

(No Model.)

H. C. REICHARDT.

EXPANSION BIT FOR WELL AND ROCK BORING.

No. 261,565.

Patented July 25, 1882.

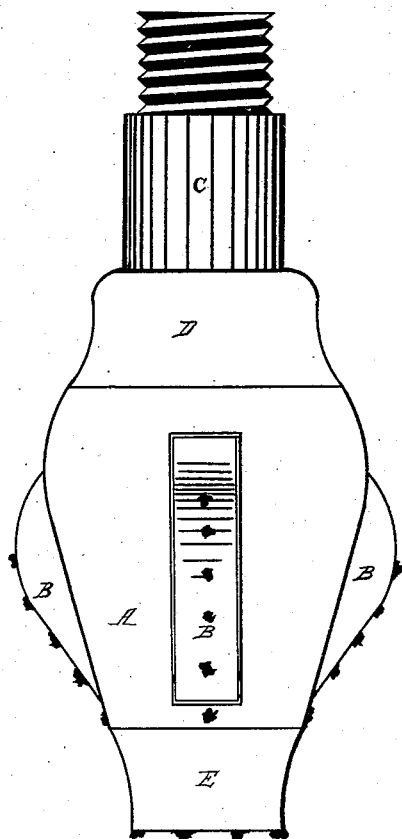


Fig. 1.

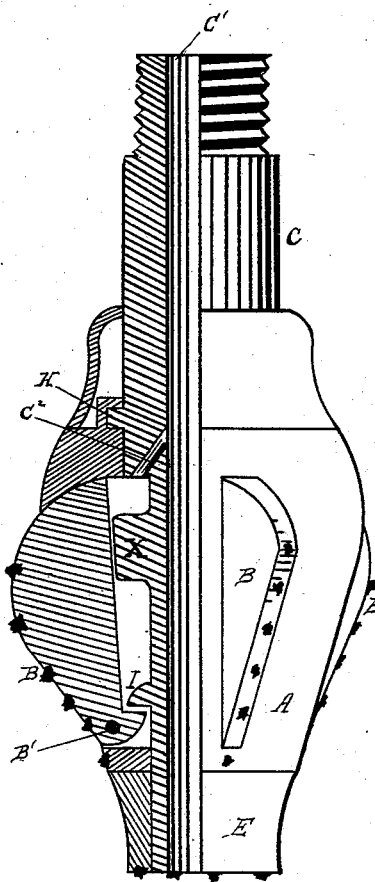


Fig. 2.

Attest:

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EXPANSION-BIT FOR WELL AND ROCK BORING.

SPECIFICATION forming part of Letters Patent No. 261,565, dated July 25, 1882.

Application filed April 8, 1882. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. REICHARDT, of Pottsville, Schuylkill county, Pennsylvania, have invented a new and useful Expansion-Bit for Well and Rock Boring, of which the following is a specification.

My invention relates to bits used in diamond drilling-machines.

My object is to provide a bit that can be inserted in any drill-hole and then expanded so that it will drill a hole larger than the hole it was introduced through.

Expansion-bits for drilling-machines have heretofore been made with cutters operated by water under pressure, and also with hinged wings provided with cutting appliances, the wings being operated by means of cones, on the wedge principle. My device is operated in an entirely different manner, and I provide a means of clearing its working parts of all dirt and obstructions, as will be more fully explained hereinafter.

I attain my object by the mechanism illustrated in the accompanying drawings, in which similar letters of reference indicate like parts, and in which—

Figure 1 is a full view of my invention, and Fig 2 the same view with a part cut away to show its internal construction.

I construct my expansion-bit by taking the shell A and affixing thereto the expansion-arms B B B, of which there may be any number desired, by means of the pins B' B'. I then insert in the shell A the hollow stem C. On this stem C, I form as many cams X as there are expansion-arms B B. The shoulder I, resting on an offset in the shell A, holds the stem C in position. The lug H on the stem is used as a stop to prevent the stem from being turned farther than just enough to throw out the expansion-arms B B B.

B and E are sleeves or ferrules secured by pins or set-screws to the stem C, and serve to secure all the parts in proper position.

C' is a water-way through the stem C, and C² is a smaller water-way, of which there should be one for each cam and expansion-arm. These small water-ways connect with the water-way C', and serve the purpose of allowing water to flow on the cams and the interior of the shell, so as to keep it free of grit and dirt.

My device is intended to be used in diamond drilling-machines. The expansion-arms

and lower part of the shell are set with diamonds, as desired by the driller and nature of the work to be performed.

In drilling where it is desired to use a stand-pipe great difficulty is experienced in forcing down the stand-pipe whenever a rock or bowlder is met with. The usual plan adopted is to break or shatter the bowlder by means of explosives and then force the stand-pipe through. This is both a troublesome and expensive plan, and leaves the bore-hole in bad condition in many cases.

To use my expansion-bit the driller proceeds with his work in the usual manner and with the usual bit until he reaches a bowlder. My bit is then put down. The first quarter-turn of the stem C throws out the expansion-arms, and the drilling proceeds until the bowlder or obstruction is passed through.

It will be seen that the hole made by my bit is larger than the hole through which it was introduced. Consequently the stand-pipe can be readily lowered.

There are other uses to which my bit can be put, such as enlarging a drill-hole at any desired place for the purpose of placing in such enlarged space a large quantity of explosive material, and many other purposes which will be self-evident to a skilled driller.

The bottom of the sleeve E may be used as a bit by having it set with the usual diamonds, and in such case the core formed would pass up through the water-way C'. When constructed in this manner it would not be necessary to drill any other hole through the bowlder before using my bit.

What I claim is—

1. In an expanding bit for diamond drilling-machines, the expanding-arms B B B, operated by a series of cams, X X X, a single cam operating each arm.

2. In an expanding bit for diamond drilling-machines, the combination of the expanding-arms B B B, operated by the cams X X X, in connection with the small water-ways C² C² C², communicating with a larger water-way, C', for the purpose of clearing the cams and arms of dirt and grit, and the lug H, which prevents the cams X X X from passing the arms B B B, as shown and set forth.

HENRY C. REICHARDT.

Witnesses:

THOS. ALDERSON,
MORGAN REED.