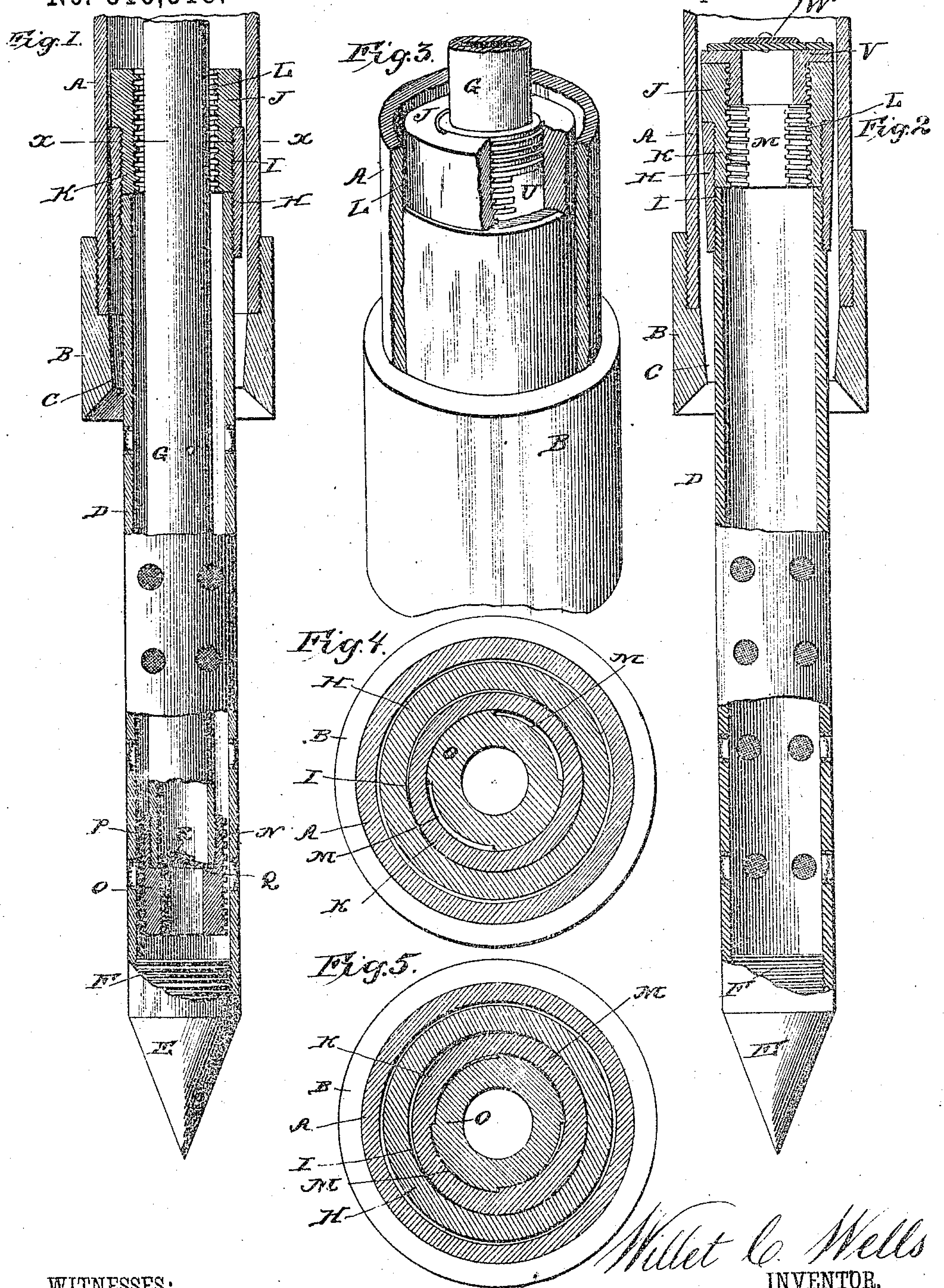
(No Model.)

W. C. WELLS.

WELL TUBE FOR DRIVE WELLS.

No. 316,318. Patented Apr. 21, 1885.



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WILLET C. WELLS, OF TIFFIN, OHIO.

WELL-TUBE FOR DRIVE-WELLS.

SPECIFICATION forming part of Letters Patent No. 316,312, dated April 21, 1885.

Application filed February 19, 1885. (No model.)

To all whom it may concern:

Be it known that I, WILLET C. WELLS, a citizen of the United States, and a resident of Tiffin, in the county of Seneca and State of Ohio, have invented certain new and useful Improvements in Well-Tubes for Drive-Wells; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a side view, partly in section, of a well-tube and of my improved strainer and tubular drive-rod. Fig. 2 is a similar view of the lower end of the tube, showing the drive-rod removed and a valve-seat and valve inserted in the top of the strainer. Fig. 3 is a perspective view, with portions broken away, of the lower end of the drive-rod or delivery-pipe and of the upper end of the strainer, showing it arranged for withdrawing the partly screw-threaded sleeve at the upper end of the strainer; and Figs. 4 and 5 are horizontal sectional views of the lower end of the delivery-pipe or tubular drive-rod and of the partly-threaded sleeve at the upper end of the strainer, showing them in their two different positions, the view being taken on line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts in all the figures.

