

June 6, 1961

E. L. ACKERMANN
REMOVABLE WIRE CONNECTOR

2,986,787

Filed Jan. 27, 1959

Fig. 1.

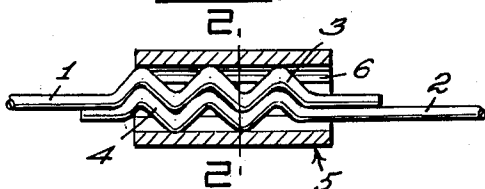


Fig. 2.

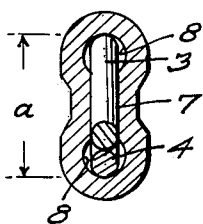


Fig. 3.

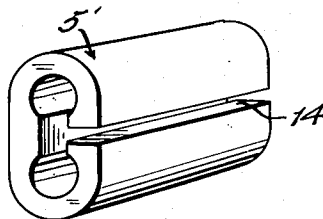


Fig. 4.

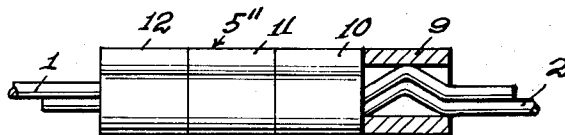
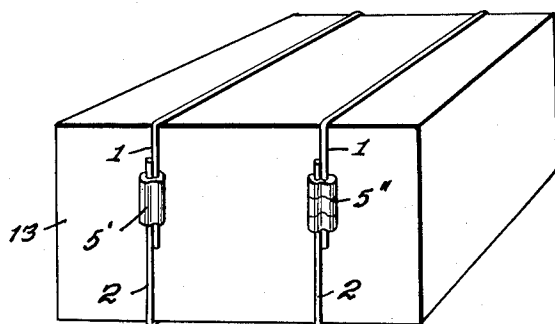


Fig. 5.



INVENTOR.
Edward L. Ackermann
BY

S. J. Rotondi, A. J. Dupont & E. R. Mackay

1

2,986,787

REMOVABLE WIRE CONNECTOR

Edward L. Ackermann, Sparta, N.J., assignor to the United States of America as represented by the Secretary of the Army

Filed Jan. 27, 1959, Ser. No. 789,461

3 Claims. (Cl. 24-28)

(Granted under Title 35, U.S. Code (1952), sec. 266)

The invention described herein may be manufactured and used by or for the Government for governmental purposes without the payment to me of any royalty thereon.

This application is a continuation-in-part of my prior application Serial No. 765,010 filed October 2, 1958.

This invention relates to a removable wire connector and more particularly to a readily removable wire connector which can be removed from wires under stress without the use of any tools.

This invention is particularly adapted, but not restricted to the field of packaging where a wire or band is stretched about a crate or package. The usual practice in the use of such wires or bands is to twist the ends of the wires together or crimp the bands and apply a permanently attached fastener. When a package is so banded it is very difficult to remove the band without the use of a tool such as wire snippers. Under some conditions such as opening an ammunition box during battle the time lost might be disastrous.

The present invention provides a reliable wire connector which is not subject to slippage and yet may be removed by hand without the necessity of any tools. The wire ends are correspondingly crimped and the crimped portions placed in nested relation. A connector is then slipped over the nested wires to form a firm connection. In order to facilitate the removal of the connector from wires which are under tension the connector may be formed of a plurality of sections.

An object of the invention to provide a wire connector for stressed wires which may be disconnected without the use of a tool.

Another object is to provide a connector for wires in which the wire ends are crimped and nested and the connector is slid over the nested wires.

Yet another object is to provide a connector for wires in which the wire ends are crimped and nested and the connector is formed of a plurality of separate sections slid over the nested wires.

Other objects will be apparent as the description proceeds.

In the drawing:

FIGURE 1 shows a sectional view of one form of wire connector in accordance with the present invention,

FIGURE 2 is a sectional view of the wire connector taken on the line 2-2 of FIGURE 1,

FIGURE 3 is a perspective view of a modified form of the invention,

FIGURE 4 is a view partly in section of another modified form of the invention, and

FIGURE 5 illustrates the invention used as a package band connector.

