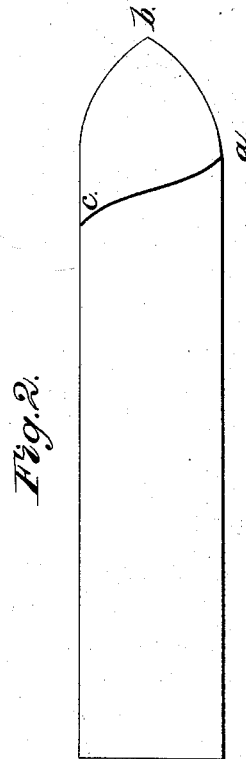
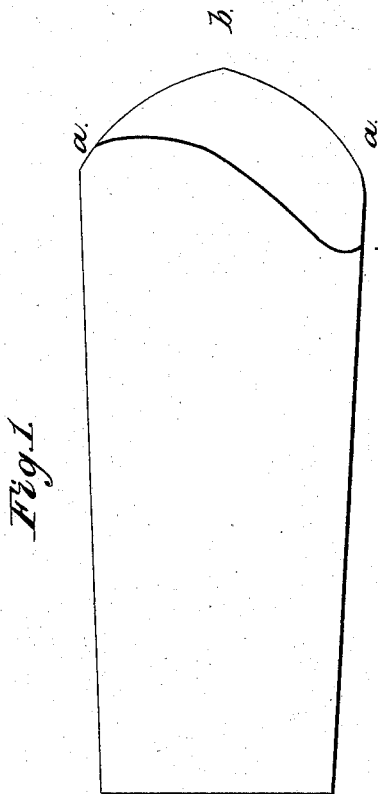
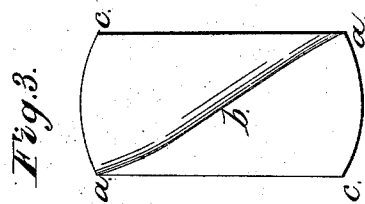


*P. G. Wells,
Rock Drill.*

N^o 48,609.

Patented July 4, 1865.



Witnesses.

Lewis Vanlanden

Richard F. Hunt

Inventor.

P. G. Wells

UNITED STATES PATENT OFFICE.

R. G. WELLS, OF PLUMER, PENNSYLVANIA.

IMPROVED DRILL.

Specification forming part of Letters Patent No. 48,609, dated July 4, 1865.

To all whom it may concern:

Be it known that I, R. G. WELLS, of Plumer, in the county of Venango and State of Pennsylvania, have invented a new and Improved Drill; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification—

Figure 1 being a side view of the drill; Fig. 2, an edge view thereof; Fig. 3, an end view of the same.

Like letters designate corresponding parts in all of the figures.

My improved drill is intended more especially for boring Artesian and petroleum wells through all kinds of rock in succession, whether the strata are hard or soft.

The peculiarity consists in the form given to the cutting end of the drill, substantially as follows: The transverse outline of the drill being substantially as shown in Fig. 3, the cutting-edge extends from diagonally-opposite corners *a a*, the middle portion, *b*, forming a slight double curve, more or less nearly approaching a straight line. The two other corners, *c c*, of the drill are beveled off to the proper angle, the bevel gradually running out as it approaches the corners *a a*, where, for a little distance, the sides of the drill are nearly vertical or continuous with the unbeveled portion thereof. This makes the opposite cutting-edges at *a a*, for a small portion of the width of the drill, nearly or quite straight, and in the planes of the sides of the drill.

It will be seen by this construction that only the very center of the drill-edge *b* has an equal bevel on both sides, while the diagonally-opposite corners *c c* are most beveled, and coincide in their action against the other two cor-

ners, *a a*, which coincide in their action on the movements of the drill.

The principal effects and advantages of this construction are, first, the drill is in a measure self-sharpening, because the wear is principally on the bevel corners *cc*, so that the middle edge, *b*, is left not only not so much dulled, but partially sharpened by the said wear of the bevels; second, the bevels being continuous and regular in form, the drill is even rather more easily sharpened, either by forging or grinding, than the common form of drill; third, the drill has a tendency to give a cleaving or shaving cut in the rock, because the beveled sides being opposed in action to the straight sides, and having a tendency to yield, and to throw the chip-pings in that direction, the cutting-corners *a a* cleave off the rock obliquely in that direction, thereby rendering the action of drilling more easy and rapid than that of the common form of drill, which has no tendency to turn in either direction; fourth, this tendency of the drill to turn continually to the left has the effect to keep the drill tightly screwed onto the drill-rod, which is ordinarily attached to the drill by a right-hand screw; hence there is no danger of its ever becoming disconnected from the rod, as the common drills have, causing much loss of time and consequent expense.

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

Forming the drill with the diagonal edge *b*, and diagonally-opposite straight corners *a a*, and alternate beveled corners *cc*, substantially as and for the purposes herein specified.

R. G. WELLS.

Witnesses:

LEWIS VAN ANDEN,
RICHARD F. HUNT.