(No Model.)

F. SHERIDAN.

MEANS AND CONSTRUCTION FOR INSERTING FITTINGS UNDER PRESSURE.

No. 571,077. Patented Nov. 10, 1896.

Fig. 1

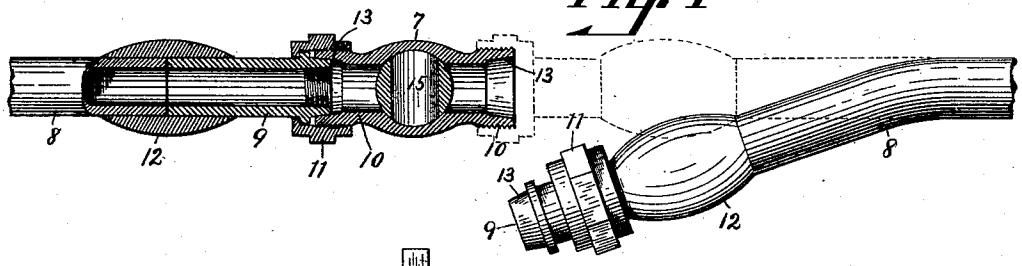


Fig. 2

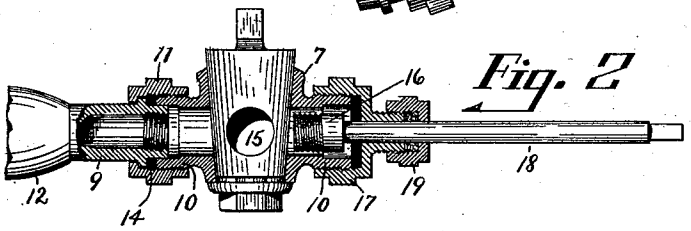


Fig. 3

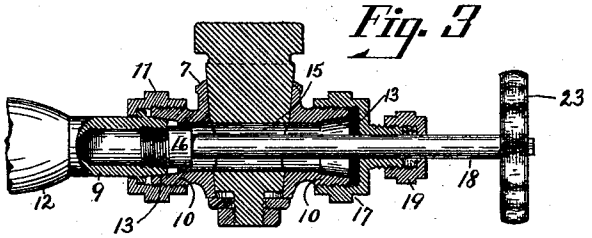


Fig. 5

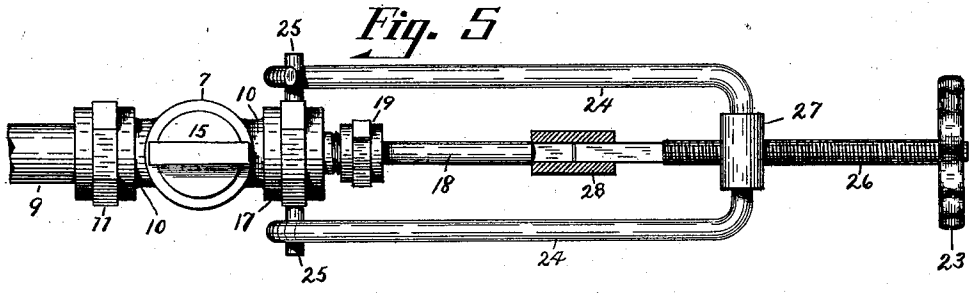
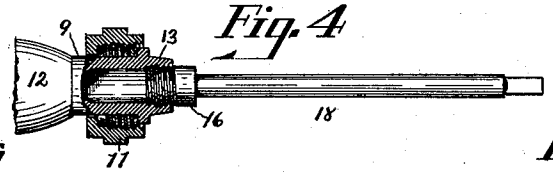


Fig. 4



WITNESSES

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MEANS AND CONSTRUCTION FOR INSERTING FITTINGS UNDER PRESSURE.

SPECIFICATION forming part of Letters Patent No. 571,077, dated November 10, 1896.

Application filed June 6, 1896. Serial No. 594,504. (No model.)

