

PATENT SPECIFICATION (11)

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(54) CABLE ANCHORAGE

(71) We, WINGARD LIMITED, a British Company of Chandler Road, Chichester, Sussex, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to means for attaching a flexible or semi-flexible cable to a fitting through a ferrule. It is well known to sweat, solder, swage or otherwise secure a ferrule onto the end of the cable and then to receive that ferrule at some kind of recess in the fitting. The aim of the present invention is to provide an improved form of attachment of this kind. It is of particular interest in connection with safety seat belt assemblies for vehicles of the kind for example forming the subject of our earlier Patent Specification No. 1,242,150 where a buckle component has to be mounted on the end of a semi-flexible stalk to receive the other part of the buckle.

Our invention comprises in combination a fitting and a cable for detachable engagement with the fitting wherein a ferrule swaged or otherwise secured to the cable has on opposite sides aligned longitudinal grooves, and the fitting incorporates spaced parallel guides adapted to be slidably received in the grooves in the ferrule and a stop abutment with which the ferrule engages to prevent axial movement of the ferrule relative to the fitting under a force tending to separate them.

Where the fitting is a sheet metal pressing or stamping, such as the frame of the one part of a buckle for a safety seat belt, the ferrule may be received in a window in an end portion of the fitting, the window being reduced in width towards one end to provide parallel edges spaced apart at such a distance as to engage in the grooves in the ferrule when the ferrule is inserted into the opening and moved towards the reduced end which provides a stop abutment for the ferrule.

In another arrangement parallel side walls

of the fitting may be formed with inwardly projecting aligned ribs or keys with which the grooves in the ferrule engage and which, on axial movement of the ferrule guide it into abutment with a stop in the fitting.

Preferably in both arrangements the grooves in the ferrule are inclined at a small angle to the axis of the ferrule and co-operate with complementarily inclined guides on or in the fitting.

Two embodiments of our invention are illustrated by way of example in the accompanying drawings in which:—

Figure 1 is a perspective view of one arrangement for connecting a cable to the frame of a buckle for a seat belt,

Figure 2 is a side view of the connection shown in Figure 1,

Figure 3 is a perspective view of the ferrule and the adjacent part of the cable,

Figure 4 is a perspective view of a modification with the parts separated, and

Figure 5 is a vertical section of that modification with the parts fully engaged.

In the embodiment shown in Figures 1 to 3, a frame 1 for a body part of a buckle for a seat belt is a sheet metal pressing or stamping. At one end of the frame there is an extended tongue 2 which is bent up at an acute angle to the mean central plane of the frame and a window 3 is formed in the frame. The window extends into the tongue and terminates in a transverse web 4.

The part of the window adjacent to the web 4 is of reduced width, and its side edges form spaced parallel guides.

A ferrule 5 is swaged on to the end of a short length of stranded cable 6 which forms a semi-rigid mounting stalk for the buckle part. The ferrule is of hexagonal cross-section, at least after the swaging operation. Aligned longitudinal grooves 7 are formed in opposite sides of the ferrule during the swaging operation. These grooves are inclined at an acute angle to the axis of the ferrule.

The assembly of the cable to the fitting

is effected by inserting the ferrule into the wider end of the window and then drawing it towards the web 4.

5 The width of the reduced part of the window adjacent to the web 4 is such that the parallel side edges 8 of that part are a good sliding fit in the grooves in the ferrule.

10 In its final position the ferrule abuts the web 4 which forms a stop preventing any further movement of the ferrule relative to the fitting and taking any force tending to pull the fitting away from the cable which will be anchored at its other end to the floor or other stationary part of a vehicle.

15 In the modification shown in Figures 4 and 5 the fitting is a sheet metal pressing or stamping having two parallel side walls 9, 9 connected by a rear wall 10. Aligned inwardly projecting guiding ribs or keys 11 are formed in the side walls by half shearing the metal and pressing it inwardly. These ribs or keys are inclined at an acute angle to the plane of the rear wall.

25 The ferrule 5 is the same as in the first embodiment.

To assemble the cable to the fitting the ferrule is inserted between the side walls 9 above the ribs or keys 11 and the grooves in the ferrule are engaged with the ribs or keys. On application of a pull to the cable the ferrule is guided downwardly and rearwardly until its lower end abuts the bottom edge of an opening 12 in the rear wall which forms a stop abutment taking any tension between the cable and the fitting.

WHAT WE CLAIM IS:—

40 1. In combination a fitting and a cable for detachable engagement with the fitting wherein a ferrule swaged or otherwise secured to the cable has on opposite sides aligned longitudinal grooves, and the fitting incorporates spaced parallel guides adapted to be slidably received in the grooves in the ferrule and a stop abutment with which the ferrule engages to prevent axial movement of the ferrule relative to the fitting under a force tending to separate them.

2. The combination of a fitting and a cable for detachable engagement with the fitting as claimed in Claim 1 in which the fitting is a sheet metal pressing or stamping and the ferrule is received in a window in an end portion of the fitting, the window being of rectangular outline with parallel sides spaced apart over a portion of the length of the window at such a distance as to engage in the grooves in the ferrule when the ferrule is inserted into the opening and moved in an axial direction towards one end of the window which provides the stop abutment against which the ferrule abuts.

3. The combination as claimed in Claim 2 in which the end portion of the fitting containing the window is inclined at an acute angle to the main part of the fitting and the grooves in the ferrule are inclined at the same angle to the axis of the cable.

4. The combination as claimed in Claim 1 in which the fitting is a sheet metal pressing or stamping having spaced parallel side walls connected by a rear wall, and aligned inwardly projecting ribs or keys are formed in the side walls for engagement in the complementarily inclined grooves in the ferrule when it is inserted between the walls, axial movement of the ferrule after engagement with the ribs or keys causing movement of the ferrule towards the rear wall and into an opening in the said wall of which the lower end forms the stop abutment for the ferrule.

5. In combination a fitting and a cable for detachable engagement with the fitting substantially as described with reference to Figures 1, 2 and 3 of the accompanying drawings.

6. In combination a fitting and a cable for detachable engagement with the fitting substantially as described with reference to Figures 4 and 5 of the accompanying drawings.

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