(No Model.) 2 Sheets—Sheet 1.

W. S. JOHNSON.

PIPE COUPLING.

No. 423,323. Patented Mar. 11, 1890.

Fig. 1.

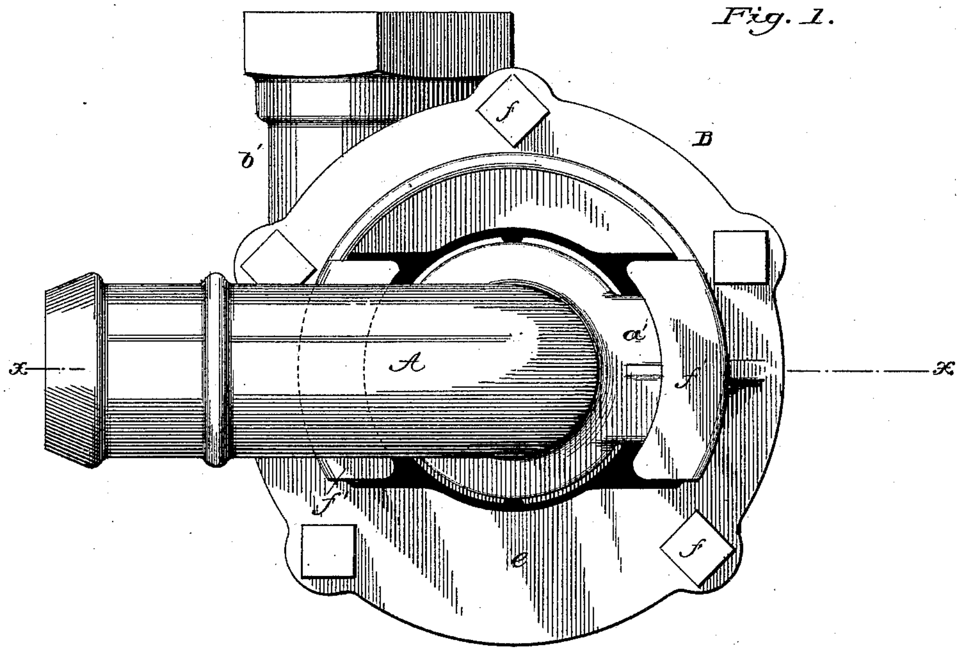
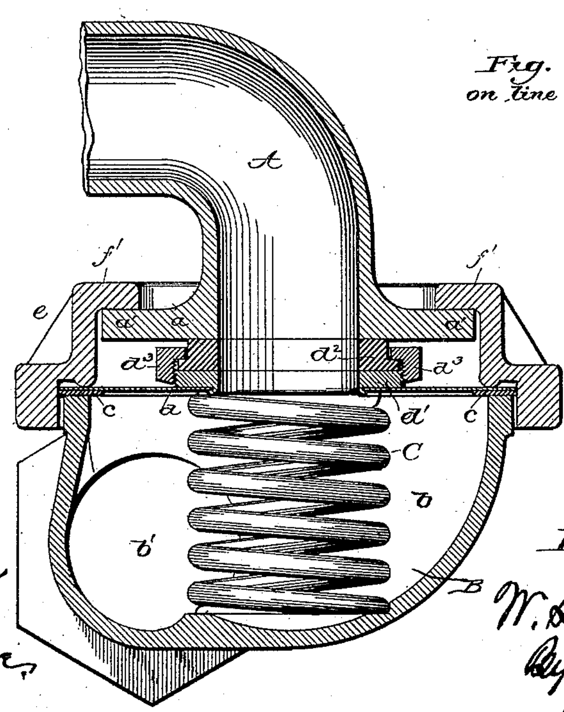


Fig. 2.
on line x - x



Attest:
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F. Stanley Elmore.

Inventor:
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By his Atty
Phil. T. Dodge

(No Model.) 2 Sheets—Sheet 2.

W. S. JOHNSON.

PIPE COUPLING.

No. 423,323. Patented Mar. 11, 1890.

Fig. 3.

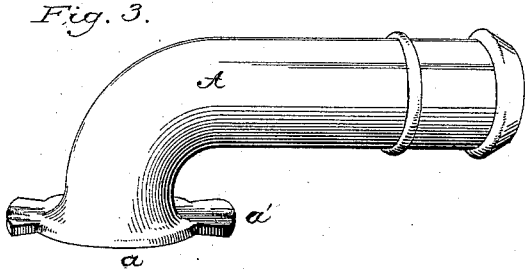
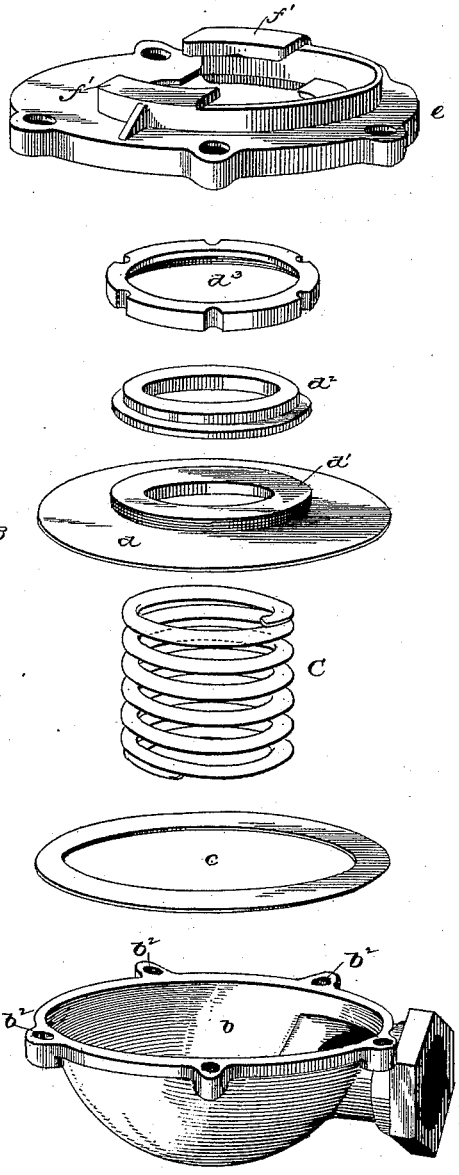


Fig. 4.



