

J. FLEMING.
Rock-Drill Bit.

No. 224,412.

Patented Feb. 10, 1880.

Fig 1

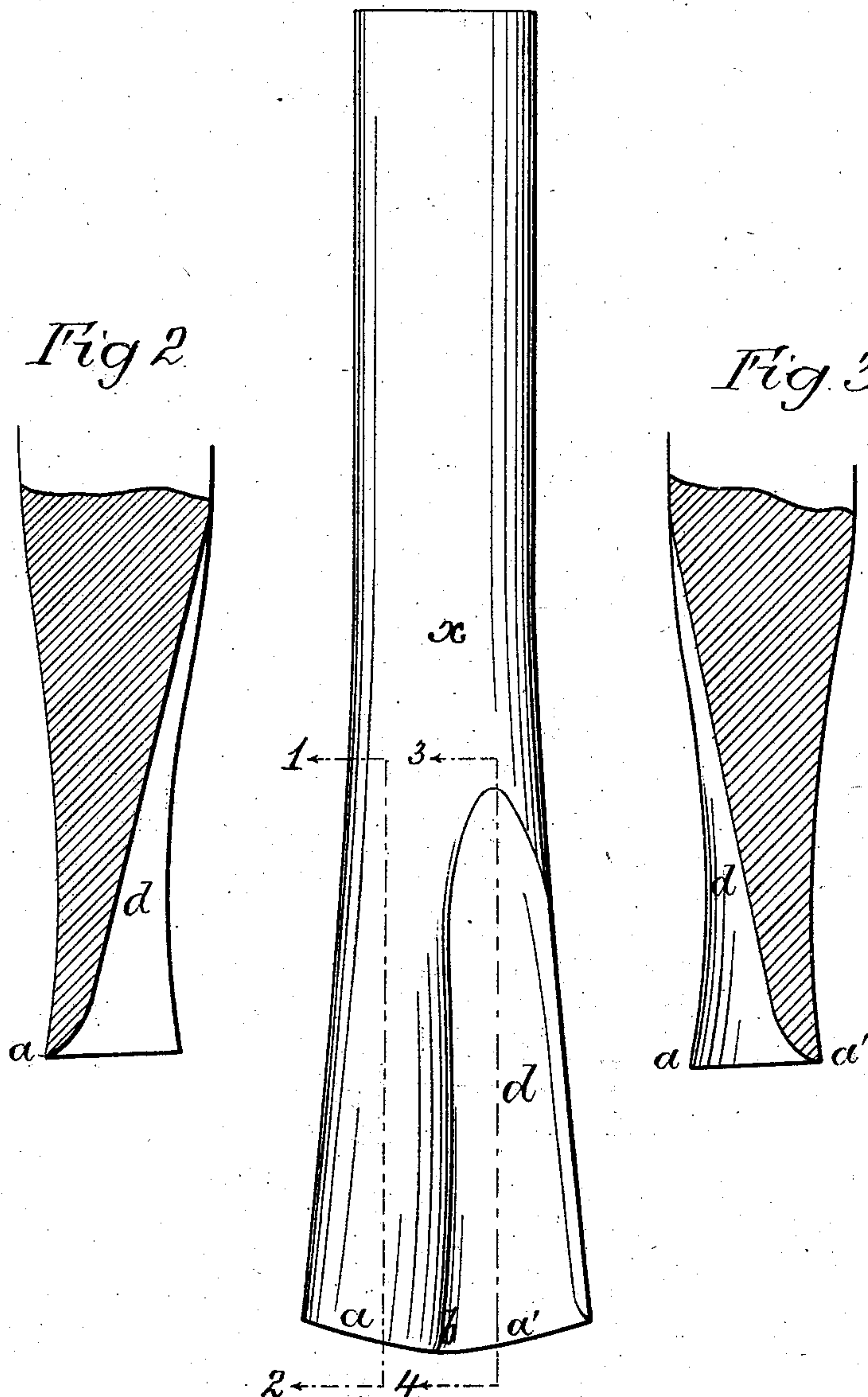
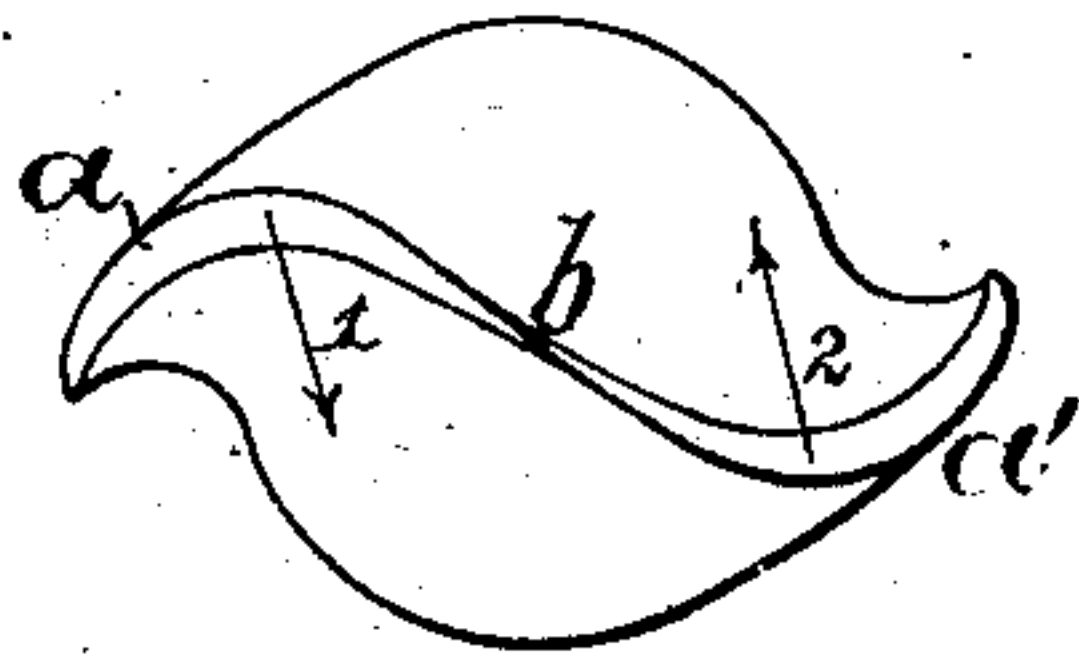


