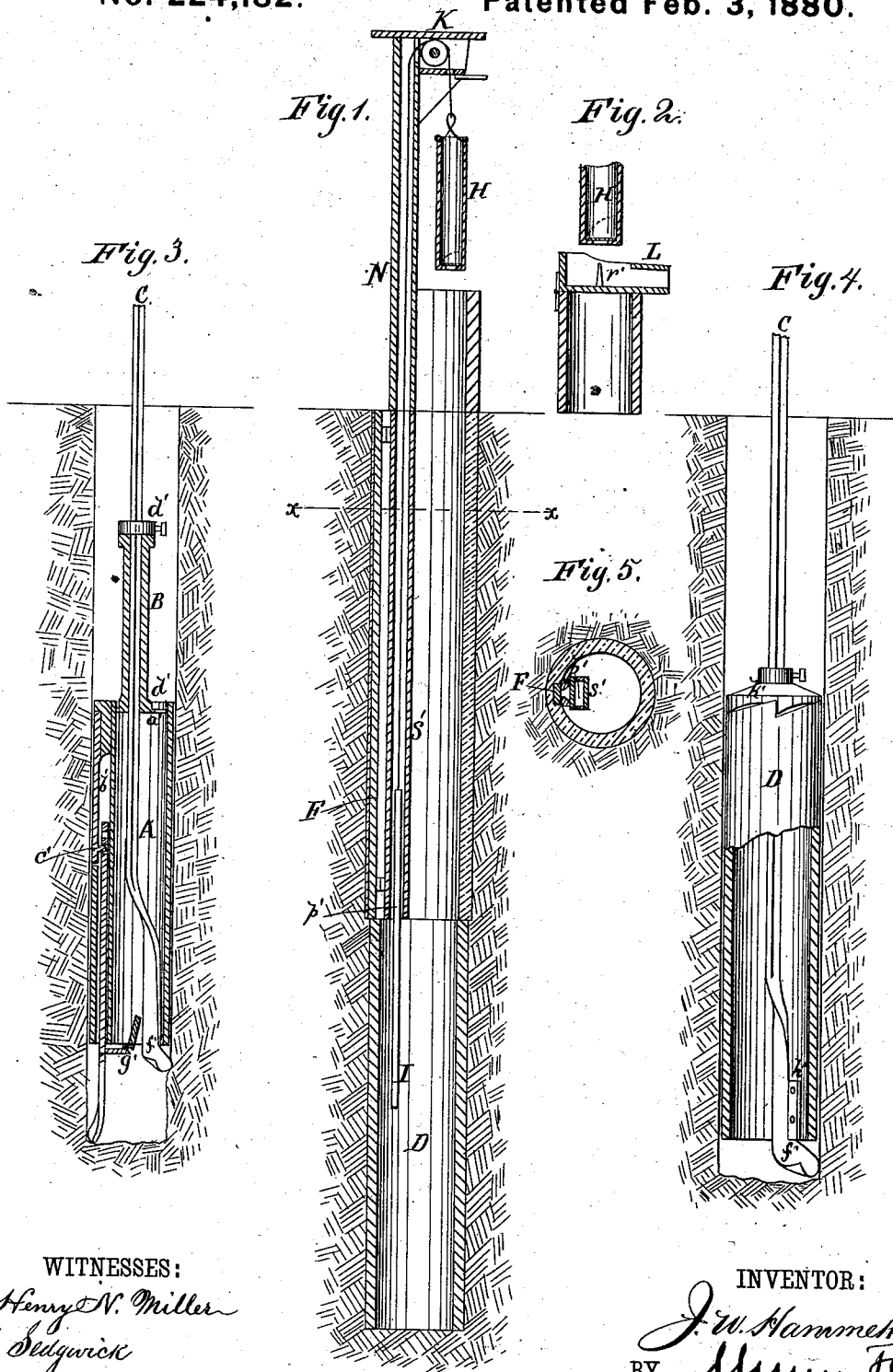


J. W. HAMMETT.
Apparatus for Making Wells.

No. 224,182.

Patented Feb. 3, 1880.



