J. GRUBS.
Oil Drill Bit.

No. 202,023. Patented April 2, 1878.

Fig. 1.

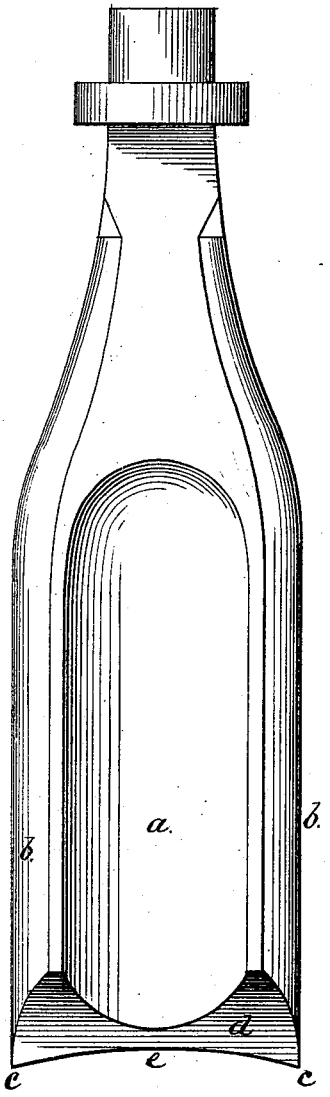


Fig. 2.

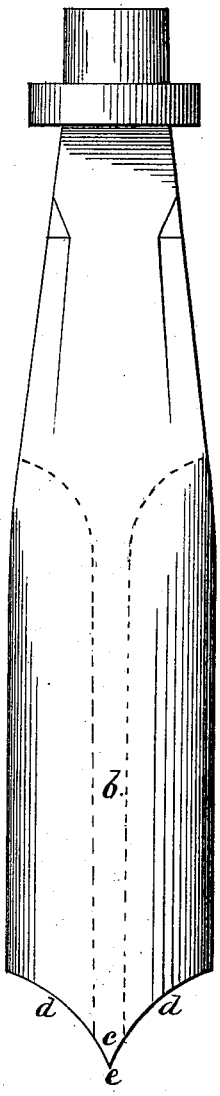
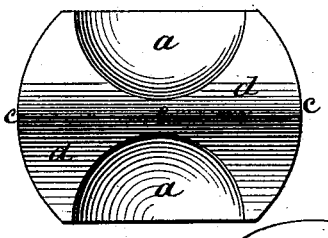


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN GRUBS, OF LICKINGVILLE, PENNSYLVANIA, ASSIGNOR OF ONE-FOURTH HIS RIGHT TO LUKE EISENMAN, OF SAME PLACE.

IMPROVEMENT IN OIL-DRILL BITS.

Specification forming part of Letters Patent No. **202,023**, dated April 2, 1878; application filed June 18, 1877.

To all whom it may concern:

Be it known that I, JOHN GRUBS, of Lickingville, in the county of Clarion and State of Pennsylvania, have invented a new and Improved Rock-Drill; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention is an improved device for drilling oil, salt, and Artesian wells.

In drilling such wells heretofore, the usual practice has been first to run down a small bit, termed a "center-bit," and then enlarge the hole thus formed by means of a reamer.

My improved drill enables the same result to be produced at one operation, and therefore combines the functions of both bit and reamer.

The invention consists in providing the drill with acute-angled points or side cutters, and with a concave cutting-edge extending transversely between said points, as hereinafter described.

In the accompanying drawing, forming part of this specification, Figures 1 and 2 are different side views of my improved drill. Fig. 3 is an end view of the same.

The drill is fluted or grooved longitudinally at *a a*, on opposite sides, for about two-thirds of its length. The sides *b b*, between the grooves *a a*, are concentric arcs of a cylinder, whose periphery is described from the middle point of the longest diameter of the drill. These convex or curved sides *b b* terminate in acute-angled points *c c*, formed by the junction of the slightly-curved lines of the sides *d d* of the face of the drill. The cutting-edge *e* extends between the points *c c*, and is slightly concave. The diameter of the drill through the concentric sides *b b* being greater by about one-third ($\frac{1}{3}$) than the diameter at any point in a direction at right angles thereto, it necessarily determines the size of the drill-hole. The provision of the flutes or grooves *a a* allows free action of the drill, and prevents clogging or serious impediment by accumulation of pulverized rock or other material in the drill-hole.

The concave sides of the points *c c* act as reaming edges or cutters, and the transverse beveled edge *e* prevents lateral movement of the drill at the moment of impact on the rock, and hence secures uniformity of stroke without bouncing.

The concave edge cuts away the rock the entire width of the drill-hole, and the acute-angled points *c c* cut the sides of the drill-hole to a uniform width.

My improved drill saves time and labor, by enabling the two operations of boring and reaming to be effected simultaneously.

I do not claim, broadly, a drill having fluted or concave sides and a concavity in its transverse cutting-edge; but

What I claim is—

The improved drill combining the functions of bit and reamer, having the acute-angled side points *c c*, and the concave cutting-edge *e*, extending between said points, the flutes or grooves *a*, and the convex sides *b b*, as shown and described.

JOHN GRUBS.

Witnesses:

D. E. DETAR,

PATRICK GRAHAM.