(No Model.)

W. H. RANDALL.

ROCK DRILL.

No. 281,922. Patented July 24, 1883.

FIG. 1.

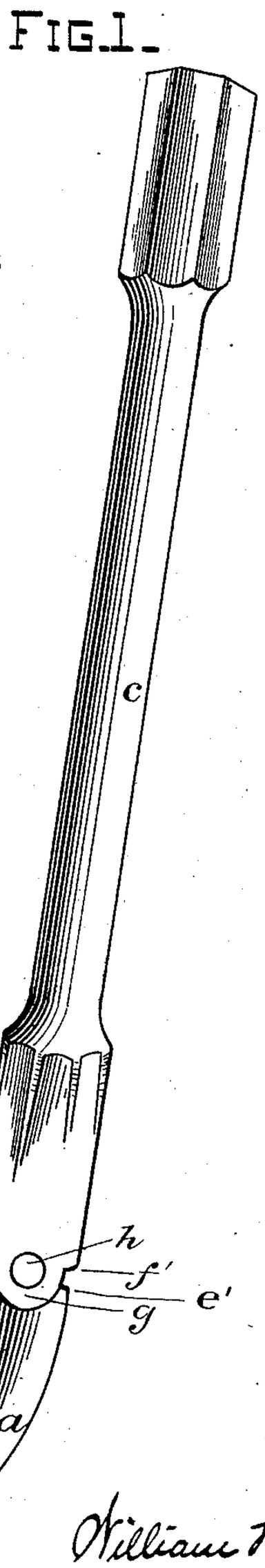


FIG. 2.

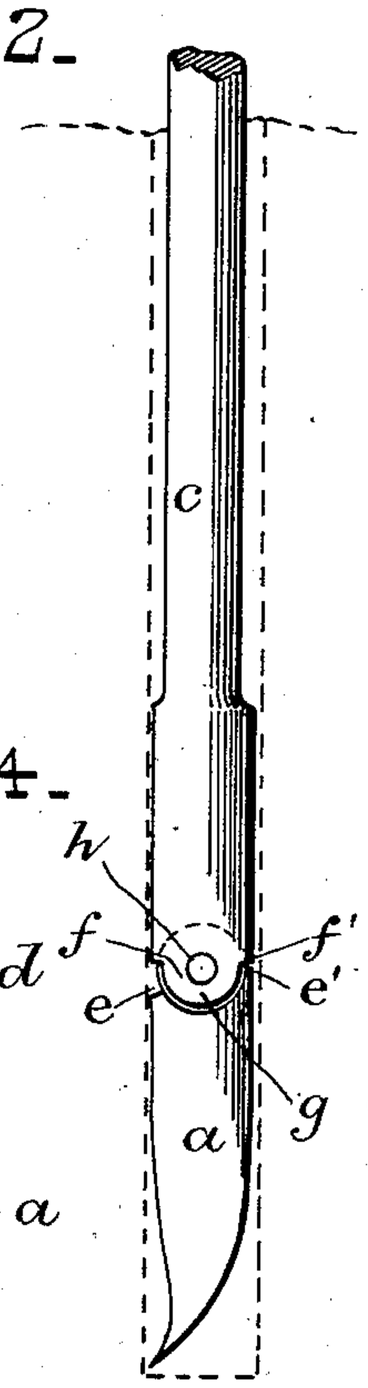


FIG. 3.

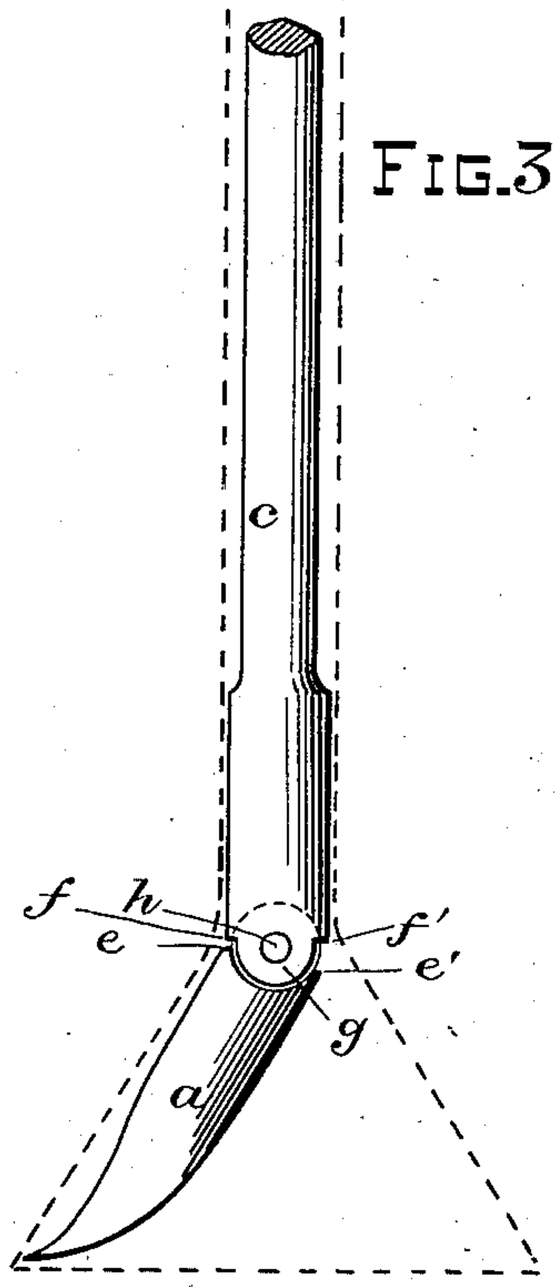


FIG. 4.

