

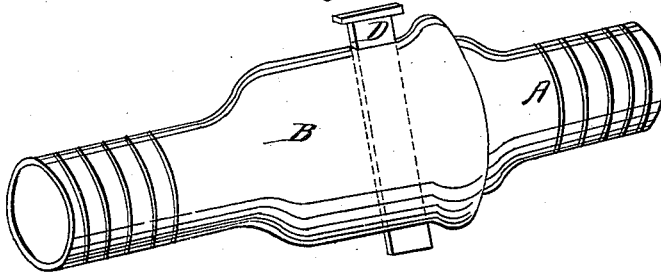
*G. Shone*

*Pipe Coupling.*

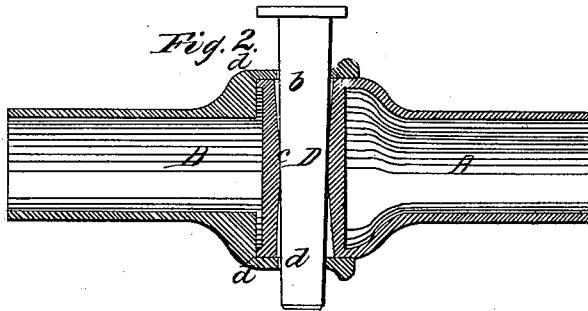
*N<sup>o</sup> 52,214.*

*Patented Jan. 23, 1866.*

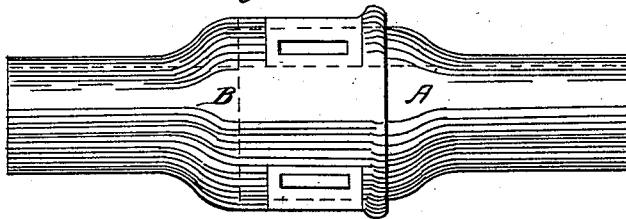
*Fig. 1*



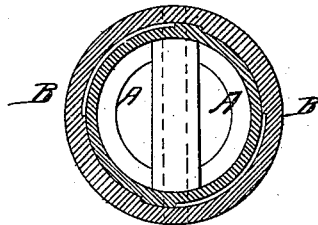
*Fig. 2.*



*Fig. 3.*



*Fig. 4*



*Witnesses*

*George M. Phelps*  
*A. Wagner*

*Inventor*

*George Shone*

# UNITED STATES PATENT OFFICE.

GEORGE SHONE, OF CARONDELET, MISSOURI.

## IMPROVEMENT IN PIPE-COUPPLINGS.

Specification forming part of Letters Patent No. 52,214, dated January 23, 1866.

*To all whom it may concern:*

Be it known that I, GEORGE SHONE, of the city of Carondelet, in the county of St. Louis and State of Missouri, have invented a new and useful Hose and Pipe Coupling; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

Figure 1 of the annexed drawings is a perspective view of one of the improved couplings. Fig. 2 is a longitudinal section of the same. Fig. 3 is a plan of a variation of the same joint by placing two keys, one on either side of the pipe. Fig. 4 is a transverse section, showing an arrangement of lugs for guiding the two parts of the joint when the same are united, so as to make the proper openings for the key in the two pieces come opposite each other without difficulty.

The chief advantages of these improvements, and those to which the invention relates, are, first, in the case of coupling hose for fire-engines the coupling can be performed in much less time than by the screw-coupling; secondly, the screw-couplings have to be made of brass, (which is expensive,) in order to secure durability of the threads, while this improved key-coupling may be made of malleable iron or any other metal; thirdly, it is more durable, as the men who are frequently employed to unite screw-couplings of this kind are not mechanics, and starting the screws on without matching the threads, soon destroy the screw. The advantages that arise, then, are convenience and rapidity of application, cheapness, and excessive durability.

To enable those skilled in the art to make and use my improved couplings, I will proceed to describe their construction and operation.

The male coupling-piece A is inserted into the female piece B, as is clearly shown in Fig. 2, the end of the piece A fitting up against the shoulder of the piece B, and forming a water-tight joint at *a*, which joint may be ground, if necessary, or a piece of rubber packing may be inserted between the two parts.

A piece of metal is cast across the orifice of the piece A, near its end, so as to leave a water-passage on either side of it and between it and

the shell of the tube-piece A, which is made larger at that point than the general opening of the pipe, so as not to obstruct the flow by such obstruction. A mortise is made clear through the coupling-piece A, in such a position as to pass through the center of the mass of the metal, which is thus formed in the orifice of the tube for that purpose, so that the mortise will not come in contact with the water-way of the tube. This mortise should be rectangular in form and smallest in the center, as shown clearly in Fig. 2, so that the key D may be driven in from either side with the same effect. A similar mortise to the above-described one will be made through the female joint-piece B, only a little longer than the other one, so that when the two pieces are united and the wedge D inserted through the mortises of the two said wedge will press against the forward end of the mortise in the female piece and against the opposite end of the mortise in the other piece at its highest point in the center, as clearly shown in Fig. 2. The same result will be obtained by driving the wedge in from either side. Figs. 3 and 4 represent different arrangements of the same device. In Fig. 3 two keys are used, one on either side of the pipe, in which case no obstruction would be placed in the center of the pipe, and a small amount of metal only would have to be added in the form of lugs for key-seats. Fig. 4 represents a section of a coupling in which projecting tongues are used, so that for night use the two pieces may be placed together and then turned around as far as they will go in either direction, at which point the mortises will be in the proper position for the key to enter.

I am informed that couplings exist where keys are used to connect the male and female parts, but that, owing to certain defects in construction such existing arrangements are inoperative and not in general use. I have therefore studied the defects of such arrangements, and endeavored to overcome them in the manner herein to be described.

I believe the existing coupling, using a key as stated, to be defective in operation, because of the form of the key-way, the key-way, as shown in the drawings forming part of the Letters Patent issued to Sylvester W. Warren,

dated May 8, 1860, being straight, and thus forming a mortise of about invariable area. By inaccuracies of workmanship, or by bending or kinking the key or key-way, or by inserting the key in a reversed manner, and, generally, by an unskillful handling of the coupling by inexperienced men, the key will not bear properly against the bearing-face of the key-way, and the pressures then being unequal the one side of the male coupling will bear harder than the immediately-opposite edge of the cylinder against the female part, thus producing greater wear on the edge receiving such greater pressure and causing leakage. I claim that all these difficulties can be made overcome by using a key-way which, on the face where the key bears, has a double inclined surface, as shown in section at *b c d* in Fig. 2. It is plain that here the key-pressure will always be thrown in the axis of the coupling at *c*; that this pressure, therefore, will be uniform

on the whole rim of the male and female coupling parts; and, moreover, that, whether the key be inserted in its proper manner or in any reversed manner, through inexperience or inadvertency, that here the joint will always be fluid or air-tight. I claim, therefore, that this arrangement is independent, as to its efficiency, of the skill of the operator.

Having thus described such improvements by which I believe a key-coupling can be made effective and highly useful, what I claim, and desire to secure by Letters Patent, is—

The double-inclined surface *b c d* of the key-way, for the purpose of taking the key-pressure upon the axial line of the coupling, thus insuring a tight joint and making the efficiency of the coupling independent of the skill of the operator, as hereinbefore mentioned.

Witnesses:                      GEORGE SHONE.

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