DE L. FREEBORN.

GAS PIPE COUPLING.

No. 50,111. Patented Sept. 26, 1865.

Fig: 1.

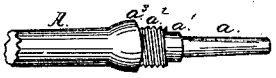


Fig: 2.

Fig: 3.

Fig: 4.

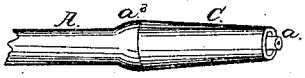


Fig: 6.

Fig: 5.

Fig: 7.

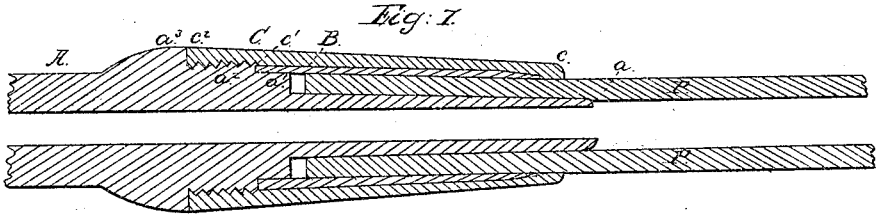


Fig: 8.

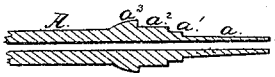


Fig: 9.

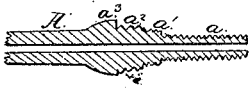
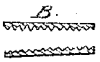


Fig: 10.



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UNITED STATES PATENT OFFICE.

DE LANCY FREEBORN, OF NEW YORK, N. Y.

GAS-PIPE COUPLING.

Specification forming part of Letters Patent No. **50,111**, dated September 26, 1865.

To all whom it may concern:

Be it known that I, DE LANCY FREEBORN, of New York, in the county of New York, State of New York, have invented a new and useful Mode of Fastening Flexible Elastic Pipe to Metallic Tubes; and I do hereby declare that the following is a full and exact description thereof; reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of a metallic tube or gas pipe as it is fitted preparatory to its insertion into the elastic pipe. Fig. 2 is a side elevation of a wooden or metallic slotted thimble, which slips over the conical end $a\,a'$, after the part a has been inserted into the pipe P. Fig. 3 is a side elevation of a metallic thimble which is forced over B, so that the part c^2 comes upon a^2. Fig. 4 is a side elevation of all these parts in their places. Fig. 5 is a side elevation of all these parts, illustrating the mode and order of their adjustment. Fig. 6 is a view of the same after the pipe P has been inserted and all the parts are in their places. Fig. 7 is a longitudinal vertical section on an enlarged scale through the same, showing the relation of the parts when in position. Figs. 8 and 9 represent different modifications of the parts $a\,a'\,a^2$. Fig. 10 is a longitudinal vertical section through B, showing a modification of its interior surface.

My invention relates more especially to the manner of fastening metallic ends to flexible gas-pipes where it is desirable to make a very firm and durable joint with neatness of appearance, as in drop-lights, cigar-lighters, &c.; but when duplicated may be used as a coupling for hose, &c.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A is a metallic tube or gas-pipe, uniform in diameter, or sufficiently enlarged at a^3 to answer the purpose of a shoulder. The part a is turned down until its diameter at its outer end is the same as the diameter of the hole in the pipe P. The diameter of a gradually increases back to the shoulder a'. The diameter of a' at its outer end is the same as the diameter of the pipe P after the part a has been inserted. The diameter of a' at its inner end is slightly greater than at its outer end. The screw a^2 fits into the part c^2 of C, and serves both to draw the thimble C backward very firmly upon B and to retain all the parts in their places. The shoulder a^3 is uniform in diameter with the diameter of C at c^2.

B is a thimble, slotted at its outer end, which fits tightly upon A, the part b' coming upon a', and it is conical, the diameter at b' being greater than the diameter at b. The diameter of the hole in B is also conical, being smaller at its outer end, b, so that when driven back to its place the slotted part b will fit closely upon the pipe P. The different sections of B are beveled at b from the upper side, so that the inner surface of C will readily pass over them. In some cases I permanently attach B to A, either by solder or otherwise.

C is a thimble or ring having a female screw at its inner end, c^2, which, when in place, fits upon a^2. The diameter of the hole in the outer end, c, corresponds exactly with the diameter of the pipe P. The diameter of this hole increases from the outer end, c, back to the female screw at c^2, and the diameter of this hole at c' is the same as the diameter of B at b'.

When the parts are in place, A extends out from a^3 a little beyond C, as indicated by a in Figs. 4 and 7, and C extends from the same point a little farther than B, as indicated by c in Fig. 7. To adjust the parts, first slip the pipe P through the hole in C and then through B, as indicated in Fig. 5; next insert the part a into the end of the pipe P. This operation may be facilitated by slightly threading the part a, as indicated in Fig. 9. When a has been inserted into the pipe P to the desired distance, push the thimble B back toward A, until the part b' rests upon a', and move the compressing-thimble C back over B, until the part c^2 fastens on a^2 and presses snugly against the shoulder a^3, when the whole will present the appearance as indicated in Fig. 6.

The best mode heretofore known of fastening metallic ends to flexible gas-pipes has been to screw the pipe into a conical female screw in the end of the metallic tube. There are several defects in this mode of fastening flexible elastic gas-pipes which very much hinder its practical working, causing an escape of gas, and necessitating a constant repair of drop-

lights and similar devices or the laying them aside altogether. The pipe itself, being, of necessity, soft and yielding, cannot be screwed in firmly enough to make a tight and durable joint, and, even when newly made, is liable to leak, and a very little handling breaks loose the cement with which the joint is often secured, and wears off the thread which has been cut in the pipe by the female screw in the act of inserting it, and allows the pipe to slip out from the metallic end.

My invention entirely overcomes these defects. The tube *a*, since it is tubular, can be quite thin, and yet sustain a strong pressure when applied evenly to its outer surface, and when it is inserted into the hole in the pipe P the increase in the diameter of *a* as it approaches the part *a'* causes the pipe P to hug closely around *a*. The thimble B, when moved to its place, presses against the exterior of P with a force due to the elasticity of the slotted part *b*, and when the outer thimble, C, is driven forcibly over B the pipe P is very firmly compressed between *c* and *a*, and between *b* and *a*, making a perfectly tight and durable joint, and one which at the same time has a neat and tasty appearance.

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

The combination of the inner cylinder, *a*, and the slotted thimble B, between which P is inserted and compressed, and the compressing-thimble C, all substantially in the manner and for the purpose herein set forth.

DE LANCY FREEBORN.

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