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CONNECTOR FOR ELECTRICAL CONDUCTORS

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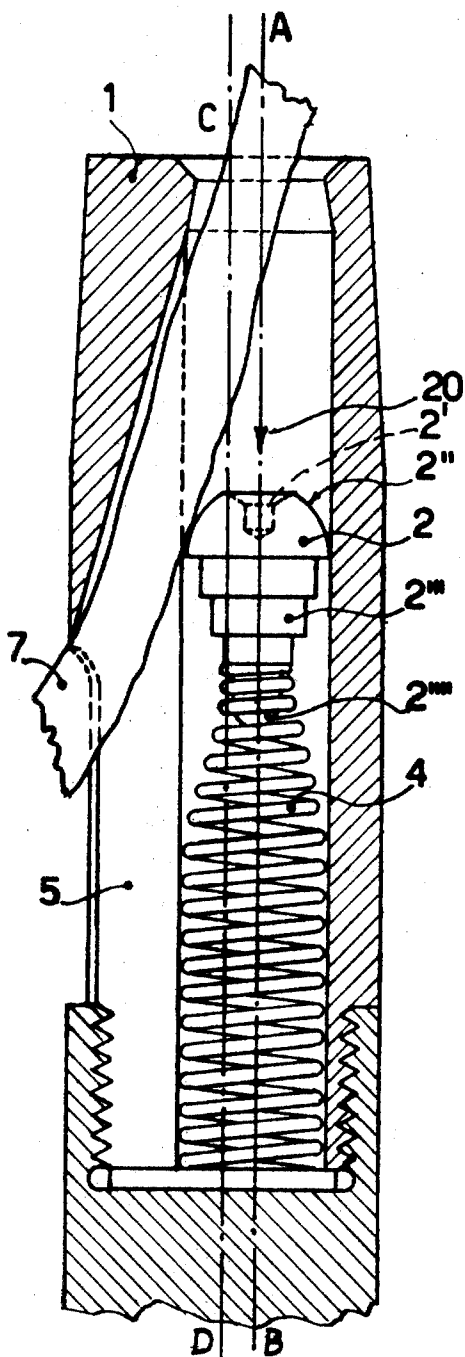


FIG. 1

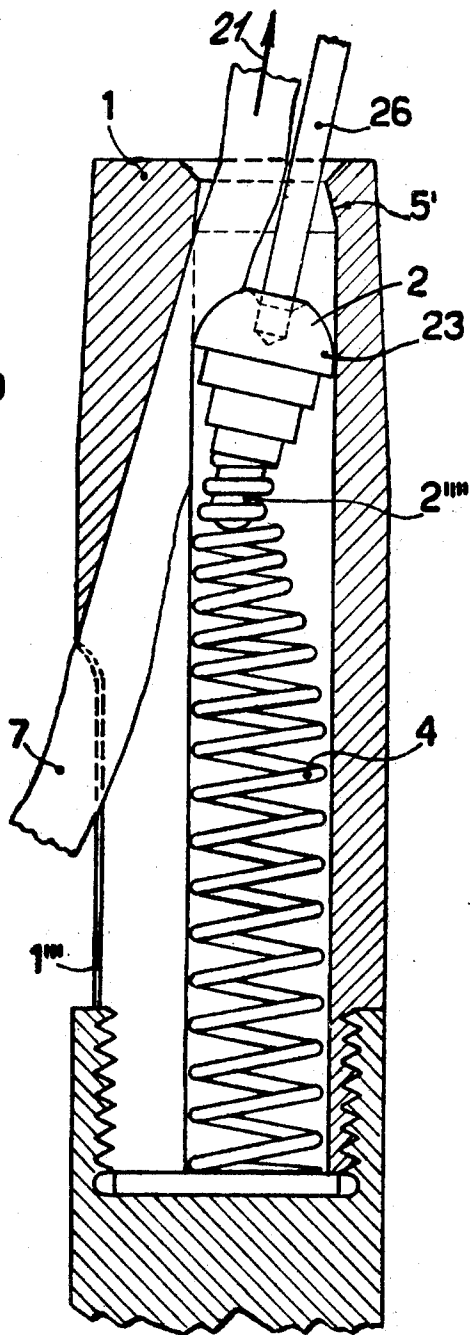


FIG. 2

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CONNECTOR FOR ELECTRICAL CONDUCTORS

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Continuation-in-part of application Ser. No. 489,663,
Sept. 23, 1965. This application Oct. 18, 1967, Ser.
No. 676,246

Claims priority, application Switzerland, Oct. 27, 1966,
15,606/66

Int. Cl. F16g 11/04; H01r 7/06

U.S. Cl. 24—126

2 Claims 10

ABSTRACT OF THE DISCLOSURE

A tubular connector body is provided with an elongated cavity which has its axis offset laterally from the axis of the body, thus forming a greater wall thickness at one side where the body is provided with a lateral opening communicating with the cavity. The cavity has an outwardly tapered portion with an open outer end through which a wire or the like may be inserted into the cavity and lateral opening, to be wedged by a mushroom-shaped locking member against the tapered portion of the cavity. The locking member is biased by a spring and may be provided with a finger-piece projecting outwardly through the open end of the cavity to facilitate inward pressing of the locking member.

RELATED APPLICATION

This application is a continuation-in-part of my copending application Ser. No. 489,663, filed Sept. 23, 1965, now Pat. No. 3,376,545, dated Apr. 2 1968.

This invention relates to new and useful improvements in connectors for wire electrical conductors, rope, and the like, and in particular the invention concerns itself with certain improvements in connectors of the type disclosed in my earlier copending patent application Ser. No. 489,663 filed Sept. 23, 1965, now Pat. No. 3,376,545 dated Apr. 2, 1968.

