

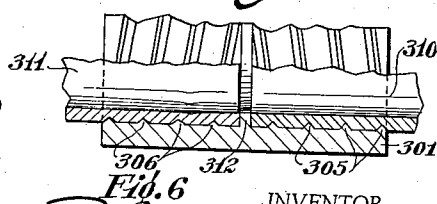
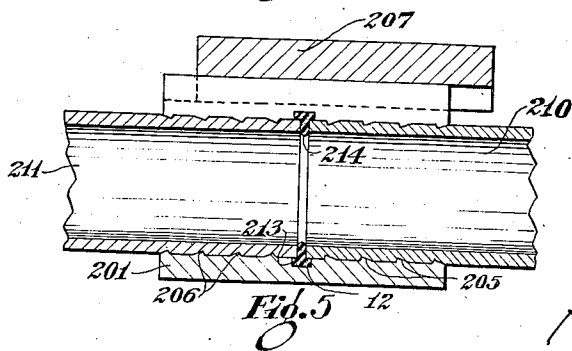
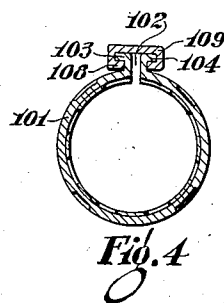
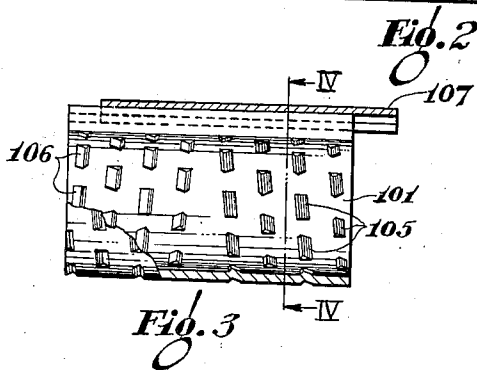
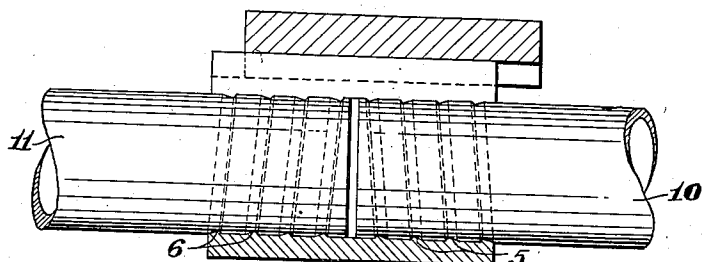
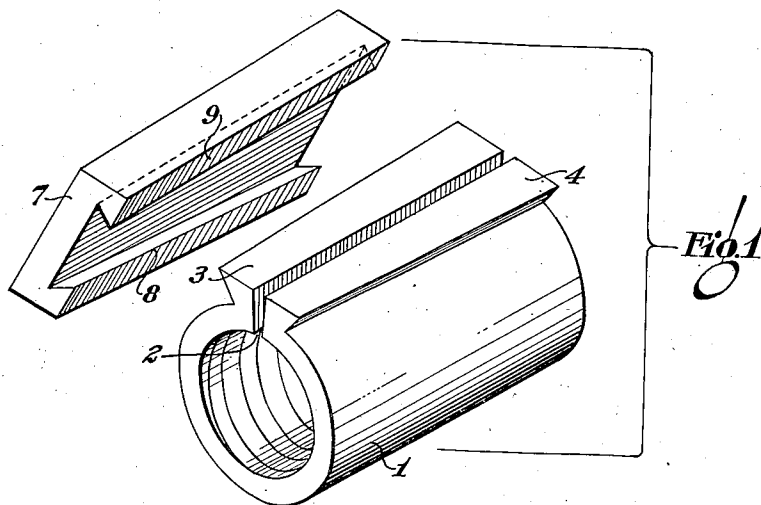
March 9, 1937.

R. J. DURKEE

2,073,338

CONNECTER

Filed July 13, 1935



INVENTOR.
Roy J. Durkee
BY
Hawgood and Van Horn
ATTORNEYS

UNITED STATES PATENT OFFICE

2,073,338

CONNECTER

Roy J. Durkee, Cleveland Heights, Ohio

Application July 13, 1935, Serial No. 31,248

7 Claims. (Cl. 285—194)

This invention relates to connecting means and is particularly applicable to connectors for bars, rods, pipes, tubes and the like.

