

(No Model.)

F. HARDY.
MINING TOOL.

No. 532,780.

Patented Jan. 22, 1895.

Fig. 1.

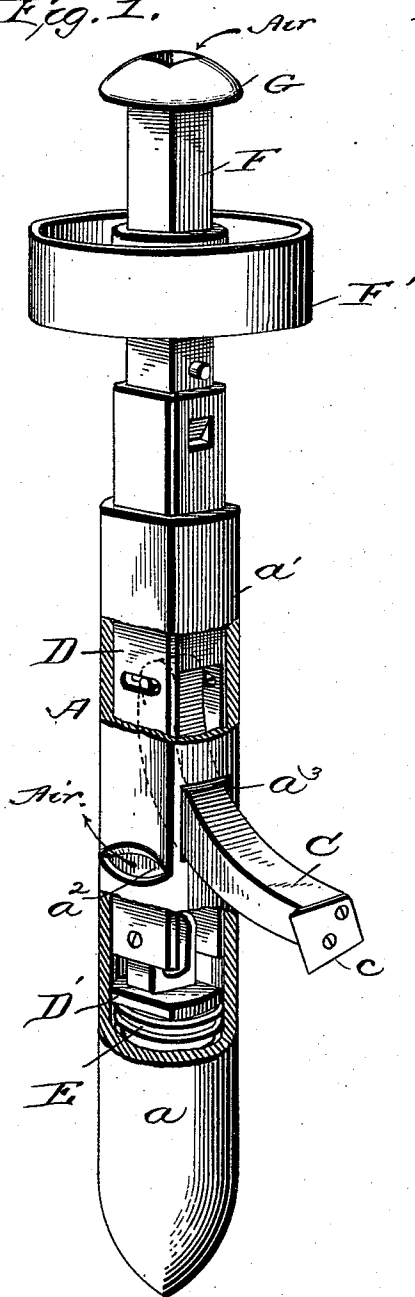
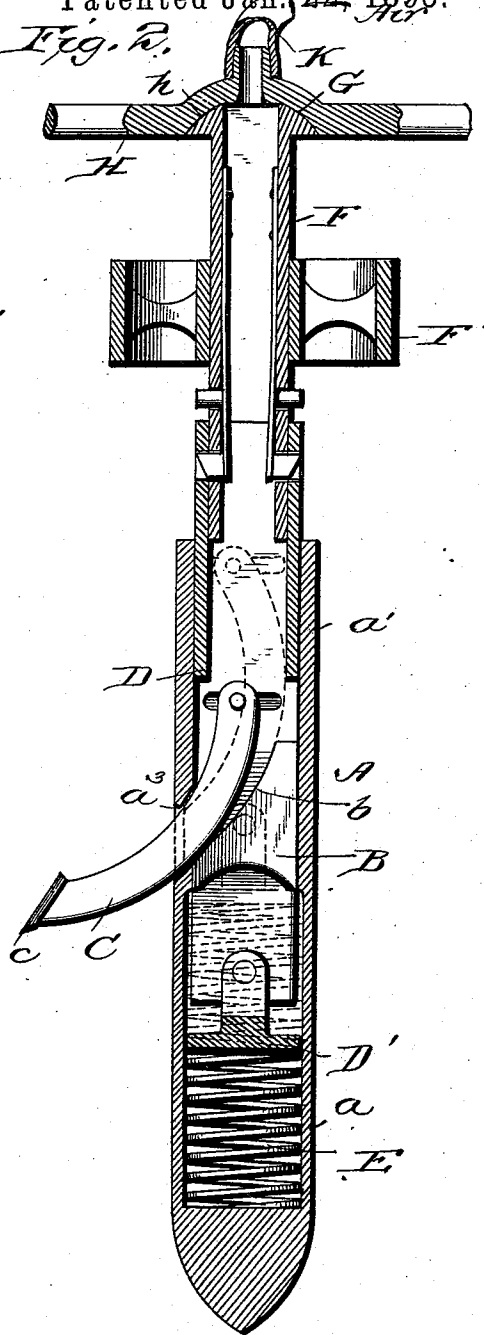


Fig. 2.



