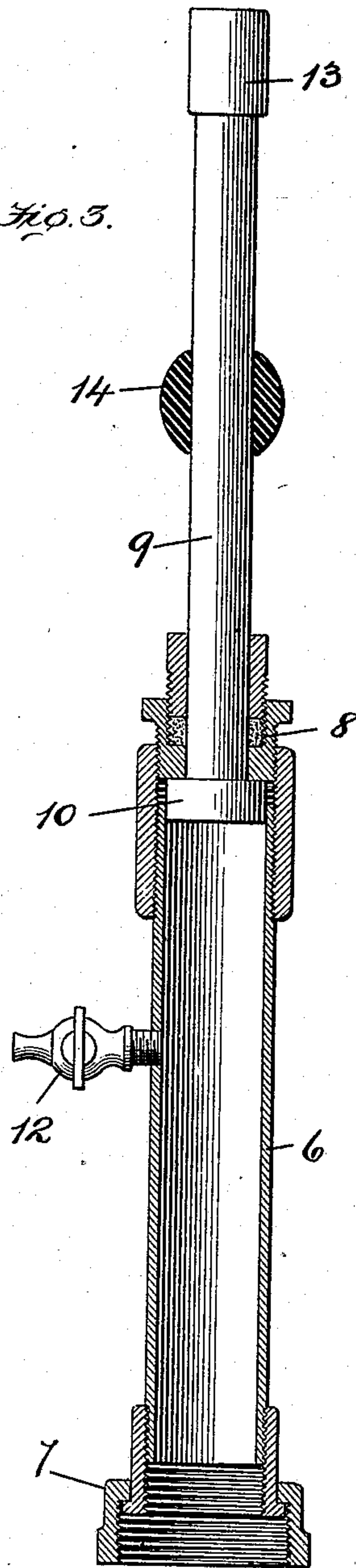
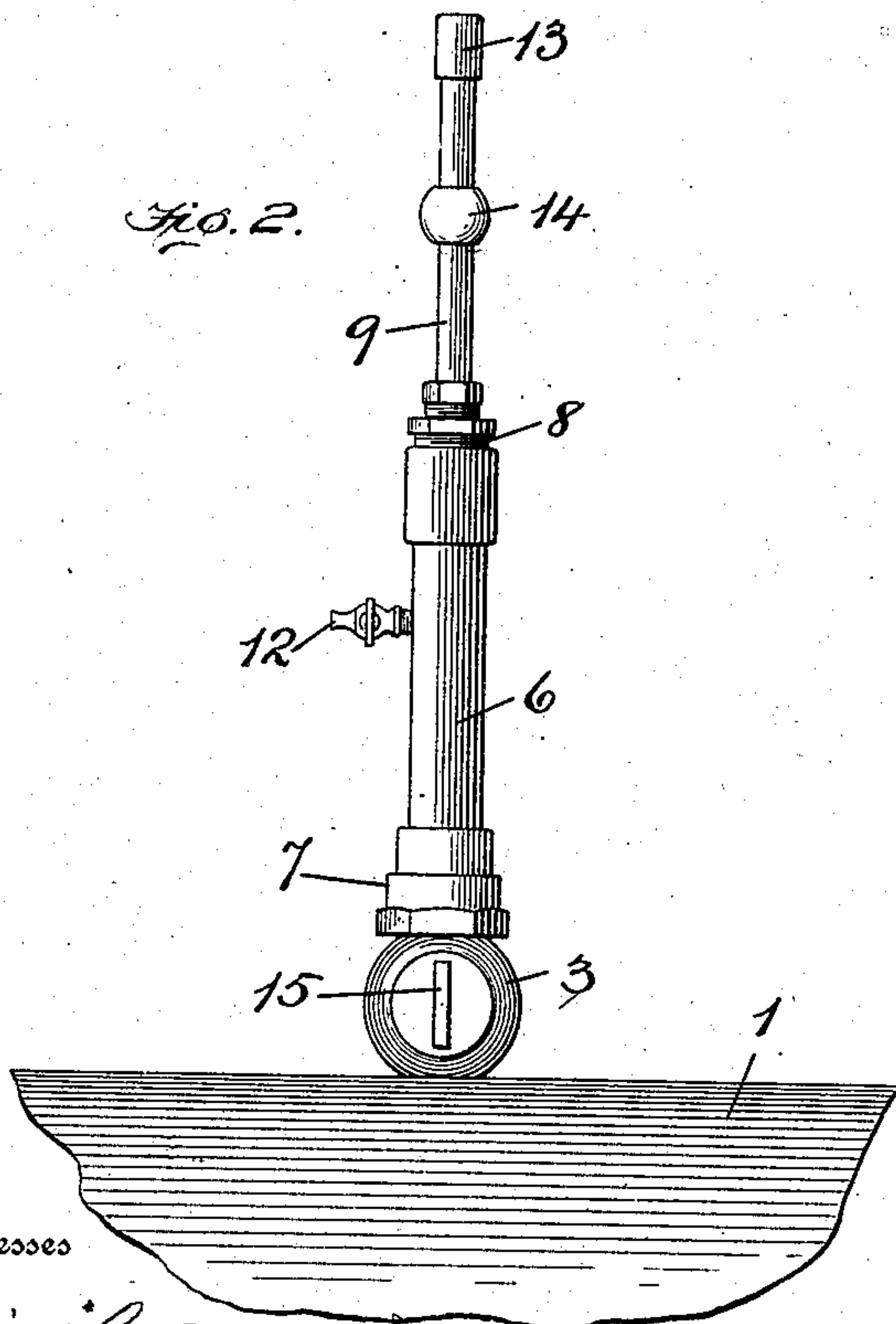