5 An object of the invention is to provide an improved connecting means which will tightly retain articles to which it is applied.

Another object is to provide an improved connecting means which may be easily and economically manufactured.

10 Another object is to provide an improved connecting means which will prevent weakening of thin walled articles.

Another object is to provide an improved connecting means which may be applied without the use of special tools.

15 Another object is to provide an improved connecting means which will draw articles held thereby together.

Other objects will hereinafter appear.

20 The invention will be better understood from the description of several practical embodiments thereof, illustrated in the accompanying drawing, in which:

Figure 1 is a perspective view of the component parts of a coupling designed for holding adjacent ends of tubular pieces or pipes;

Figure 2 is a central longitudinal sectional view of the coupling of Figure 1 applied to the ends of two pieces of pipe or tubing;

30 Figure 3 is a central longitudinal sectional view of another form of coupling which may be manufactured from sheet metal;

Figure 4 is a transverse sectional view of the coupling of Figure 3 taken on the line IV—IV thereof;

35 Figure 5 is a view similar to Figures 2 and 3 showing another form of coupling embodying the invention and designed to insure a fluid-tight seal between the ends of pipe sections held thereby; and

40 Figure 6 is a fragmentary longitudinal sectional view of a fourth form of coupling embodying the invention.

Referring first to the embodiment illustrated in Figures 1 and 2, the coupling consists of a hollow cylindrical sleeve or tube portion 1, slit longitudinally as indicated at 2, and provided at the sides or edges of the slit with dove-tail-shaped flanges 3 and 4, the outer surfaces of which are obliquely disposed to one another.

50 The interior of the cylindrical body is provided with two series of ridges or convolutions of helical form, that at the right hand end, as shown in Figure 2, namely convolutions 5, constituting a right hand thread, while the series at the left

hand part of this figure, indicated by the reference numeral 6, constitutes a left hand thread. These threads may be of symmetrical V-shaped cross-section, or as indicated, having nearly vertical edges on the inwardly facing sides, and more sloping ones on the outwardly facing sides.

5 In addition to the sleeve above described, there is provided a generally channel-shaped clamping member 7, having flanges 8 and 9 provided with interior inclined surfaces defining a generally dove-tail-shaped recess adapted to fit over flanges 3 and 4, the recess tapering at the same angle as the exterior surfaces of the flanges on the sleeve.

The coupling is applied, as indicated in Figure 2, over the ends of two tubes or pipes 10 and 11, the ends of these tubes closely abutting each other.

It will be understood that the space within the sleeve is sufficient that it may be readily slipped over these tube ends, with the threads or convolutions 5 and 6 more or less tightly sliding upon the ends of the tubes.

After the sleeve has been positioned as indicated in this figure, the clamp 7 is applied by sliding the wider end of the space within it over the narrower ends of flanges 3 and 4. Further sliding the clamp on the flanges wedges these flanges together, causing the sleeve to tightly grip the ends of the tubes.

By driving the clamp upon the flanges of the sleeve, the threads 5 and 6 are forced or pressed into the metal of the ends of tubes 10 and 11, respectively, and when this has been done, rotation of the sleeve upon the tubes, as by turning it in a clock-wise direction (as it is viewed in Figure 1) causes the threads to draw the ends of the pipes tightly together. This turning can be readily accomplished by any type of wrench or by driving the sleeve and clamp circumferentially by pounding upon one side of the clamp.

40 The crests of the threads, unless the sleeve is of harder metal than the tubes, will preferably be hardened, as by case hardening or any other desired method, so that these will not be flattened by the pressure of the clamp, but will be pressed into the metal of the tubing.

45 In Figures 3 and 4, both sleeve and clamp are shown as made of sheet metal. The former consists of a sleeve or tubular portion 101 having formed upon it flanges 103 and 104 provided with inclined outer edges and defining between them a slot 102. A generally C-shaped clamp 107 has depending flanges 108 and 109 which taper similarly to flanges 103 and 104 and serve to draw

them together, as did the clamp of the first two figures.

Internally extending helical bosses 105 and 106 are formed within the sleeve and serve the same function as the threads 5 and 6 of the first two figures, but differ from these threads by being interrupted, providing, instead of a complete thread, a mutilated one, the parts of which, however, follow in the same helical paths when the sleeve is rotated to draw the ends of the tubes together.

