a conductor lead 11.

The connector consists essentially of threaded terminals 12 and 13, a differential nut 14 for drawing the terminals together and a protective skirt or bushing of insulating material 15, which is secured to one of the terminals and extends around the nut and the other terminal so as to protect them from accidental contact. The upper terminal 12 comprises two parts 12^a and 12^b which are adapted to engage opposite sides of the bus-bar 10 and to be drawn into mechanical and electrical engagement therewith by the screws 16. The portions of the terminal which engage the bus-bars are grooved so as to provide a circular opening for the passage of the bar. The size of this opening must necessarily be such that the parts will be forced into firm engagement with the con-

ductor, and it may obviously be changed in section or dimension to suit the section or size of the bus-bar. The lower end of the terminal 12 and the upper end of the terminal or plug 13 are reversely threaded for the reception of the differential nut 14. The nut and the head of the terminal 13 are angular in exterior outline so that they may be turned by a wrench or other tool in disconnecting the conductors. The adjacent ends of the terminals 12 and 13 are substantially parallel, but in order to improve the electrical contact a layer of conducting fabrics, such as wire gauze, 17, is interposed between them. The lower terminal 13 is provided with a socket 18, into which the lead 11 may be soldered.

In order to protect the connector from accidental contact the terminal 12 is provided with a collar 19 of suitable insulating material which is preferably a compound molded on the terminal, the terminal being roughened, or otherwise shaped, as indicated at 20 so as to maintain good mechanical connection with the collar. The exterior of the collar is threaded for the reception of the skirt or bushing 15. This bushing is also composed of insulating material and its free end completely surrounds the nut 14, the terminal 13 and a portion of the lead 11.

In the use of the connector it is usual to cover the portion of the upper terminal 12 above the collar 18 and the adjacent portions of the bus-bars with tape so as to completely insulate them. When it is desired to separate the conductors, that is, to detach the lead 11, it is only necessary to unscrew the bushing 15 from the collar 18 and slip it down over the exterior of the lead so as to expose the differential nut 14. The nut may be then turned so as to force the terminals 12 and 13 apart thereby disconnecting the lead. The lead is connected up by reversing this operation.

As previously indicated, the connector may be attached to bus-bars of varying cross-section by properly changing the grooves in the parts 12^a and 12^b of the upper terminal 12. In some instances it may also be desirable to omit the member 12^a and connect the portion 12^b of the connector directly to the bus-bar, as illustrated in Figs. 5 and 6, wherein the bus-bar 10^a is attached to the terminal 12 by screws 16^a. Furthermore, where it is desired to run leads from the bus-

bar in opposite directions two connectors may be assembled in the manner illustrated in Fig. 7 by leaving off the parts 12^a and using the portions 12^b of two connectors as the clamping members which embrace the bus wire. In this case the parts 12^b are preferably drawn together by screws 16^b entering from opposite sides.

Obviously certain changes may be made in the specific construction illustrated without departing from the spirit and scope of my invention. I therefore do not wish to be limited to the specific matter illustrated but aim to cover by the terms of the appended claims all such alterations and modifications.

What I claim as new and desire to secure by Letters Patent of the United States, is:

1. A connector for electrical conductors comprising two reversely threaded terminals, one of said terminals having threads at one end, and two separate parts at the other end thereof, means for clamping said parts to a conductor, a detachable coupling for said terminals comprising a nut engaging the threaded part of said terminals for drawing the two terminals into electrical and mechanical engagement, and a protective bushing of insulating material removably secured to one of said terminals and surrounding the nut and other terminal.

2. A connector for electrical conductors comprising two reversely threaded terminals to which the conductors are connected, a nut engaging said threaded terminals for

drawing them together, a conducting fabric interposed between said threaded terminals, and a protective bushing of insulating material removably secured to one of said terminals and surrounding the nut and other terminal.

3. A connector for electrical conductors comprising two terminals to which the conductors are adapted to be connected, means for electrically connecting the terminals, a collar of insulating material secured to one of said terminals adjacent the point of electrical connection of the two, and a bushing of insulating material removably secured to said collar and extending around and beyond the connecting means.

4. The combination with an electrical conductor, of two terminals each provided with a clamping face at one end, said clamping faces coöperating to engage said conductor, means for drawing said clamping faces into engagement with said conductor, means on the other end of each of said terminals for connecting an electrical conductor thereto, and a protective casing of insulating material, removably secured to each of said terminals and surrounding said connecting means.

In witness whereof I have hereunto set my hand this 10th day of November, 1904.

MERTIE ONG SPRING.

Witnesses:

BENJAMIN B. HULL,
HELEN ORFORD.