

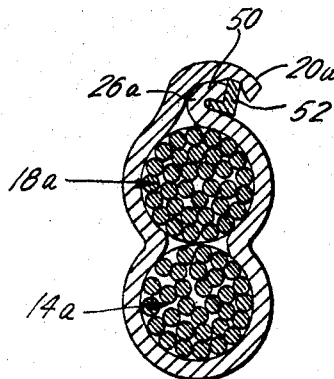
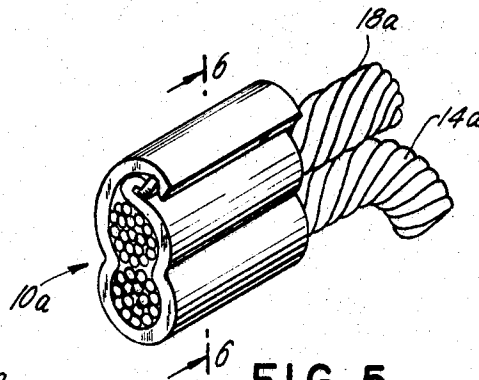
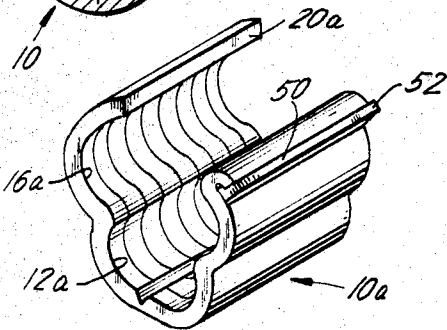
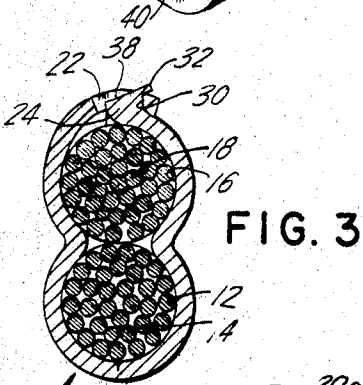
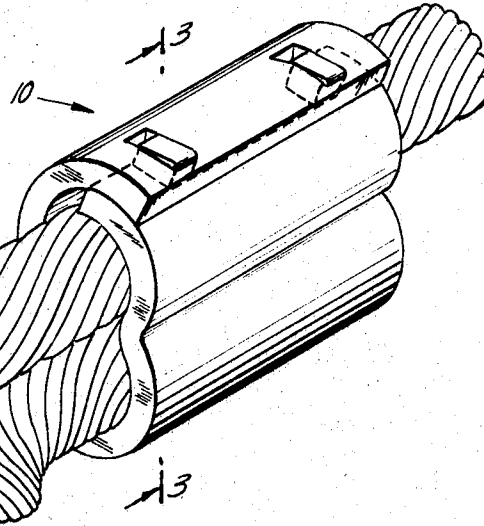
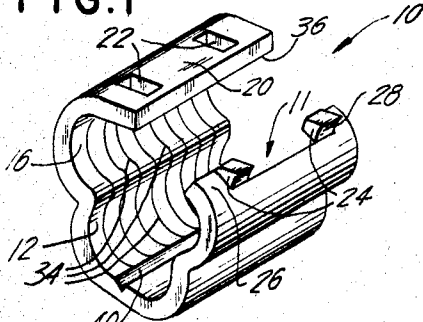
June 4, 1968

C. E. DIBBLE ET AL

3,387,080

SPLICE CONNECTOR WITH LOCKING INSERT

Filed July 25, 1966



CHARLES E DIBBLE
IRVING F. MATTHYSSE
ADOLPH C. NEADERLAND
EDWARD S RAILA
INVENTORS.

BY

BY *Howard S. Kester*

ATTORNEY

1

3,387,080

SPLICE CONNECTOR WITH LOCKING INSERT
Charles E. Dibble, Ridgefield, Irving F. Matthyse, Dan-
bury, and Adolph C. Neaderland and Edward S. Raila,
Norwalk, Conn., assignors to Burndy Corporation, a
corporation of New York

Filed July 25, 1966, Ser. No. 567,443
1 Claim. (Cl. 174-94)

ABSTRACT OF THE DISCLOSURE

A splice connector for joining two cables in substantially parallel, side-by-side relationship. A body formed of malleable metal is shaped to be wrapped around a pair of cables so as to bring the ends of the body into substantially overlapping relationship, and a locking shoulder such as a rigid metal insert is provided to prevent the two ends from sliding apart after the body has been tightly compressed into the cables.

This invention relates to a splice connector and, more particularly, to a connector for making a lap splice connection between conductors which may be subjected to substantial tension as in a mining machine cable.

Objects of this invention are to provide a connector that may be fabricated from sheet metal stock for receiving the ends of two conductors and which is adapted to lock into a unitary structure by a latch and catch arrangement; to provide such a connector in which the two ends of a sheet metal body may be deformed into engagement one over the other to lock the connector to the conductors; to provide a connector having the foregoing characteristics in which the entire connector is made of sheet metal; to provide a connector having a latch portion which is reinforced to provide greater strength than is possible with an unreinforced connector made of conventional connector materials such as copper and aluminum; and to provide a connection having one or more of the foregoing characteristics in which one conductor is seated in a groove at the bottom of a channel formed by the connector and the other conductor is seated within the open end of the channel to obtain a more efficient electrical connection.