The aforesaid patent discloses a connector having a tubular body or shell provided with a cavity which tapers toward an open outer end and contains a spring-biased locking member which serves to wedge a wire, or the like, against the tapered portion of the cavity when the wire is inserted in the connector.

The principal object of the present invention is to improve upon the connector disclosed in my earlier aforesaid patent by providing the connector body with an eccentrically offset cavity so that one side of the body has a greater wall thickness to accommodate a lateral opening through which a wire, or the like, may extend outwardly when inserted into the cavity. Also, the invention provides an improved locking member in the shape of a mushroom which is well suited for wedging the wire against the tapered portion of the cavity and also serves as a seat for the biasing spring. Moreover, the locking member may be equipped with a finger-piece projecting through the open outer end of the cavity, so that the locking member may be easily pressed inwardly to facilitate insertion or releasing of the wire.

With the foregoing more important object and features in view and such other objects and features as may become apparent as this specification proceeds, the invention will be understood from the following description taken in conjunction with the accompanying drawings, wherein like characters of reference are used to designate like parts, and wherein:

FIG. 1 is a fragmentary longitudinal sectional view showing the connector during insertion of a wire; and

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FIG. 2 is a view similar to that in FIG. 1 but with the wire wedged in the connector.

Referring now to the accompanying drawings in detail, the connector comprises a tubular body 1 having a longitudinal axis C-D and provided with an elongated cavity 5, the axis A-B of which is offset laterally from the body axis C-D so that the body has a substantially greater wall thickness at one side than on the opposite side of the cavity 5. The outer end portion of the cavity 5 is longitudinally tapered as at 5' toward an open outer end of the cavity, and the relatively thick wall portion of the body 1 is formed with a lateral opening 1'' which communicates with the cavity, as shown.

The cavity 5 contains a movable locking member 2 which is mushroom-shaped and includes a convex head portion 2'' oriented outwardly, and an inwardly oriented, diametrically stepped stem portion 2''' which terminates in a pin element 2'''. The latter forms a seat for a tapered end portion of a compression spring 4 which is disposed in the cavity 5 and biases the locking member 2 in the outward direction, that is, in the direction of the tapered portion 5' of the cavity. The head portion 2'' of the locking member is provided with a central bore or recess 2', into which a rod-shaped finger-piece 26 may be inserted as hereinafter described.

A wire 7, or the like, may be applied to the connector by inserting the same into the cavity 5, inwardly through the open outer end of the cavity and, assuming the wire to be sufficiently stiff, it will exert an inward pressure in the direction of the arrow 20 in FIG. 1 on the locking member 2, thus causing the locking member to move inwardly in the cavity against the bias of the spring 4. The convex head 2'' of the locking member will cause the wire to be deflected into the lateral opening 1'' and, if desired or necessary, the wire may project outwardly through the lateral opening, as shown. In any event, as soon as inward inserting force on the wire is relaxed, the spring 4 will urge the locking member 2 outwardly so as to firmly wedge the wire in the tapered end portion 5' of the cavity as shown in FIG. 2, and it will be apparent that this wedging action will be increased by any tendency of the wire to be pulled outwardly in the direction of the arrow 21. In effect, during the wedging action the convex head 2'' of the locking member behaves in the manner of a lever, pivoting about its point of contact 23 with the wall of the cavity 5 to produce a multiplication of force at its wedging engagement with the wire 7, and the latter may actually become laterally compressed as shown in FIG. 2.

In the event that the wire 7 is not sufficiently stiff to facilitate retraction of the locking member 2 by inward insertion of the wire in the cavity 5, a suitable implement such as a nail, stiff wire rod, or the like, may be passed through the open end of the cavity and engaged with the recess 2' in the locking member 2, as indicated at 26 in FIG. 2. As such, the implement 26 will serve as a finger-piece for pushing the locking member 2 inwardly to facilitate insertion of the wire 7 into the device, and also to release the locking member from the wire when the latter is to be withdrawn. As distinguished from a separate component, the finger-piece 26 may be screw-threaded, welded, or otherwise permanently secured to the locking member 2 so as to project outwardly from the open outer end of the cavity 5, for convenient manipulation of the locking member when necessary.

I claim:

1. A connector for wires or the like, comprising a tubular body provided with an elongated cavity which has its axis offset laterally from the axis of said body so that the body has a substantially greater wall thickness at one side than at the relatively opposite side of said

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cavity, said greater wall thickness of the body being provided with a lateral opening communicating with said cavity, said cavity having an end portion tapering longitudinally toward an open outer end whereby a wire may be inserted through the open end into said cavity and into said lateral opening, a mushroom-shaped locking member movably positioned in the cavity, said locking member including an outwardly oriented convex head and an inwardly oriented stem with a diametrically stepped portion providing a spring seating pin, and a compression spring provided in said cavity and biasing said locking member outwardly to wedge a wire against the tapering portion of the cavity, said head of the locking member being provided with a central recess to receive a rod-like finger-piece whereby the locking member may be pressed inwardly against the bias of said spring.

2. The connector as defined in claim 1 which also includes a rod-like finger-piece in its combination of components, said finger-piece being secured in said recess of said locking member and projecting outwardly through the open outer end of said cavity.

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References Cited

UNITED STATES PATENTS

345,675	7/1886	Ethridge	24—36
1,061,330	5/1913	Self.	
2,210,096	8/1940	Pennell	24—126
2,236,506	4/1941	Hirsch.	
2,770,794	11/1956	Hofmann.	
3,260,988	7/1966	Dean	339—273 X

FOREIGN PATENTS

1,446,145	6/1966	France.
856,502	11/1952	Germany.

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