O. M. ROBERTS.

Couplings for Pipe, Tubing, &c.

No. 219,980. Patented Sept. 23, 1879.

FIG. I.

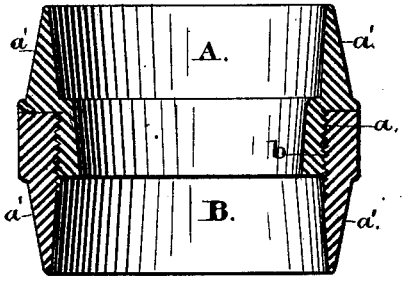


FIG. II.

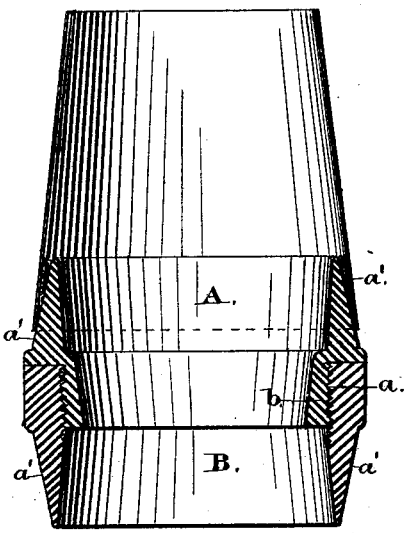


FIG. III.

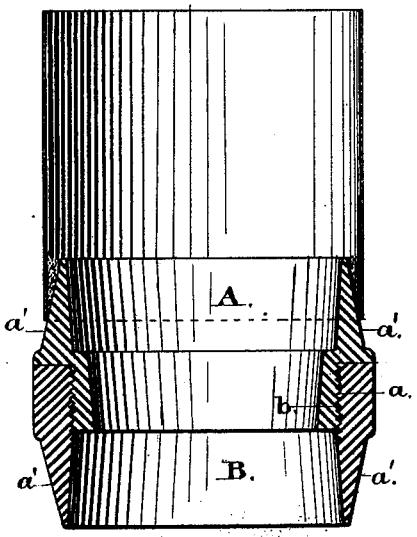
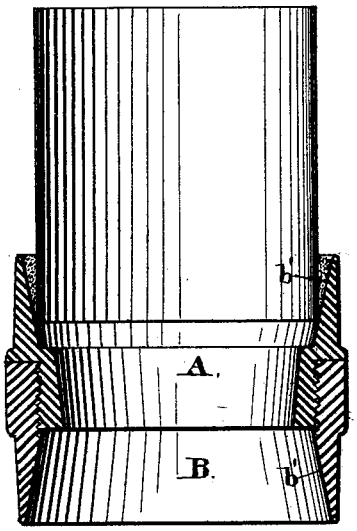


FIG. IV.



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UNITED STATES PATENT OFFICE

OWEN M. ROBERTS, OF BRADFORD, ASSIGNOR TO HIMSELF AND EDWARD A. L. ROBERTS, OF TITUSVILLE, PENNSYLVANIA.

IMPROVEMENT IN COUPLINGS FOR PIPE, TUBING, &c.

Specification forming part of Letters Patent No. **219,980**, dated September 23, 1879; application filed August 11, 1879.

To all whom it may concern:

Be it known that I, OWEN M. ROBERTS, of Bradford, in the county of McKean and State of Pennsylvania, have invented a new and useful Improvement in Couplings for Pipe, Tubing, Torpedo-Cases, &c.; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a view of devices embodying my invention in the preferred form. Figs. 2 and 3 are sectional views of the couplings as applied to two different sizes of tubing. Fig. 4 is a sectional view of a modification.

Like letters refer to like parts wherever they occur.

My invention relates to the construction of couplings for pipe or tubing, and is what may be termed a "universal coupling."

It consists in a coupling the body of which back of the threaded portion is formed with either an external or internal taper, the whole substantially as hereinafter described, whereby torpedo-cases or tubing of varying sizes may be united by a single coupling, to each section of which its own section of case or tubing is secured before the two portions composing the coupling are joined.

