

No. 752,026.

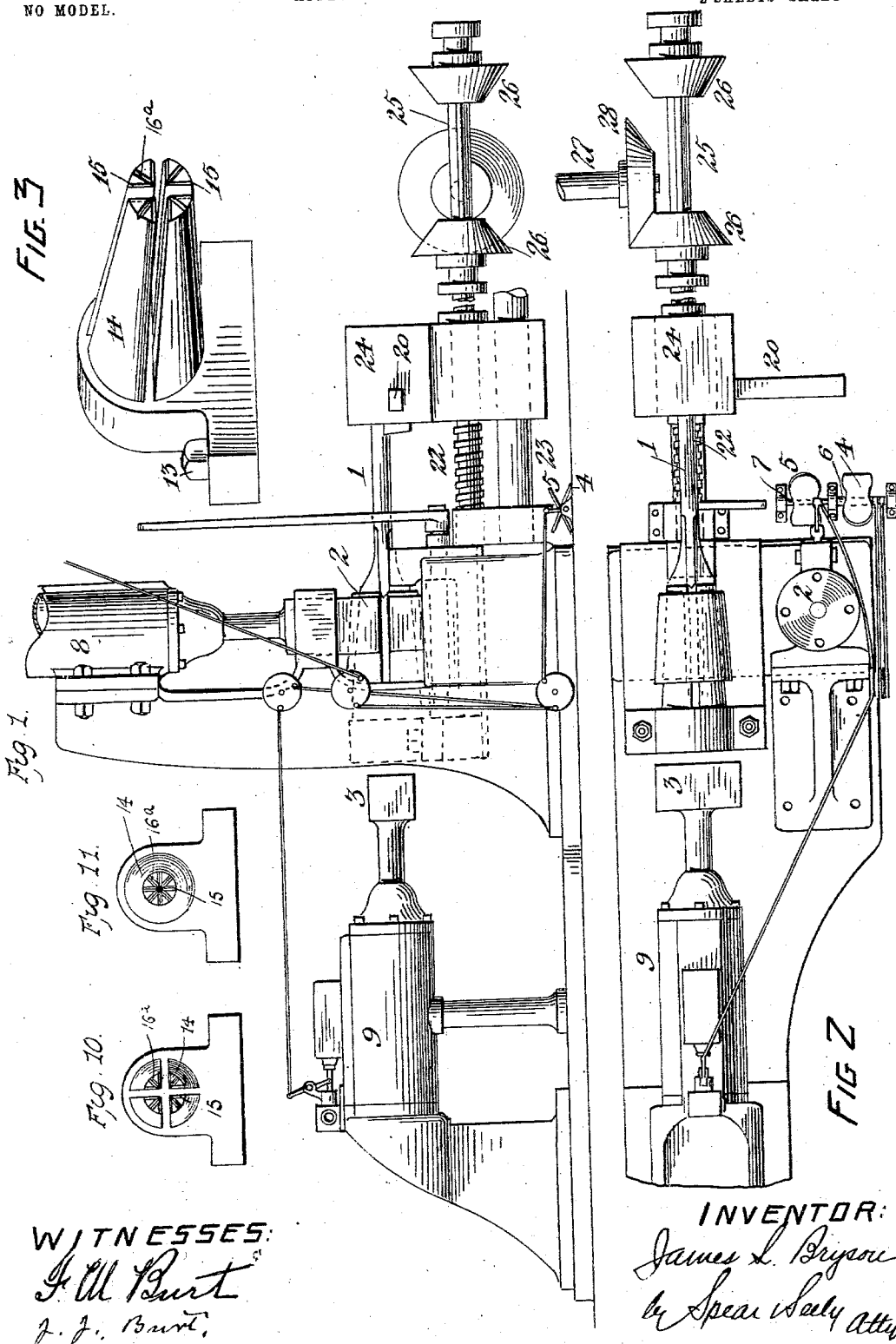
PATENTED FEB. 16, 1904.

J. L. BRYSON.
DRILL SHARPENER.

APPLICATION FILED FEB. 14, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:

J. M. Burt
J. J. Burt

INVENTOR:

James L. Bryson
by Spear & Soley Attys

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2 SHEETS—SHEET 2.

