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THREADLESS PIPE CONNECTOR

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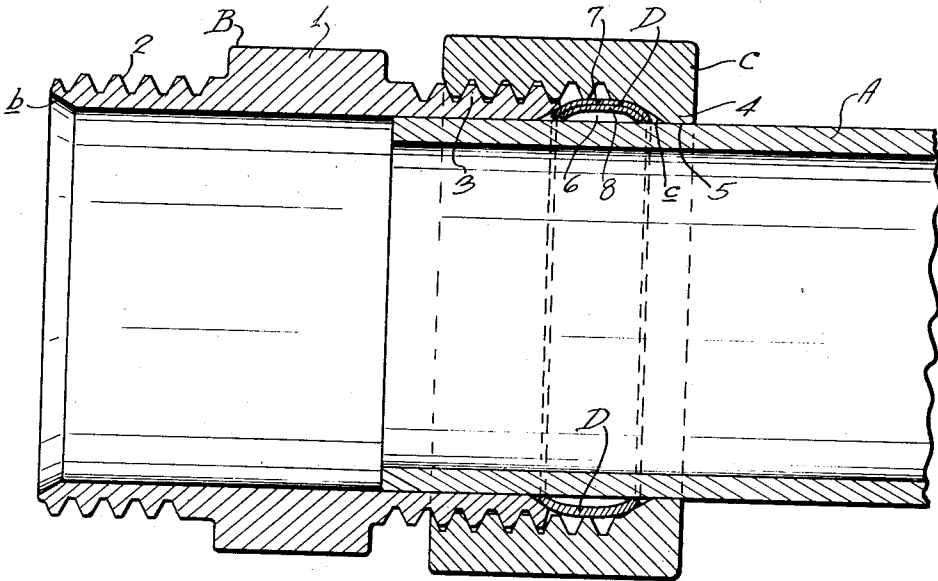


FIG. 1.

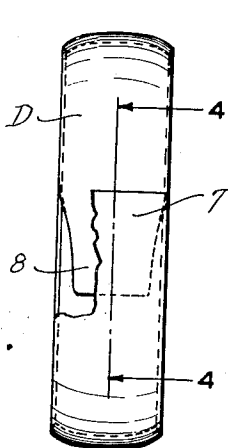


FIG. 3.

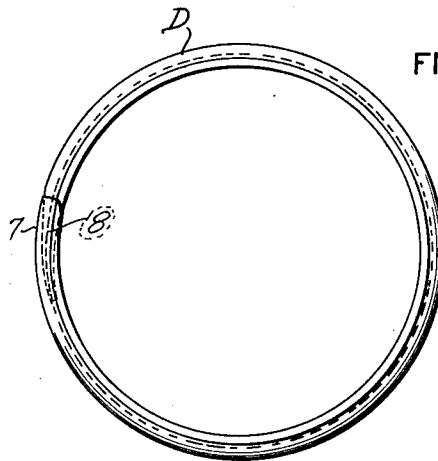


FIG. 2.

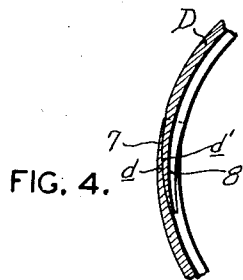


FIG. 4.

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THREADLESS PIPE CONNECTOR

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1 Claim. (Cl. 285—122)

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

My invention has for its chief object the provision of a connector of the type and for the purpose stated which comprises a plurality of inexpensive members so 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 separation for disconnecting the pipe-sections without any appreciable damage thereto.

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 enlarged longitudinal sectional view of a connector or pipe-coupling of my invention, operatively shown in joint-forming connection with a pipe-section;

Figure 2 is an end view of the clamping annulus of the connector;

Figure 3 is a partly broken side elevational view of the annulus; and

Figure 4 is a fragmentary sectional view of the annulus, showing in detail the overlapping end-formation thereof, taken approximately on the line 4—4, Figure 3.