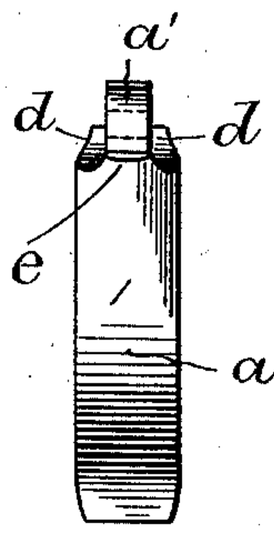
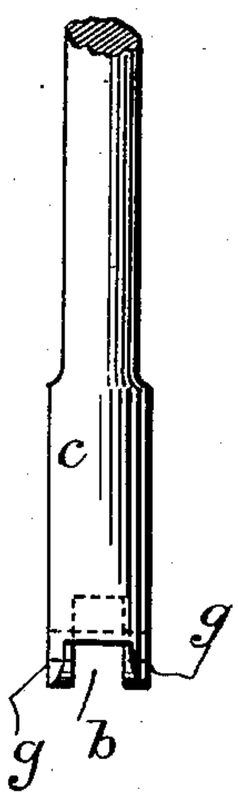


FIG. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM H. RANDALL, OF SAN FRANCISCO, CALIFORNIA.

ROCK-DRILL.

SPECIFICATION forming part of Letters Patent No. 281,922, dated July 24, 1883.

Application filed February 21, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. RANDALL, a citizen of the United States, residing at San Francisco, in the county of San Francisco, State of California, have invented a new and useful Improvement in Rock-Drills, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective view of my improved rock-drill. Figs. 2 and 3 are side views, showing the drill in different positions. Figs. 4 and 5 are detail views of the bit and shank.

Similar letters indicate like parts throughout the several views.

The object of this invention is to provide an improved means for enlarging the diameter of a drill-hole at the bottom thereof, and it is intended as an improvement upon that class of rock-drills for which Letters Patent of the United States were granted to Edward J. Williams, August 20, 1879.

Referring to the drawings, *a* represents the cutting-bit, which is provided with a curved dog or cutting-edge, slightly contracted or rounded at both corners to avoid slipping off at these two points when in operation. The upper end of the cutting-bit is provided with a tenon, *a'*, which fits into a recess, *b*, in the end of the drill-stock *c*. A crescent-shaped recess, *d d*, is formed on both sides of the tenon, and square shoulders *e e'* are made in the front and back portion thereof. The shoulder represented at *e'* extends a little farther downward or outward toward the end of the bit than that of the opposite shoulder, (represented at *e*,) so as to give a forward inclination to the bit. It is also beveled inwardly or downwardly to an acute angle, while the shoulder *e* is slightly depressed at its junction with the tenon, and is inclined or beveled upward or outwardly, so that when the parts are united a close union will be had at that point with the shoulders upon the drill-stock, to be hereinafter more fully described. The end of the drill-stock is recessed to receive the tenon, as shown, and is provided with the beveled shoulders *f f'*, to receive and fit the beveled shoulders of the drill-bit heretofore described. It is also provided with a knuckle or ears, *g g*, which are rounded to fit into the rounded recesses upon each side of the tenon, while a pin, *h*, passes through the knuckle and tenon, which unites and holds the parts together. By this construction, when the impact takes place, the force of the blow will be received upon the shoulders *e* and *f*, at which point the union of the bit is close and strong, and the shoulders will not become battered down, neither will the tenon slip from its socket.

When the drill enters the drill-hole, the bit is on a line parallel with the drill-stock, and in practice the drill-bit is always at an inward angle or incline of about thirty degrees, as shown in Fig. 3, and cuts outwardly as the drill-stock is rotated, thus quickly cutting out a chamber at the bottom of a drill-hole, while the impact or blow is always received upon the beveled shoulder *e* of the bit and the beveled shoulder *f* of the stock when the two are united, and the side shoulders or knuckles are relieved from impact or concussion, and the force of the blow is distributed or conveyed more nearly to the center or axial line of the drill-stock than in any other drill now constructed for the same purpose as that of my invention.

The importance and value of my cutting-bit should not be lost sight of, as by the peculiar construction of its curved end I am enabled to cut the chamber rapidly, and with a success that has heretofore been unattained in the art of enlarging or chambering drill-holes at the termination thereof.

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

In a rock-drill, the combination of the drill-stock *c*, having recess *b*, beveled shoulders *f f'*, and rounded ears *g g*, the cutting-bit *a*, having a tenon, *a'*, crescent-shaped recesses *d d*, and square shoulders *e e'*, and the connecting-pin *h*, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand and seal.

WILLIAM H. RANDALL. [L. S.]

Witnesses:

C. W. M. SMITH,

CHAS. E. KELLY.