Dec. 27, 1927. 1,654,475

C. W. WYMAN

CONNECTER DEVICE

Filed April 8, 1922

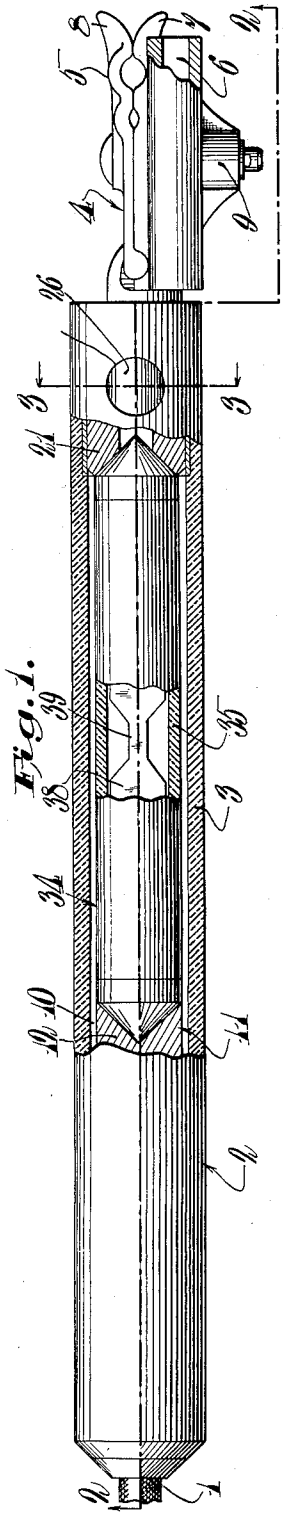


Fig. 1.

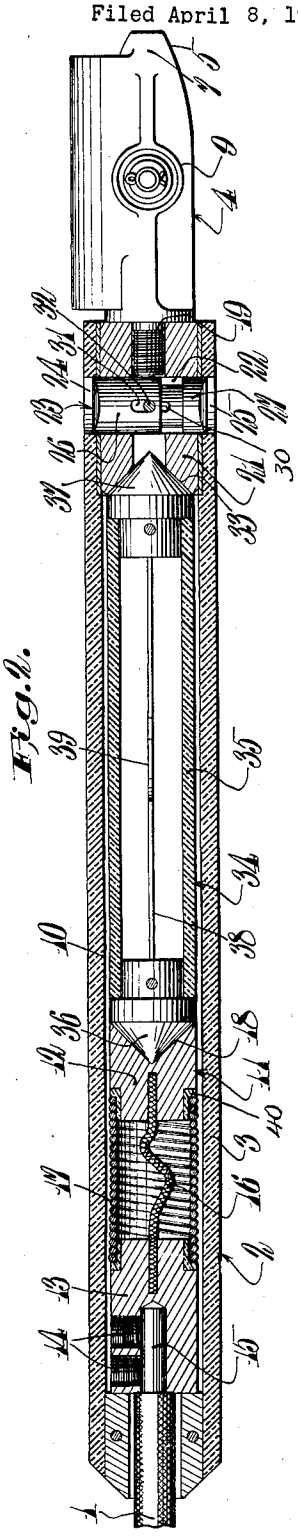


Fig. 2.

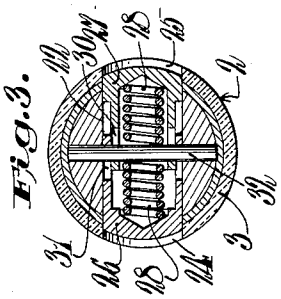


Fig. 3.

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UNITED STATES PATENT OFFICE.

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CONNECTER DEVICE.

Application filed April 8, 1922. Serial No. 550,393.

My invention relates to connecter or contact making devices, and more particularly to devices for use in coal mining for the purpose of making running and fixed contact with the trolley wires employed in the entries of such mines.

