Jan. 20, 1925. 1,523,817

F. R. LONG

PIPE UNION

Filed June 7, 1922

Fig. 1.

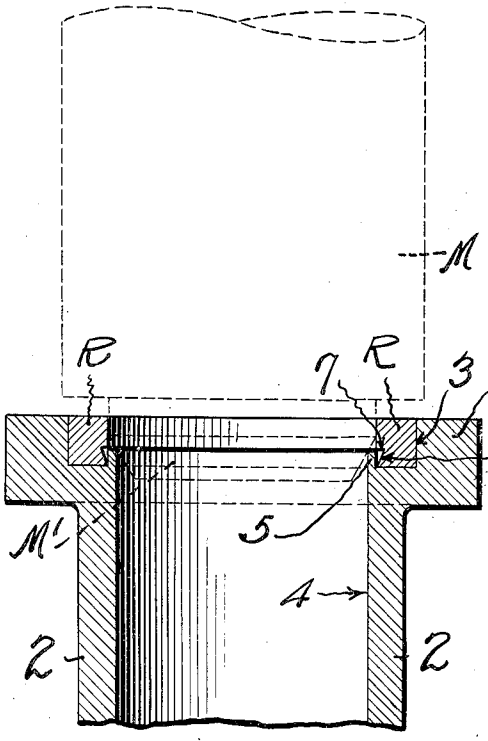


Fig. 2.

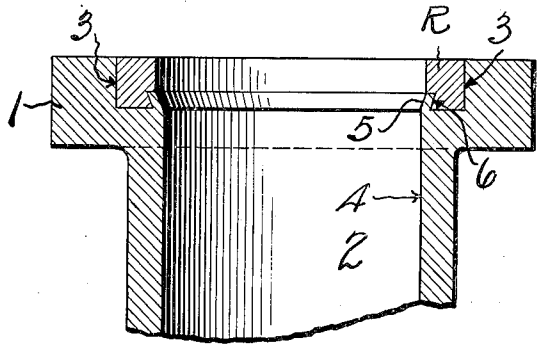
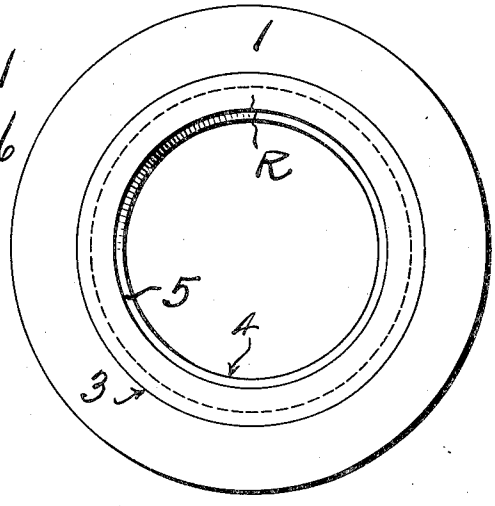


Fig. 3.



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WITNESSES:-

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Patented Jan. 20, 1925. 1,523,817

UNITED STATES PATENT OFFICE.

FRED R. LONG, OF BERWICK, PENNSYLVANIA.

PIPE UNION.

Application filed June 7, 1922. Serial No. 566,632.

To all whom it may concern:

Be it known that I, FRED R. LONG, citizen of the United States, residing at Berwick, in the county of Columbia and State of Pennsylvania, have invented certain new and useful Improvements in Pipe Unions, of which the following is a specification.

This invention relates to an improvement in pipe unions or joints, and has special reference to a novel arrangement for holding a bearing ring in the flange of the union.

It is a well-known fact that it is desirable to utilize a ring of brass or bronze or other metal that is usually somewhat softer than the body of the union to thereby insure the formation of a tight joint between the members of the joint when assembled. To that end the present invention contemplates a simple and practical construction for locking the bearing ring in place. In that connection it is proposed to employ a construction which provides an extended locking engagement between the body of the union and the ring and which may be readily effected by simple and reliable mechanical means, as will hereinafter more fully appear.

With the above and other objects in view the invention consists in the novel construction, combination and arrangement of parts hereinafter more fully described, illustrated and claimed.

