

MILAN C. BULLOCK.

Improvement in Rock Drills.

No. 122,514.

Patented Jan. 9, 1872.

Fig. 1.

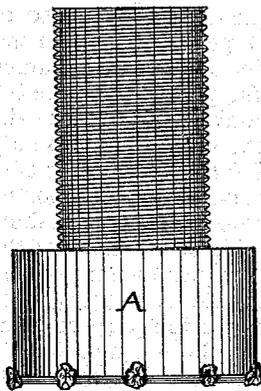


Fig. 2.

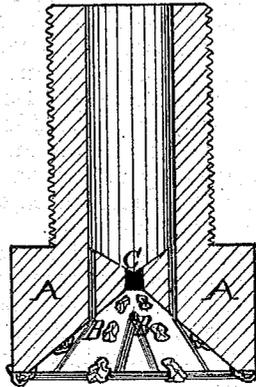


Fig. 3.



Fig. 4.

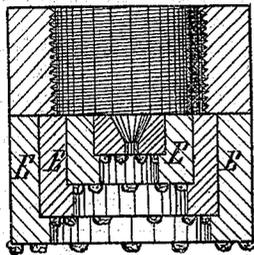
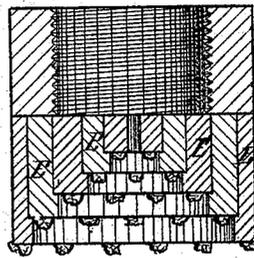


Fig. 5.



Witnesses:  
*Com. R. Wright*  
*Thos. A. Burt*

Inventor,  
*M. C. Bullock,*  
 by his Atty.  
*Horace Binney, Esq.*

# UNITED STATES PATENT OFFICE.

MILAN C. BULLOCK, OF NEW YORK, N. Y.

## IMPROVEMENT IN ROCK-DRILLS.

Specification forming part of Letters Patent No. 122,514, dated January 9, 1872.

*To all whom it may concern:*

Be it known that I, MILAN C. BULLOCK, of the city, county, and State of New York, have invented a new and useful Improvement in Rock-Drills; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use my invention, reference being had to the accompanying drawing which forms a part of this specification, and in which—

Figure 1 is a side elevation of my improvement; Fig. 2, a vertical section; and Fig. 3, a bottom view thereof. Figs. 4 and 5 are vertical sections of different modifications.

The same parts are denoted by the same letters in all the figures.

My invention relates to the revolving bit or boring head of a diamond-drill, and is especially applicable to that class of diamond drill-heads which are made solid, so as to excavate a circular hole; although it may also be applied to the annular drill.

In the solid bit, now commonly in use, the cutting end, on which the diamonds are arranged, is made pointed or conical. The point or apex of the bit is thus not only the point of a wedge which enters the rock, but also the pivot upon which the drill revolves, and is, consequently, subjected to the heaviest crushing strain of any part of the bit, while at the same time it has hardly any motion from the revolution of the drill. Thus the center diamond, which is practically a dead-center, and has the least motion to do the work with, is made to do the hardest part of the work. My invention is designed to remedy this defect; consists in making the end of the bit concave instead of convex.

A, in the drawing, represents the bit or boring head of a diamond-drill, upon whose re-

entrant conical surface, shown in section in Fig. 2, are arranged the diamonds B B. The consequence of this construction is, that the work of penetration is entirely performed by the outer or clearance diamonds, which, being set in the periphery of the bit, have the greatest amount of motion to do the work with, while the inside cone has only to cut away the core of rock, the amount of work required of each diamond being proportional to its amount of motion, and the center diamond having only to crumble off the apex of the core, instead of forcing an entrance into the rock. C is a small central hole communicating with the hollow drill-rod for the purpose of supplying water to lubricate the bit and wash out the detritus. Other holes, D D, may also be made in the bit for the same purpose.

Figs. 4 and 5 show different modes of constructing my improved bit in sections. The rings E E are slipped one inside of another, and by replacing one or more of them with rings of different width or thickness, the inside angle of the bit may be made sharper or more obtuse, as may be desired, for different kinds of rock. This construction is also advantageous if a diamond should break, as in such case the ring on which the broken diamond is may be at once replaced.

I have described this invention as applied only to a solid bit; but it is also useful when applied to an annular one, although not in the same degree.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

The above-described concave diamond bit or boring-head.

M. C. BULLOCK.

Witnesses:

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