

No. 629,145.

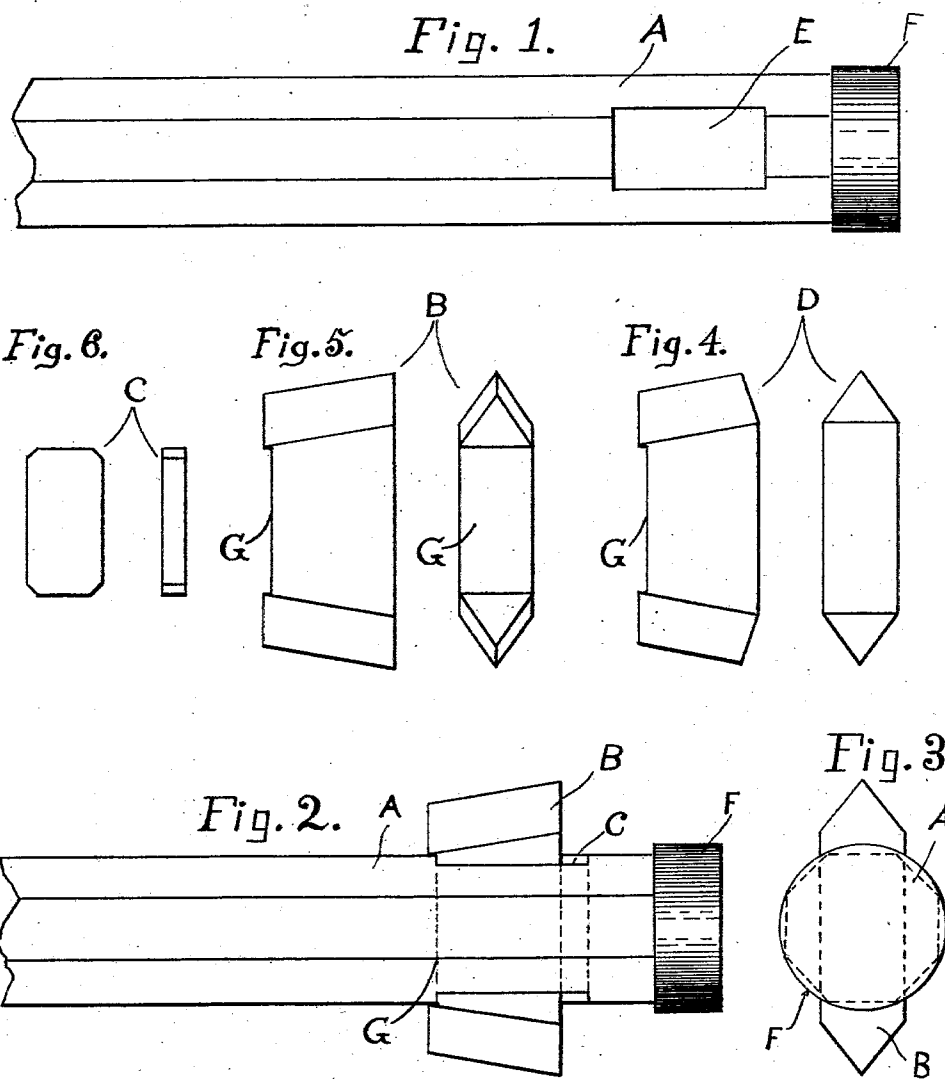
Patented July 18, 1899.

J. E. ALMON.

INSTRUMENT FOR CUTTING GROOVES IN CYLINDRICAL HOLES IN ROCKS.

(Application filed Dec. 15, 1898.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

JOSEPH E. ALMON, OF MONTPELIER, VERMONT.

INSTRUMENT FOR CUTTING GROOVES IN CYLINDRICAL HOLES IN ROCKS.

SPECIFICATION forming part of Letters Patent No. 629,145, dated July 18, 1899.

Application filed December 15, 1898. Serial No. 699,392. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH E. ALMON, a citizen of the United States, residing at Montpelier, in the county of Washington and State of Vermont, have invented a new and useful Tool and Instrument for Cutting Grooves in Cylindrical Holes in Rocks, of which the following is a specification.

The object of my invention is the cutting of longitudinal grooves in the opposite sides of cylindrical bores or holes in blasting rocks with great rapidity and uniformity, avoiding all deflection (or twisting) from the desired line of fracture of the rock to be broken.

In the accompanying drawings, which are referred to and made a part of this specification, Figure 1 shows cutter-bar A with orifice E and thimble F. Fig. 2 shows cutter-bar A with cutter B in orifice E and key C and thimble F. Fig. 3 is an end view of cutter-bar A and cutter B inserted. Figs. 4 and 5 are different views of cutter B. D shows cutting edges slightly beveled. Fig. 5 shows cutter B with straight cutting edges. Fig. 6 shows a key used in holding cutter B firmly in cutter-bar A.

After the ordinary cylindrical hole has been made in the rock to the desired depth I insert and drive lengthwise of said hole my newly-invented instrument, whereby two V-shaped grooves are formed lengthwise of the hole on the sides toward the directions the rock is desired to be split or broken. The charge is inserted in the hole with proper tamping and exploded, whereupon the liberated gases, acting upon the sides of the V-shaped grooves in the manner of a wedge, split the rock in the direction of the plane bisecting the two grooves. By using my invention a smaller charge of explosive is required than by the ordinary manner of blasting and with accuracy in the line of fracture of the rock, thus saving much labor in shaping the stone after it is quarried and the waste of rock in the usual manner of blasting. With my invention the grooves are cut deep and sharp and in one-fourth the time required by any tool or instrument now in use for cutting such grooves.

To construct an instrument after my invention, cutter-bar A may be round or other

shape and of hard or soft steel or iron, with opening or orifice E, through which cutters B extend, with cutting edges extending on either side a sufficient distance to cut a groove of the desired depth on either side of the drill-holes. Cutter B is recessed or slotted in the center, having a square shoulder at both ends, as shown at G, to aid to center and hold same secure in cutter-bar A when key C is inserted beneath it, as shown in Fig. 2. At the lower end of the cutter-bar is thimble F, that so fills the drill-hole as to serve as a guide to prevent the cutter from deviating or twisting from the desired direction in cutting grooves lengthwise in the sides of the drill-hole.

My instrument when inserted in the drill-hole is driven down it with sledge-hammers.

In using my instrument if the cutter becomes broken or dull it may be readily removed and replaced with a new one, thus saving time and trouble in sharpening or getting an entirely new instrument, as is required in using a solid instrument.

In my invention the depth of the grooves cut depends on the length of the cutter used and maintains a uniform shape and depth throughout the length of the drill-hole, even if the cutter becomes worn and dull, which cannot be accomplished by any other method heretofore used.

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

In a longitudinally-operating instrument for cutting grooves in the sides of cylindrical blasting-holes, the cutter-bar A having at its lower end a circular guide-thimble F integral therewith which is adapted to fit the wall of the blasting-hole in combination with the transverse cutter B in one piece having integral cutting-blades on its protruding ends and a wedge which fastens the said cutter in the opening E' of the said bar, these two parts A and B with their fastening-wedge constituting the entire instrument, substantially as set forth.

JOSEPH E. ALMON.

Witnesses:

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