

J. Burns,

Well Reamer.

N^o 51,138.

Patented Nov. 28, 1865.

Fig. 1.

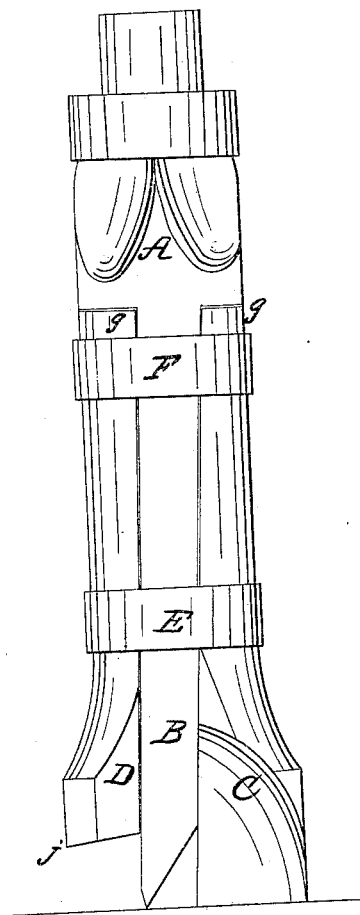


Fig. 2.

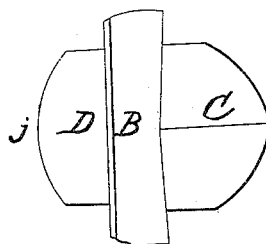
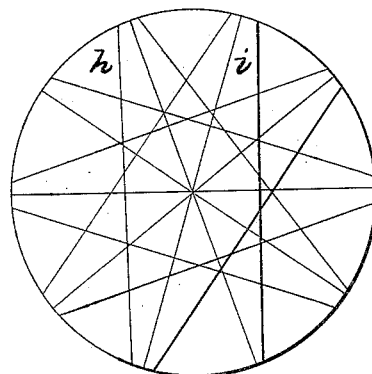


Fig. 3.



Witnesses.

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JAMES BURNS, OF TITUSVILLE, PENNSYLVANIA.

IMPROVED DRILL AND REAMER FOR OIL AND OTHER WELLS.

Specification forming part of Letters Patent No. **51,138**, dated November 28, 1865.

To all whom it may concern:

Be it known that I, JAMES BURNS, of Titusville, in the county of Crawford and State of Pennsylvania, have invented a new and useful Improvement in Drills and Reamers for Boring Oil and other Wells; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an elevation of an implement made according to my invention. Fig. 2 is a face view thereof. Fig. 3 is a diagram showing the strokes of the tool in the bore.

Similar letters of reference indicate like parts.

The object of this invention is to produce a drill which shall bore a round hole as well by reason of the position of its cutting-edges in relation to each other as by reason of the reamer which constitutes a part of the tool.

A is the stock of the drill. The whole implement in this example of my invention is made in three separate parts, but it may be made solid. In this example, however, I have cut away opposite sides of the stock and have formed the part which remains into a cutter, designated by the letter B. The edge of this cutter extends across the tool but not in a diametrical line, because a chisel-edge is given to its face, as shown in the drawings. Its cut, therefore, on the rock will be always at one side of the center of the bottom after the manner of a cord drawn within the circumference of a circle. This is illustrated in the diagram, Fig. 3, where the lines *h* represent the cuts of the part B.

C is a cutter, whose stock is secured to the main stock A by means of bands E F. The upper end of its stock abuts against the shoulder *g* of the main stock, and its exterior lines complete the circumference of the body of the tool on one side, as also the stock of the reamer D does on the opposite side.

The cutting-edge of the part C is disposed at right angles to the plane of the cutter B,

and it is meant that its cutting-edge shall be equal in length to the radius of the drill, so that each blow it delivers on the bottom of the bore shall extend from the center of the bore to its circumference, as shown in the diagram, where *i* designates the line of its cuts.

The reamer D fills up one side of the main stock and is held thereto by the collars E F. Its lower part is flat, and is elevated an inch, more or less, above the cutting-edges of the drill, so as not to interfere with the advance of the cutters into the rock. Its lower part is enlarged, and part of its exterior line is drawn to a curve, which coincides with the circumferential line of the bore of the well, as seen at the part *j*. At each descent of the tool the curved part *j* reams out the bore without interfering with the action of the cutting-edges.

The cutting-edges B C may be disposed at other angles than right angles if it is thought best. By rotating the drill at each blow, its edges are made to cut across the previous cuts, thereby securing a round bore and an evenness and smoothness on the bottom of the bore which will prevent the bore from becoming angular or tapering in shape. The diagram, Fig. 3, shows the lines of the cuts from ten successive blows with a drill of the shape here shown.

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

1. In drills for boring oil and other wells, placing one cutting-edge across the drill, but on one side of its diameter, and another cutting-edge on a radial line at a right angle or other angle to the other cutter, substantially as shown, the last-mentioned cutter being equal in length to the radius of the bore.

2. In combination with cutting-surfaces arranged as stated in the first clause of the claim, the reamer D, constructed and arranged on the drill substantially as described.

JAMES BURNS.

Witnesses:

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