Fig 4



Witnesses
Henry Howson Jr.
Harry Smith

Inventor.
John Fleming
by his Attorneys
Howson & Son

UNITED STATES PATENT OFFICE.

JOHN FLEMING, OF SPRING CITY, ASSIGNOR TO HIMSELF, OLIVER B. KEELEY,
OF SAME PLACE, AND ENOS S. SHANTZ, OF PHILADELPHIA, PA.

ROCK-DRILL BIT.

SPECIFICATION forming part of Letters Patent No. 224,412, dated February 10, 1880.

Application filed December 15, 1879.

To all whom it may concern:

Be it known that I, JOHN FLEMING, of Spring City, Chester county, Pennsylvania, have invented a new and useful Improvement in Rock-Drill Bits, of which the following is a specification.

My invention consists of a rock-drill bit constructed with curved cutting-edges and channels, in the peculiar manner fully described hereinafter, in order to insure a more rapid and effective action of the bit on the rock than that resulting from the use of ordinary drilling-tools.

In the accompanying drawings, Figure 1 is a side view of the lower portion of the rock-drill bit; Fig. 2, a vertical section on the line 1 2; Fig. 3, a vertical section on the line 3 4; and Fig. 4, an inverted plan view of the bit, showing the cutting-edge of the same.

The bit is gradually enlarged and made tapering from about the line x to the cutting-edge, as in ordinary rock-drill bits. The cutting-edge, however, is S-shaped, and is indicated in Fig. 4 by the two curved lines $a a'$, which meet or merge into each other at the central point, b . These two portions $a a'$ of the cutting-edge are beveled on one side only, the edge of the portion a being beveled in the direction of the arrow 1 and that of the portion a' in the direction of the arrow 2, Fig. 4. Each beveled edge merges into the bottom of a channel, d , formed in the tapering portion of the bit, as shown in Figs. 2 and 3, the two channels being deep at the lower end of the bit, and becoming gradually shallower as they ascend until they disappear at their upper ends in the cylindrical shank.

It will be seen that the cutting-edge of this

bit is more extended than the straight-edges of ordinary rock-drilling tools. My improved drill, moreover, must necessarily cut a clean hole in the rock—that is, a hole with smoother sides than one cut by an ordinary drill; and in practice it has been found that the drill is more rapid and efficient in its action—a result attributable, it is believed, partly to the shape of the cutting-edge and partly to the fact that each of the two portions $a a'$ of the said edge is beveled on one side only, the other side being abrupt, as shown in Figs. 2 and 3.

It may be remarked, moreover, that, although there is an increased extent of cutting-edge, the two channels $d d$ afford such ample space for the upward passage of the detritus when the drill-rod falls that the said detritus cannot materially lessen the effect of the blow of the cutting-edge on the rock.

I claim as my invention—

The within-described rock-drill bit having a cutting-edge made on two curves, $a a'$, meeting each other at the central point, b , the edge within the limit of one curve being beveled on one side and in one direction and merging into the bottom of a channel, d , and the edge within the limits of the other portion of the curve being beveled on one side, but in a contrary direction, and merging into the bottom of another and similar channel, all substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN FLEMING.

Witnesses:

IRWIN WELLS,
GEO. W. FLOYD,