Figure 1 is an enlarged sectional view of a portion of a union having the ring placed therein prior to its being locked in position by the mandrel shown in dotted lines.

Figure 2 is a vertical sectional view similar to Figure 1 showing the finished product.

Figure 3 is a top plan view of Figure 2.

Similar reference numerals designate corresponding parts throughout the several figures of the drawings.

In carrying the invention into effect it is proposed to form the flange 1 of the union 2 with a gasket groove 3 spaced from the innner bore 4 of the union so as to leave an inside wall or ledge 5 to constitute the inside wall of the groove. As shown in Figure 1 the said wall 5 may be relatively short as compared with the opposite wall of the groove and is intended to constitute a relatively deformable locking ledge or keeper for engaging and holding the bearing ring R in place, as will presently appear.

The said bearing ring R is preferably formed with the dove-tail or equivalent keeper recess 6, the same being of sufficient depth to receive and mask the locking ledge 5 of the union when the same is expanded or otherwise forced into the same to provide the locking effect shown in Figure 2. A preferred and practical method of causing the locking ledge 5 to engage in the keeper recess of the ring is illustrated in Figure 1 wherein it will be observed that after the ring R is placed in the groove 3 in the flange of the union, a suitable mandrel M, having the expanding head M′, may be forced into the bore 4 of the union to thereby expand or displace the locking ledge 5 from its normal position into the keeper groove. The expanding head M′ of the mandrel is preferably beveled or tapered at its outer edge, thereby insuring the displacement of the locking ledge laterally into the keeper groove of the ring throughout the circumference of the union. Therefore, the ring R is securely held in position because of the efficient distribution of the locking means throughout its circumference.

In connection with the locking ring R and the keeper groove 6 therein, it will be observed that the bottom wall 7 of the keeper groove provides a guard or shield beneath which the edge of the locking flange may be tucked or crowded upon the insertion of the mandrel so that in the finished product no rough edges or projections are permitted between the locking ledge and the ring. Furthermore, this arrangement protects the locking ledge in such a way that after the same is expanded into the flange it cannot be worked loose by objects striking the ledge and thus working the same out of the keeper groove.

Also by reason of the fact that the present arrangement permits of utilizing an expanding mandrel for the purpose of seating the locking ledge in the groove, the present arrangement has commercial advantages since the operation permits of attaining considerable speed of production.

From the foregoing it will be apparent that the present invention contemplates not only a simple and practical structural arrangement for providing pipe unions with bearing rings, but also has in view a novel method for assembling and locking the same in place which consists of forming a tubular flanged member with a groove adjacent the bore of the tubular member and placing within the groove the bearing ring having a keeper recess and subsequently expanding

one of the walls of the groove into the recess.

Without further description it is thought that the features and advantages of the invention will be readily apparent to those skilled in the art, and it will of course be understood that changes in the form, degree and other minor details of construction may be resorted to without departing from the spirit of the invention or scope of the appended claims.

I claim:

1. A pipe union having a gasket receiving recess, a metal gasket ring seated in said recess and having a keeper groove at the lower bottom edge of its inside face and a deformable gasket locking wall at the inner edge of said recess expanded into said keeper groove of the gasket whereby the edge of the wall is masked by one side of the keeper groove.

2. A pipe union having a gasket receiving recess, a metal gasket ring seated in said recess and having a keeper groove formed by walls disposed substantially at right angles and also obliquely to the face of said ring, and a gasket locking wall at the inner edge of said recess expanded into said keeper groove of the gasket whereby the edge of the wall is masked by one side of the keeper groove.

3. A pipe union having a gasket receiving recess, a metal gasket ring seated in said recess and having an inclined keeper face at the inside lower edge thereof, and a relatively thin deformable locking wall bent into engagement with the said inclined keeper face of the ring.

4. A pipe union having a gasket receiving recess, a gasket ring fitted in said recess and having a keeper groove at the inside thereof, and one of the walls of said recess being expanded into the said keeper groove.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

FRED R. LONG.

Witnesses:

H. R. WILLIAMS,

E. R. SEYBERT.