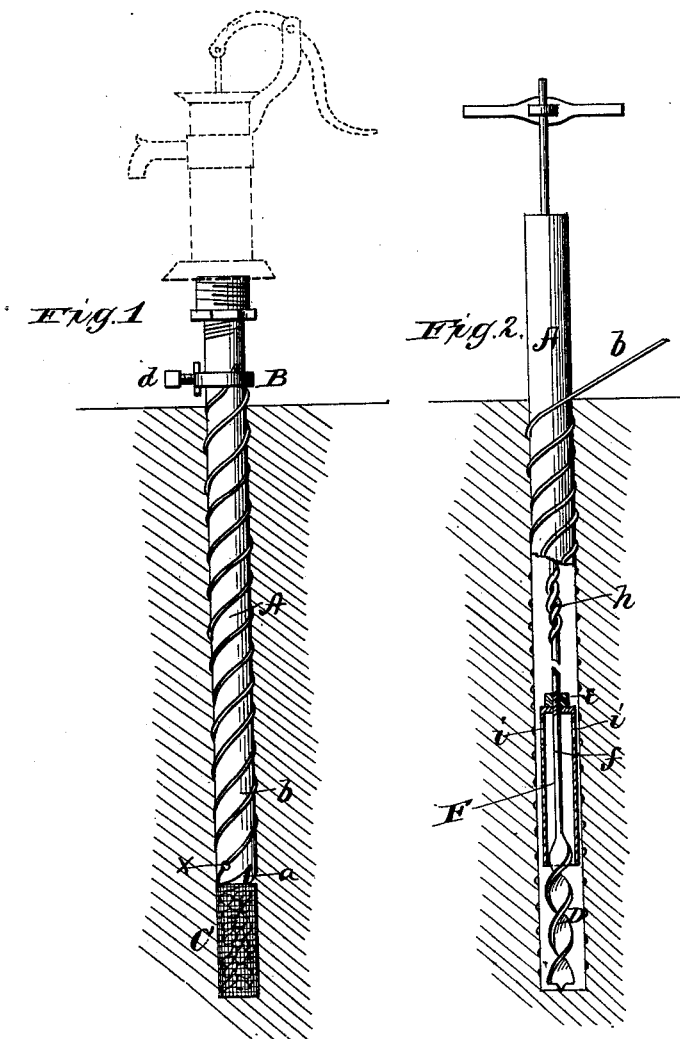


W. H. BURGESS.
Well-Tube and Devices for Inserting the same.
No. 220,572. Patented Oct. 14, 1879.



WITNESSES:
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WILLIAM H. BURGESS, OF RICH SQUARE, NORTH CAROLINA.

IMPROVEMENT IN WELL-TUBES AND DEVICES FOR INSERTING THE SAME.

Specification forming part of Letters Patent No. **220,572**, dated October 14, 1879; application filed April 30, 1879.

To all whom it may concern:

Be it known that I, WILLIAM H. BURGESS, of Rich Square, in the county of Northampton, and in the State of North Carolina, have invented certain new and useful Improvements in Well-Tubes and Devices for Inserting the Same; and do hereby declare that the following is a full, clear, and exact description of the invention, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

My invention relates to the peculiar construction of the pump tube or pipe, and to the manner of constructing and means of inserting it in a bored well.

Heretofore such wells have been made by boring a hole, often several inches in diameter, from the surface of the ground downward to the supply of water, in which bored hole or well the pump-pipe must rest on the bottom, or on some scaffolding above ground. A few inches from the lower end of the pipe holes or incisions or screens were made to admit the water.

This method is objectionable for the reason that in many cases the pipe rests on a sandy foundation, which is continually giving way from the weight of the pump and pipe until the holes for admitting the water are filled up or in some degree obstructed; or in case the weight is supported by a frame above the surface, the lower end of the pipe is left to sway about in a shackling manner; also because of the difficulty of putting down a pipe so that the holes for admitting the water shall be at the proper depth; for if any of these holes should at any time be above the supply of water, which is generally subject to rise and fall at different seasons of the year, the pump will fail; and as in the common construction of pump-tubes these holes for admitting the water are distributed over about twenty-four inches or more in length of the pipe, this objection is a frequent one; and for the further reason that the bored hole for the well is required to be larger than the pipe of the pump, admitting surface-water directly to the well, greatly impairing the quality of water.