In Figure 5 a sleeve similar to that of Figures 1 and 2 is illustrated, in which the sleeve 201 is provided with a central annular recess 212 in which is positioned an annular gasket 213 against which the ends of the tubes may be drawn by the circumferential movement of the sleeve. The sleeve is provided with right and left hand threads 205 and 206 and a clamp 207 similar to those of the first two figures.

A very tight seal is effected by the compression of inner part 214 of the gasket between the ends of the tubes, which seal is rendered further effective by the compression of the outer part of the gasket upon the ends of the tubes. Instead of, or in addition to, the circular gasket a straight gasket may be inserted in slit 2 (or 102) and will be compressed by motion of the flanges toward each other, so that it will be extended downwardly tightly against the surfaces of the tubes. To permit spreading out of this gasket as it is pressed laterally, it is preferable that it be narrower than the width of flanges 3 and 4 (or 103 and 104).

In Figure 6 a sleeve is shown having symmetrical threads 305 and 306. Intermediate these threads is an inwardly extending flange or rib 312. This flange serves as a stop, limiting the insertion of the tube ends, and rotation of the sleeve after the threads have been pressed into the tubes causes these ends to press tightly against this flange rather than against each other as in the embodiments of the first four figures.

It will be apparent that any of the above couplings may be readily manufactured and may be easily applied to any circular or tubular bar or article without necessity of threading the same, that they will tightly draw the ends of the articles which they grip together, and will afford an effective seal merely by the pressure of these articles upon each other, but that a further seal may be provided by the gasket 213. The formation of shallow threads by the pressure of the sleeve upon the exterior of the articles renders the coupling particularly suitable for thin walled tubes, such for instance as those used in electrical conduit work and the like.

While the invention has been illustrated as applied to a straight cylindrical coupling, it will be apparent that it might be applied to any type of fitting such as an elbow, T, or the like, and that when applied to a fitting having angularly disposed gripping portions, separate clamps would be provided for each of said angularly disposed portions. Therefore, the word "coupling" as used herein is meant to include any type or shape of fitting by which any number of articles are gripped.

While I have described the illustrated embodiments of my invention in some particularity, obviously many others will readily occur to those skilled in this art, and I do not, therefore, limit myself to the precise details shown and described, but claim as my invention all embodiments, variations and modifications thereof coming within the scope of the appended claims.

I claim:

1. A coupling comprising a longitudinally slit sleeve, inclined surfaces provided on the opposite sides of the slit, a clamping member slidable over said inclined surfaces to wedge the sleeve edges toward each other, the sleeve being provided interiorly with retaining projections adapted to be pressed into the wall of an article within the sleeve, and a gasket positioned within the retaining means.

2. A coupling comprising a longitudinally slit sleeve, inclined surfaces provided on the opposite sides of the slit, two series of helically disposed projections within the sleeve, the projections being of a size and shape to press themselves within the walls of an object of the sleeve by displacing the material thereof.

3. A coupling comprising a longitudinally slit sleeve, inclined surfaces provided on the opposite sides of the slit, right and left hand threads within the opposite ends of the sleeve, the threads being of a size and shape to press themselves within the walls of an object within the sleeve by merely displacing the material thereof.

4. A coupling comprising a longitudinally slit sleeve, inclined surfaces provided on the opposite sides of the slit, right and left hand threads within the opposite ends of the sleeve, the threads being of a size and shape to press themselves within the walls of an object within the sleeve by merely displacing the material thereof and a stop within the sleeve to limit the insertion of articles within either end.

5. A coupling comprising a longitudinally slit sleeve, inclined surfaces provided on the opposite sides of the slit, right and left hand threads within the opposite ends of the sleeve, the threads being of a size and shape to press themselves within the walls of an object within the sleeve by merely displacing the material thereof and a stop within the sleeve to limit the insertion of articles within either end, the stop comprising an annular flange with the sleeve.

6. A coupling comprising a longitudinally slit sleeve, inclined surfaces provided on the opposite sides of the slit, helical threads within the sleeve, said threads being spaced apart and of less depth than the thickness of the wall of an article to be inserted in the sleeve whereby said threads may be pressed into said article by merely displacing material of the wall thereof.

7. A coupling comprising a longitudinally slit sleeve, inclined surfaces provided on the opposite sides of the slit, right and left hand threads within the opposite ends of the sleeve, said threads being relatively blunt and shallow as compared with the thickness of the wall of an article to be inserted in the sleeve whereby the threads are pressed into and displace the material of the wall.

ROY J. DURKEE.