WITNESSES:

Henry W. Miller
C. Sedgwick

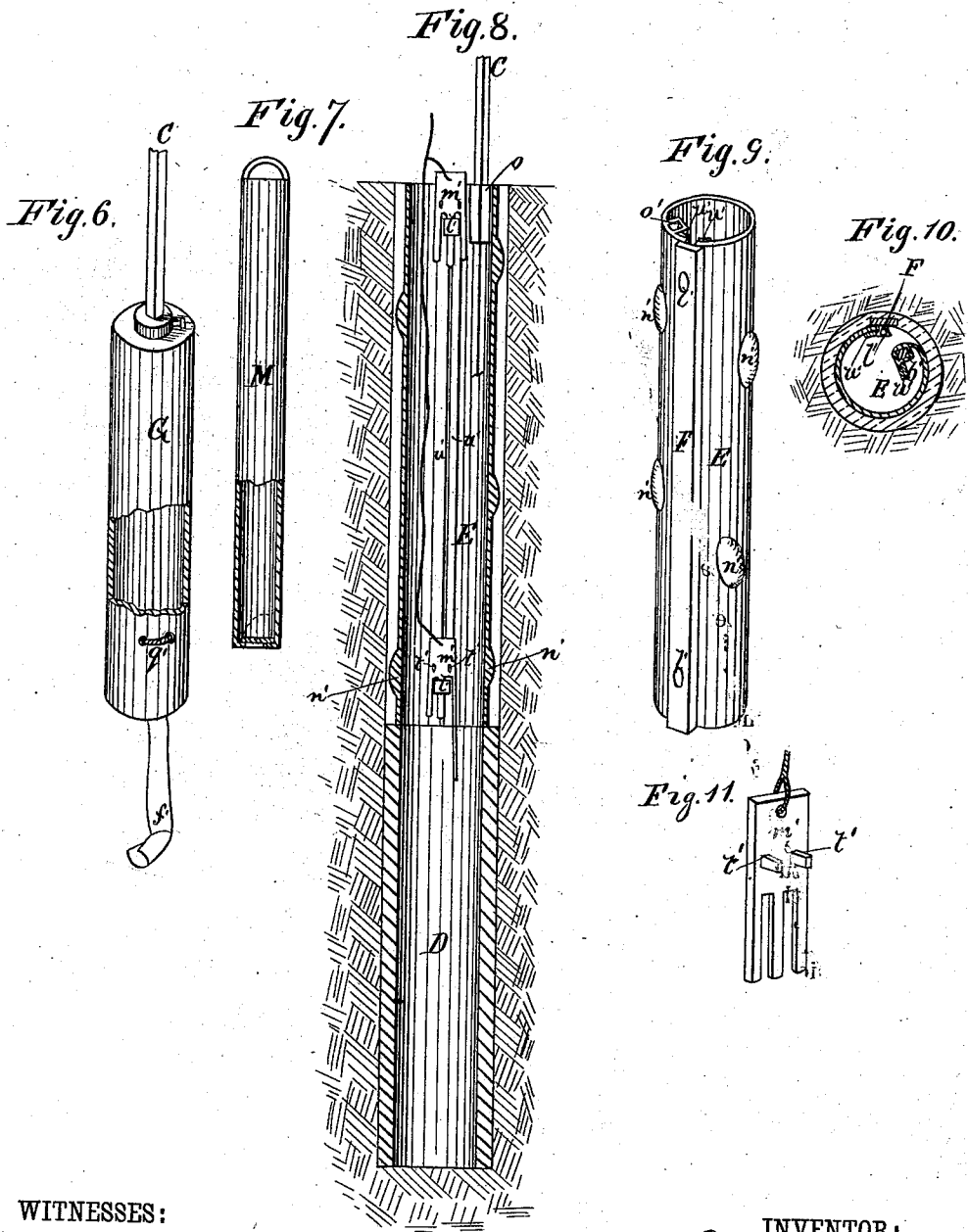
INVENTOR:

J. W. Hammett
BY *Munn & Co*
ATTORNEYS.

J. W. HAMMETT.
Apparatus for Making Wells.

No. 224,182.

Patented Feb. 3, 1880.



WITNESSES:

Henry N. Miller
C. Sedgwick

INVENTOR:

J. W. Hammett
BY *[Signature]*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

JAMES W. HAMMETT, OF WILLOW ISLAND, WEST VIRGINIA.

