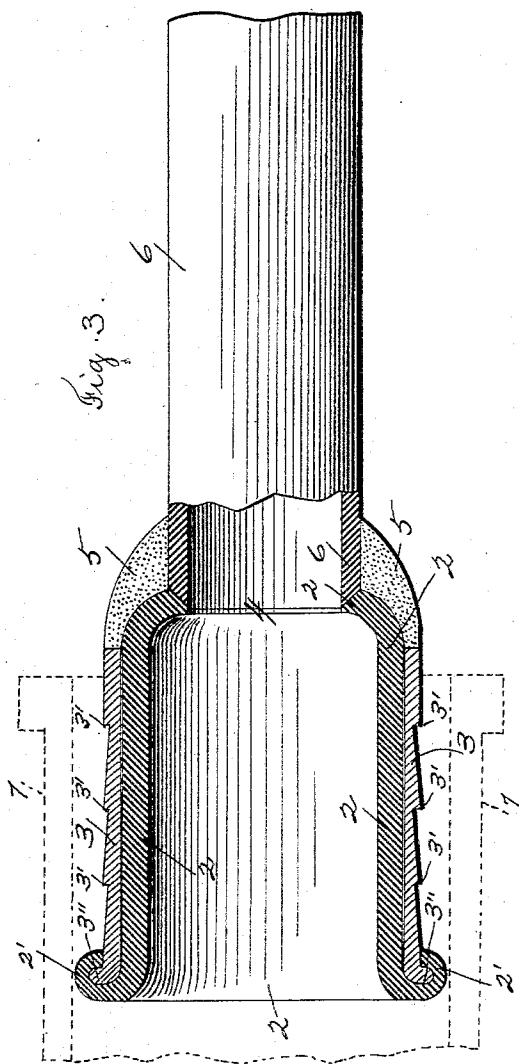
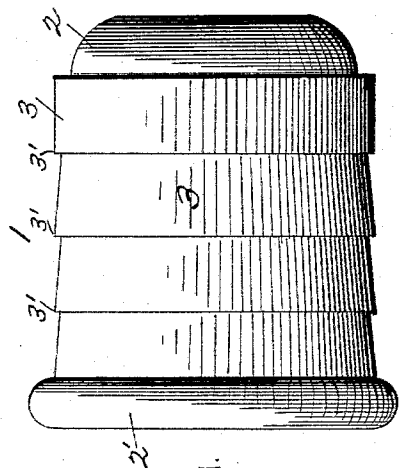
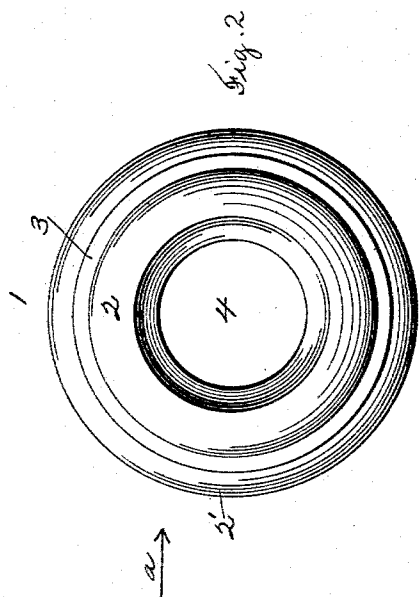


(No Model.)

J. J. PHELAN.
PLUMBER'S FERRULE.

No. 533,737.

Patented Feb. 5, 1895.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN J. PHELAN, OF WORCESTER, MASSACHUSETTS, ASSIGNOR OF ONE-HALF
TO JOHN F. DEEDY, OF SAME PLACE.

PLUMBER'S FERRULE.

SPECIFICATION forming part of Letters Patent No. 533,737, dated February 5, 1895.

Application filed May 18, 1894. Serial No. 611,699. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. PHELAN, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Plumbers' Ferrules; and I do hereby declare that the following is a full, clear, and exact description thereof, which, in connection with the drawings making a part of this specification, will enable others skilled in the art to which my invention belongs to make and use the same.

My invention relates to plumbers' ferrules, which are used in calking lead pipes to cast iron pipes, and the object of my invention is to improve upon the construction of plumbers' ferrules as now ordinarily made, and to provide a strong and durable ferrule.

My invention consists in certain novel features of construction of a ferrule, and more particularly in making a dome-shaped ferrule, provided with a brass jacket, said jacket having circumferential ridges or projections on its outer surface, as will be hereinafter fully described.

