J. A. ALBRIGHT.

Expansion Rock-Drills.

No. 197,075. Patented Nov. 13, 1877.

Fig. 1.

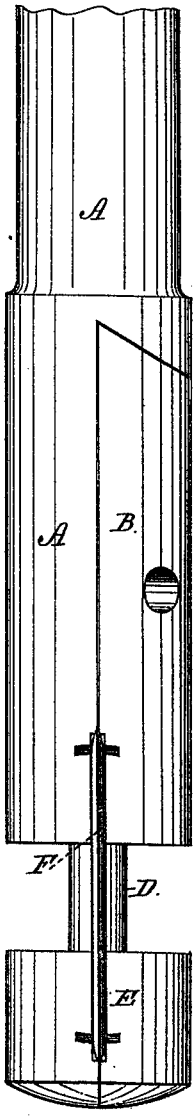


Fig. 2.

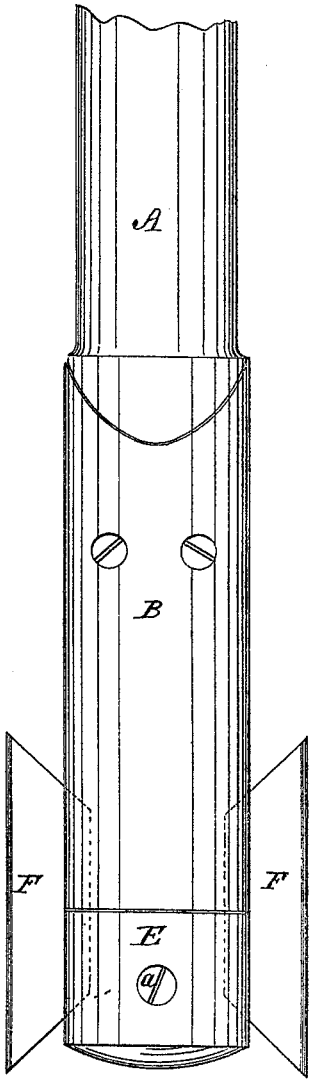
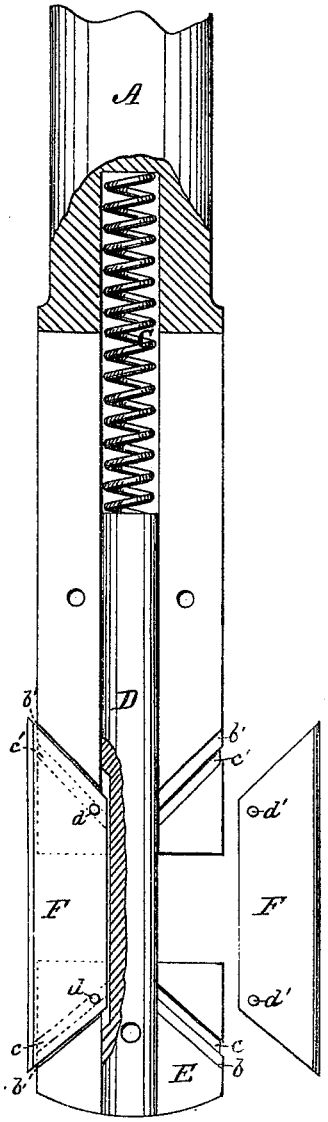


Fig. 3.



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UNITED STATES PATENT OFFICE.

JAMES A. ALBRIGHT, OF FAYETTEVILLE, TENNESSEE, ASSIGNOR OF ONE-HALF HIS RIGHT TO JAS. H. HOLMAN, OF SAME PLACE.

IMPROVEMENT IN EXPANSION ROCK-DRILLS.

Specification forming part of Letters Patent No. **197,075**, dated November 13, 1877; application filed September 6, 1877.

To all whom it may concern:

Be it known that I, JAMES A. ALBRIGHT, of Fayetteville, in the county of Lincoln and State of Tennessee, have invented a new and improved Rock-Drill; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 is a side view of the drill, looking at the edge of the blades; Fig. 2, a side view of the drill, looking at the side of the blades, and with the blades projected outwardly; Fig. 3, a view, partly in section, with the portion B removed.

My invention relates to an improved rock-drill, designed to be used after the ordinary drill, for the purpose of enlarging the hole at the bottom to form a larger chamber for containing the blasting material.

The improvement consists in cutting-blades arranged in guides in the drill-stock, in connection with a spring-seated end piece, so as to be projected laterally from the stock of the drill by the impact upon the end piece, and be again withdrawn into the drill-stock by the action of the spring when the drill is drawn back, as hereinafter fully described.

In the drawings, A represents the drill-stock of my improved rock-drill, which stock is made of iron, and may be either made of the same length as the ordinary drill, or be made shorter, and provided with a screw-threaded connection, to adapt it to be screwed into the end of the ordinary drill.

The outer end of the drill-stock is divided centrally, and the portion B made removable and attached by screws, as shown. The center of the drill, at this end, is also bored out, and in the groove or cavity is arranged a spiral spring, C, and the stem D, which latter is rigidly attached to the end piece E at a point beyond the end of the drill-stock. This end piece is composed of two semi-cylindrical parts, which are riveted to each other, and fastened to the stem D by a single screw, *a*.

F are the cutting-blades, which are made of the best steel, with sharp edges, parallel with the axis of the drill-stock. These blades, at opposite ends, are inclined or beveled in opposite directions, giving to the same a dovetail shape, and are arranged with their inner ends between the drill-stock and the removable portion B, and with their outer ends between the two parts of the end piece E. Both the drill-stock and end piece are cut away upon their inner faces, with inclined edges *b b b' b'*, corresponding to the beveled ends of the blades, and have, also, grooves *c c c' c'*, arranged parallel with said inclined edges. The blades have their back edges seated in longitudinal recesses in the stem D, and are provided with pins *d d d' d'*, which extend into the grooves *c c'*.

Now, in operating the drill, as the end piece E strikes the bottom of the previously-drilled hole, the impact forces the same toward the drill-stock. This movement, it will be seen, causes the stem D to compress the spiral spring, and the grooves and edges *b* and *c* of the end piece, in approaching the grooves and edges *b'* and *c'* of the drill-stock, cause the beveled blades to be projected outwardly from the center with great force to produce a lateral cut and enlarge the chamber for the blasting material, the spiral spring serving to force the end piece E outwardly again and restore the blades to their position near the stem, so as to permit the drill to be drawn back without obstruction, either for removal or a second blow.

Having thus described my invention, what I claim as new is—

1. The combination, with a drill-stock and a spring-seated end piece, E, having stem D, of the beveled cutting-blades, arranged in guides to be projected laterally by the impact of the end piece, substantially as described, and for the purpose set forth.

2. The combination of the centrally-bored drill-stock A, having removable part B, the spring C, the centrally-divided end piece E, with rigid stem D, and the beveled cutting-blades F, having pins *d d'*, substantially as described, and for the purpose set forth.

JAMES A. ALBRIGHT.

Witnesses:
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