

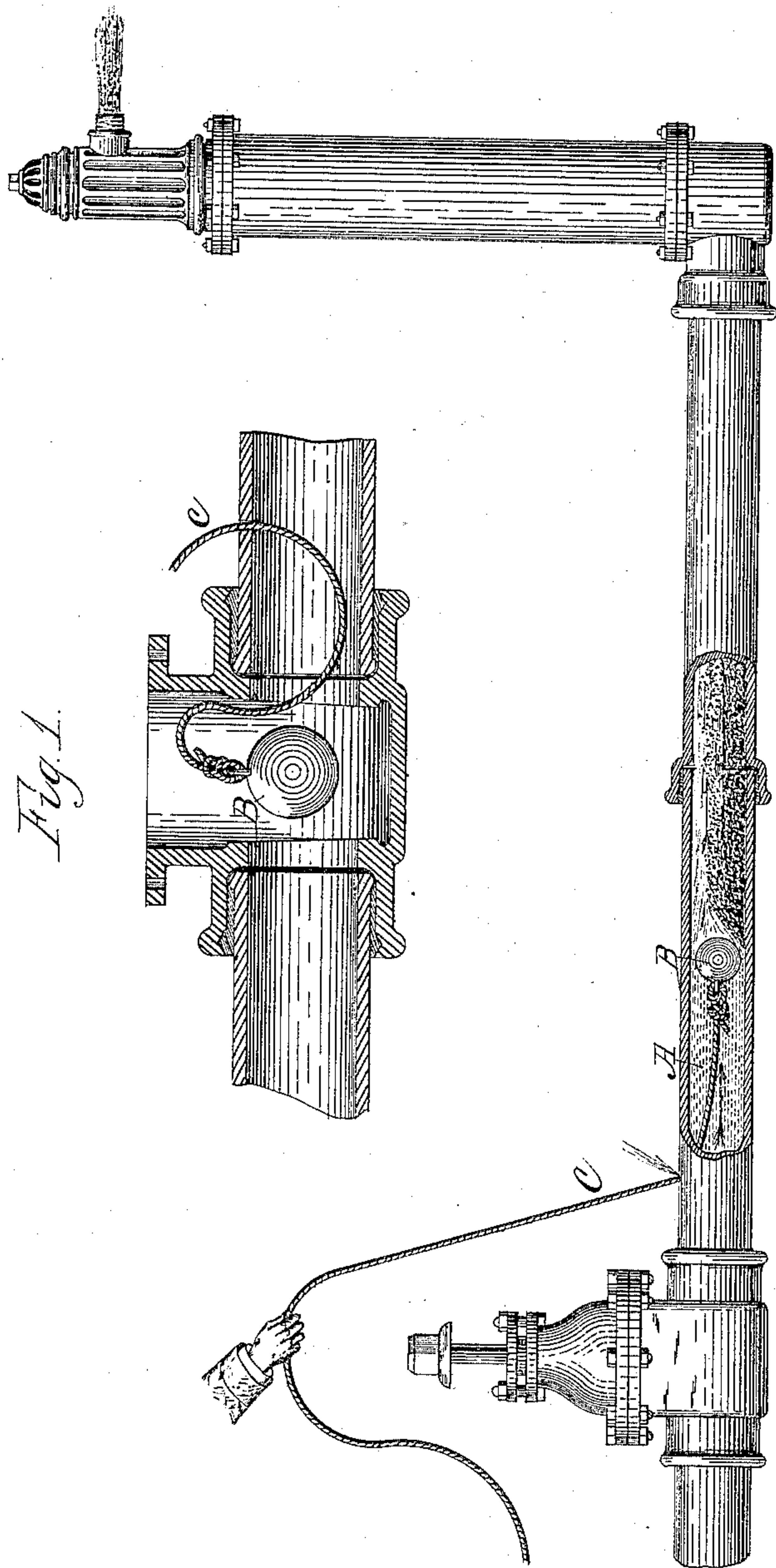
(No Model.)

J. P. MESSER.

MEANS FOR CLEANING OUT CONDUITS.

No. 335,608.

Patented Feb. 9, 1886.



Witnesses.

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MEANS FOR CLEANING OUT CONDUITS.

SPECIFICATION forming part of Letters Patent No. 335,608, dated February 9, 1886.

Application filed May 12, 1884. Serial No. 131,097. (No model.)

To all whom it may concern:

Be it known that I, JOHN P. MESSER, a citizen of the United States, residing at Cedar Rapids, in the county of Linn and State of Iowa, have invented certain new and useful Improvements in Means for Cleaning Conduits, of which the following is a specification.

The object of my invention is to facilitate the removal of sedimentary deposits from water-pipes, and more particularly those connected with a system of water-works by making the operation possible without taking up or otherwise disturbing the pipes themselves.

The invention consists in the application to the interior of such pipes of a ball somewhat less in diameter than the inside of the pipe, and attached to a cord or equivalent means for holding and regulating it from the outside, so that the water forced around the obstruction, strikes the sediment in front thereof in a tangent, and thus digs it up and removes it, while the forward movement of the obstruction, as well as its removal from the pipes at or before the completion of the operation, is within the control of the operator.

