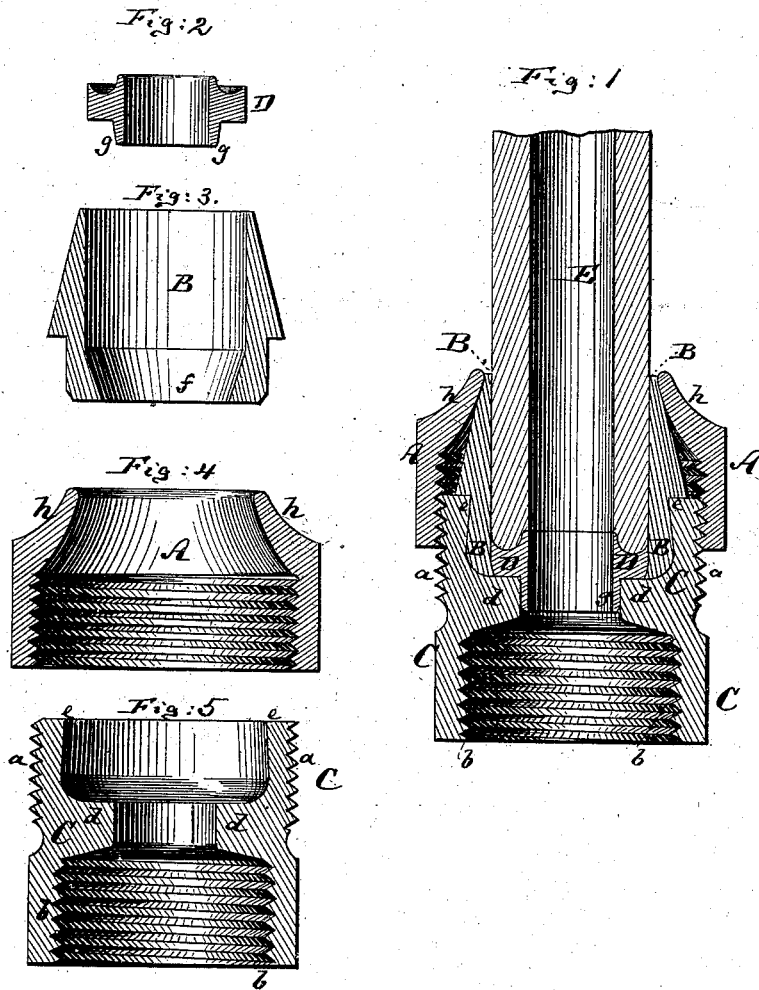


H. PENNIE.
PIPE-COUPLINGS.

No. 193,993.

Patented Aug. 7, 1877.



Witnesses:
John C. Tunbridge,
A. Briesen

Inventor:
Henry Pennie
by his attorney
A. Briesen

UNITED STATES PATENT OFFICE.

HENRY PENNIE, OF BROOKLYN, ASSIGNOR TO HIMSELF AND JAMES L. SHARP, OF NEW YORK, N. Y.

IMPROVEMENT IN PIPE-COUPINGS.

Specification forming part of Letters Patent No. **193,993**, dated August 7, 1877; application filed January 19, 1877.

To all whom it may concern:

Be it known that I, HENRY PENNIE, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Pipe-Coupling, of which the following is a specification:

Figure 1 is a longitudinal central section of my improved pipe-coupling. Figs. 2, 3, 4, and 5 are detail central sections of the four parts which constitute said coupling.

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

This invention is an improvement on, and modification of, the pipe and hose coupling described in Letters Patent No. 181,714, dated August 29, 1876.

The invention consists, first, in combining the tapering sleeve and the conical nut described in said patent with an outer case or shell, which has a threaded extension for attachment to a threaded pipe or tube of suitable kind.

The invention also consists in a new manner of securing the tapering sleeve in the threaded shell, all as hereinafter more fully described.

In the drawings, the letter A represents the outer nut, B the tapering sleeve, C the threaded shell, and D the inner ring or abutting piece, of the coupling. E is a piece of pipe to be secured by the coupling.

The shell C is made of brass or other comparatively hard metal, preferably cast, and is provided with a screw-thread, *a*, at one end, for the reception of the compression-nut A. At the other end the shell C has also a screw-thread, *b*, either on its inner or outer side, to permit its attachment to a threaded pipe. Thus, for fastening a supply-pipe to a gas-meter, this coupling can be screwed to the meter, and then used for holding the pipe.

The interior of the shell C is provided with an inwardly-projecting shoulder, *d*, and above this shoulder—that is to say, within the fold of the thread *a*—the inner face of the shell is hollowed out, so that its interior diameter at the upper edge *e* will be less than it is a short distance above the shoulder *d*.

The tapering sleeve B is made of lead or other soft material, and is originally con-

structed as in Fig. 3—that is to say, with a contracted opening in its inner or lower end *f*. The external lower part of the sleeve B is about cylindrical, of a diameter permitting its ready insertion into the upper part of the shell C. After the sleeve B has been thus set into the shell C, the ring D is driven through the sleeve B against the shoulder *d*.

The external diameter of the ring D is larger than the inner diameter of the lower part of the sleeve B, and the effect of the forcible introduction of the ring D into the sleeve B is, therefore, to spread the latter and cause it to fill the bulging chamber formed in the shell C, as in Fig. 1. In other words, the ring D expands the sleeve so as to cause it to fit the inclined hollow of the shell. This renders the sleeve practically fixed in the shell, and produces the intimate connection of parts which it is necessary to attain in a good pipe-coupling.

The ring D rests on the shoulder *d*, as in Fig. 1, and has, by preference, a downwardly-projecting rim, *g*, which serves as a lining to the inner edge of the shoulder *d*.

The upper part of the sleeve B is made tapering, and the upper end of the nut A is provided with a conical extension, *h*, wherewith to compress the sleeve and press it against the pipe E.

The taper *h* of the nut A is on a different angle to that of the sleeve, as shown in Fig. 1, for the purpose of increasing the compressing effect as the nut is turned farther onto the shell.

As far as the method of securing the sleeve and shaping the nut is concerned, this invention is equally applicable to single, double, and treble pipe-couplings. The sleeve may be expanded within the shell by a separate tool instead of the ring.

I claim as my invention—

1. The shell C, made with the interior shoulder *d*, and hollowed above said shoulder to form a tapering chamber, which chamber gradually contracts toward the outer end of said shell, substantially as and for the purpose herein shown and described.

2. The soft-metal tapering sleeve B, combined with the expansion ring or tool D, and

with the shell C, substantially as herein shown and described.

3. The combination of the compression-nut A, which has the conical projection *h*, with the shell C and soft-metal tapering sleeve B, the angle of the projection *h* differing from that of the sleeve B, substantially as herein shown and described.

4. The combination of the shell C, which

has the screw-thread *a* and the thread *b*, with the nut A and tapering sleeve B, to constitute a coupling for a single pipe, substantially as herein shown and described.

HENRY PENNIE.

Witnesses:

ERNEST C. WEBB,
F. V. BRIESEN.