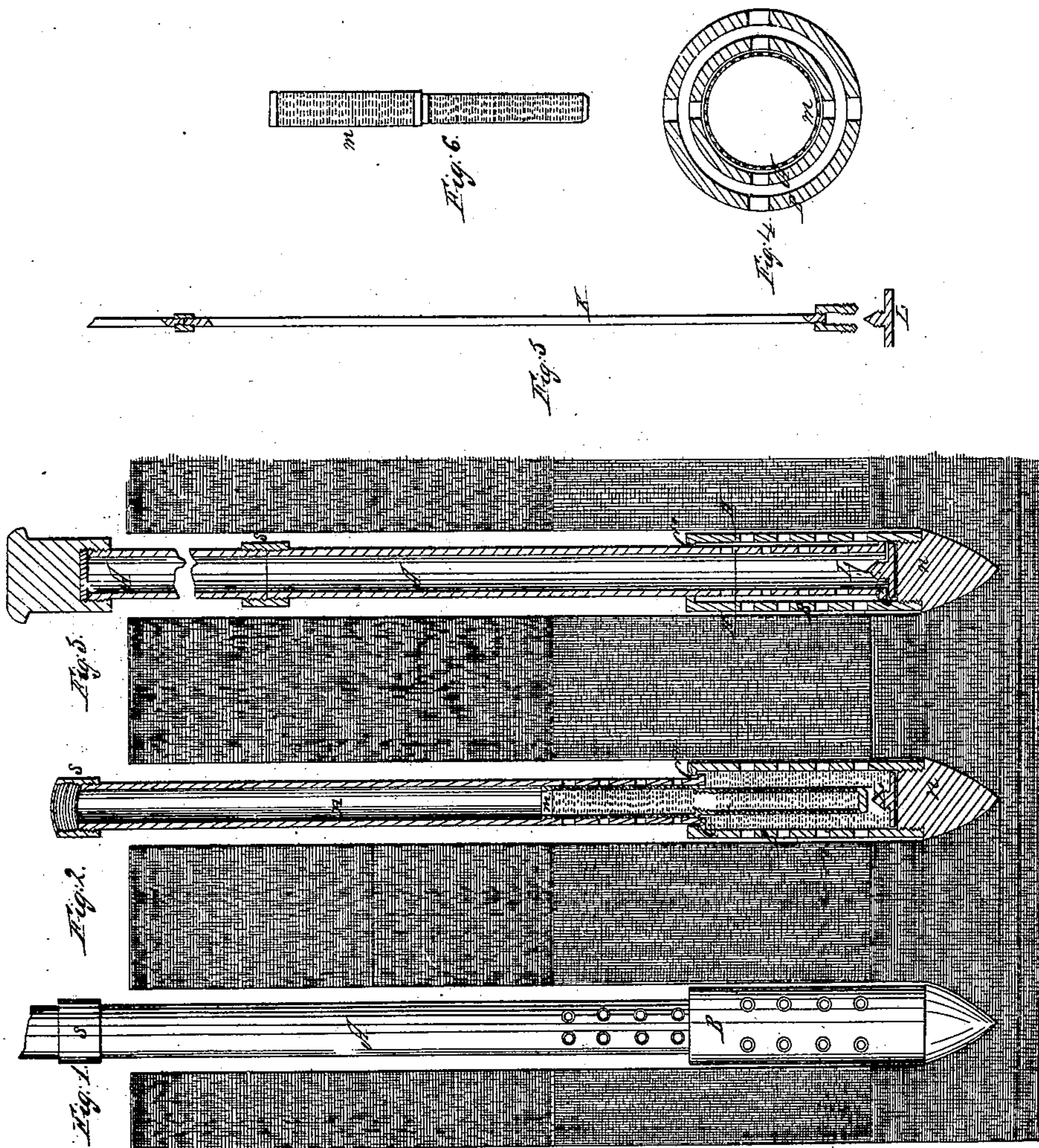


Sherburne & Whipple,

Well Tubing,

N^o 60,578,

Patented Dec. 18, 1866.



Witnesses:

*E. Slaffon
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Inventors:

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United States Patent Office.

IMPROVEMENT IN WELL TUBING.

N. H. SHERBURNE, OF ELGIN, AND JAMES T. WHIPPLE, OF CHICAGO,
ILLINOIS.

Letters Patent No. 60,578, dated December 18, 1866.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, N. H. SHERBURNE, of Elgin, in the county of Kane, and State of Illinois, and JAMES T. WHIPPLE, of Chicago, in the county of Cook, and State aforesaid, have invented a certain new and useful Improvement in Well Tubing; and we do hereby declare that the following is a full and exact description of the construction and operation of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification, in which—

Figure 1 is a perspective view.

Figure 2 is a vertical section through the same, with its parts adjusted and screen attached, showing the relative position of each when complete.

Figure 3 is a vertical section through the same, showing the relative position of the tubes (as regards the perforations therein,) as the same is driven into the ground.

Figure 4 is a transverse section on lines *h'h*.

Figure 5 is a section of the rod employed in adjusting the screen.

Figure 6 is a view of the screen detached.

Similar letters of reference as they occur in the several figures denote like parts in each of the drawings.

