

(No Model.)

G. GIBBS.
PIPE COUPLING.

No. 375,547.

Patented Dec. 27, 1887.

Fig. 1.

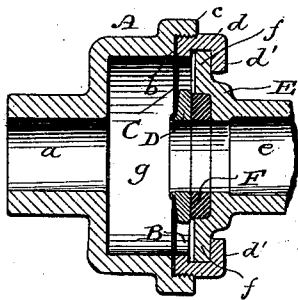


Fig. 2.

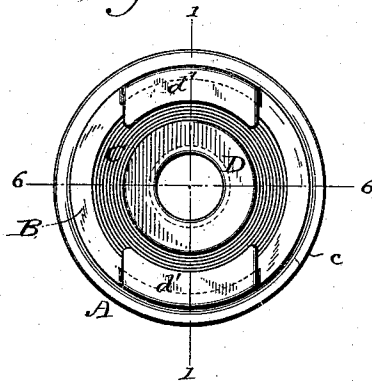


Fig. 3.

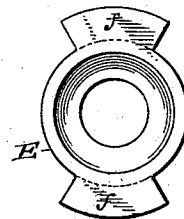


Fig. 4.

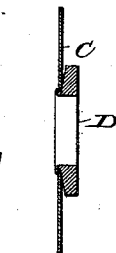
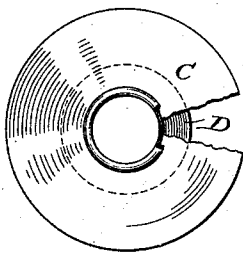


Fig. 6.

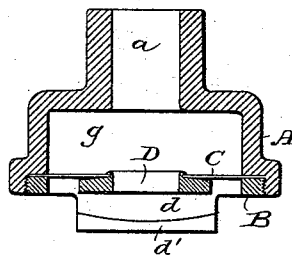


Fig. 7.

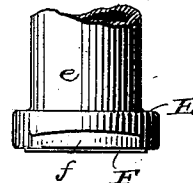


Fig. 8.

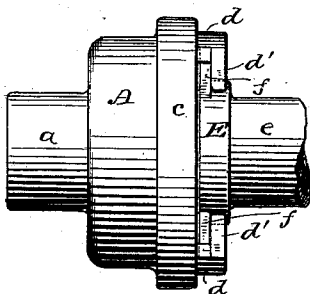


Fig. 9.

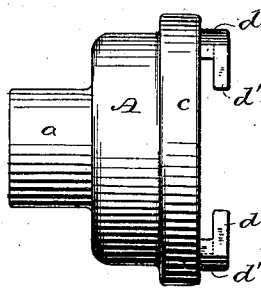
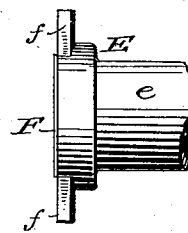


Fig. 10.



Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE GIBBS, OF MILWAUKEE, WISCONSIN.

PIPE-COUPLING.

SPECIFICATION forming part of Letters Patent No. 375,547, dated December 27, 1887.

Application filed September 17, 1887. Serial No. 249,906. (No model.)

To all whom it may concern:

Be it known that I, GEORGE GIBBS, of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Pipe-Couplings; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to pipe-couplings; and it consists in certain peculiarities of construction and combination of parts, to be hereinafter described with reference to the accompanying drawings, and subsequently claimed.

In the drawings, Figure 1 represents a sectional view of my pipe-coupling taken on line 1 1, Fig. 2; Fig. 2, a face view of one of the two sections constituting my device; Fig. 3, a rear view of the other section; Figs. 4 and 5, detail views of an expansible diaphragm and an annulus attached thereto; Fig. 6, a section on line 6 6, Fig. 2; Fig. 7, a plan view of the coupling-section illustrated by Fig. 3; Fig. 8, a side elevation of my device; and Figs. 9 and 10, similar views of the coupling-sections detached.

Referring by letter to the drawings, A represents a shell having a reduced extremity, *a*, to which it is designed to connect a steam or other pipe in any suitable manner. The other extremity of the shell is offset to form a shoulder, *b*, and flange *c*, the latter being interiorly provided with screw-threads to engage a screw-threaded ring, B, that has outwardly-extended and inwardly-turned flanges *d*. Interposed between the ring and the shoulder *b* of the shell A, to form an air-tight joint, is a diaphragm, C, of brass or other expansible material. The diaphragm C has a central opening, and secured to this diaphragm in any suitable manner, but preferably by spinning a portion thereof through the opening and over upon said diaphragm, is an annulus, D. The shell A, ring B, and diaphragm C, having the annulus D secured thereto, form one section of my coupling. The other section of my coupling is preferably composed of a shell, E, and a gasket, F, the latter being made of soft metal or other suitable material, seated in said shell, as best illustrated in Figs. 1 and 3, and arranged to come against the annulus D when the sections are united; but, if found desirable, the gasket may be omitted.