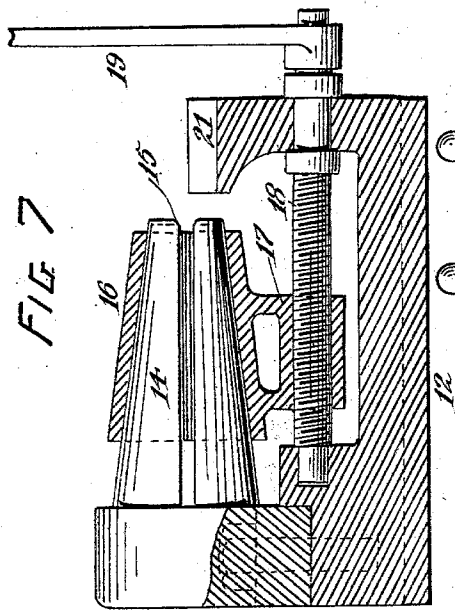
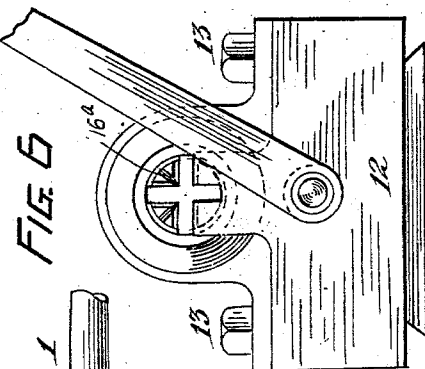
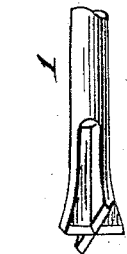


FIG. 5

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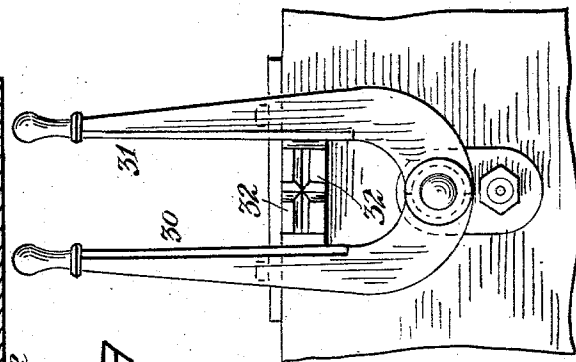


FIG. 9

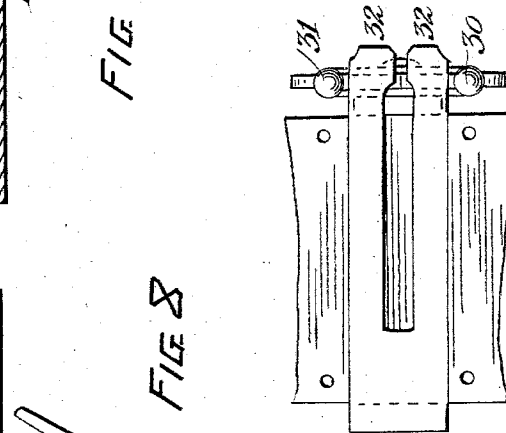


FIG. 8

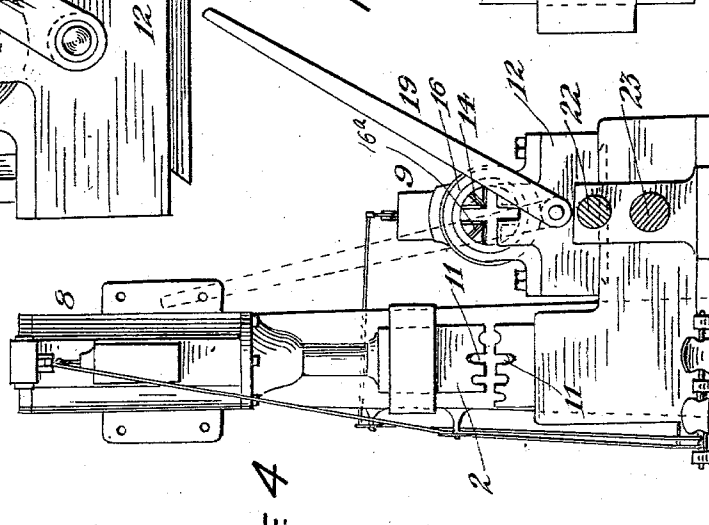


FIG. 4

INVENTOR:
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UNITED STATES PATENT OFFICE.

JAMES L. BRYSON, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR OF ONE-HALF TO DEW R. OLIVER, OF SAN FRANCISCO, CALIFORNIA.

DRILL-SHARPENER.

SPECIFICATION forming part of Letters Patent No. 752,026, dated February 16, 1904.

Application filed February 14, 1903. Serial No. 143,428. (No model.)

To all whom it may concern:

Be it known that I, JAMES L. BRYSON, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Drill-Sharpener, of which the following is a specification.

My invention relates to means for forming and sharpening drill-bits, and it can be applied either to the construction of new drills from blank rods or to the sharpening of old bits after use.

I have shown certain embodiments of my invention in the accompanying drawings, in which—

Figure 1 is a side elevation of the complete machine. Fig. 2 is a plan view. Fig. 3 is a detail perspective view of solid dolly forming the mold for receiving and shaping the end of the bit. Fig. 4 is a front elevation. Fig. 5 is a view of the completed drill or bit. Fig. 6 is a front elevation of the dolly. Fig. 7 is a side elevation of the dolly with its support in section. Fig. 8 is a top view of a modified construction of dolly. Fig. 9 is a front view of same. Fig. 10 is a front view of the dolly shown in Fig. 7 with arms open. Fig. 11 is a similar view with arms closed.

