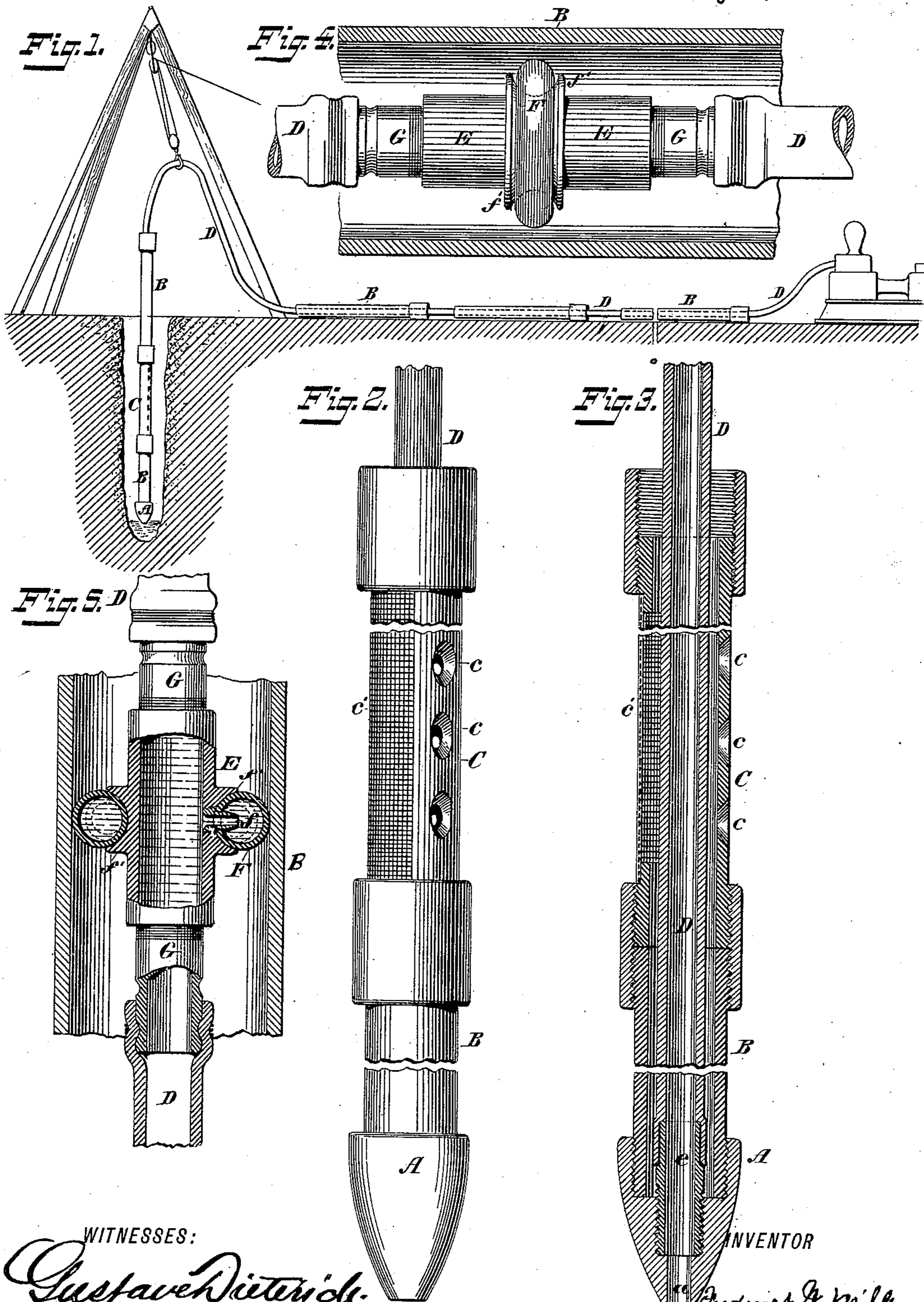


(No Model.)

F. W. MILLER.
MEANS FOR SINKING TUBE WELLS.

No. 406,457.

Patented July 9, 1889.



WITNESSES:

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FREDERICK W. MILLER, OF BROOKLYN, NEW YORK.

MEANS FOR SINKING TUBE-WELLS.

SPECIFICATION forming part of Letters Patent No. 406,457, dated July 9, 1889.

Application filed April 13, 1889. Serial No. 307,173. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK W. MILLER, a citizen of the United States, residing in the city of Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in the Means for Sinking Tube-Wells, of which the following is a specification.

My invention relates to that class of wells known as "tube-wells," which are too well known to need description, more than to state that they consist of a jointed tube extending down through various stratifications of the earth, the lower section (termed the "strainer") being perforated in such a manner as to admit water and exclude sand, and the upper end being provided with suitable means for attaching a pump.

