(No Model.)

3 Sheets—Sheet 1.

W. F. LOMASNEY.

PIPE COUPLING.

No. 431,816. Patented July 8, 1890.

Fig. 2.

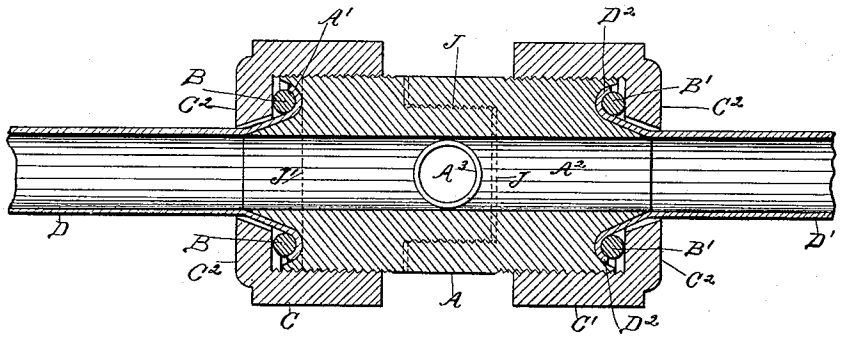
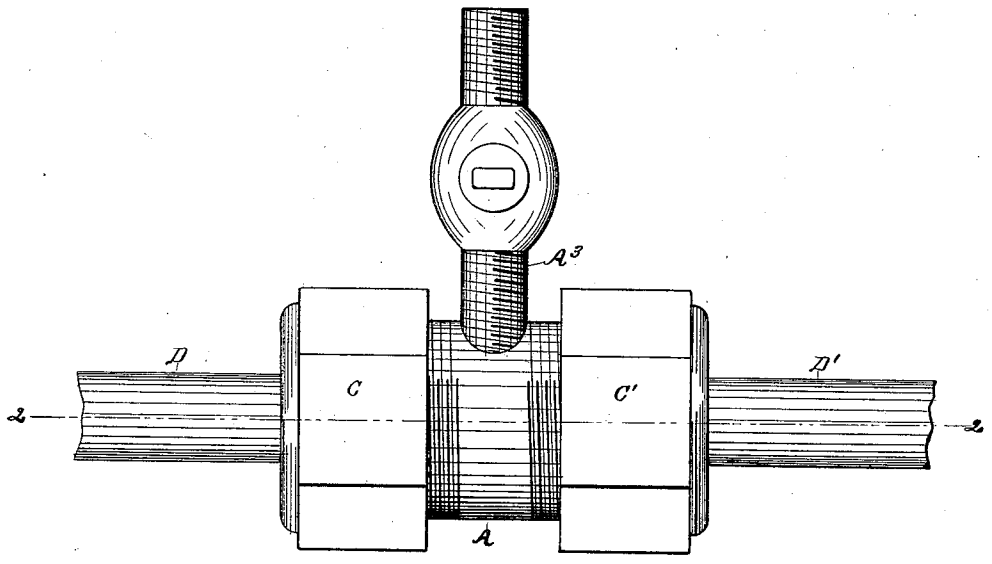


Fig. 1.



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Fig. 3.

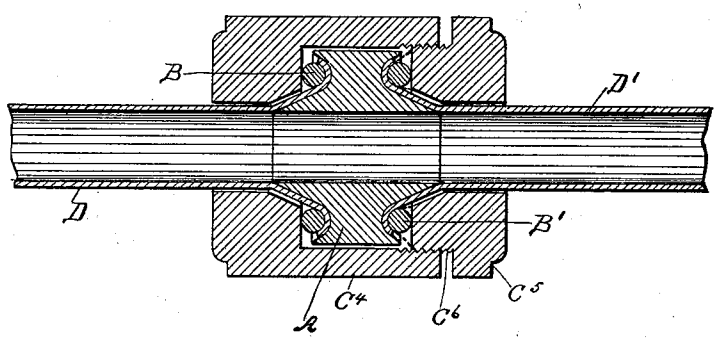
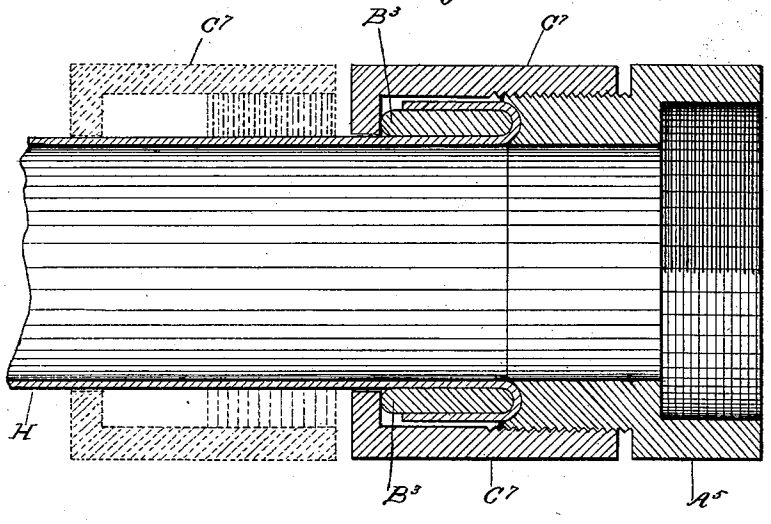


Fig. 4.