In the accompanying drawings, forming a part of this specification, Figure 1 represents a vertical section of an ordinary gate-valve and portions of connecting pipe, together with a ball attached to a rope about to be placed in position. Fig. 2 shows the invention in operation on a section of pipe connected with a valve and a hydrant.

The means by which the clogged pipe is cleared out are exceedingly simple and require little description. They consist of the stream of water itself, A, and a ball, B, placed inside the pipe and manipulated by a cord, C, connecting therewith and passing outside through a hole in the pipe. The ball is made somewhat smaller than the inside of the pipe, so as to leave room for the flow of water around it. In practice I prefer a round ball, because its diameter in all positions is the same. It may be of wood or any other suitable material, and made solid or hollow. In cases where the opening in the gate is too small to admit of a full-sized ball it may be made in sections and put together inside the pipe, or of rubber or other flexible material, made hollow, so as

to be pressed together when inserted and afterward inflated.

By referring to Fig. 2 the action of the water will be seen. The ball B held back by the cord, and still more by the strong resistance of the sediment and water in front of it, affords no escape for the stream behind, except around its periphery. A proportionate quantity is thus forced downward with increased energy, and striking the mud-bank as a jet, plows it up very rapidly, and it is then carried forward by the escaping stream and discharged through the hydrant or other outlet. When the entire line is thus cleared, or before, if desired, the pressure is diverted from this pipe, the ball drawn back to the starting-point and removed.

The process is particularly applicable to the clearing out of river-suctions, where the accumulation of sediment is more rapid than in the mains, and where the difficulty of removing it is ordinarily greater. It may also be successfully applied to the cleaning of sewers and drains where external pressure can be used, or where the fall of the water is sufficient to give a similar though less intense action to the jets.

I am aware that it has hitherto been thought practicable to clear out water and other pipes by forcing through them a plug fitting the inside of the pipe so tightly as to prevent the passage by it of any of the water used in forcing it through the pipes. To a limited extent such device may have proved successful; but experience and experiment with my own invention have demonstrated the impossibility of such a device being adapted to clear out miles of water mains clogged, as they are apt to be, with mud, sticks, and other obstructions. To successfully perform the work I have found in the case of my own invention that the water must not only be allowed to flow past the ball, but that the ball must be held back by the cord somewhat, and at times worked back and forth, otherwise the pressure of the water behind will drive the ball tightly into the mud and dirt, and completely stop all action on the part of the ball or the water, and a pressure sufficient to burst the pipe would be insufficient to force the ball through in such a case; but by drawing the ball back a little by means of the cord, the water rushes past and

clears a way for the ball to advance. The use of the cord thus becomes evident. Instead of being a "tell-tale" to indicate the distance traversed by the plug, and incidentally for drawing the plug back when the pressure is withdrawn and it is desired to remove the same, and constituting no essential part of the invention to which it has hitherto been applied, the cord in the case of my invention is an indispensable element, and operates in connection with the ball in clearing the pipe.

I am also aware that the principle of clearing out pipes by the action of water forced in jets around or through a dam in the pipes is not broadly new, and I do not claim such as my invention; but I believe the means which I employ are such a material improvement over anything hitherto devised as to render practical a principle that before has only been operative in theory. The only device which to my knowledge has before been constructed for this purpose consists of a disk having openings around the edge, through which the water passes, and a central arm extending at right angles from the front face of the disk, the end of which arm, resting on the bottom of the pipe, supports the disk at nearly a vertical position in the pipe. The device is described as self-acting, being unprovided with any means for controlling its action from the outside. From what has been stated above, and from the fact that the device mentioned has never come into general use, I am satisfied that in practice it is not self-acting, and that without external control this or any other dam will, under certain circumstances, clog the pipe completely and prevent the operation for which it was designed; but aside from this, the projecting arm presents a fatal objection to its general use. In the practical application of any such device it is of course

necessary to turn corners in the pipe or sewer, and to follow the main past Y's, T's, L's, and other subordinate branches of the system. In many cases these turnings are short, and it is necessary that the cleaning device should be adapted to turn in a space practically as short as the inside diameter of the pipe. For this reason it is important that the ball should be nearly or quite spherical in form, the facility with which such a ball will find its way through the pipe being evident. It is quite as evident that the device mentioned above is not adapted to make the requisite turnings, because of the indispensable length of the arm. So in the case of the passage of a Y, one branch of which is smaller than the main, this projecting arm will be quite as likely to enter the branch as the main, when its operations will be stopped completely. Provided with a cord to control its movements, it may be possible to operate a slightly oval, conical, or cylindrical ball or dam; but in practice I regard the spherical ball as best.

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

The described device for cleaning conduits, consisting in a ball somewhat smaller than the inside of the pipe, and practically spherical in form, whereby it is adapted to follow all the sinuosities of the pipe, in combination with a cord, whereby the movements of the ball may be regulated from the outside of the pipe, substantially as set forth.

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

JOHN P. MESSER.

Witnesses:

S. M. ENDICOTT,
GEO. H. FUNK.