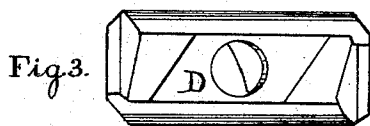
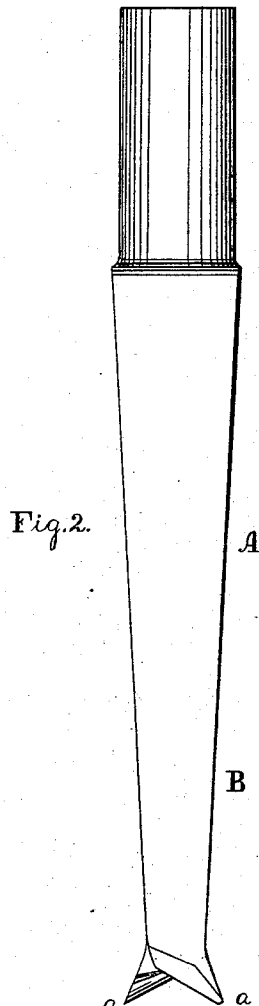
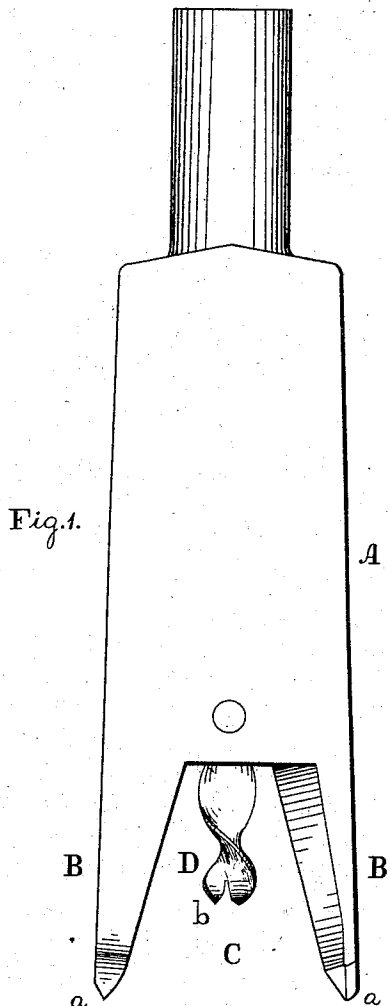


G. M. READ
Bits for Boring Rock.

No. 158,124.

Patented Dec. 22, 1874.



Witnesses:

L. F. Brous.

A. P. Grant.

Inventor:
George M. Read.
by John A. Giersheim
Atty.

UNITED STATES PATENT OFFICE.

GEORGE M. READ, OF KITTANNING, ASSIGNOR OF TWO-THIRDS HIS RIGHT
TO G. A. REICHERT, JR., OF MANORVILLE, AND JOHN H. REICHERT,
OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN BITS FOR BORING ROCK.

Specification forming part of Letters Patent No. 158,124, dated December 22, 1874; application filed
July 29, 1874.

To all whom it may concern:

Be it known that I, GEORGE M. READ, of Kittanning, in the county of Armstrong and State of Pennsylvania, have invented a new and useful Improvement in Bits for Boring Minerals; and I do hereby declare the following to be a clear and exact description of the nature thereof, sufficient to enable others skilled in the art to which my invention appertains to fully understand, make, and use the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side elevation of the device embodying my invention. Fig. 2 is an end view thereof. Fig. 3 is a face view of the point thereof.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to means for boring coal and other minerals; and consists in cutting or boring bits and a breaking-bit intermediate thereof, whereby the boring is readily performed, and the core quickly destroyed.

Referring to the drawings, A represents a steel plate or bar, with one end of which are formed bits B B, which project longitudinally from the plate at the sides thereof, a space, C, being thus left between the two bits. The ends of the bits are extended forward or in advance of the bodies of the bits at somewhat of an obtuse angle, and formed with sharp cutting-points *a*, which face in opposite directions. To the plate A, in the space C, I secure a bit, D, which projects forward between the bits B, in the same line therewith, and the extreme cutting edges or points *b* occupying a space of smaller diameter than that of the body of said bit D, set back of the cutting-points *a* of the bits B.

The operation is as follows: The plate A is secured to a proper shaft, mandrel, or other

operating mechanism, and power applied thereto, so that the plate rotates and advances. The points *a*, reaching the bank or bed of the mineral, quickly cut thereinto, and bore an opening of the form of an annulus, leaving an uncut portion centrally, which is known as a core. As the bits B advance, the core is reached by the bit D, and attacked solidly and directly centrally by the latter, so that the said core is completely broken in lumps or cracked, and thus quickly destroyed, the enlarged body of the bit serving to press out the core and insure the breaking or cracking thereof.

I am aware that bits have been made to remove the core of a bored bank or bed of a mineral; but this was accomplished by shaving or scraping every particle of the entire outer surface of the core, and is different from mine, inasmuch as I crack or break said core from the center, and thus remove it in lumps.

I am aware that boring-bits have been provided with a central bit which works in advance of the main bits, but is not designed to break or destroy the core, as in my case. As the core must first be produced by the main bits, and is afterward reached by the breaking-bit, it is evident that a central bit in advance of the boring-bits could not accomplish the object for which my device is intended.

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

The breaking-bit D, intermediate of the boring-bits B B, and set back of the cutting-edges of said boring-bits, substantially as and for the purpose set forth.

GEORGE M. READ.

Witnesses:

JOHN A. WIEDERSHEIM,
A. P. GRANT.