No. 654,072. Patented July 17, 1900.

L. F. NELL.

DRILL TOOL SHAPER.

(Application filed May 5, 1900.)

(No Model.)

Fig. 1.

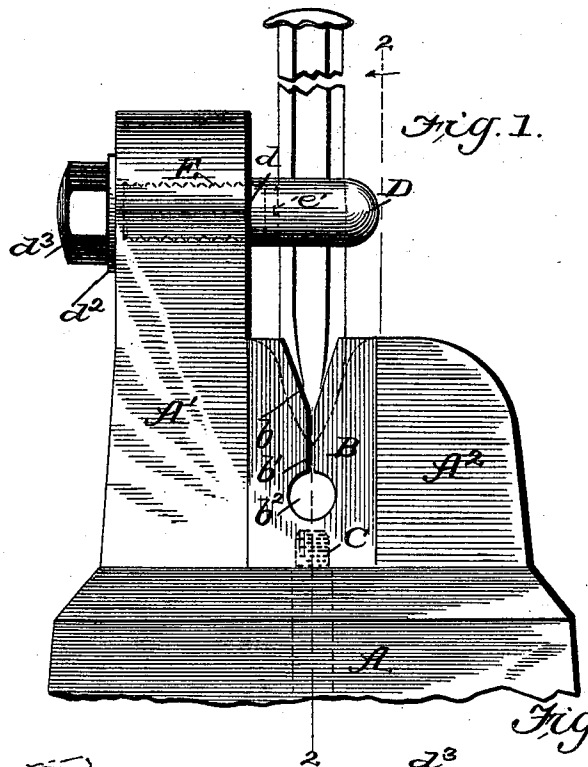


Fig. 2.

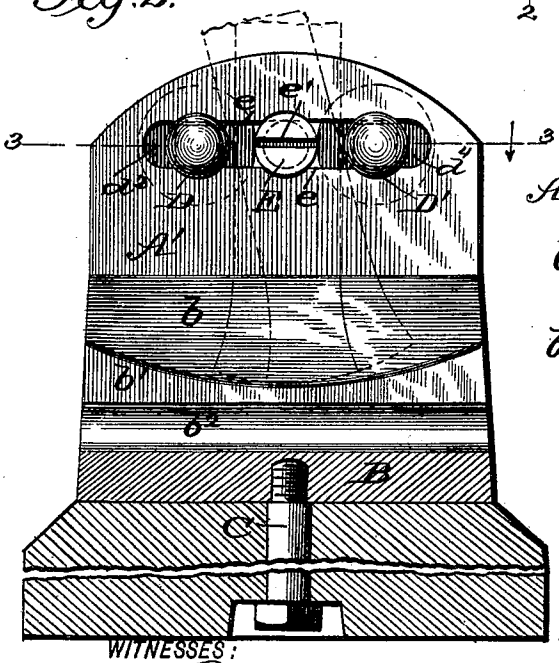
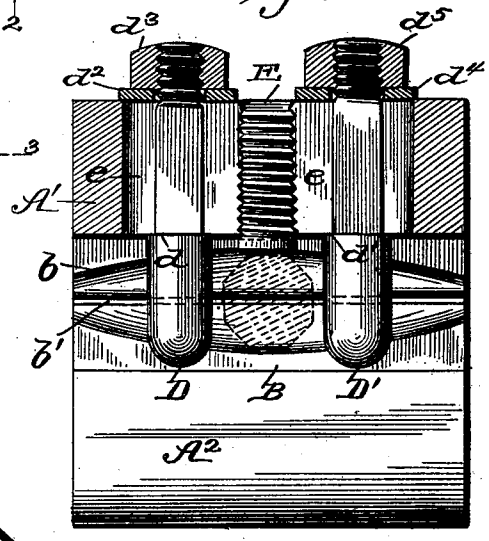


Fig. 3



WITNESSES:

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LOUIS F. NELL, OF DENVER, COLORADO, ASSIGNOR OF ONE-HALF TO WILLIAM M. WATKINS, OF SAME PLACE.

DRILL-TOOL SHAPER.

SPECIFICATION forming part of Letters Patent No. 654,072, dated July 17, 1900.

Application filed May 5, 1900. Serial No. 15,607. (No model.)

To all whom it may concern:

Be it known that I, LOUIS F. NELL, of Denver, in the county of Arapahoe and State of Colorado, have invented a new and useful Improvement in Drill-Tool Shapers, of which the following is a specification.

The object of my invention is to enable prospectors and others occupied in rock-drilling who are unable to make their own bits to quickly and conveniently produce the same without the exercise of skill or to enable those who are skilled to produce the bits in less time and with less labor.

To this end my invention consists in the special construction and arrangement of the parts of the device, as will be hereinafter described with reference to the drawings, in which—

Figure 1 is a side elevation of my improved tool-sharpener as in use. Fig. 2 is a vertical section on the line 2 2 of Fig. 1, and Fig. 3 is a horizontal section on the line 3 3 of Fig. 2.