These and other objects and features of this invention will become more apparent by reference to the following description taken in conjunction with the accompanying drawings, in which:

FIGURE 1 is a pictorial representation of one embodiment of a splice connector formed in accordance with this invention;

FIGURE 2 is a pictorial representation of a connection formed with the connector shown in FIGURE 1;

FIGURE 3 is a section view of the connection of FIGURE 2, taken in plane 3-3;

FIGURE 4 is a pictorial representation of another embodiment of a connector formed in accordance with this invention;

FIGURE 5 is a pictorial representation of a connection formed with the connector shown in FIGURE 4; and

FIGURE 6 is a section view through the connection of FIGURE 5, taken in plane 6-6.

Referring now in more detail to the drawing, and particularly to FIGURES 1 to 3 thereof, reference numeral 10 may be seen to designate a sheet metal connector formed into a U-shaped structure having an "hour-glass" cross-section which defines a first groove 12 for seating one conductor 14 and a second groove 16 for seating a second conductor 18.

One end 20 of the U-shaped sheet metal connector is provided with openings 22 forming catches for latches 24

2

which are formed integrally with the other end 26 of the U-shaped connector.

The latch may be formed of the flat end of the connector sheet by upsetting the metal into a position normal to the flat, wherein the flat cut edge 28 of latch 24 acts to engage the wall 30 of the catch 22, thereby locking the two ends of the connector together. The tip 32 of the latch may be peened over the edge of catch 22 as shown in FIGURE 3, to further secure the latch after closure.

One or more latches and catches may be provided in each end of the connector, depending on the length of the connection desired.

In use, the connection may be made by placing the two conductors 14, 18 in the grooves 12, 16 and then forcing the two ends of the connector towards each other until the forward edge 36 of end 20 rides up the inclined surface 38 of latch 24, so that the latch enters the catch 22 and is seated therein.

A slot 40 may be provided in the bottom of groove 12 as shown in FIGURES 1 and 3 to facilitate closing the two ends of the body 10 while securing the latches 22, 24. The necessary force may be conveniently applied simply by hammering the connector ends together although conventional compression presses may also be used.

The connector 10a of FIGURE 5 is similarly provided with grooves 12a and 16a for seating two conductors 14a and 18a respectively in lap splice position. In this embodiment latching is achieved by reverse bending the end 26a of body 10a into lip 50. An L-shaped steel or similar rigid insert 52 is secured between the tip 50 and the end 26a to provide a latching reinforcement.

To complete and secure the connection, the end 20a is wrapped around the insert 52 as shown in FIGURE 6 with the end 20a being deformed sufficiently to resist further transverse motion relative to the insert. Again, in this embodiment, the required closure force may be applied with a hammer or a suitable compression mechanism.

In each of the embodiments illustrated, a U-shaped connection is wrapped around two lapped conductors, the ends of the connector are deformed into engagement with each other to form a latch and catch construction and the resultant encircling forces are sufficiently strong to maintain the two conductors in lapped relationship while permitting efficient transmission of current between them. Prevention of relative axial movement between the lapped conductors is further enhanced by providing the interior of body 10 with a plurality of transverse ridges or serrations 34, which substantially increase frictional engagement between the conductors and the connector body.

The invention has thus been described, but it is desired to be understood that it is not confined to the particular forms or usages shown and described, the same being merely illustrative, and that the invention may be carried out in other ways without departing from the spirit of the invention; therefore, the right is broadly claimed to employ all equivalent instrumentalities coming within the scope of the appended claim, and by means of which objects of this invention are attained and new results accomplished, as it is obvious that the particular embodiments herein shown and described are only some of the many that can be employed to obtain these objects and accomplish these results.

We claim:

1. A U-shaped conductive sheet metal connector of significantly malleable material having a first groove for receiving one conductor and a second groove for receiving another conductor; one terminal end of the U-shaped connector comprising a catch portion, and the other end being shaped into a latch portion formed of a reversely bent subportion which is bent back upon itself; and an

L-shaped insert of metal substantially harder than said sheet metal connector having one leg thereof mounted in force-fitting engagement within the said reversely bent subportion; whereby an electrical connection may be formed by encircling the two conductors with said sheet metal connector with the ends thereof in overlapping relationship and deforming said catch portion malleably into interlocking engagement with the other leg of said L-shaped insert, to prevent said overlapping ends from sliding apart following deformation of said connector.

5

10

References Cited

UNITED STATES PATENTS

1,397,040	11/1921	Dillon	16—108
1,498,296	6/1924	Recker	174—84
2,367,191	1/1945	Bailey et al.	287—109 XR
3,134,844	5/1964	Myers	174—94

DARRELL L. CLAY, *Primary Examiner.*