Figs. 1, 2, and 4 give different views of a complete apparatus designed either for making new bits or for resharpening old ones. These bits are formed in the ends of hardened-steel rods, which as they become worn are resharpened, becoming gradually shortened in the operation. The shape of the bit is shown in Fig. 5, consisting of an enlarged head upset upon a rod 1 and then recessed longitudinally, so as to leave two intersecting blades at right angles, which are sharpened to cutting edges. These edges wear very rapidly against hard rock and must be repeatedly upset and resharpened in order to be effective.

Vertical and horizontal steam-hammers 2 and 3 are provided for giving the successions of blows required for shaping and sharpening. The construction and operation of these hammers form no parts of my invention; but I have shown enough of them to give an intel-

ligent idea of the whole system of operation. From a pair of treadles 4 and 5, mounted upon shafts 6 7, Fig. 2, rods extend to the controlling-valves of the two hammers in a well-known way, so that such hammers can be individually and separately brought into action to perform their allotted functions upon the drill-bit or drill-blank, as the case may be. Thus from the treadle 4, Fig. 1, a system of rods goes to the controlling-valves of the vertical steam-cylinder 8, and from the treadle 5 a system of rods goes to the horizontal steam-cylinder 9. When either treadle is moved, the connected hammer is put into rapid vibration, so as to act upon the metal exposed to it. Referring specially to Fig. 4, the vertical hammer and anvil are appropriately and oppositely grooved and shaped, as shown at 11, so as to split or recess back a rod laid between them.

In the bed of the whole machine is dovetailed a sliding support 12, Figs. 6 and 7. This supports the dolly, which first upsets the end of the drill and finishes and sharpens the bits after the vertical hammer has formed the recesses therein. An anvil is secured to said support by the bolts 13 and is provided with the converging arms 14, each of which is substantially a quadrant in cross-section and all of which are separated from one another, so as to receive the drill-blank or drill to be resharpened. The free ends of the arms of the dolly may be beveled, as shown at 15, and the faces of such ends are V-grooved diagonally, as at 16, so that such grooves receive the bit. On the converging arms of the dolly works a sleeve 16, Fig. 7, having a nut 17, through which passes the screw 18, the latter having an operating-handle 19. The said handle can be operated to force the sleeve upon the arms of the dolly to close them. By releasing the sleeve the spring-arms of the dolly open automatically. A part of the support 12 is a rest 21, upon which the bit is moved forwardly and into position with the arms of the dolly. Now when the bit is held in place in the rest and the proper treadle is moved the bit receives a series of blows from the horizontal hammer while it is in contact with the beveled faces

of the arms of the dolly, and thereby receives new edges, or, in other words, becomes re-sharpened.

In the base of the machine are a screw 22 and guide-rod 23, which support a carrier 24, which holds the drill. The screw 22 can be operated by any suitable power, and I have shown a shaft 25, having friction-gears 26 feathered upon it, which by means of a driving-shaft 27 and friction-disk 28 can be caused to move in either direction, and thus bring longer or shorter drills up to position. The carrier 24 has the projecting rest 20 to support the drill when presented to the vertical hammer.

The dolly shown in Figs. 3 and 7 sharpens all four arms of the bit simultaneously, and it is not necessary to change the bit by a quarter-turn for a second operation.

In Figs. 8 and 9 I have shown a modified form of dolly, in which hand-levers 30 31 are used to bring together dies 32, which form the face against which the bit rests. This clamp, with the hand-levers for operating it, performs, substantially, the function of the sleeve, screw, and single hand-lever shown in Fig. 7.

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

1. In a machine for the described purpose, a dolly comprising an anvil, separated arms extending therefrom and having grooved ends, a support for drill-bits in line with the free

ends of said arms, means for adjusting said support relatively to said arms, means for closing and releasing the free ends of said arms, and a hammer.

2. In a machine for the described purpose, an anvil, spring-arms forming a part thereof and adapted to be closed together and to open, grooves in the ends of said arms to receive the bit, and means for clamping said arms together and for releasing said arms.

3. A dolly for drill-sharpeners having separated spring-arms with grooved free ends, and means for closing said arms.

4. In a machine for the described purpose, a cone-shaped dolly having separated spring-arms with grooved free ends, in combination with an adjustable cone-shaped sleeve inclosing said arms and adapted to clamp said arms together and to release said arms.

5. In a machine for making and sharpening drill-bits, a hammer, a movable dolly adapted to receive the impact of said hammer, separated arms forming a part of said dolly and shaped at their open ends to receive the bit, a sleeve adapted to fit said arms, and a screw provided with means for adjusting said sleeve so as to clamp said arms and release said arms.

In testimony whereof I have affixed my signature, in presence of two witnesses, this 2d day of February, 1903.

JAMES L. BRYSON.

Witnesses:

L. W. SEELY,
F. M. BURT.