To all whom it may concern:

Be it known that I, FRANK SHERIDAN, a citizen of the United States, and a resident of Covington, Kenton county, State of Kentucky, have invented certain new and useful Improvements in the Means and Construction to Insert Fittings under Pressure; and I do declare the following to be a clear, full, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, attention being called to the accompanying drawings, with the reference-numerals marked thereon, which form a part of this specification.

This invention relates to means and construction for the purpose of inserting and replacing valves, cocks, and similar stop-fittings in general while the medium which these fittings control is charged and under pressure. Its use is more particularly intended in connection with so-called "stop-cocks," as they occur in the service-pipes of waterworks systems, where they control the branch pipes leading from mains to the private consumers. Replacing or repairing of these stop-cocks when they become leaky and worn out is always a troublesome undertaking, particularly for the reason that generally a part of the main has to be shut off, thereby depriving also others of the use of water until the repairs or replacing is accomplished.

The object of my invention is therefore to limit this resulting inconvenience to that supply only which depends on the one pipe where the cock is located, and as to that particular pipe it reduces the time required to make the insertion or repairs considerably and simplifies the whole procedure.

It consists in part of a coupling specifically prepared for the purpose and forming a part of the cock and pipe system, remaining permanently in position, and of implements which work in conjunction with the parts first mentioned, but are only temporarily in position, assuming, therefore, more the character of tools.

In the following specification, and particularly pointed out in the claims, is found a full description of the invention, its procedure, parts, and construction, which latter is also illustrated in the accompanying drawings, in which—

Figure 1, in a longitudinal horizontal section, shows a stop-cock of a pipe-line disconnected at one side and the pipe bent aside to give access to the cock. Fig. 2 shows in a vertical longitudinal section the next step of the procedure. Fig. 3 shows in a similar view the parts in a position which permits removal of the cock. Fig. 4 shows the end of the pipe temporarily closed and the cock removed. Fig. 5 shows in a top view all parts connected in operative position and an additional member applied to make the procedure more convenient, particularly where the pipes are under high pressure.

At present these cocks are usually connected by so-called "wiped" joints directly to the leaden pipes at either side. If replacing or repairs are required, it is necessary after the water has been shut off, generally between a whole block, to cut the pipe and make a new connection by similar joints. It requires considerable time and skill to wipe a joint of which there are at least two, and besides there is the waste in lead pipe which has to be cut out. To obviate this kind of a joint, I propose to connect the stop-cock 7 to the leaden pipes 8 by couplings 9, secured to the nipples 10 of the stop-cock by threaded caps or unions 11. The outer ends of the two couplings are permanently secured by wiped joints 12 to the leaden pipes 8; but these joints when formed once need never be disturbed any more, as will be presently understood.

To obtain a water-tight joint, the inner ends of the couplings may fit into the nipples 10 of the cocks by a ground joint 13, or a washer 14 may be interposed. The inside of the couplings near their inner end is threaded for a suitable distance.

The cock itself is of the ordinary well-known type with a round passage-way 15.

If now in due course of time it becomes necessary to repair or replace one of these cocks for any reason whatever, its removal is accomplished as follows: The cock is closed against the pressure and the pipe at the other side is disconnected, which is done by simply unscrewing the union 11 thereat and slipping it back on its coupling, after which the leaden pipe becomes free and may be bent aside to be out of the way, as shown in Fig. 1. Next