Our invention relates to an improvement in that class of wells which is formed by sinking or driving a metallic tube or pipe into the ground to any given distance, that is to say, until a course of water is reached which will furnish the required amount, thus avoiding the great amount of labor and expense of sinking and finishing the common well; and the nature of our improvement consists—

First, in attaching or suspending to the bottom of the main pipe externally a short section of pipe or hollow cylinder to which the point is attached, the size of cavity in said cylinder being such as to allow the main pipe to pass down through the same, and thus bring the lower end of the pipe in contact with or against the upper end of the point, said cylinder and the lower end of said pipe being perforated transversely, and so arranged that as the pipe is forced down through the cylinder the perforations in one are firmly closed by the solids of the other, thus preventing the earth, sand, or any like substance from filling the pipe while being driven, but by slightly adjusting or tilting the main pipe upward the perforations in both are opened, thus allowing a free ingress of water.

Second, inserting at the bottom of the main pipe, and within said cylinder, a screen or filter, in the manner and of the form of construction hereinafter more fully explained.

To enable others skilled in the art to construct and use our invention, we will proceed to describe the same with reference to the drawings.

A represents the main pipe, which is of iron, and having a cavity therein, from one and a quarter inch to two inches in diameter, as may be required; said pipe being formed in sections from four to six feet in length, and coupled one to the other by means of a socket S, which is provided with a thread internally which takes into a like thread upon the outside of the pipe. At the bottom of the first section of said pipe we attach a collar or flange, C, which is shrunk around the end of the same, and the end of the pipe riveted or upset, or may be attached by any equivalent means that will insure the required amount of strength. From the lower end of this pipe we attach or suspend a second short section of pipe, or, in other words, a cylinder, B, which is also provided with a like flange, C'', internally attached at the top, and so arranged as to rest or be suspended upon flange C of the main pipe, the cavity in said cylinder being of sufficient size to admit of the main pipe passing down through the same and resting upon the upper end or shank of the point, which is attached to the lower end of said cylinder by means of a thread cut therein, which takes into a like thread upon the shank of the point. We provide the lower end of pipe A with series of perforations, the same passing through and in a horizontal line round the pipe, and of equal distance one from the other. Said cylinder, B, is also provided with like series of perforations, of equal or graduated distance one from the other, and so arranged, as regards the distance from the point upward, as to bring the perforations in the one against the solid of the other, as the main pipe is forced down through the cylinder while being driven into the ground, as is shown by fig. 3. We insert within the cavity of said cylinder a flat or dish-shaped piece of iron, L, which rests upon the upper end of the shank of the point, its size being such as to

be capable of vertical adjustment, or, in other words, admits of it being drawn up from the bottom through the pipe and cylinder by means of a part of the same protruding upward from the centre in a cone-like shape, which is provided with a thread externally that takes into a like thread within the socket attached to the lower end of rod K, (when the same is applied for the purpose of withdrawing said disk.) We also insert within said pipe and cylinder a screen, *m*, which is formed of perforated tin, or of any equivalent metallic substance, its length being such as to extend from the first or upper series of perforations in pipe A, downward the entire length of cylinder B, and thus be supported by resting upon the end of the upward protruding part of disk L; the size of said screen at the upper end being such as to closely fill the cavity in the main pipe, the lower end of the same being less in size, laterally, near one-half its length, which forms a vacant space of from one-half inch to three-quarters of an inch in diameter round the screen between its sides and the sides of the cylinder.

The objects of this style of arrangement are several: first, the cylinder being suspended to the main pipe, and the lines of perforations in the one being so arranged as to come against the solid of the other, thus excluding the earth while being driven; second, should the water be found in quicksand, the vacant space formed between the screen and cylinder will fill with the coarser particles of sand, the finer passing through the screen until said vacant space is filled, which then forms a filter, and nothing but the pure water will pass through into the pipe; and third, should the water be found in clay, as is often the case, there will be a sediment settle in the pipe and screen; for removing this, we withdraw the screen by means of rod K, draw disk L up through the pipe by means of said rod, thus removing the sediment therefrom; replace the several parts and the well is as clear as when new.

The plan of sinking our tubing and its operation are as follows: Cylinder B being attached or suspended to pipe A, in the manner herein described, point *n* is then attached and the pipe placed in a vertical position allowing the pipe to pass down through the cylinder, and the lower end rests upon the shank of the point. The first section is driven, a second is then attached by means of socket S, and so on until the required depth is attained. The main pipe is then drawn up the length of the cylinder, which opens the perforations in each; a pump is then attached to the upper end of the pipe, and a cavity formed round the cylinder for the water to collect, by means of pumping up the sand and gravel through the pipe; screen *m* is then inserted from the top by means of rod K, allowing said screen to pass down through the cavity in the pipe and the lower end of the same to rest upon disk L; the pump is then again attached and the well is completed.

We are aware that a patent was granted to John H. Duch and James T. Whipple, for an improvement in well tubing, wherein the screen is suspended within the main pipe by means of flanges thereon, but such we do not claim.

Having fully described the nature and effect of our invention, what we claim as new, and desire to secure by Letters Patent, is—

The combination of cylinder B, pipe A, screen *m*, and the disk L, the whole constructed, arranged, and operated substantially in the manner and for the purpose described.

N. H. SHERBURNE,
JAMES T. WHIPPLE.

Witnesses:

E. SLOSSON,
C. L. JENKS.