In the drawings, A is a cast-iron base of any suitable shape, having formed with it at its upper surfaces two lugs A′ A^2 of different heights, forming a seat or channel-way between them. Between these lugs is seated a steel die-block B, held in place by a screw-bolt C, tapped into the under side of the same from the bottom of the cast-iron base. The die-block B has in its upper portion a V-shaped groove or channel b through it, which flares out to a little greater width and depth in the middle and terminates at its bottom in a narrow slit or throat b', having parallel sides and which latter at its lower end enters an enlarged chamber or pit b^2, which extends horizontally all the way through the die-block. The V-shaped groove in the upper end of block B is of a shape to give the proper form to the chisel-shaped end of the drill-tool, and in this groove the drill-tool is held in upright position and is swaged or brought into shape by being heated and driven downwardly into the throat by the blows of a hammer delivered on the upper end of the tool being formed. To hold the tool in upright position, two pins D and D′, which I term "rests," are arranged horizontally in the higher lug A′ of the base, the pins overhanging the V-shaped groove and extending across the groove at equal distances on opposite sides of the center of the same. These two pins form supports to maintain the drill-tool upright while it is being swaged into shape in order to accommodate different widths of tools and also to permit the tool to be canted or tilted from side to side in rounding the edge, as shown in dotted lines in Fig. 2. These two pins are made adjustable to and from each other, as follows: The pins are made with square reduced shanks having round screw-threaded ends, which shanks lie in a horizontal slot e, cut in the lug A′ of the base. The reduced shanks have shoulders d and d', that overlap the metal at the front side of the slot, and have washers d^2 d^4 and nuts d^3 d^5, that overlap the metal at the rear side of the slot, so that when the nuts are turned up the pins are tightly clamped and held to their adjustment; but they may be adjusted to or from each other, as may be required.

At an intermediate point between the two rest-pins a screw-plug E is tapped into threads in the upper and lower faces of the slot e and has a nick e' at its front end for the insertion of a screw-driver, by which said plug may be turned. By turning the screw-plug to or from the V-shaped groove it is made to form an adjustable back bearing for the tool as it lies between the rests, and is thus made to accommodate tools of various thicknesses, always permitting them to be exactly centered above the V-shaped groove.

When the drill-tool is to be made, a section of steel rod is heated and roughly beaten at one end into chisel shape, and it is then again heated and placed between the "rest-pins" and forcibly driven downward by blows on its upper end into the die-block, which causes its lower end to be thinned and brought to the correct shape with smooth tapering sides, and in order to cause the cutting edge to be spread out fan-shaped the tool is from time to time tilted from the vertical line and hammered upon while in this position, by which action the lower curved edge of the tool may be brought to the required degree of roundness.

The value of the special construction of the die-block B is that the scale and accumulated dust do not gather in the apex of the V-

shaped groove, but pass out of the throat b' into the receiving-pit b^2, where they pass out at each end. The metal at the lower edge of the tool is therefore not blunted or opposed by the accumulation of dust at the apex, but spreads freely down to a comparatively-sharp edge, and as the scale passes away automatically and is not held to the face of the tool the latter is planished or swaged to a perfectly-smooth face that permits of perfect inspection as to color in tempering the same.

In constructing the cast-iron base the lugs A' A^2 are made heavy enough to serve the purpose of an anvil for roughly beating the drill-point into shape.

I am aware that a drill-sharpener has been heretofore devised in which two separate die-blocks were arranged to form a tapering throat into which the drill end was to be driven, and I make no claim to this construction.

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

1. A shaper for drill-tools, &c., consisting of a single die-block having in its upper portion a tapering groove or channel and a discharge-throat for the scale, &c., opening into the apex of said tapering channel substantially as and for the purpose described.

2. A shaper for drill-tools, &c., consisting of a single die-block having in its upper surface a tapering groove or channel, a discharge-throat for the scale, &c., opening into the apex of said tapering channel, and rests or supports for the drill-tool substantially as described.

3. A shaper for drill-tools, &c., consisting of a single die-block having in its upper portion a tapering groove or channel with a throat opening downwardly from the apex of the same, and an enlarged receiving-chamber at the lower end of the throat substantially as and for the purpose described.

4. A shaper for drill-tools, &c., consisting of a base having two lugs at its upper end of different heights, a die-block secured between the lugs and having shaping-surfaces, and rest pins or supports fixed to the more elevated lug and projecting across and above the die-block substantially as described.

5. A shaper for drill-tools, &c., consisting of a die-block, a base having a lug extending above the die-block and provided with a horizontal slot, and two "rest-pins" arranged in the said slot and made adjustable toward each other as described.

6. A shaper for drill-tools, &c., consisting of a die-block, a base having a lug extending above the die-block and provided with a horizontal slot, two "rest-pins" arranged in the said slot and made adjustable toward each other, and an adjustable back bearing between the "rest-pins" for the tool being operated on substantially as described.

7. The combination of the base A having lugs A' A^2, a detachable die-block between them, and screw-bolt C tapped into the die-block from the under side of the base substantially as shown and described.

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

LOUIS F. NELL.

Witnesses:
GEO. E. HOWARD,
THEO. HOWARD SMITH.