The object of my invention is to construct a pump-tube which may be screwed firmly and

tightly downward into a bored well of about the same size of the pipe.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 represents the pipe inserted in the proper manner, with the pump attached ready for use. Fig. 2 shows the manner of inserting the pipe, the lower part being broken away to show the interior thereof.

A represents the pipe, cut at its lower end with two or more bits or teeth, *a*, and a wire, *b*, is fastened in a hole, *x*, at or near the lower end of the pipe. This pipe is then placed in the mouth of a bored well and rotated, holding the wire *b* in such a manner that it will be caused to wind spirally upward around the pipe closely and firmly, forming a thread on the pipe, and at the same time carrying the pipe downward to the desired depth, affording a solid support for the pump and pipe. When the pipe is sufficiently lowered a clamp or ring, *B*, is placed over the upper end of the wire *b* and secured firmly by a set-screw, *d*. The pump is then attached in the usual manner, and the well is completed.

By this method the pipe may be lowered or raised at pleasure, the well being bored a sufficient distance deeper than the pipe is to be inserted, in order to allow the lowering of the pipe at any time, and also to afford a suitable receptacle for such gravel, pebbles, and coarse sand as by the suction of the pump may be drawn to that point, while the finer particles have been removed by the first pumping of turbid water.

This receptacle below the pipe filled with small gravel is a great advantage, and from the peculiar method herein described this receptacle in sandy or gravelly earth will become so filled with coarse sand and pebbles; and if the bottom of the well should be in fine sand or clay a quantity of pebbles should be thrown in sufficient to fill the well one or two feet, by which means that part of the well below the pipe will be kept thoroughly open, and afford at the same time an efficient percolating-filter, preventing the influx of the smaller particles of sand and soil; very nearly re-

sembling the spout or vein of a natural water-spring, which is almost invariably filled with pebbles.

In quicksand it becomes necessary to confine the pebbles in a covering, C, made of galvanized wire-cloth, cut diagonally to give it elasticity, so it may expand in almost any shape to fill the place it is required to occupy, which is generally rendered more or less globular in shape from the pumping out of the finer particles of earth.

The pipe A, being thus perfectly threaded into the sides of the well, entirely excludes all washings and drainings from the surface of the earth.

When it becomes at any time necessary to sink the pipe through quicksands, or lower than the well was originally bored, this is readily done by means of the auger D. This auger is provided with a sliding sheath, F, or cap, secured loosely on the lower part of the auger-shank *f* by a stop-nut, *e*. The pipe is to be screwed down as low as possible in the quicksand—say twelve inches, more or less; then the auger is inserted within the pipe, as shown in Fig. 2, and being rotated, as in boring, the auger sinks into the sand, filling itself, while the sheath or cap F remains stationary until the stop-nut *e* comes down upon it; then the auger is withdrawn, the sheath sliding down over the sand on the auger, preventing the sand from falling off until it reaches the surface, when the sheath is raised and the sand falls out, openings *i* in the sheath facilitating its removal. This operation is repeated until the desired depth is obtained.

It will be understood that for the practical and successful operation of my auger the pipe is necessary, and in quicksand the pipe could not be put down without my auger.

In boring very deep wells it becomes necessary to uncouple the shank of the auger in

raising it out of the ground, and recouple it each time as it is being inserted, which is usually a very tedious operation.

The sockets of the couplings or keyways are very liable to be obstructed by sand and grit, which must be carefully removed before the parts will properly fit together. To obviate this difficulty the sections of the auger shank or rod *f* are formed with spirals *h* at their ends, which interlock, as shown. This spiral coupling cannot clog or become obstructed by sand or soil. It holds the sections together with a double grasp, not subject to become detached by backward turning, as is the case with all screw-couplings, for, although it is easily uncoupled, it requires a particular motion to uncouple it—viz., upward and backward—unlike the motion of boring.

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

1. A pump-pipe provided with an exterior screw-thread formed of a single wire wound spirally around the pipe as the pipe is rotated while lowering in the well, substantially as and for the purposes set forth.

2. The combination of the pipe A, having bits *a* and hole *x*, the spiral wire *b*, and ring or clamp B with set-screw *d*, for the purposes set forth.

3. In combination with the exteriorly screw-threaded pipe A, the auger D, rod *f*, with stop-nut *e*, and the sliding sheath or cap F, all constructed substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 23d day of April, 1879.

WILLIAM H. BURGESS.

Witnesses:

C. E. BURGESS,

ETTIE A. DOANE.