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THREADLESS PIPE CONNECTOR

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1 Claim. (Cl. 285—167)

This invention relates to a certain new and useful improvement in threadless pipe connectors.

My invention has for its object the provision of a connector of the type stated which comprises companion members co-operably constructed for ready manipulation for the formation quickly, simply, and with a minimum of effort of a rigid, firm, fluid-tight joint and for, in turn, convenient, facile separation for disconnecting the pipe-sections one from the other.

And with the above and other objects in view, my invention resides in the novel features of form, construction, arrangement, and combination of parts presently described and pointed out in the claim.

In the accompanying drawing:

Figure 1 is an elevational view, partly in longitudinal and transverse section, of the several parts or members of the connector in assembling and pipe-engaging relation;

Figure 2 is a view in longitudinal and transverse section of the several parts or members of the connector in assembled and pipe-engaged relation; and

Figure 3 is a sectional view of the annulus or split ring member of the connector, taken approximately on the line 3—3, Figure 1.

Referring now more in detail and by reference characters to the drawing, which illustrates a preferred embodiment of my present invention, A designates a threadless tubular or pipe-section, which is to be endwise joined or connected to, and for fluid communication with, a like section, not shown.

Forming a part of the connector, is a coupling-member B having a bore 1 and counter-bored and internally threaded at its one end, as at 2.

C designates a rigid ring of a diametrical size to fit more or less snugly within, and at its one or inner margin 3 to abut against the base or end wall 4 of, the threaded portion 2 of the bore of member B, as seen in Figure 2, the ring C at and annularly throughout its opposite or outer margin being chamfered or beveled, as at 5, for purposes presently appearing. It may be stated here that the ring C may have such width or longitudinal dimension, as well as wall thickness, as may selectively or adjustably meet the requirements of any particular pipe-section A or other installation.

D designates a split clamping-ring or annulus, which is transversely cupped and thereby given a somewhat concave cross-section, as best seen in Figures 1 and 2. The annulus D is constructed

of any suitable more or less elastic or resilient material, as, for instance, spring steel, and normally, as when its opposed ends 6 are yieldingly spaced one from the other, as in Figure 1, has a length somewhat greater than the circumferential dimension of the ring C, the opposed ends 6 of the ring D being preferably angularly formed, as shown, for abutting or meeting co-operation and engagement when the ring D is lengthwise or circumferentially reduced, as presently appears.

Also forming part of the connector and for co-operation with the members B, C, and D in engaging the pipe-section A, is a companion coupling-member or so-called collar E, which includes a main or body-portion 7 preferably of hexagonal outer contour for wrench engagement and an externally threaded neck-portion 8, the member E having throughout its length a bore, as at 9, of diametrical dimension for snugwise slidably fitting over and upon the pipe-section A and the neck-portion 8, which may be of any selected length, at its free end-face or margin being also annularly chamfered or beveled, as at 9', and being diametrically sized for threaded engagement with the threaded portion 2 of the companion member B.

The several members of the connector being so formed and constructed, in use and operation, the ring C is disposed within the member B with its wall 3 abutting the wall 2, and ring D also disposed within the member B with its one margin *d* loosely fitting within the bevel 5. A ring E is then threaded at its neck 8 into engagement with the portion 2 of member B and its beveled margin 9' loosely disposed over the opposite margin *d'* of the ring D. The pipe-section A is then endwise disposed through the members E, D, and C and preferably abutted at its inner margin 10 against the end wall 4 of member B. The member E is then further threaded or axially shifted inwardly in its engagement with the member B and the housing-space or chamber within the member B and intermediate the opposed beveled ends 5 and 9' of members C and E correspondingly reduced. The housed annulus D is, in turn, responsive to the relative axial movement of members B and E, lengthwise yieldingly shortened and deformingly transversely compressed, with the result that the annulus D, at its opposed margins *d*, *d'*, is clamped tightly and firmly upon, and frictionally engaged with, the interposed pipe-section A and the latter thereby rigidly secured in smooth fluid-tight joint relation to and with the coupling B for communication or joint-

connection through the member B with a second pipe-section, not shown.

Conversely, should it be desired to detach the pipe-section A, the member E is reversely threaded or axially shifted relatively to member B and pressure on the housed annulus D thereby relieved, when the annulus D again takes or assumes its normal condition and frees or releases itself from frictional engagement with the pipe-section A, when, of course, the latter may be readily removed from connection with the coupling B.

The connector has been found exceedingly efficient in the performance of its intended functions, and it is to be understood that changes and modifications in the form, construction, arrangement, and combination of the several parts of the connector may be made and substituted for those herein shown and described without departing from the nature and principle of my invention.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

A pipe-connector comprising an internally threaded female fitting having an annular seat-forming abutment against which the end face of the pipe being connected may be forced, a collar sized to fit snugly around the pipe and within the female fitting, said collar being provided at one end with a flat face for engagement against the abutment and at the other end with a beveled face, an externally threaded male fitting for threaded co-operation with the female fitting and being provided at its inner end with a beveled face, and a dished split-ring adapted for disposition around the pipe between the beveled faces of the collar and male fitting whereby to constrict around the pipe with increasingly tightening grip as the male fitting is threaded into the female fitting and at the same time force the end faces of the pipe and the collar against the abutment with increasing tightness to form a secure and fluid-tight connection between the pipe and the female fitting.

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