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(No Model.) 3 Sheets—Sheet 3.

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PIPE COUPLING.

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Fig. 5.

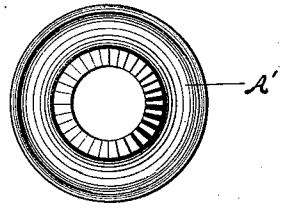


Fig. 6.

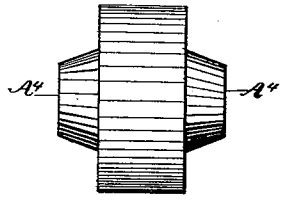


Fig. 7.

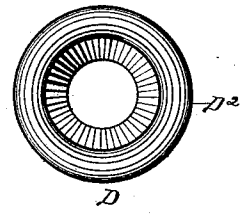


Fig. 8.

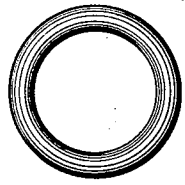


Fig. 9.



Fig. 10.

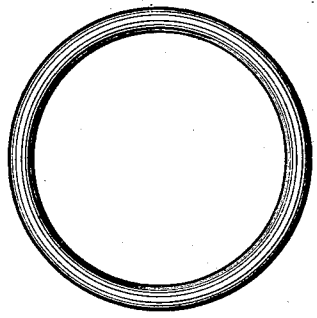


Fig. 11.

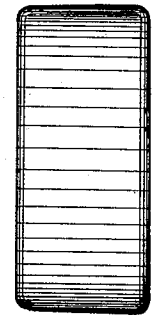
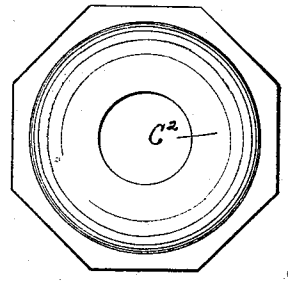


Fig. 12.



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UNITED STATES PATENT OFFICE.

WILLIAM F. LOMASNEY, OF SCHENECTADY, NEW YORK, ASSIGNOR OF ONE HALF TO HENRY McMULLEN, OF SAME PLACE.

PIPE-COUPLING.

SPECIFICATION forming part of Letters Patent No. 431,816, dated July 8, 1890.

Application filed January 24, 1890. Serial No. 337,925. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. LOMASNEY, a citizen of the United States, residing at Schenectady, county of Schenectady, and State of New York, have invented certain new and useful Improvements in Pipe-Couplings, of which the following is a specification.

My invention relates to such improvements; and it consists of the novel construction and combination of parts, hereinafter described and subsequently claimed.

Reference may to be had to the accompanying drawings and the letters of reference marked thereon, which form a part of this specification.

Similar letters refer to similar parts in the several figures therein.

The object of my invention is to provide a coupling which can be easily and quickly applied to securely couple pipes of lead, rubber, or other flexible yielding material.

Figure 1 of the drawings is a plan view showing two pipes joined together by my improved pipe-coupling, the coupling-section being provided with a lateral pipe supplied with a cock. Fig. 2 is a central longitudinal section taken on the broken line 2 2 in Fig. 1. Figs. 3 and 4 are similar sections, respectively, showing modified forms of my improved coupling. Fig. 5 is a view in end elevation of a coupling-section. Fig. 6 is a view in side elevation of the coupling-section shown in Fig. 3. Fig. 7 is a view in end elevation of one of the pipes prepared to receive the coupling-section. Figs. 8 and 9 are respectively views in side and edge elevations of a ring-follower. Figs. 10 and 11 are similar views of a cylinder-follower. Fig. 12 is a view in elevation of the outer end of a coupling shell or gland.

My improved pipe-coupling, as shown in Figs. 1 and 2, consists of the tubular coupling-section A, follower-rings B B′, and the coupling shells or glands C C′. The coupling-section is provided with annular end grooves A′, preferably having a curved cross-sectional outline, as shown in the sectional figures, and a central longitudinal aperture A^2, corresponding in size with the apertures in the pipes to be coupled. The coupling-section is also exteriorly screw-threaded at each end, and may be provided intermediately of the screw-threaded portions with one or more lateral pipes A^3, connecting with the central aperture A^2. The shells C C′ are octagonal in external form, adapted to receive an operating-wrench, and interiorly threaded to fit the exteriorly-threaded end of the coupling-section. The shells are also each provided with an interiorly-projecting annular flange C^2, forming a gland to act upon the followers B B′, as hereinafter more fully explained.