The object of my improvement is to facilitate and cheapen the process of sinking such wells; and the nature of my invention consists in the means employed for what is termed "washing down" the tube of such wells, whereby one section after another can be added to the tube as it penetrates the earth without interrupting the continuous flow of water with which it is washed down, which I attain by mechanism illustrated in the accompanying drawings, in which—

Figure 1 represents an elevation showing the relation of the tube-well to the ground as it appears in process of being washed down, and the manner of combining the hose-pipe and the several sections of the tube before they (the said sections) are joined together. Fig. 2 is an elevation, enlarged, of the lower end of the tube-well, showing the shoe, sand-chamber, and strainer. Fig. 3 is a vertical section of Fig. 2. Fig. 4 is an elevation of the lower section of the tube-well, which joins with the strainer and shows the manner of forming a water-tight joint between the interior surface of the said section and the hose-pipe. Fig. 5 is a vertical section of Fig. 4.

Similar letters refer to similar parts throughout the several views.

A is what I term a "shoe," in form somewhat like an inverted cone, which is screwed onto a short piece B of the well-tube, which said short piece constitutes the sand-chamber below the strainer C, and to which it is

fastened by an ordinary threaded coupling. Above and fastened to the strainer in the same manner is a series of sections B B B of the well-tube, secured one after another to each other as the well is being continuously washed down to the desired depth.

D D D is a hose-pipe, which, before the commencement of washing down the well, is passed through as many sections of the well-tube as may be required for the well, and through the strainer and sand-chamber. The outlet end of this hose is provided with a left-hand-threaded nipple *e*, which is screwed into the shoe A, the bottom of the shoe having a hole *a* through it continuous and in a line with the said hose-pipe. The other end of the hose-pipe is attached to a suitable force-pump. (Seen in Fig. 1.)

In line with the hose-pipe, and intervening between the two ends thereof, is placed a peculiar hose-coupling E E, Figs. 4 and 5, into either end of which are screwed the hose-nipples G G. Around the central portion of this hose-coupling E E is provided a half-round gutter *f' f'*, in which is placed, by being stretched on, a hollow rubber collar or ring F, which, when undistended, is some less in its outer diameter than the diameter of the well-tube B, as seen in Fig. 4. This coupling E E is placed in that position in the line of the hose-pipe which will locate the hollow rubber ring F just above the strainer C. Between the interior of the coupling E E and the interior of the hollow ring F is a water-communication formed by the small nipple *f*, Fig. 5, one end of which is screwed into the coupling and the other end forced into a small hole in the side of the hollow ring.

Having described the various parts of my device and their relations to each other, their various functions and the operation of my invention are thus briefly explained: When the water is forced through the hose-pipe and out of the bottom of the shoe, the force and action of the water drives the dirt away from the front of the shoe and up around the well-tube to the surface of the ground, and allows the well-tube to settle down; but, unless prevented from doing so, a large part of the water, together with dirt, would take the free course and pass into the strainer and up

through the well-tube; hence the object of the hollow rubber collar or ring is to prevent the dirt and returning water from thus passing into the strainer and up through the well-tube, which result is accomplished by the pressure of the water in the hose-pipe passing through the nipple *f* into and distending the said rubber ring against the interior surface of the well-tube, thus automatically cutting off the flow of dirt and water into the strainer and up through the said tube. The greater the pressure of water in the hose-pipe the firmer will the ring press against the side of the tube and the more securely will this flow of the dirt and water be cut off. When the well is carried down to the desired depth and the water is turned off in the hose-pipe, the hollow rubber ring will cease to be distended, and by its contractility will return to its normal diameter, which is considerably less than the diameter of the well-tube.

To remove the entire hose-pipe from the well, it is now only necessary to twist it around to the right, whereby it will unscrew the left-hand-threaded nipple *e* and detach it from the shoe A, when it can be drawn out of the well. The object of making a left-handed thread on the nipple *e* is to prevent the other couplings of the hose-pipe from unscrewing by the act of detaching the hose from the shoe A.

When an additional section is required to be screwed onto the top of the well-tube as by degrees the well is being washed down, the hose-pipe is detached from the fall-block on the tripod (shown in Fig. 1) and reattached to the said blocks at the point back of the next succeeding section of the well-tube, and then by the fall-blocks is raised up to a suitable position to allow the additional section to be conveniently screwed to the top section of the well-tube already in the ground. In this man-

ner one section after another can be added to the well, as it is being washed down, without interrupting the flow of water through the hose-pipe, whereby the process of washing down the well does not cease from the time of introducing the first section thereof (consisting of the sand-chamber, strainer, and one plain piece of tube) until the top end of the last section, which completes the well-tube, is down to or near the level of the ground.

I am aware that hollow iron columns for docks and piers have been washed down by the hose-pipe being attached to the top of the columns. I am also aware that tube-wells have been washed down by means of a stream of water, as set forth, for instance, in Patent No. 277,695, issued to Jarvis B. Edson May 15, 1883. Therefore I do not claim, broadly, the washing down of tube-wells by means of a stream of water, irrespective of the devices and means employed for accomplishing the work; but

What I do claim as new and useful, and desire to secure by Letters Patent, is—

For sinking tube-wells, the combination of the several detached sections of well-tube B B with the hose-pipe D D, the said detached sections being strung along on the said hose-pipe before the sinking of the well is commenced, whereby the said sections for the entire well, one after another, can be joined together to complete the well without interrupting the flow of water for washing down the same from the commencement to the completion of the well, substantially in the manner and for the purpose set forth.

FREDERICK W. MILLER.

Witnesses:

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