In the preferred form (see Figs. 1, 2, and 3) the bodies of the couplings are tapered externally or shaped like the frustums of hollow cones, the smallest diameter corresponding to or slightly less than the inner diameter of the smallest pipe or tubing with which the coupling is to be used, and its greatest diameter corresponding to or slightly greater than the interior diameter of the largest pipe or tubing with which the coupling is to be employed.

It will be evident on an examination of the drawings and this specification that the invention is generally applicable to the coupling of all tubing, and therefore I do not intend in any wise to limit its application; but it has been devised for and is especially applicable to the coupling of sectional torpedo-cases.

In the torpedoing of oil-wells torpedoes of varying lengths and diameters are employed and demanded, so that to obtain varying effects upon different wells it may be necessary in one well to explode a heavy charge in a limited space, or a small charge over an extended surface. For instance, one well will demand a charge of sixteen (16) or twenty (20) quarts of nitro-glycerine or an equivalent explosive within any space extending from ten (10) feet to fifteen (15) or twenty (20) feet, while the next well torpedoed will only require half the amount of explosive extending over the same space; consequently the diameter of the first torpedo-case will greatly exceed the diameter of the second, and the couplings as now constructed that would be suitable to one would not be adapted to the other.

As all torpedo-cases and explosives are necessarily transported across country (often very hilly) to the wells in vehicles, usually light wagons, it is extremely troublesome to carry very long cases, and a case twelve feet would be the extreme limit, so that the cases are invariably made in sections, usually from four (4) to six (6) feet long, each section provided with its coupling, the parts being screwed together at the well. This demands a different-sized coupling for pipes of different diameter.

The object of my invention is to provide a coupling suitable for any sized case within ordinary limits.

I will now proceed to describe my invention, so that others skilled in the art to which it appertains may apply the same.

In the drawings, A B indicate the two sections of the coupling, one threaded externally, as at *a*, and the other internally, as at *b*, in the usual manner, or in lieu thereof any of the well-known methods of uniting the sections of the coupling may be substituted, as the same form no part of the present invention.

The sections A B are formed, preferably, with an external taper or slope, *a'*, so that each section resembles the frustum of a hollow cone, the diameters diminishing as they recede from the threaded portions *a b*, or from the junction of the two sections. Instead of this construction, however, its reverse and equivalent may be used—that is to say, the cavity of each section may taper, as at *b'*, Fig. 4, in which case the interior diameters will diminish progressively as they approach the threaded portions or junction of the sections.

A section of the coupling is slipped either into or over the tube-pipe or section of torpedo-case, and pressed down until the equal diameters meet, when the parts may be secured by welding, soldering, brazing, cementing, or in other suitable manner.

The advantages of my invention are that a single sized coupling may be used with several sized pipes, tubes, or case-sections, and that the coupling sections can be readily secured to the tubes or case-sections.

I am aware that a coupling for lead and other expansible tubing has heretofore been devised, wherein a hollow tapering cylindrical expansion-plug has been inserted within the ends of the tubing to be joined, and two hollow conical frusta connected by a nut have been employed to inclose the ends of the tubing and clamp the same to each other and to the central plug, so as to unite the ends of tubing without the use of solder and cements, and that there are other similar couplings, of which the last recited may be considered a type, and do not herein claim such devices, because they are complex, are only adapted to be connected to the tubing as a whole and at the time the joint is to be made, and in the main are not universal couplings, as a separate size is required for each sized tubing. The idea embodied in my devices differs materially therefrom; therefore,

Having thus described the nature and advantages of my invention, what I claim, and desire to secure by Letters Patent, is—

A coupling for torpedo-cases, tubing, &c., composed of two sections connected directly together, each section having a body tapered either externally or internally, to which the ends of the tubing are directly connected by soldering, brazing, or in equivalent manner, substantially as and for the purpose specified.

In testimony whereof I, the said OWEN M. ROBERTS, have hereunto set my hand.

OWEN M. ROBERTS.

Witnesses:
F. W. RITTER, Jr.,
JAMES H. PORTE.