An object of my invention is to provide an improved device of the type mentioned. A further object of my invention is to provide an improved contact making device provided with improved means for preventing the excess flow of current therethrough. A still further object of my invention is to provide an improved trolley clip having an improved removable fuse of improved form enclosed therein and provided with an improved mounting whereby the fuse may be readily removed and changed as desired. Other objects and advantages of my invention will hereinafter more fully appear.

In the accompanying drawings I have shown for purposes of illustration one form which my invention may assume in practice.

In these drawings,—

Fig. 1 is a view in elevation with parts broken away to show details of internal construction of the illustrative form of my improved contact device.

Fig. 2 is a central longitudinal section on the line 2—2 of Fig. 1.

Fig. 3 is a transverse section on the line 3—3 of Fig. 1.

In coal mining machines electric driving motors are extensively used. These motors receive the current from trolley wires strung around the various entries of the mines. The mining machine is generally arranged in such manner on its truck that the motor of the mining machine may also drive the truck. As it is desirable to make the operation of the machine as simple as possible and maintain the head room necessary as low as possible, fixed trolley poles are not generally used on the mining machines and trucks, but instead a manually grasped contact device provided with a heavy wire to contact with the trolley wire is generally used. This is arranged at the free end of a wire wound upon a reel carried by the machine or its truck and is held by the miner in contact with the trolley as the machine proceeds from one point to another. When the machine reaches a room in which it is desired to make a cut, the manual trolley is secured in some convenient manner to the wire and the machine runs in to the room to the cutting face, unreeling the wire from the reel as it moves.

In the illustrative embodiment shown herein I have disclosed my invention removably attached to a wire 1 which may be connected, for example, to the motor, not shown, of the mining machine. The device comprises generally a grasping portion 2 comprising a tube 3 of insulating material and a contact element generally designated 4 provided with an automatic clamp 5 which may be removably attached to a trolley or feeder wire, the element also having a socket 6 in which a trolley clip or piece of heavy wire may be inserted to make a detachable contact with the trolley wire while the machine is running from place to place. The automatic clamp 5 comprises fixed and movable jaws 7 and 8 and means for normally holding them in contact enclosed in a housing 9. The insulating shell 3 is hollow as indicated at 10 and within the same is arranged a fuse mounting generally indicated by 11. This comprises front and back members 12 and 13 of which the latter is detachably connected as by screws 14 with the exposed end 15 of the wire 1. The members 12 and 13 are electrically connected by a flexible conductor 16 and, while normally held when the device is assembled as shown in Fig. 2, have a constant tendency to separate by longitudinal movement of the member 12 due to the insertion of a spring 17 between the members 12 and 13. The member 12 is provided with a conical socket 18 in its forward end, i. e. the end toward the clip 4.

The contact member 4 is of reduced diameter at its rear portion, herein designated 19, and is threaded into a fuse supporting member 21 which is detachably secured at the front end of the hollow sleeve member 3. The member 21 is traversed by a diametrically extending bore 22 in which there is disposed manual locking means generally indicated 23 which cooperates with opposite sockets 24 and 25 extending through the wall of the member 3. The locking means 23 comprises telescopically arranged sleeve members 26 and 27 having closed outer ends as indicated in Fig. 3 and which house within them compressed springs 28, the members 26 and 27 being slidably connected, but limited as to maximum degree of separation by slotted connections 30 and 31 with a pin 32 extending completely through the member

21. The member 21 at its rear end is provided with a conical fuse receiving seat 33 facing the fuse receiving seat 18 on the member 12. Arranged between the members 11 and 21 is a fuse member generally indicated 34 which comprises a hollow tubular member 35 of insulating material closed at its ends by conical-ended conductor members 36 and 37 adapted respectively to seat in and contact with the conical sockets 18 and 33. The members 36 and 37 are connected by a fuse member 38 of any suitable form having a reduced portion 39 at which blowing is designed to take place, although it will be obvious that any other form than the flat fuse shown herein may be used if desired.