The soft-metal pipes D D′ are prepared to receive the coupling by expanding the ends to be coupled and retroverting the expanded edges D^2 of the pipes, so that they will correspond in cross-sectional outline with the grooves in the ends of the coupling-section, as shown in Figs. 3, 4, and 7, a ring-follower B and gland-shell C being first slipped over such end onto the pipe. The pipes are then coupled together by inserting the conical ends A^4 of the coupling-section into the expanded ends of the pipes, slipping the followers and glands back to the ends of the pipes, and screwing the gland-shells onto the threaded ends of the section until the followers, urged by the glands, force the retroverted edges of the pipes into the annular groove-seats A′ with sufficient power to cause the soft metal to form a tight joint between the pipe and the coupling-section.

In Fig. 3 I have shown a slightly-modified form of construction, in which the end threads upon the coupling-section are dispensed with and one of the gland-shells (marked C^4) made sufficiently large and long to slide freely over the section and engage with the supplementary gland-shell (marked C^5.) The latter shell is exteriorly threaded at C^6, and adapted to enter and fit the interiorly-threaded shell, as shown. By means of the screw-threads the shells are drawn together and the followers acted upon to make a tight joint, as before explained.

In Fig. 4 a modified form of my improved device is shown applied to a hose, which may be made of flexible yielding material, as rubber, or rubber and fabric combined. I have shown in this figure the female section of a detachable coupling attached to one end of the hose.

I prefer to make the follower marked B^3

and shown detached in Figs. 10 and 11 in the form of a cylindrical shell to permit a considerable portion of the hose to be retroverted over it, though a single ring-follower B would serve to make a tight joint, and a plurality of rings arranged side by side would serve the purpose of the elongated follower B^3.

To attach the coupling to the hose the gland-section marked C^7 is slipped upon the hose to approximately the position indicated by the dotted lines in Fig. 4 and the follower to the position shown by the solid lines. The end edges of the hose are then retroverted and drawn over the follower to the position shown, whereupon the gland-section C^7 is slipped over the follower and retroverted portion of the hose to approximately the position shown by the solid lines. The female part A^5 of the coupling-section, interiorly threaded at its outer end and exteriorly threaded at its other end to enter and fit the gland-section C^7, is screwed into the latter section, as shown, until it tightly packs the hose between the section and the follower to make a tight joint, as before described. The male part of the section (not shown in Fig. 4) could be secured to the other section of hose in precisely the same manner as the female part is secured to the hose H, or in substantially the same manner shown in Fig. 2, in which figure I have shown by dotted lines J J how the coupling-section A could be made in two detachable parts, that on the right being the interiorly-threaded female part and that on the left the exteriorly-threaded male part.

I do not wish to be limited to any particular cross-sectional form of the annular seat at the ends of the coupling-section for the retroverted pipe edges. They may be right angular to the axial line of the pipes or coupling-section, as indicated by the dotted line J′ in Fig. 2.

When desired, the follower may be integral with the gland itself, as indicated by the dotted lines in Fig. 3. I am thus able to quickly and tightly join two sections of soft-metal pipe or flexible hose without the use of solder or cement.

In a prior coupling followers have been provided with narrow annular notches or grooves corresponding to similar grooves formed in the flange of a ferrule, these notches being less in width than the thickness of the pipe-wall. In such construction the wall of the pipe was simply flared and the soft metal was forced into such notches in manner to reduce the diameter of the metal at adjacent points, thereby cutting circumferential grooves in the pipe itself, by which it was weakened. Such notched followers forced upon the flared ends of the pipe weakened it, and, further, as the pipe was not retroverted the hold of the coupling was insecure, the soft metal being liable to be drawn out under a high internal pressure. The bearing provided by my improvement is circular or curved in cross-section, having a radius much larger than the thickness of the pipe-wall, and the follower being also made circular in cross-section and of a suitable size is adapted to hold the retroverted end of the pipe without distorting or weakening the pipe-wall, the entire thickness or body of which is turned back over the follower, which latter has a diameter in cross-section much larger than the thickness of the pipe-wall, thereby avoiding a sharp bend in or any mutilation of the same.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a pipe-coupling, a tubular coupling-section having in its ends annular bearing-grooves, a pair of annular followers having each a bearing-surface circular in cross-section and formed with a radius greater than the thickness of the pipe-wall and concentric with the similar surface of the bearing-groove, a pair of glands adapted to engage with said followers, pipe-sections having retroverted ends, and means for forcing said glands against the followers and pressing them upon the retroverted pipe ends in the said annular bearing-grooves, whereby a sufficient hold upon the pipe is afforded without mutilation of the pipe-wall, substantially as set forth.

2. The pipe-coupling comprising a tubular coupling-section composed of two members having screw-thread connection with each other, and each provided with exterior screw-threads and with an annular groove in its end, two annular followers, the grooves and followers having similar curvature in cross-section, and the glands interiorly screw-threaded to engage the parts of the coupling-section, whereby the parts of the tubular coupling can be screwed together and the retroverted pipe edge clamped in the grooves by the glands, substantially as set forth.

In testimony whereof I have hereunto set my hand this 21st day of January, 1890.

WILLIAM F. LOMASNEY.

Witnesses:
JAMES A. VAN VOAST,
SARA E. GIBBON.