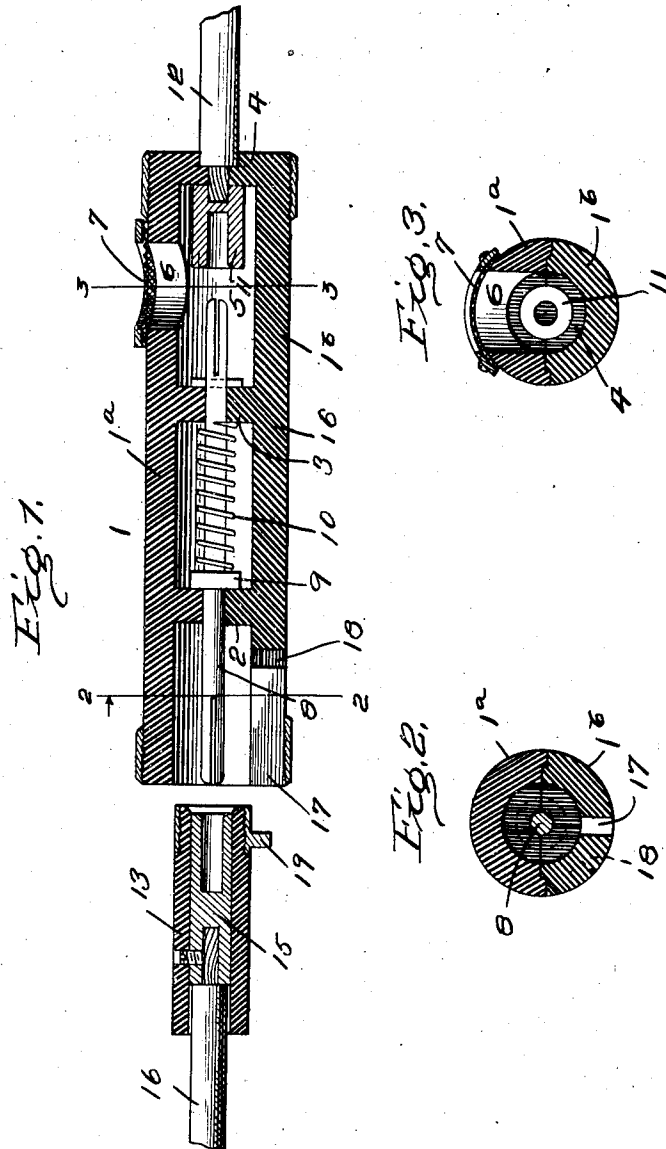


D. T. FISHER.
 CONNECTING DEVICE FOR ELECTRIC CONDUCTORS.
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1,043,759.

Patented Nov. 5, 1912.



Witnesses
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UNITED STATES PATENT OFFICE.

DUDLEY T. FISHER, OF COLUMBUS, OHIO, ASSIGNOR TO THE JEFFREY MANUFACTURING COMPANY, A CORPORATION OF OHIO.

CONNECTING DEVICE FOR ELECTRIC CONDUCTORS.

1,043,759.

Specification of Letters Patent.

Patented Nov. 5, 1912.

Application filed February 24, 1910. Serial No. 545,748.

To all whom it may concern:

Be it known that I, DUDLEY T. FISHER, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Connecting Devices for Electric Conductors, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to connecting devices for electric conductors.

In many mines, especially coal mines, where electricity is commonly used, explosive gases frequently collect at various points where they may be readily fired by sparks or flame which may be caused by electrical apparatus.

The object of this invention is to provide a means whereby two conductors may be connected or disconnected without the possibility of any spark or flame that may be formed being communicated to the atmosphere of the mine.

In the accompanying drawings, I have shown one embodiment of my invention which is adapted for the connection of the ends of two movable conductor wires or cables, but it will be understood that my invention is equally applicable to a device for connecting together two permanently located conductors or a removable conductor and a permanently located conductor. It will be further understood that various structural changes may be made within the scope of my invention.

Referring to the drawing:—Figure 1 is a cross sectional view. Fig. 2 is a cross sectional view taken along the line 2—2 of Fig. 1. Fig. 3 is a cross sectional view taken along the line 3—3 of Fig. 1.

Referring to the drawings, 1 represents a cylindrical or tubular frame, which for the sake of convenience, may be constructed in two parts 1^a and 1^b. The frame 1 is provided with three transverse walls 2, 3 and 4. The walls 3 and 4 serve to form a flame proof chamber 5, which may be provided with an aperture 6, covered by a wire gauze. If preferred however, the gauze covered aperture 6 may be omitted and the chamber 5 filled with oil, or the oil may be dispensed with and reliance placed on the walls of the chamber 5 for the entire exclusion of all explosive gases.

Slidably mounted in apertures in the transverse walls 2 and 3 is a conductor rod 8 having a collar 9, which is adapted to engage the wall 2 to limit the motion of the rod. A coil spring 10 surrounds the rod in the chamber between the walls 2 and 3 and serves to normally hold the rod in the position shown in the drawings, with the collar 9 in engagement with the wall 2.