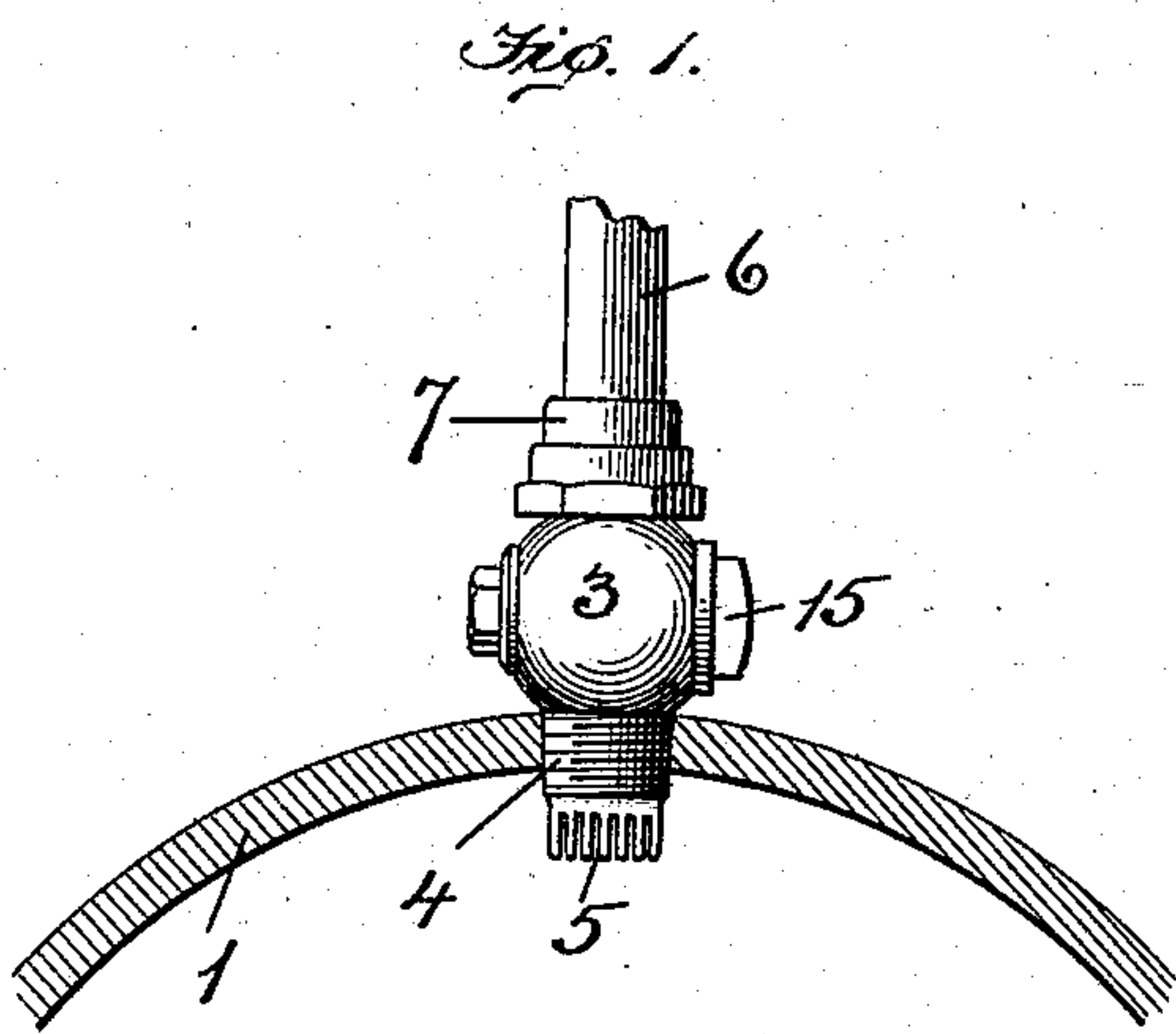