With particular reference to FIGURES 1 and 2 in the drawing a pair of wires to be connected is shown at 1 and 2. The wire 1 has formed therein at its end portion a plurality of crimps or undulations 3 while the wire 2 has formed in its end a corresponding plurality of crimps or undulations 4. These crimps may be formed in any suitable manner such as by feeding the wire through a pair of slightly spaced gears. The wires 1 and 2 are nested together as shown in FIGURE 1 and the connec-

2

tion is completed by sliding the connector 5 over the nested portions.

The connector 5 comprises a unitary member having the longitudinal passage 6 therethrough. The height of this passage as indicated by *a* in Figure 2 is made slightly larger than the total height of the nested wires and is uniform throughout the length of the connector. This uniform height permits the connector to be slid straight on or off the nested wires from either end. It will be noted from FIGURE 2 that the passage 6 of the connector 5 has a reduced central portion 7 and enlarged outer portions 8. The reduced center portion 7 is effective to maintain the wires accurately nested while the enlarged outer portions 8 reduce friction between the wires and connector and permit easier removal of the connector.

In joining the wires the connector 5 is threaded over one of the wires, the wires then nested and the connector slid over the nested portions. The reverse would be true for disconnection. It is thus seen that the connection can be made or broken without the use of tools.

FIGURE 3 illustrates a modification of the connector shown in FIGURES 1 and 2. The connector is indicated as 5' and is provided with the longitudinal slot 14 extending the entire length of the connector in one side thereof. In this form of the invention the connector does not have to be prethreaded over one of the wires, but can be assembled over one of the wires after the crimped portions are assembled by passing the wire through the slot 14.

In the embodiment of FIGURE 4 it will be seen that the connector indicated 5'' is made up of a plurality of axially abutting sections 9, 10, 11, 12. This embodiment finds particular application in instances where the wires to be connected are in tension. It will be noted that tension on the wires would tend to cam them apart and into tight engagement with the top and bottom of the passage 6. With the connector made up of a plurality of sections the sections can be removed one at a time with far less force required than would be necessary to remove the connector of FIGURE 1. It will be noted that sectioning of the connector does not reduce its effectiveness since the stresses applied thereto by the wires are radial and not axial. As shown in FIGURE 3 the length of each section, 9, 10, 11, 12 of the connector is substantially equal to the length of one complete crimp or undulation in the wire.

FIGURE 5 illustrates the invention as used in a band for a package. A box or contents unit is shown at 13. The wires having opposite ends 1, 2 are passed around the unit 12 and connectors 5 or 5' threaded over the wires. The wires are then tensioned by any well known banding apparatus and the ends of the wires nested. The connector 5' or 5'' are then slid over the nested wires to complete the connection. When the connector 5' is used it may be passed over one of the wires after the wires have been nested and then slid over the crimped nested ends.

It will be obvious that the embodiments shown are exemplary only and that various modifications can be made in construction and arrangement within the scope of the invention as defined in the appended claims.

I claim:

1. A joint for wires comprising a pair of oppositely extending wires, each having a plurality of corresponding crimps therein, the crimps of one wire being nested within the crimps of the second wire and a connector having a passage therethrough of uniform height and disposed over the nested portions of said wires, said passage having enlarged outer portions and a constricted central portion, when viewed in cross-section, said constricted central portion defining a pair of opposed planar faces, said planar faces lying closely adjacent the nested wires and maintain-

3

ing said crimps on said wires in accurately nested relation in said enlarged outer portions.

2. A joint according to claim 1 in which said connector comprises a plurality of separate sections in abutting relationship spaced along the length of the nested portions of said wires. **5**

3. A joint according to claim 1 in which said connector is provided with a longitudinal slot extending through the entire length of one wall thereof.

4

References Cited in the file of this patent

UNITED STATES PATENTS

503,181	Webb	Aug. 15, 1893
838,522	Clement	Dec. 18, 1906
1,173,998	Depew	Feb. 29, 1916
1,866,894	Leslie	July 12, 1932
2,709,020	Ladd	May 24, 1955