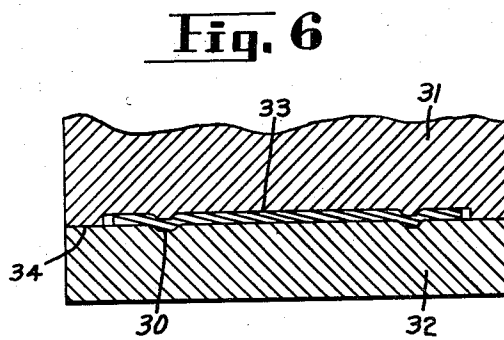
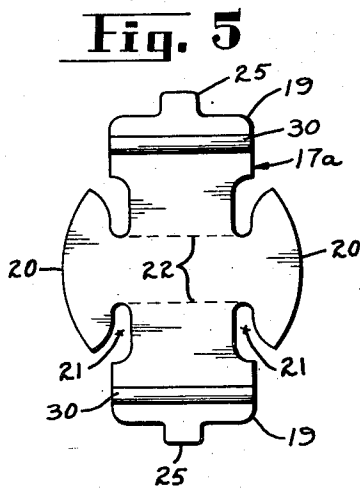
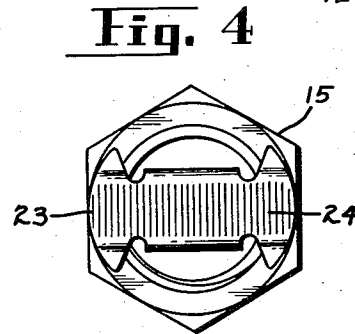
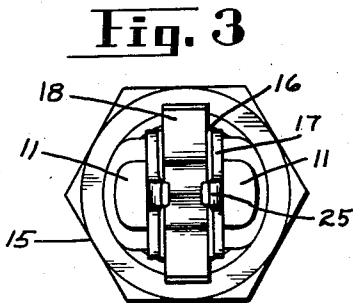
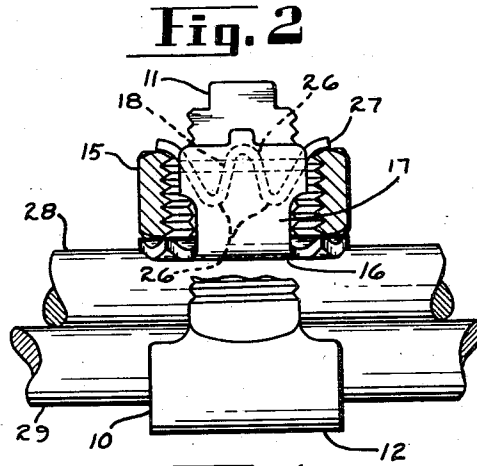
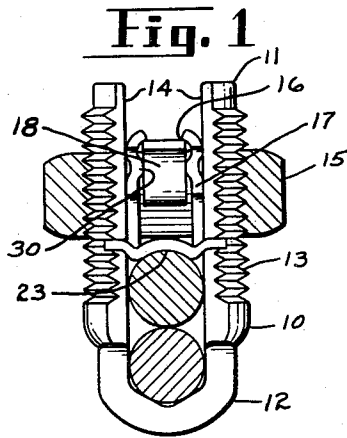


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SPLIT BOLT CONNECTORS

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2,830,353

## SPLIT-BOLT CONNECTORS

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2 Claims. (Cl. 24—125)

My invention is an improvement upon split bolt connectors of the kind shown and described in United States Patent No. 2,180,931, issued November 21, 1939.

Although this patented connector has such merit that it has been extensively used, a great amount of difficulty has been experienced due to the fact that normal allowable tolerances in the manufacture of the two parts of the follower did not sometimes produce the "very small tolerance between the width of the follower and the legs of the connector so that the legs will be continually and properly spaced," which was recognized in the above patent as being a requirement.

The object of my invention is to devise a simple and economical means of overcoming the effects of normal allowable shop tolerances in the manufacture of the two parts of the follower.

The invention will be more clearly understood from the following detailed description taken in conjunction with the drawing.

In the drawing:

Fig. 1 is a side elevation of my improved split bolt connector showing the nut in section.

Fig. 2 is a front elevation view also showing the nut in section and one leg removed.

Fig. 3 is a top plan view of the connector assembly.

Fig. 4 is a bottom plan view of the nut and follower with the split bolt removed.

Fig. 5 is a development of the sheet metal blank from which the clamping bar part of the follower is formed, and

Fig. 6 is a section through dies used to preform the blank for the clamping bar.