a stop 16 is introduced into the now open nipple of the cock, and a cap 17, perforated to admit the shank 18 of the stop, is screwed onto the nipple of the cock, taking the place of the removed union 11 and closing again the open end of the cock. (See Fig. 2.) A stuffing-box 19 may be provided where the shank passes through the cap. With the parts in this condition the cock may now be readily opened, because the escape of water is prevented by cap 17. The cock being opened, stop 16 is now pushed through the open passage-way 15 and put in engagement with the inner end of the opposite coupling, closing the same, as shown in Fig. 3. For the purpose of such engagement the stop is threaded externally and fits the internal thread at the inner end of this opposite coupling. A suitable removable handle or hand-wheel 23 is provided to operate and turn the stop. This connection, which thus shuts off the water, being made, the whole cock may now readily be taken off after the union holding it yet at the other side is unscrewed, because stop 16 closes the pipe for the time being and prevents the water from pouring out. This leaves the parts as shown in Fig. 4. For replacing the new cock the procedure is similar, only that its different steps are performed in converse order. Thus the new cock is slipped over the stop and connected to the closed coupling. Cap 17, having been taken off from the removed cock, is then passed in over shank 18 of the stop, and the open nipple of the new cock is closed, putting the parts again in position, as shown in Fig. 3. This permits withdrawal of stop 16 from the coupling, which is kept closed until then, such withdrawal being sufficient to clear the passage-way of the cock and permit the latter itself to be closed. Cap 17 and stop 16 are now entirely removed, after which the end of the other pipe is bent back into position again and connected by the union, as may be readily understood.

For larger pipes or where the pressure is considerable a hooked brace 24 may be provided, which is engaged with projections 25 on cap 17 and has a screw-shank 26 seated in the end 27. By means of a sliding sleeve 28 it is connected to the end of shank 18 of the stop, and the latter may now be readily advanced against the pressure and into the screw-threaded coupling.

As will be seen, time, work, and expenses are considerably reduced, no solder joints are required, no leaden pipes need to be cut out, and the inconveniences and disturbances resulting from turning off the water are limited to the one pipe alone.

Under certain conditions and when no leaden pipe is used couplings 9 might represent simply the ends of the pipes themselves.

Having described my invention, I claim as new—

1. In a stop-fitting adapted to be applied under pressure and detachably connected to the pipe by unions and couplings, a stop 16 adapted to be passed through the passage-way of the stop-fitting after the same is rendered accessible by disconnection from the pipe at one side and capable of closing the open end of the pipe or coupling at the other side and a cap to close the disconnected end of the stop-fitting.

2. An implement for connecting stop-fittings to pipes while charged and where such fittings are detachably connected to the pipe by couplings or otherwise, such implement consisting of a stop 16 carried by a shank 18 and a cap 17 both adapted to be temporarily connected, the first for the purpose of closing the open end of the pipe, the other to close the open end of the stop-fitting and all to be applied in the manner described.

3. In a construction to insert fittings in pipes while charged, the combination of a cock or similar stop-fitting detachably connected to its pipe by couplings 9 and unions 11, the inner ends of the couplings being screw-threaded, a stop 16 threaded to fit the threaded end of the couplings and adapted to be passed through the passage-way controlled by the stop-fitting after the same is disconnected at one side and thus opened for access, a cap 17 to temporarily close the open end of the stop-fitting and a shank on stop 16 and passing through cap 17 to manipulate it.

4. An implement for inserting stop-fittings into pipes while charged and where such fittings are detachably connected to the pipe by couplings or otherwise, such implement consisting of a stop 16 carried by a shank 18 and screw-threaded to fit the correspondingly-threaded end of one of the permanently-connected couplings for the purpose of closing thereby the open pipe, and a cap 17 fitted to close the open end of the stop-fitting while stop 16 is being inserted to close the open end of the pipe and a shank passing through cap 17 to manipulate stop 16.

5. An implement for inserting stop-fittings into pipes while charged and where such fittings are detachably connected to the pipe by couplings or otherwise, such implement consisting of a stop 16 carried by a shank 18, a cap 17, having projections 25, fitted to close the open end of the stop-fitting while stop 16 is introduced, a shank 18 on stop 16 passing through cap 17, a brace 24 adapted to be temporarily connected to projections 25 on cap 17 and a screw-shank 26 supported in the end of brace 24 and adapted for connection to shank 18 for the purpose of manipulating stop 16.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

FRANK SHERIDAN.

Witnesses:
W. E. YAGER,
C. SPENGEL.