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MINING-TOOL.

SPECIFICATION forming part of Letters Patent No. 532,780, dated January 22, 1895.

Application filed December 1, 1894. Serial No. 530,597. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK HARDY, a citizen of the United States, residing at Birmingham, in the county of Jefferson, State of Alabama, have invented certain new and useful Improvements in Mining-Tools; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates generally to an improved mining tool, and particularly to one intended for mining coal.

The object of the present invention is to provide a tool which will cut an annular channel or chamber, at right angles to the main hole, which channel is adapted to receive a charge and thus facilitate the operation of mining as each blast produced in a hole cut and reamed with my improved tool will dislodge about double the quantity of coal dislodged by a charge in an ordinary straight hole.

Another object is to provide for cleaning out the channel, and also the tool by means of a continuous current of air.

Finally, my invention consists in the peculiar construction of the various parts, and their novel combination or arrangement, all of which will be fully described and pointed out in the claim.

In the drawings forming a part of this specification, Figure 1, is a perspective view of my improved device portions of the outer case being broken away to more clearly show certain details. Fig. 2, is a vertical, longitudinal section.

In the practical embodiment of my invention, I employ a case A, comprising a cylindrical lower portion a , closed at the bottom, and an upper portion a' , square in cross section, thus providing openings a^2 , a^3 , at the juncture of the upper and lower sections of the case, which openings are intended to permit a current of air forced through the tool to enter the cavity being cut and clean the same. Near the bottom of the upper section of case is a square opening a^3 , through which the cutting or reaming tool is forced and secured within said case adjacent to said opening a^3 , is a block B, having a curved face b , adjacent to said opening, and this block with its curved face

serves to force the cutter C, through the opening whenever said cutter is forced into contact with said face. This cutter is curved as shown and carries an edge c , at its outer end, the inner end being pivoted within a square tubular shaft D, which slides in the case A, carrying the cutter and slotted at its lower end to straddle the block B. This shaft D, carries a plate B', at its lower end which bears upon the top of a coiled spring E, arranged within the cylindrical lower part a , of the case. The cutter is forced out at the side of case by forcing the shaft D, into the case A, and the spring E, is intended to return the cutter and shaft to their normal positions as soon as pressure is relieved.

My improved tool is intended to be inserted into an ordinary straight hole, and revolved at the same time the cutter is forced outward, so that an annular channel will be cut at right angles to the main hole or bore.

In order to simultaneously revolve the tool and force the cutter, I employ a second tubular shaft F, which is detachably connected with the shaft D, and is made square in cross section to fit a pulley F', driven in any suitable manner whereby the entire tool will be revolved, and at the same time said shaft F, can be slid back and forth through the pulley to force or withdraw the cutter.

In order to apply force to the end of the shaft F, and still allow the same to revolve, I provide a hemispherical cap G, upon which I fit a pusher bar H, having a hemispherical socket h , and this socket is also connected with an air tube K, so that a current of air can be forced through the shafts F and D, case A, and out through the openings a^2 , into the cavity being cut and thus clean the same. The push bar is operated preferably by hand, and the moment the pressure is applied thereto, the cutter will be forced laterally from the case, and as soon as the pressure is relieved, the spring in the bottom of case will return all of said parts to their normal positions, and during all these operations the current of air has kept the tool and cavity free from dust and grit.

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

In a mining tool, the combination with a

case having openings in the side, a spring located in the bottom of the case, a tubular shaft sliding in said case, a laterally movable cutter carried by said shaft, a block fixed
5 within the case and against which the cutter bears, a detachable tubular shaft having a cap piece, a pulley upon said detachable shaft, a push bar having a socket and an air tube,

all arranged, substantially as shown and described. 10

In testimony whereof I affix my signature in presence of two witnesses.

FREDERICK HARDY.

Witnesses:

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