J. CONWAY.
 DEVICE FOR DISLODGING MATTER FROM VALVES IN WATER SUPPLY SYSTEMS.
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911,941.

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Witnesses

Edwin K. Bradford.
 J. Ferdinand Vogt.

By

Inventor

Jesse Conway

Mann & Co.,

Attorneys,

UNITED STATES PATENT OFFICE.

JESSE CONWAY, OF BALTIMORE, MARYLAND.

DEVICE FOR DISLODGING MATTER FROM VALVES IN WATER-SUPPLY SYSTEMS.

No. 911,941.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JESSE CONWAY, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Devices for Dislodging Matter from Valves in Water-Supply Systems, of which the following is a specification.

This invention relates to a device for producing in water-pipes a sudden shock accompanied by great momentary pressure for the purpose of dislodging obstructions at the intersection of a branch-pipe with an underground main-pipe.

Considerable trouble is experienced in large cities by the stopping up of the branch pipes leading from the mains to buildings in the water-supply system. In a large proportion of cases where water is accidentally obstructed from a building it will be found that the valve interposed between the main and the branch pipe is clogged at the main side thereof,—sometimes by grass or other foreign matter and occasionally by a fish, coming in contact with the end of the valve and held there by the pressure of the water. It is a very difficult matter to dislodge any substance from these valves without interrupting the flow of water through the main because of the great pressure of the water in the main at the clogged up side of the valve and the tendency of said pressure to hold the obstructing matter in the valve. Moreover, if the attempt is made to open these valves without cutting off the supply to the main the slightest opening made through the foreign matter will permit the water to escape before the valve is fully cleaned and further cleaning of the valve is interfered with by the escaping water. Furthermore the pressure on the main side of the valve is often too great to be overcome by an ordinary hand pump.

The object therefore of my invention is to provide an improved device that may be attached at a suitable and convenient point in the branch pipe and which will enable a sudden shock accompanied by great momentary pressure to be produced in the branch pipe on the building side of the valve and thereby drive from the valve anything that may have found lodgment therein. With this object in view the accompanying drawing illustrates the invention in which—

Figure 1 illustrates a cross sectional view through a water main with the branch pipe

leading to a building and valve controlling the same. Fig. 2 shows a sectional view through a water main at the point where the valve and branch pipe leads therefrom and also shows my improved device attached to the branch side of the valve ready for operation, and Fig. 3 illustrates a longitudinal sectional view through the improved device,—the parts thereof being shown in the position they have when in readiness for operation.

Referring to the drawing the numeral, 1, designates the main or supply pipe of an underground water-pipe system and, 3, the stop cock or valve controlling the passage of water to the branch pipe that leads to a building. The cock or valve, 3, is usually provided with a plug, 4, at its inner end which has a plurality of cross-slits, 5, which serve as a strainer or guard to prevent the passage of foreign matter or fish from the main into the branch pipe, and it is these slits, 5, that generally become clogged or against which a fish may lodge and thereby entirely cut-off or reduce the flow of water through the valve into the branch pipes which latter are usually constructed direct to the cock or valve. When this occurs the valve or cock must be reached and the underground branch pipe disconnected during the cleaning operation and as heretofore stated the pressure on the main-pipe side or strainer side of the valve is usually so great that it has not been found practical to properly clean the same without cutting off the supply to the main which is a serious proposition to property holders. By my invention however I am enabled to dislodge from the underground valve any matter that may have accumulated there by causing in the branch side of the valve a sudden shock accompanied by momentary pressure that will dislodge such matter and effect a thorough cleansing of the valve.