From the foregoing description the mode of operation of this device will be readily apparent. Assuming the parts in the position shown in Fig. 2, when it is desired to replace a fuse, this may be done by forcing the locking members 26 and 27 toward each other sufficiently to free their ends from the sockets 24 and 25 which will permit the member 21 carrying the member 4 to move out through the right hand end of the member 3. The spring 17 being no longer forcibly compressed will aid in forcing out the member 21 and will start the fuse member 34 also toward the right hand end of the member 3. Upon removal of the member 21, the fuse member 34 may be readily removed by simply allowing it to drop out, a new fuse element inserted, the member 21 forced in again after the members 26 and 27 have been forced together, and the parts relocked when the members 26 and 27 come opposite the sockets 24 and 25. It will be noted that the spring 17 is protected from current flow by insulating members 40. It will be evident that the device described provides a very readily interchangeable fuse and that no tools whatever are required to permit the change of fuses while in the mine. It will also be noted that in the event that the fuse blows out, no damage due to the arc is to be apprehended, both because the fuse itself is enclosed in an insulating cartridge or sleeve member 35 and because the latter is enclosed within the insulating member 3.

While I have in this application specifically described one form which my invention may assume in practice, it will be understood that this form of the same is shown for purposes of illustration and that the invention may be modified and embodied in various other forms without departing from its spirit or the scope of the appended claims.

What I claim as new and desire to secure by Letters Patent is:

1. In combination, a combined trailing fuse container and hollow trolley handle, a fuse normally carrying contacts and insertable within the hollow portion through an end thereof, and means for holding said fuse in position including a plurality of cooperating members one of which has a transverse opening and another thereof receivable therein.

2. In combination, a combined trailing fuse container and hollow trolley handle, a fuse normally carrying contacts and insertable within the hollow portion through an end thereof, and means for holding said fuse in position including a plurality of cooperating members one of which has a transverse opening and another thereof receivable therein, one of said members having detachable operative connection with one of said fuse contacts.

3. In combination, a combined trailing fuse container and hollow trolley handle, a cartridge fuse carrying contacts and insertable in the hollow portion through an end thereof, and means for holding said fuse in position including a member adapted to be movable transversely thereof.

4. In combination, a combined trailing fuse container and hollow trolley handle, a cartridge fuse carrying contacts and insertable in the hollow portion through an end thereof, and means for holding said fuse in position including a member movable transversely thereof and having seating engagement with a transverse portion of said handle.

5. In combination, a combined trailing fuse container and hollow trolley handle, a cartridge fuse carrying contacts and insertable within the hollow portion through an end thereof, and means for holding said fuse in position by exerting endwise pressure on said contacts including a transversely movable member.

6. In combination, a combined trailing fuse container and hollow trolley handle, a fuse insertable longitudinally within the hollow portion through an end thereof, contacts carried by said fuse, contacts having detachable connection with said other contacts, and means for supporting said fuse and all of said contacts in operative relation to said handle including means associated with one of said detachable contacts and movable transversely thereof.

7. In a combined trailing fuse container and hollow trolley handle, a replaceable fuse having contact portions at the ends thereof and insertable in the hollow of said handle, contact members carried by said handle in abutting relation to said fuse contact portions, current conducting means connected to each of said contacts, and yielding means insulated from said conducting means for holding said fuse and contacts in electrical connection.

8. In a combined trailing fuse container and hollow trolley handle, a cartridge fuse insertable in the hollow of said handle

through one end thereof, a member detachably secured in said end for holding said fuse in place having means for connection to the cable, a contact portion adapted to abut one end of the fuse, a fuse contact member in the other end of said handle electrically connected to the trailing cable, and spring means independent of said electrical connection for holding said fuse and said contact members in electrical contact.

9. In a combined trailing fuse container and hollow trolley handle, a replaceable fuse having contact portions at the ends thereof and insertable in the hollow of said handle, contact members carried by said handle in abutting relation to said fuse contact portions, a trailing cable connected to one of said contact members, said trailing cable and said contact member having a freely rotatable connection relative to said handle and fuse, and yielding means for holding said fuse in constant electrical connection with said contact members.

In testimony whereof I affix my signature.

CHARLES W. WYMAN.