

L. G. Peck,
Well Reamer.

N^o 48,835.

Patented July 18, 1865.

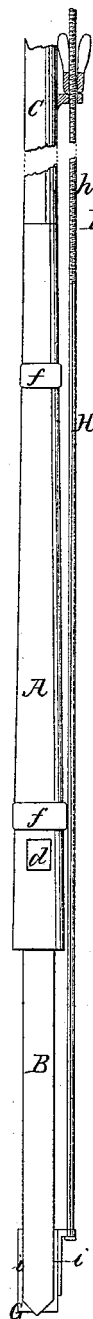


Fig. 1

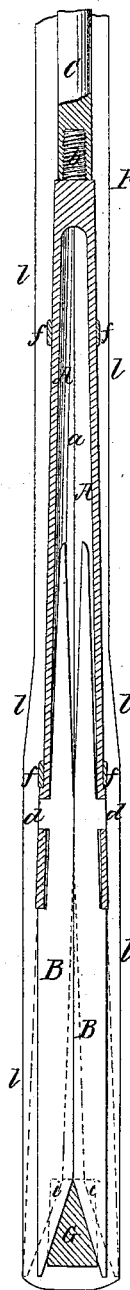


Fig. 2.

Witnesses
Jay Keyatt.
J. Fraser

Inventor,
Loren G. Peck.
Per. J. W. W. W.
Atty.

UNITED STATES PATENT OFFICE.

LOREN G. PECK, OF ROUSEVILLE, PENNSYLVANIA.

IMPROVED WELL-DRILL.

Specification forming part of Letters Patent No. 48,835, dated July 18, 1865.

To all whom it may concern:

Be it known that I, LOREN G. PECK, of Rouseville, in the township of Cornplanter, county of Venango, and State of Pennsylvania, have invented a new and Improved Expanding Drill or Reamer for Artesian Wells; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical side elevation of my improved drill detached from the ordinary connections for operating it. Fig. 2 is a view transversely of Fig. 1, representing the drill-stock A A in section and the reamers B B in elevation, the same being shown in position in the well.

Like letters of reference designate corresponding parts in both of the figures.

In sinking Artesian wells it is usual to bore with a smaller drill than the intended diameter of the well when finished, and to follow this with a tool termed a "reamer," which enlarges the hole equally on all sides.

It is one of the objects of my invention to enable this enlargement to be commenced at any part of the well required, however deep below the surface, and thereby avoid the labor and expense of enlarging it for the whole depth. Thus it frequently happens that the primary drill is broken and a portion left in the well, which cannot be extracted by ordinary means, in which case my drill is intended to enlarge the bore above and around the obstruction, so that it is loosened, and can be removed when the drilling progresses as before. Many wells have to be abandoned, even when nearly completed, from parts of the drill being lost in them, which cannot be extracted.

It is also the object of my invention to enlarge the diameter of oil and salt wells at their extreme depth, or in those strata of rock in which the oil or brine is obtained, for the purposes of clearing the surface of the shaft from the debris of drilling or other obstructions to the free entrance of the oil or brine into the well, and to increase the capacity and give greater area for pumping.

As represented in the drawings, A A are the two sections or halves of a hollow stock which holds the drill-irons B B. These sections are divided on the vertical line *a*, but may be welded

or otherwise attached together at the top, and provided with a screw, *b*, for coupling with the suspension-rod, (a part of one being shown at C,) by which the drill is connected with the working-beam at the top of the well. The drill-irons B B are two parallel bars having steel points properly beveled on their adjoining sides for working on the sides of the shaft. Their upper extremities are tapering above the bearing-lugs *d d*, which are strong bosses of iron which pass through holes provided for them, one being in each section of the stock. The sections of the stock are held together by iron bands *f f*, which are driven tightly on after the parts B B are inserted, which is done by springing the lower ends of A A apart sufficiently to admit of the bosses *d d* entering. They are removed in the same manner after loosening the bands.

It will be seen that it is impossible for the drills to be dropped from the stock while the bands *f f* are in place, and these may be secured against accident by keys or screws.

Between the beveled sides of the lower extremities of B B a wedge, G, is placed, which is provided with plates or flanges *i i*, which embrace the sides of the drill. To this wedge on one side a rod, H, is attached firmly by welding or otherwise. This rod extends upward by the side of the drill-rod C to the top of the well, being lengthened with sectional rods in the same manner. This rod extends to the temper-screw ordinarily employed for feeding the drill, and is provided with a screw, *k*, like the temper-screw, but smaller, which is connected with rod H by a swivel, so that the screw can be turned freely on the rod. It passes through a side lug or projection on the lower end of the main temper-screw, and by means of a nut, *l*, may be raised or lowered at will. By raising it the wedge G is drawn up, expanding the points of the drill-irons B B, as indicated by red lines on the drawings, until the inclined faces of their upper extremities meet and limit their expansion, or in a reverse direction with contrary effect.

In operating, this apparatus is lowered down the small shaft produced by the primary drill to the place where the enlargement is designed to begin. By adjusting the rod H the wedge is made to expand the cutting-edges of B B,

so as to bring them in close contact with the interior or side of the shaft. The reciprocating action of the machinery then causes these edges to gradually cut away at the sides, and the wedge being frequently moved upward slightly the enlargement proceeds in conical form until the greatest expansion is attained, as shown by the lines *l l*, Fig. 2, when the enlarged bore continues of uniform size, if desired, to the bottom of the well.

By this simple, compact, and easily managed apparatus a four-inch shaft may be enlarged to six inches, beginning at any depth that is desired, without the expense of boring of the entire well of that size, and with very important and beneficial results in regard to the production of oil and salt wells and in clearing old or abandoned wells of obstructions, as well as in loosening tools which have stuck fast.

I am aware that movable wedges have been employed to expand the jaws of reamers for Artesian wells, and this, broadly, I do not claim; but

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

1. The hollow stock or socket-holder, composed of the parts A A, so constructed as to be united or held firmly together at the top,

but expanding sufficiently below to receive the bosses *d d*, in combination with the reaming-bits B B, bands *f f*, and adjustable wedge G, the whole arranged and operating substantially in the manner and for the purposes set forth.

2. The arrangement of the wedge G in relation to the points of the bits or reamers B B and stock A, whereby said reamers are enabled to work around and beyond tools or other impediments which accidentally obstruct the well, substantially as shown and described.

3. Constructing the bits or reamers B B with equally-inclined faces on their adjacent sides within the stock A, in combination with said stock and the wedge G, so arranged that when said faces by approaching become in contact the motion of the wedge and the expansion of their cutting parts are limited and the parts are firmly held together and act as one reamer, substantially as shown.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

LOREN G. PECK.

Witnesses:

J. FRASER,
JAY HYATT.