APPARATUS FOR MAKING WELLS.

SPECIFICATION forming part of Letters Patent No. 224,182, dated February 3, 1880.

Application filed June 5, 1879.

To all whom it may concern:

Be it known that I, JAMES W. HAMMETT, of Willow Island, in the county of Pleasants and State of West Virginia, have invented a new and Improved Apparatus for Making Wells, of which the following is a specification.

Figure 1 is a vertical sectional elevation of a completed well with water-drawer in position. Fig. 2 is a sectional elevation of the device for emptying the water from the bucket. Fig. 3 is a vertical sectional elevation of the auger in position. Fig. 4 is a sectional elevation of a section of tubing for the bottom of the well. Fig. 5 is a cross-section of the completed well on line *xx*. Fig. 6 is a partially sectional elevation of the reamer. Fig. 7 is a partially sectional elevation of the sand-pump. Fig. 8 shows a sectional elevation of the shaping-tube with keys in position. Fig. 9 is an elevation of the same, in perspective. Fig. 10 is a cross-section of the same as it is being rolled up prior to its withdrawal from the well. Fig. 11 is a perspective elevation of a key.

Similar letters of reference indicate corresponding parts.

The object of this invention is to provide simple and effective apparatus for making wells, which apparatus consists of several distinct parts or tools that must co-operate to effect the purpose aimed at.

The invention consists, first, of the auger, as shown in Fig. 2, which consists of a pipe or tube, A, ten or twelve inches in diameter, or thereabout, and about three feet long, to which a shorter and smaller tube, B, is centrally secured in one end by cross-bars *a'*. The tube A is also provided with a sheath or socket, *b'*, that runs from one end to the other of it, for the reception of auxiliary tools that are held in place by the spring *c'*, whose projecting pin enters a corresponding hole in the handle or shank of said tool.

The tube B is provided with collars *d'* on each end, that are square on the inside, to fit and hold the shaft C in the center of A and make them revolve together when at work. The lower part of the shaft C is bent aside and flattened, so as to touch the inside of the tube A and lie up close against it, and the end is drawn out and bent to form a curved cutter or

borer, *f'*, the upper portion of which falls within the tube, while the lower portion extends below the tube and laterally beyond it.

It will be observed that by this arrangement the cutter is made to cut below and laterally beyond the tube A, so that the latter may easily settle downward as the work progresses; and it will also be observed that this device admits of the free passage of air, mud, and water, so as to prevent suction when the tool is drawn up for any purpose.

The valve *g'* may be held in the socket *b'*, as shown in Fig. 3, while the cutter is in operation, and when the cutter is withdrawn within the tube the hinged portion of the valve will fall and close the bottom of the tube, so that when drawn up it will carry the earth that has been cut away.

The auger is operated by means of a derrick, in which it is suspended by a rope that passes over a sheave in the top thereof and leads to a drum that is turned by a crank, to raise or lower the auger and regulate the feed when boring. It is revolved by means of wrenches secured to the shaft.

The device for tubing the lower part of the well is shown in Fig. 4, and consists of a tube of wood, iron, or stoneware of required length and diameter, and intended to be placed almost or entirely under water. To sink this tube D the cutter is removed from the tube A and set within it so that the upper edge of the cutting part shall be wedged between the side of the tube and the block *h'*, that is fastened on the inside of it; then the lid or cam *k'* is slipped over the cutter-shaft and pressed down closely into the corresponding notches in the upper edge of the tube, and secured by a set-screw. This device is then lowered into the well and sunk to its place, as was the auger when boring.

When the earth fills the tube to the lid or cover the cutter and cover may be withdrawn, leaving the tube at the bottom of the well.

It is designed to tube or line the rest of the well with hydraulic cement, and for this purpose is provided the sheet-iron tube or cylinder shown in Figs. 8 and 9. This cylinder E consists of a sheet of iron bent around so that its edges are brought nearly together. Next is provided a strip of wood furnished

with projecting metallic bosses or catches *l'*, which is called the "guide" *F*. This guide is applied to the cylinder *E* in such a manner that the catches *l'* on one face of it shall enter the opening between the cylinder edges; the keys *m'* are then thrust into the catches and forced down, so that their projecting pins *t'* shall embrace between them the longitudinal strips *u'*, that are riveted or otherwise secured along the inner edges of the cylinder, and thus prevent it from spreading apart while at the same time drawing the guide *F* closer against it. The cylinder is then ready for insertion in the well.