My invention has relation to well-tubing, and more especially to devices for seating strainers in sand, and at the same time pumping out the fine sand by the same motion and tool that drive or seat the strainer; and it consists to that end in the improved construction and combination of parts of the same, as hereinafter more fully described and claimed.

In the accompanying drawings, the letter A indicates the well-tube, which is provided at its lower end with a shoe, B, screwed or otherwise secured to the tube, and provided with a tapering bore decreasing in diameter toward the lower end, as shown at C.

D is the strainer, which is provided with the usual drive-point, E, extending a short distance up within the strainer, so as to form a concussion-block, F, against which the tubular drive-rod or delivery-pipe G may act, and the strainer is provided with perforated sides of any desired construction, and provided at its upper end with a tapering sleeve, H, having the same external taper as the internal taper of the shoe, and provided with an internal screw-thread, I, which extends above the upper edge of the strainer.

A sleeve, J, is secured with its reduced and screw-threaded lower end, K, in the upper threaded portion of the sleeve H, and has an internal screw-thread, L, which is cut away at alternating points, so as to form smooth sections M of the same width as the threaded sections, the drawings showing the thread as being cut away at alternating quarters of the inner surface of the sleeve, although the thread may be cut away in any desired number of places.

The lower end of the delivery-pipe or tubular drive-rod G is screw-threaded, as shown at N, and a sleeve, O, is secured upon that end, having an internal screw-thread, P, at its upper end, which fits upon the said end, the sleeve forming a shoulder or valve-seat, Q, below the threaded portion, upon which valve-seat an upwardly-opening valve, R, fits.

The outside of the sleeve O is provided with alternating smooth sections S and screw-threaded sections T of the same width and corresponding in width to the similar sections upon the inside of sleeve J, so that the externally-threaded sleeve O may be drawn up through the internally-threaded sleeeve J when the threaded sections of one sleeve are placed opposite to the smooth sections of the other sleeve, while by turning the externally-threaded sleeve so as to bring the threaded sections of both sleeves to engage each other the delivery-pipe and the strainer may be connected by their respective sleeves so as to be raised or lowered together.

When the device is in operation, the material in which it is destined to work being sand, the delivery-pipe is reciprocated within the strainer, striking the concussion-block at its bottom at each blow, and at the same time pumping up all fine sand which enters through the strainer, so as to leave the coarser parti-

cles of sand to form a filter around the tube, and by thus reciprocating the delivery-pipe or drive-rod the strainer and afterward the tube are forced down, the delivery-pipe acting as a sand-pump at the same time as it acts as a drive-rod.

When it is desired to stop driving the strainer and tube farther down, the delivery-pipe is withdrawn from the strainer, which may be done by bringing the smooth portions of one sleeve to register with the threaded portions of the other sleeve, and after withdrawing the said pipe a number of the threads of the screw-threaded sections of the sleeve O may be filled for a portion of their length, when the pipe is again inserted with its threaded sleeve into the internally-threaded sleeve J and turned so as to engage the threaded portions, the filled portions or shoulders (shown at U in Fig. 3) bearing against the ends of the threaded sections of sleeve J, so as to allow the said sleeve to be unscrewed from the tapering sleeve and withdrawn.

A valve-seat, V, having an upwardly-opening valve, W, is now screwed into the internal thread of the tapering sleeve of the strainer, which has been forced down so as to form a tight joint at the tapering sleeve and the tapering bore of the shoe of the tube, and the well is ready for use.

If it is desired to withdraw the strainer from the tube at any time during construction or afterward, the threaded portions of the delivery-pipe and of the internally-threaded sleeve of the strainer may be engaged, when by drawing the delivery-pipe upward the strainer may follow, and the strainer may likewise be raised by raising the well-tube.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The combination, with the well-tube having the shoe at its lower end, having the tapering bore, of the strainer having the tapering sleeve secured at its upper end, corresponding in taper to the bore of the shoe, as and for the purpose shown and set forth.

2. The combination of the strainer having the sleeve at its upper end, formed with alternating threaded and smooth portions at its inner side, with the delivery-pipe provided at its lower end with the sleeve having alternating smooth and screw-threaded portions upon its outside, the said smooth and threaded portions corresponding in width to each other, as and for the purpose shown and set forth.

3. The combination of the strainer, having the drive-point and the concussion-block at its lower end, with the tubular drive-rod having the upwardly-opening delivery-valve within its lower end, as and for the purpose shown and set forth.

4. In a well-tube, the combination of the well-tube, the strainer having means for preventing it from slipping out of the lower end of the well-tube, and having the sleeve at its upper end formed with alternating smooth and screw-threaded portions upon its inner side, and the delivery-pipe having the sleeve at its lower end provided with alternating smooth and screw-threaded portions upon its outer side, and formed with an internal valve-seat provided with an upwardly-opening valve, as and for the purpose shown and set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

WILLET C. WELLS.

Witnesses:
AUGUST PETERSON,
WILLIAM H. BENTON.