

C. JACKSON.
 ROCK DRILL.
 APPLICATION FILED MAY 31, 1910.

1,075,424.

Patented Oct. 14, 1913.

Fig. 1.

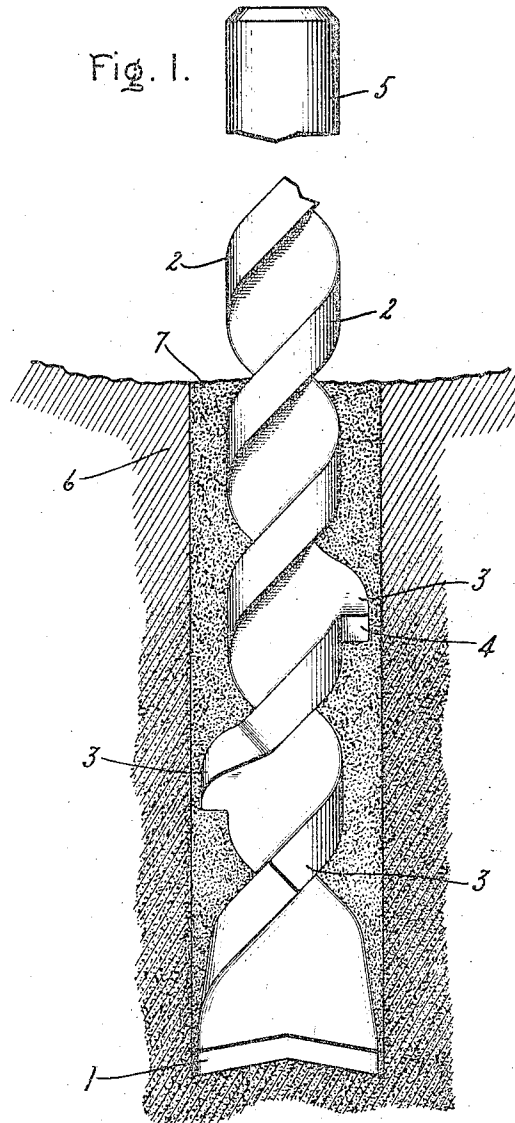
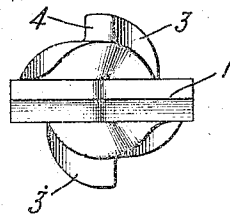


Fig. 2.



Witnesses:

George W. Tilden
J. Eli Elen

Inventor:

Corwill Jackson

by *Wm. B. Davis*
 His Attorney.

UNITED STATES PATENT OFFICE.

CORWILL JACKSON, OF MADISON, WISCONSIN, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

ROCK-DRILL.

1,075,424.

Specification of Letters Patent.

Patented Oct. 14, 1913.

Application filed May 31, 1910. Serial No. 542,042.

To all whom it may concern:

Be it known that I, CORWILL JACKSON, a citizen of the United States, residing at Madison, in the county of Dane, State of Wisconsin, have invented certain new and useful Improvements in Rock-Drills, of which the following is a specification.

My invention relates to mining drills particularly adapted for cutting rock or other hard mineral substances.

In machine drilling it is impracticable to maintain accurate alinement between the machine, which is usually mounted on a tripod and subject to violent vibration, and the hole being drilled, and in order to avoid the rubbing of the sides of the drill steel against the sides of the hole, the steel is made with a bit of considerably greater diameter than the rest of the steel, but drills of this construction have been found objectionable for the reason that the dust, cuttings and crushed material incident to drilling operations often accumulate immediately back of the cutting bit around the body of the drill steel and form there a hard unyielding and binding collar. This collar causes undue friction upon the drill during its operation and prevents a free and ready removal of the same from the bore. Moreover, such packing or jamming of the loose material is aggravated in a twist percussion drill by the reciprocating movements of the beveled spiral flanges, resulting in a partial choking of the drill, or possibly a total stoppage of the rearward progress of the ground material from the bore.

The object of this invention is to provide a drill which will avoid these inconveniences.

In applying my invention, I may make use of the ordinary twist percussion drill steel with a bit of greater diameter than the diameter of its spiral conveying flanges. Upon these flanges I form projections in such a manner and of such a form, while not interfering with the continuity and the rigidity of the spiral conveyer, as to stir up and maintain the ground materials in a loose conveyable form during the operation of the drill.

The salient points of my invention will be particularly pointed out in the appended claims, but for a detailed description reference may be had to the specification, of which the following drawings form a part.

Figure 1 is a perspective view of a twist

percussion drill steel with a part of the body or spiral conveyer and head broken away, together with a section through the bore; and Fig. 2 is a bottom projection.

The cutting or drilling bit of the drill, shown at 1, may be of any convenient form, the only requisite being that its bore be greater than the diameter of the flanges 2, 2 of the spiral conveyer. These flanges are provided with integral outwardly projecting or radial stirring lugs 3 which preferably extend to approximately the bore limit or diameter of the cutting bit 1. In the drawings, four of these lugs are shown, but my invention is not to be limited to this number. It should be noted that the leading faces 4 of these lugs are arranged toward but inclined to the direction of the drilling bit so as to be effective in preventing clogging or jamming of the loose materials during both the rotative and the forward movements.

At 5 is shown the upper part of a circular head or shank which receives the heavy hammer blows.

6 represents the rock or other mineral to be drilled and at 7 is shown the cuttings in loose form during the drilling operation.

I have shown my invention applied to a twist-drill of such strength and rigidity of parts as to withstand the heavy hammer blows incident to percussive rock drilling, but it is to be understood that it is applicable to any drill provided with a continuous spiral conveyer of smaller diameter than the bore of the cutting bit.

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

1. A percussion drill steel having a continuous spiral conveyer provided with integral lugs projecting outwardly from the conveyer edges, and a cutting bit of greater diameter than the diameter of the said conveyer, the diameter of the integral lugs being greater than that of the conveyer.

2. A percussion drill steel having a continuous spiral conveyer provided with integral radial stirring lugs upon the conveyer edges, and a cutting bit of greater diameter than the diameter of said conveyer, the diameter of the integral lugs being greater than that of the conveyer.

3. A percussion drill steel having a cutting bit and a continuous spiral conveyer provided with integral lugs provided with

faces whose edges are substantially at right angles to the axis of the drill projecting outwardly from the conveyer edges and extending to approximately the diameter of the cutting bit.

5 4. A twist percussion drill steel continuous spiral conveyer which is provided with integral stirring lugs projecting outwardly from the conveyer edges and whose cutter
10 is greater than the diameter of the conveyer, the diameter of the lugs being greater than that of the conveyer.

5. A twist percussion drill steel having a bit and conveyer flanges provided with out-
15 wardly projecting cutting lugs having their leading faces disposed transversely to the spiral flanges and whose cutter is greater

than the diameter of the conveyer flanges, the diameter of the lugs being greater than that of the flanges.

20 6. A twist percussion drill steel having a bit and spiral flanges provided with integral radial stirring lugs having their leading faces disposed transversely to the spiral flanges and substantially parallel to and ex-
25 tending to approximately the diameter of the drill.

In witness whereof, I have hereunto set my hand this 25th day of May, 1910.

CORWILL JACKSON.

Witnesses:

ALVA L. SEARLES,
A. J. BUENZLI.