A terminal socket 11 is provided in the chamber 5 and is connected to the end of a conductor wire or cable 12. The socket 11 is located in alinement with the rod 8. When the rod 8 is moved longitudinally it will engage the socket 11 to form electrical connection therewith.

13 is a plug having a socket 15 which is connected with the conductor wire or cable 16. The plug 13 is adapted to enter the end part of the tubular frame 1, which extends beyond the wall 2, the socket 15 at the same time engaging the rod 8 and forming electrical connection therewith. The continued movement of the plug 13 into the frame 1, forces the rod 8 longitudinally into engagement with the socket 11 thereby completing the electrical connection between the conductors 16 and 12.

A slot 17 is formed in the frame 1 and at the inner end of this slot 17 is a second slot or notch 18 at an angle to it. A pin 19 is provided on the plug 13. This pin is adapted to enter the slot 17 and when in proper position a slight rotation of the plug will move the pin into the notch 18, thereby locking the plug in place.

It will be noted that the spring 10 maintains the rod 8 out of engagement with the socket 11 at all times, except when it is held in engagement by means of the plug 13. Therefore when it is desired to connect the conductors 16 and 12, connection must be first made between the socket 15 and rod 8. Connection is afterward made between the rod 8 and the socket 11 and it is this latter connection which completes the electrical circuit. Any spark therefore will be formed within the flame proof chamber 5, from which it cannot be communicated to the external atmosphere. When the connection between the conductors 16 and 12 is to be broken, the rod 8 and the socket 11 are first disengaged by the action of the spring 10, and this disengagement breaks the electric circuit in the chamber 5, where no harm can

be done by any spark that may be formed. The socket 15 and the rod 8 are afterward disengaged when no current is flowing through them.

5 What I claim is:

1. In a connecting device for electric conductors, the combination of two conductor terminals, a permanently flame proof casing surrounding one of them, and an intermediate conductor member movably mounted in an aperture of the casing and adapted to detachably engage both terminals, substantially as set forth.

2. In a connecting device for electric conductors, the combination of two terminals, a permanently flame proof casing surrounding one of them, an intermediate conductor member movably mounted in an aperture of the casing and adapted to detachably engage both terminals, automatic means for normally holding the intermediate member out of engagement with the terminal in the casing, and means for locking the intermediate member in engagement with the terminal within the casing when the other terminal is in engagement with the intermediate member, substantially as set forth.

3. In a connecting device for electric conductors, the combination of a permanently flame proof casing, a conductor movably mounted in an aperture of the casing, a conductor terminal within the casing adapted to be engaged by the movably mounted conductor, means for normally holding the movably mounted conductor out of engagement with the terminal within the casing, and a second conductor terminal adapted to engage the movably mounted conductor to move it into engagement with the conductor terminal within the casing, substantially as set forth.

4. In a connecting device for electric conductors, the combination of a cylinder closed at one end and open at the other, said cylinder being provided with a slot extending from the open end parallel to the axis, and a second slot communicating with the first slot at substantially right angles thereto, a conductor terminal within the cylinder, a terminal plug adapted to enter the cylinder and engage the terminal, and a pin connected to the plug and adapted to enter the slots of the cylinder to lock the plug in position, substantially as set forth.

5. In a connecting device for electric conductors, the combination of two conductor terminals, a conductor adapted to be dis-

engaged from both of the terminals and adapted to be moved by its engagement with one terminal into engagement with the other, and means surrounding the engaging parts of the conductor and the terminal with which it last engages to prevent the communication of sparks or flame to the external atmosphere, substantially as set forth.

6. In a connecting device for electric conductors, the combination of two conductor terminals, an apertured casing surrounding one of them, a gauze covering the aperture, and an intermediate conductor member adapted to be engaged by the conductor terminal which is outside the casing and to be thereby moved into or out of engagement with the conductor terminal inside the casing, substantially as set forth.

7. In a connecting device for electric conductors, the combination of a tube open at one end and closed at the other, an apertured transverse wall in the tube, a conductor terminal in the chamber between the said wall and the closed end, a conductor movable in the aperture of the transverse wall to engage or disengage the terminal in the chamber, a spring for normally holding the conductor out of engagement with the terminal, and a second conductor terminal adapted to enter the open end of the tube to engage the conductor and move it into engagement with the conductor terminal in the chamber, substantially as set forth.

8. In a connecting device for electric conductors, the combination of a tube open at one end and closed at the other, two apertured transverse walls in the tube, a conductor terminal in the chamber between one wall and the closed end, a conductor movable in the aperture of the transverse walls to engage or disengage the terminal in the chamber, a spring located in the chamber between the two transverse walls for normally holding the conductor out of engagement with the terminal, and a second conductor terminal adapted to enter the open end of the tube to engage the conductor and move it into engagement with the conductor terminal in that chamber, substantially as set forth.

In testimony whereof I affix my signature, in presence of two witnesses.

DUDLEY T. FISHER.

Witnesses:

W. R. YOUMANS,
N. D. LEVIN.