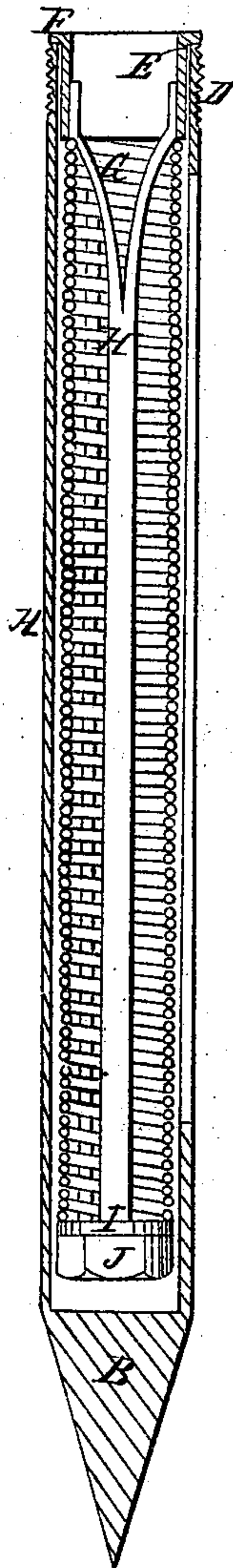
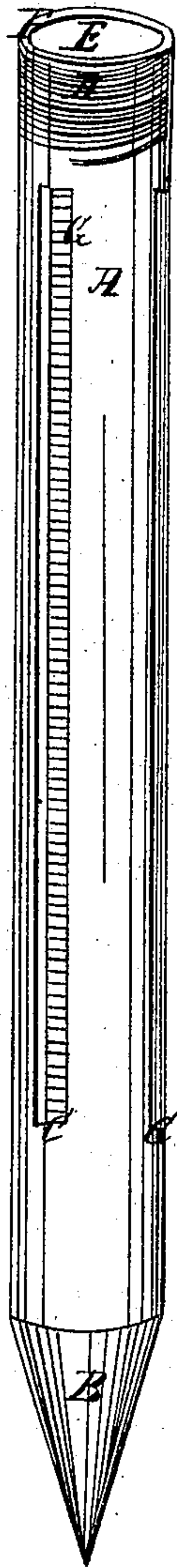


*S. E. Skilling*

*Well Tubing.*

*N<sup>o</sup> 77,772.*

*Patented May 12, 1868.*



*Witnesses:*  
*H. S. Sproge,*  
*J. H. Smeets.*

*Inventor:*  
*S. E. Skilling*  
*Per atty*  
*Jos. S. Smyth*

# United States Patent Office.

SHERMEN E. SKILLING, OF BENTON HARBOR, MICHIGAN.

*Letters Patent No. 77,772, dated May 12, 1868.*

## IMPROVEMENT IN TUBE-WELLS.

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

### TO WHOM IT MAY CONCERN:

Know all men that I, SHERMEN E. SKILLING, of Benton Harbor, in the county of Berrien, and State of Michigan, have invented a new and useful Improvement in Lower Joints of Tube-Wells; and I do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, and being a part of this specification.

In driving the wells usually known as "tube-wells," much difficulty arises, especially when driven in very hard or stony ground, by the breaking of the lower or pointed joint of the pipe.

The nature of this invention is to construct the lower joint, or what is commonly known as the "drive-end," by strengthening it upon the inside by a series of braces, made in one piece, of wire, wound into the form of a spiral or coil-spring, attached at one end to the collar, which fits inside the pipe. From this collar there descends a proper rod (which is rigidly attached to the collar) through the centre of said coil, and to the bottom thereof, said rod being provided at its lower end with a proper thread and nut, which hold and determine the distances or interstices between the various coils.

Having thus described the object, I will now explain the manufacture of my invention, and name its various parts, so that the whole will be readily understood by those skilled in the art.

Figure 1 is a perspective view of my invention.

Figure 2 is a sectional transverse view of the same.

Like letters indicate like parts in each figure.

A is an ordinary piece of gas-pipe, of any suitable size, provided with point, B, to enable it easily to enter the ground, and with proper slots, C, as many as may be necessary for the admission of water into the pipe, which has cut upon it, at its upper end, a proper thread, D, by which, and a proper coupling, it may be connected to the proper lengths of pipe above.

E is a collar, provided with flange F, the collar to fit the bore of the gas-pipe, and the flange to rest upon the top of the pipe, where it is held in place by the joint which may be used above, coupled by a proper cap. To this collar are rigidly attached both the coil-spring G and the rod H.

I is a smaller collar, without a flange, to which the opposite end of the spring is also rigidly fastened, and which also acts as a washer, against which the nut J acts.

The rod H extends downward from the collar E, through the coil-spring, and through the collar I, and is provided at its lower end with a proper thread to fit the nut J. This nut is screwed up, which compresses the coil-spring, so that the space between each coil is large enough to permit the free passage of water, and at the same time not large enough to admit of the passage of foreign substances. When thus compressed, the coil-spring, being made of galvanized iron or other proper wire, is soldered in such a way as to compel the various coils of the spring to remain in the position heretofore described.

What I claim as my invention, and desire to secure by Letters Patent, is—

The coil-spring G, provided with the rod H, the collars E and I, and the nut J, within the pipe A, substantially as arranged, and for the purposes hereinbefore described.

SHERMEN E. SKILLING.

Witnesses:

H. S. SPRAGUE,

H. ALLEN.