Referring to the drawings: Figure 1 is a side view of my improved ferrule, looking in the direction of arrow *a*, Fig. 2. Fig. 2 is a plan view, looking in the direction of arrow *b*, Fig. 1, and Fig. 3 is a central vertical section of the ferrule shown in Fig. 1, showing a section of lead pipe soldered to the ferrule, and showing by dotted lines the enlarged end of the iron pipe into which the ferrule extends.

In the accompanying drawings, the ferrule 1 consists of the center tube 2, made of lead, and the jacket 3, made of the same hard metal and preferably made of brass, surrounding said center tube 2.

The ferrule 1 is made dome-shape at one end, the lead 2 thereof beyond the brass jacket 3 being curved inwardly, as shown in Fig. 3.

The size of the opening 4, in the dome-shaped end of the ferrule, is less than the size or diameter of the opening in the other end thereof, and corresponds to the size of the lead pipe with which it is to be used, and the edges of the hole 4 are made internally beveled, as shown in Fig. 3. The brass jacket

3 encircles the lead portion 2 of the ferrule, extending preferably the full length of the straight portion of the ferrule, and is provided with one or more circumferential ridges or projections 3', on its outer surface. In this instance three ridges are shown. The portion between the ridges 3' preferably inclines inwardly, toward the smaller end of the ferrule. The extreme end of the brass jacket 3 is provided with an outwardly extending flange or lip 3'', over which the lead portion 2 of the coupling extends, as shown in Fig. 3.

In practice I prefer to make my ferrule by means of a suitable mold of proper shape, in which the brass jacket 3, previously made, is supported and within which a core extends. The inner surface of the brass jacket is coated with tin or solder, so that the lead will adhere thereto. Melted lead is then run into the mold, and fills up the space between the core, and the brass jacket, to form the center tube 2 of the ferrule. The mold is so shaped that the lead will run down below the end of the brass jacket, and around the lip thereof, to form the enlarged end 2' of the ferrule, as shown in Fig. 3, and also form the dome-shaped end of the ferrule, with the hole 4 of reduced diameter, and having an internal beveled edge.

When it is desired to use the ferrule, the end of the lead pipe 6, of suitable size, is filed so as to fit into the bevel-edged hole 4 in the dome-shaped end of the ferrule. Solder is then placed upon the upper end of the ferrule and the end of the lead pipe 6, and wiped thereon, as shown in Fig. 3, to form a tight joint. The ferrule is inserted in the enlarged end or hub 7 of the iron pipe, shown by dotted lines, Fig. 3, and melted lead is then poured in around the ferrule, and the joint calked tight, after inserting a strand of oakum around said ferrule in the hub of the iron pipe.

By means of the strong brass jacket surrounding the lead portion of the ferrule, the lead portion is protected and cannot be injured by the tamping process; and by means of the lip 3'' at the end of the brass jacket, around which the lead portion 2 of the ferrule extends, the lead cannot be forced away

from the end of the brass jacket, but is only forced against the lip on the jacket. The inclined or wedge-shaped surfaces on the jacket will allow the packing to be readily driven in around the ferrule, and prevent the same from coming out.

The advantages of my improved ferrule will be readily appreciated by those skilled in the art. It is strong and durable, and cannot be injured, and the reduced opening in the dome shaped end thereof may be made of a size to correspond with the different sizes of lead pipes used, so that it will only be necessary to file the end of the pipe and insert it into the hole, and wipe the joint around the upper end of the ferrule, and around the lead pipe. The ridges or projections on the brass jacket of the ferrule, prevent the packing around the ferrule being drawn out.

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

1. As an improved article of manufacture, a dome-shaped ferrule, having a brass or hard metal jacket thereon, said jacket provided with inclined or wedge shaped circumferen-

tial ridges or projections on its outer surface, substantially as shown and described.

2. As an improved article of manufacture, a dome-shaped plumber's ferrule, provided with an external brass or hard metal jacket, having circumferential ridges or projections thereon, and the opening in the dome-shaped end of the ferrule smaller than the opening in the other end, and having an internal beveled edge, for the purpose stated, substantially as shown and described.

3. In a plumber's ferrule, the combination with a lead center, dome-shaped at one end, with an internal bevel-edged hole therein, of less diameter than the opening in the other end of a brass or hard metal jacket encircling said lead center, and provided with one or more circumferential ridges or projections thereon, and an external lip or flange at its lower end, for the purpose stated, substantially as shown and described.

JOHN J. PHELAN.

Witnesses:

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