It will be observed that on the outside of the cylinder are a number of bosses, *n'*. These are designed to hold it from the walls of the well and regulate the thickness of the cement lining.

When the cylinder is set into the well so that it rests upon the tube *D* the cement is mixed and poured down around it until it forms a continuous wall to the top of the well.

This cylinder is in lengths corresponding with and is connected to the shafting by a square collar, *o'*, through which the shaft passes.

In order to remove this cylinder from the well after the cement is in place and well set, the keys *m'* are withdrawn by pulling on the cords attached to them; then the shafting is given one turn back, which will cause the cylinder to come away from the well-lining and curl around the shafting, as shown in Fig. 10, and leave the guide *F* firmly fixed therein; then one operator will hold the shaft with a wrench, so that it shall not turn, while another will slip the guide-board *p'* of the water-drawer down upon the catches of *F*; then the cylinder can be withdrawn from the well without danger of its catching on the guide.

The cylinder should have a coating of clay or mold dried upon it before it is inserted in the well, which will cause it to separate readily from the well-lining.

The shorter tube *G*, Fig. 6, is intended as a reamer, and is to be used, when desirable, immediately on striking water and before placing the tube *D* at the bottom of the well. To make use of this reamer the cutter is taken from the hollow auger and its shaft passed up from the open end through the square hole in the head until the upper part of the cutter comes within the tube; then the shaft is fastened at the side of the reamer-tube with a cord passed through the holes in its side, as shown at *q'*. A collar and set-screw are then applied at the top of the tube around the shaft to hold it firmly.

This device is to be operated in the same manner as is the auger.

The water-drawer, Figs. 1 and 2, consists of

a bucket, *H*, with a valve in the bottom, through which it is to be filled and emptied, and a weight, *I*, hung over a sheave in the standard *K*.

On the top of the well-tube is a hinged spout or cover, *L*, Fig. 2, having a central vertically-projecting pin, *r'*. On the raising of the bucket this cover is turned down, and the bucket then lowered, so that the pin shall open the valve in the bottom to allow the contents to escape.

The sand-bucket *M*, Fig. 7, is operated in the same manner, and used until all sand is removed from the well.

The box or conductor *N*, in which moves the weight *I*, is completed by attaching the grooved piece *s'* to the guide-board *p'*, as shown.

I am aware that a bucket provided with a valve in the bottom operated by a pin, and a sand-pump closely resembling mine have been used before, and that neither a hollow auger with sliding shafts, nor the use of derrick, wrenches, set-screws, and crab are new in this connection; hence I do not broadly claim them; but,

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

1. The within-described auger, consisting of tube *A*, provided with cross-bars *a'*, socket *b'*, and spring *c'*, tube *B*, provided with collars *d'*, and shaft *C*, whose lower end is formed into or provided with a cutter, *f'*, substantially as herein shown and described.

2. The combination of the tube *D*, provided with block *h'*, shaft *C*, cutter *f'*, and lid or cam *k'*, substantially as herein shown and described, and for the purposes set forth.

3. In the construction of a well, the cylinder *E*, provided with square collar *o'*, strips *u'*, and bosses *n'*, in combination with the guide *F*, provided with catches *l'*, and the keys *m'*, provided with pins *t'*, substantially as and for the purpose described.

4. The box or conductor *N*, consisting of guide-board *p'*, guide *F*, and grooved piece *s'*, substantially as herein shown and described.

5. The within-described reamer, consisting of tube *G*, shaft *C*, cutter *f'*, and cord *g'*, substantially as herein shown and described.

6. For making wells, the combination of the within-described auger-valve *g'*, tube *D*, with its attachments, cylinder *E*, conductor *N*, reamer, water-drawer, spout, and sand-bucket, substantially as herein shown and described.

JAS. W. HAMMETT.

Witnesses:

GEO. S. HAMMETT,
J. W. NORRIS.