Attest:
M. M. Mortimer
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Inventor:
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Miles T. Dodge

UNITED STATES PATENT OFFICE.

WARREN S. JOHNSON, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO THE JOHNSON ELECTRIC SERVICE COMPANY, OF SAME PLACE.

PIPE-COUPLING.

SPECIFICATION forming part of Letters Patent No. 423,323, dated March 11, 1890.

Application filed November 15, 1889. Serial No. 330,477. (No model.)

To all whom it may concern:

Be it known that I, WARREN S. JOHNSON, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain Improvements in Pipe-Couplings, of which the following is a specification.

This invention relates to pipe-couplings of the type represented in Letters Patent of the United States issued to G. Gibbs on the 27th day of December, 1887, No. 375,547, in which the joint between the two members is sealed by means of an internal diaphragm attached to one of the members and forced by the pressure of the fluid against the other member.

My improvements are principally designed to overcome certain difficulties experienced in the practical use of the Gibbs coupling, and more particularly to protect the diaphragm and packing from injury and to facilitate the renewal of the packing ring or gasket.

In the accompanying drawings, Figure 1 is a top plan view of my coupling. Fig. 2 is a vertical central section of the same on the line *x x* of Fig. 1. Fig. 3 is a perspective view of the male member. Fig. 4 is a perspective view showing the various parts of the female member separated from each other.

My coupling consists of two principal parts—the male member A and the female member B. The member A is of tubular form in one piece with one end enlarged and formed with a bearing-face *a*, and with radially-projecting ears *a'*, to interlock with the opposite member.

The member B consists of the several parts permanently united, as follows: The principal part *b* is cast in a chambered or cup-like form, with a neck *b'* on one side to receive the pipe, and with ears b^2 to receive the fastening-screws. An elastic packing-ring *c* is seated on the upper edge of the part *b*, and upon this ring is seated an elastic diaphragm *d*, of brass or other suitable material, having a central opening. Above the diaphragm an annular plate or ring *e* is applied over the part *b*, and secured firmly thereto by screws *f*, or equivalent fastenings, so that the outer edge of the diaphragm is confined in place and the packing-ring compressed between it and the edge of the body *b* to produce a tight joint. The diaphragm is provided previous to its insertion with a peripherally-threaded metal ring or collar *d'* surrounding the central opening and tightly and firmly secured in place. The preferred mode of attachment is to extend the inner edge of the ring through the opening in the diaphragm and spin it down tightly on the rear or under face thereof, as shown in Fig. 2. If desired, the parts may be further connected by solder or otherwise.

Upon the upper face of the ring *d'* is applied an elastic packing-ring d^2, commonly known as a "gasket." This ring is formed with a peripheral shoulder fitted within an encircling collar d^3, which is screwed down tightly thereover upon and around the ring *d'*. By this arrangement the gasket is tightly and securely connected to the diaphragm.

The plate *e* is provided with a central opening to admit the end of the member A, and with flanges *f'*, under which the lips of the member A may be locked by giving a partial rotation thereto. The parts are coupled by simply inserting the end of the part A through the opening in the plate *e* against the face of the gasket d^2, and giving a partial rotation to one part in relation to the other.

It will be observed that under my construction the gasket or packing-ring is connected to and carried by the diaphragm, and that the top plate or ring *e* extends upward and inward above the diaphragm and gasket in such manner as to protect them from injury when the parts are uncoupled. The attachment of the gasket to the diaphragm in the manner shown admits of its being readily removed and replaced by a new one when required.

If desired, a strong spiral spring C may be inserted centrally within the body *b* beneath the diaphragm, as shown in Fig. 2, so as to force the diaphragm upward and increase the pressure of the gasket against the end of the member A. Under ordinary circumstances the pressure of the fluid against the diaphragm is sufficient to maintain a close contact, but in many cases the spring will be found advantageous.

Having thus described my invention, what I claim is—

1. In a pipe-coupling, and in combination with member A, the member B, comprising the chambered body, the apertured diaphragm with an elastic packing-ring attached thereto, and the cap-plate extending inward above the diaphragm to protect the diaphragm and packing, as described.

2. In a pipe-coupling, the body and the apertured diaphragm secured thereto, in combination with the threaded ring fixed to the diaphragm, the elastic packing seated on said ring, and the collar encircling the packing and securing the same removably to the ring.

3. In combination with the member A, the member B, comprising the chambered body, the apertured diaphragm therein, the metal ring having its edge turned through and secured to the inner edge of the diaphragm, the elastic packing on said ring, and the collar by which the packing is removably attached to the ring.

In testimony whereof I hereunto set my hand, this 22d day of October, 1889, in the presence of two attesting witnesses.

WARREN S. JOHNSON.

Witnesses:

L. F. FISH,

E. W. CHUBB.