Referring now to the drawing, my improved connector employs the usual split bolt 10 having spaced legs 11 joined by a U-shaped saddle 12. The outer surface of the legs 11 are formed with threads 13 while the adjacent faces of the legs present parallel spaced support surfaces 14. A nut 15 is threadedly engaged upon the leg threads 13. Assembled to the nut 15 is a two-part follower 16 consisting of a clamping bar 17 and a spacing bar 18.

The clamping bar 17 is shown in Fig. 5 as a developed blank 17a and is shaped to provide a pair of wings 19 and a pair of opposed ears 20 arranged at right angles to the wings 19 and having cutout portions 21 therebetween to facilitate the bending of the wings 19 out of the plane of the blank 17a. The wings 19 are bent out of the blank 17a along the fold lines 22 at right angles to the blank 17a and leaving an area therebetween in line with and extending through the ears 20. This area is bent into an arcuate clamping section 23 and is stamped with a gripping knurl 24 on its bottom surface. The outer ends of the wings 19 are formed with extended lugs 25 for reasons as will appear later.

The spacing bar 18 initially consists of an elongated rectangular blank which may be cut from a piece of strip stock and is formed into corrugated sections 26 terminat-

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ing in supporting ends 27 which ride over the upper surface of the nut 15.

The nut 15 and two-part follower 16 are adapted to be assembled together to function as a unit member. In this relationship the wings 19 of the clamping bar 17 are first inserted into the nut 15 to a position where the ears 20 engage the lower surface of said nut. The spacing bar 18 is next positioned between the wings 19 from the opposite end of the nut 15 with the clamping ends 27 of the spacing bar 18 resting against the upper surface of said nut after which the extended lugs 25 are bent inwardly to overlie the middle corrugation 26 of said spacing bar (see Fig. 3) and serving to hold the three parts, nut 15, clamping bar 17 and spacing bar 18, together as a unit. The nut unit is threaded upon the split bolt 10 to form the connector which may be used to clamp two wire ends 28 and 29 together by gripping them between the saddle 12 of the bolt and the arcuate clamping section 23 of the clamping bar 17. Up to this point the connector is substantially the same as the connector described in the patent mentioned above and as there pointed out if there is a wide variation in the manufacturing tolerance allowed it could often lead to a failure of the connector in meeting the minimum requirements of clamping strength.

It will be understood that in ordinary shop practice the allowable tolerance in the thickness of the sheet metal blank 17a should be at least plus or minus .003". Since the width of the spacing bar 18 had to be such that it would fit easily between the wings 19 when the metal of the blank 17a was of maximum thickness, there would be a clearance of at least .012" between the spacing bar and wings 19 when the metal was of minimum allowable thickness.

According to my invention I have discovered that if the blank 17a is put through a stamping operation as indicated in Fig. 6 in which shallow longitudinal ribs 30 are made to extend from one surface of the blank preferably so that they will project inwardly toward each other when the wings 19 are bent upwardly, the effective variation in thickness of the blank so formed can be maintained at a desired minimum. This is accomplished by an upper die 31 and lower die 32, one of which is formed with a cavity 33 to receive the blank, and the sides 34 of which are adapted to abut the other die part to limit the travel of the die parts toward each other. It will thus be seen that in the case of a blank of maximum allowable thickness, the dies will come hard upon the flat blank and form very shallow ribs and at the same time iron out irregularities and possibly reduce the thickness to some extent, whereas in the case of a blank of minimum thickness slightly higher ribs 30 will be formed and the dies will abut each other around the blank.

While this is only a simple difference in construction as compared with the connector of the above mentioned patent, the improvement in performance under actual tests is quite surprising. Connectors which have been manufactured according to that patent, for example, cannot come near to meeting the performance standards set up by the Electrical Service Connector Institute on October 1, 1952, whereas such standards are readily met by connectors made with the improvement herein described and defined in the following claims.

I claim:

1. In split bolt connectors of the type employing a U-shaped bolt having spaced apart exteriorly threaded legs, a nut threaded to the legs and a two-part follower which has a clamping bar part made from a sheet metal blank engaging the inner face of the nut, wings extending upwardly from the bar along the inner parallel faces of the bolt legs to maintain said legs properly spaced apart, the second part of the follower comprising a cor-

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rugated spacing bar fitted between said wings to maintain them properly spaced, that improvement which consists of ribs projecting slightly from one of the normal surfaces of each of said wings, the height of the ribs being dependent on the thickness of the wing material so that the overall effective thickness is substantially the same regardless of variations in the thickness of the wing material resulting from normal allowable tolerances in the manufacture of the sheet metal blank from which the clamping bar part is made, so that said legs will be adequately supported regardless of such variation in thickness of the wing material.

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2. In split bolt connectors, the improvement defined in claim 1 wherein there is a single rib projecting inwardly from each wing of the clamping bar in position to bear against the corrugations of said spacing bar.

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