The improved device may be attached directly to the valve or cock, 3, or it may be attached at some more convenient point in the branch pipe as for example at the point where the branch enters the building. The particular point of attachment however is immaterial although in the drawing the improved device is shown attached directly to the valve, 3, which is the connection between the branch and main pipes. In the present instance the shock and momentary-pressure-producing device comprises a cylinder, 6, having at one end a coupling, 7, by which a fluid-tight attachment may be made

as stated, either to the branch-pipe or to said valve, 3. At the other end of the cylinder is a stuffing box, 8, through which a stem or rod, 9, is movable longitudinally; the inner
 5 end of the stem carries a piston, 10, that is solid or without openings or valves, and this piston fits snugly in the cylinder. The stuffing box, 8, may be readily removed from the cylinder in order to permit the stem and piston,
 10 ton, 10, to be withdrawn when desired. The outer end of the stem, 9, is provided with a solid metal head, 13, to give it the strength necessary to receive a blow without breaking, when it is struck with a heavy mallet or
 15 sledge-hammer as herein described.

To prevent injury to either the piston, 10, or the valve-case, 3, by the blow referred to, the exposed part of the stem, 9, is provided with an elastic cushion, 14, which surrounds
 20 the stem and is interposed between the solid head, 13, and the stuffing box, 8.

I provide the cylinder, 6, with a small key-valve, 12, which may be readily turned with the thumb and fingers. This valve serves to
 25 test whether or not the water in the cylinder is under pressure. By opening the valve any water in the cylinder, if under pressure, would squirt out in a stream that is projected by reason of such pressure; but if there is no
 30 pressure in the cylinder the water would merely trickle out slowly.

When about to use the improved device to remove an obstruction in the main-pipe, 1, located at the valve, 3, it is preferable to first
 35 turn the key, 15, of the said valve, 3, to the cut-off position. After the water from the main-pipe, 1, has thus been cut-off, the branch-pipe, which ordinarily will be attached directly to the valve, 3, and leads into
 40 a building, may be disconnected from the said valve and instead the improved device attached thereto by means of the coupling, 7. If at this time the stem, 9, and piston, 10, have not previously been removed from the
 45 cylinder, they should now be withdrawn by removing the stuffing box, 8, so as to gain access to the cylinder at the upper end. The test valve, 12, will now be closed and water will be poured into the upper open end of the cylinder until the latter is filled—the column of
 50 water extending from the valve or cock, 3, up to the open end of the cylinder. This column of liquid forms an important element in the operation of the device in that it is to
 55 be the medium between the piston, 10, and the foreign matter at the valve or cock for effecting a dislodgment of the obstructing matter. After the cylinder has thus been filled with liquid the piston, 10, and stem, 9,
 60 are inserted in the upper end of the cylinder and held at said end while the stuffing box is screwed into place, which prevents the escape of the liquid from the cylinder so that the piston will be sustained by the column of
 65 water. The mere turning of the key, 15, in

the valve or cock to the open position, will now put the device in readiness for operation. A heavy mallet or sledge hammer is now employed to produce a blow on the
 head, 13, of stem, 9, and the downward
 70 plunge of the piston on the column of liquid will produce a tremendous sudden shock accompanied by momentary pressure on the branch side of the open valve, 3, and dis-
 75 lodge anything that may have clogged the valve, thus forcing said matter from the valve and against the pressure that may exist in the main pipe so as to entirely free the valve or cock from the obstruction. After a
 blow made with a mallet or hammer on the
 80 head, 13, the test valve, 12, may be opened to ascertain if the pressure of the main pipe, 1, is felt in the cylinder, 6. If no pressure is shown the test-valve must be closed and another blow struck.
 85

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

1. A device for dislodging obstructions in water-pipes comprising the combination with
 90 an underground main-supply pipe and a branch-valve communicating with said main pipe, of a cylinder having its open end attached to and in communication with the branch side of said valve; a test valve at-
 95 tached to the cylinder; an imperforate piston movable in said cylinder which latter is adapted to contain a column of water between the piston and the said branch valve; a stem attached to the piston and projecting from
 100 the cylinder and provided at its outer end with a head, whereby a blow may be struck with a mallet or hammer on the head of the projecting stem to produce a sudden shock which will dislodge anything clogging the
 105 main-pipe side of the said branch-valve.

2. A device for producing in water-pipes sudden shocks accompanied by momentary pressure, comprising the combination with
 110 an underground main-supply pipe and a branch valve communicating with said main pipe; of a cylinder having its open end attached to and in communication with the branch side of said valve; an imperforate piston movable in said cylinder which latter
 115 is adapted to contain a column of water between the piston and the said branch valve; a stem attached to the piston and projecting from the cylinder and provided at its outer end with a solid head, whereby a blow may
 120 be struck with a mallet or hammer on the head of the projecting stem to dislodge anything that is clogging the main-pipe side of the said branch valve.

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

JESSE CONWAY.

Witnesses:

CHARLES B. MANN, Jr.,
 G. FERDINAND VOGT.