The extremity *e* of the shell E is designed to be connected to a steam or other pipe, and the opposite extremity of this shell has outwardly-extended ears *f*, adapted to engage the flanges *d* on the ring B. The inwardly-turned portions *d'* of the flanges *d* on the ring B have concave inner faces, and the outer faces of the ears *f* on the shell E are convex, as best illustrated by Figs. 6 and 7.

To unite the coupling-sections the shell E is held so that its ears *f* will lie in the spaces between the flanges *d* on the ring B, and then given a quarter-turn to bring said ears under the inwardly-extended portions *d'* of said flanges. As the ears *f* of the shell E enter the flanges *d* of the ring B, the diaphragm will yield to the pressure occasioned by the convex faces of said ears coming against the concave faces of the inwardly-extended portions *d'* of said flanges. This yield increases until the centers of the ears *f* have passed the point of entrance, and then decreases in the same proportion as the remainder of these ears pass said point of entrance. By the time the centers of the ears are in line with the centers of the flanges their convex faces will fit the concave faces of the inwardly-extended portions *d'* of said flanges, and the elasticity of the diaphragm C will force the annulus D against the gasket F to hold said faces in close contact, and also form an air-tight joint between the coupling-sections, the parts being then in the position best illustrated by Figs. 1 and 8.

The reduced extremities *a e* of the shells A E have an equal bore that corresponds in diameter to and registers with the openings in the annulus D and gasket F; but between said extremity of the shell A and the diaphragm C there is an enlarged space or chamber, *g*, that permits an expansion of steam or other fluid passing through the pipes to exert a pressure at this point against said diaphragm C, thus aiding the latter to keep said annulus and gasket in close contact.

The special advantages of my coupling are, that I obtain the requisite elasticity between the joints by an expansible diaphragm, instead of by a rubber or other perishable gasket, as is ordinarily the case in devices of this character, and the wear in my coupling is confined to that occasioned by two hard or durable sur-

faces in frictional contact; at the same time the wear is taken up by the expansibility of said diaphragm under pressure and the inequalities of the bearing-surfaces corrected, thereby securing a tight joint.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A pipe-coupling consisting of one section provided with an expansible diaphragm having a suitable opening, and an annulus secured to the diaphragm in register with the opening therein, and another section provided with a gasket of suitable material arranged to impinge against said annulus, substantially as set forth.

2. A pipe-coupling comprising a section composed of a shell, a binding-ring provided with outwardly - extended and inwardly - turned flanges, an expansible diaphragm having a suitable opening, and an annulus suitably secured to the diaphragm in register with the opening therein, and another section composed of a shell provided with ears to engage said flanges, and a gasket seated in the shell to impinge against the annulus, substantially as set forth.

3. A pipe-coupling comprising a section composed of a shell, a binding-ring provided with outwardly - extended and inwardly - turned ears, the latter portions of these flanges being concave upon their inner faces, an expansible diaphragm having a suitable opening, and an annulus secured to the diaphragm in register with the opening therein, and another section composed of a shell provided with ears having convex outer faces for engagement with said flanges, and a gasket seated in the shell to impinge against the annulus, substantially as set forth.

4. A pipe-coupling comprising a section

composed of a shell having an enlarged space or chamber, an expansible diaphragm seated within the shell to form one wall of said chamber and provided with a suitable opening, and an annulus secured to the diaphragm in register with the opening therein, and another section composed of a shell that connects with the former shell and is provided with a gasket to impinge against the annulus, substantially as set forth.

5. A pipe-coupling comprising the shell A, having the reduced extremity *a*, shoulder *b*, flange *c*, and chamber *g*, the ring B, having flanges *d*, the diaphragm C, annulus D, the shell E, having the reduced extremity *e* and ears *f*, and the gasket F, all arranged to operate substantially as set forth.

6. A pipe-coupling consisting of one section provided with an expansible diaphragm having a suitable opening, and an annulus secured to the diaphragm to register with the opening therein, and another section arranged to impinge against the annulus, substantially as set forth.

7. A pipe-coupling consisting of one section provided with an expansible diaphragm having a suitable opening, an annulus having a portion thereof spun through the opening and over upon said diaphragm, and another section arranged to impinge against said annulus, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

GEORGE GIBBS.

Witnesses:

N. E. OLIPHANT,
MAURICE F. FREAR.