Referring now in more detail and by reference characters to the drawing, which illustrates a preferred embodiment of the present invention, A designates a threadless pipe-section which is to be connected to a like section, not shown.

Forming part of the connector and constructed for snug collar-wise disposition about an end of the pipe-section A, is a suitably elongated cylindrical coupling-member B comprising preferably integrally a central diametrically enlarged so-called nut-portion 1 and externally threaded sleeve-portions 2, 3, disposed axially on opposite sides of the central portion 1 and each at its outwardly presented end internally chamfered or beveled, as at b.

Provided for threaded engagement with a threaded portion of the member B, in the present instance the portion 3, is an internally threaded ring C formed at its one end with a radially inwardly extending flange-portion 4 sized and contoured at its inner periphery 5 for snugwise fitting slidably over the pipe-section A, the ring C being also chamfered or cut away on the inwardly presented face of its flange-portion 4 in the provision of a beveled face c complementary with

and corresponding to the respective beveled faces b of the coupling-sleeve 3.

The ring or collar C is preferably so proportioned with respect to the sleeve 3 of member B that, when the ring C is fully threaded on the sleeve 3, its beveled face c will be spaced axially from a beveled face b of the sleeve 3 in the formation of an annular chamber, as at 6, about the pipe-section A for loosely housing a split clamping-ring or annulus D which is transversely cupped and thereby given a somewhat concave cross-section, as best seen in Figure 1. The annulus D has a length substantially greater than the circumferential dimension of the chamber 6 and is so formed that its free ends 7, 8, will overlap for a predetermined distance, the one end 8 being axially cut away or reduced and cupped or concaved upon a shorter radius for smooth sliding disposition in underlying relationship within the other end 7, as best seen in Figure 3. The overlapping annulus-ends 7, 8, are also circumferentially beveled along their respective abutting faces d, d', in such manner that the circular contour of the annulus D will be continuously maintained notwithstanding the overlapping relationship of the ends thereof, as best seen in Figure 4.

In use, the collar C and clamping-ring D are disposed about an end of the pipe-section A, as well as is also the sleeve-portion 3 of the coupling B. The collar C is now shifted forwardly along the pipe-section A and over the ring or annulus D and threaded onto the sleeve 3 of the coupling B. It will be evident in this connection that the annular chamber 6 formed between the sleeve 3, collar C, and pipe A will continuously become axially shorter as the collar C is threaded forwardly on the sleeve 3. Thus the housed ring D is compressed or compacted both circumferentially and transversely within the chamber 6, the transverse compression thereof forcing the same to assume a greater than normal cupped or concave contour, so that its peripheral margins engage the surface of the pipe-section A, and the circumferential compression thereof causing its overlapping end-portions 7, 8, to slide one within the other. The annulus D thus is tightly wrapped about and engaged with the pipe-section A, and as the result of such combined elastic deformation, as it may be said, and circumferential reduction of the clamping ring or annulus D, the particular pipe-section A will be securely, rigidly, and firmly retained within the pipe coupling B for joint-connection in a similar manner with a second section, not here shown.

The annulus D is constructed of any suitable

more or less elastic or resilient metal, and by reason of the unique co-operable shape and formation of the annulus D and the associated parts, not only may the joint be conveniently efficiently made, but the joint is also entirely fluid-proof. Further, should it be desired to remove the pipe-section A from the coupling B, the collar C may be readily turned in the reverse direction and threaded off of the sleeve 3 in a simple and speedy manner, thereby allowing the annulus to expand and take or resume its original normal shape without any appreciable damage to the pipe A or the coupling parts.

It should be understood that changes and modifications in the form, construction, arrangement, and combination of the several parts of the con-

necter 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 including chamber-providing shiftably cooperable pipe-encircling members having inwardly presented beveled surfaces, and an annulus of concave-section housed within the chamber provided by said members, the annulus having slidably overlapping beveled end-portions and being adapted to be circumferentially constricted by said beveled surfaces responsive to axial movement of said members toward each other for tightly gripping the pipe.

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