

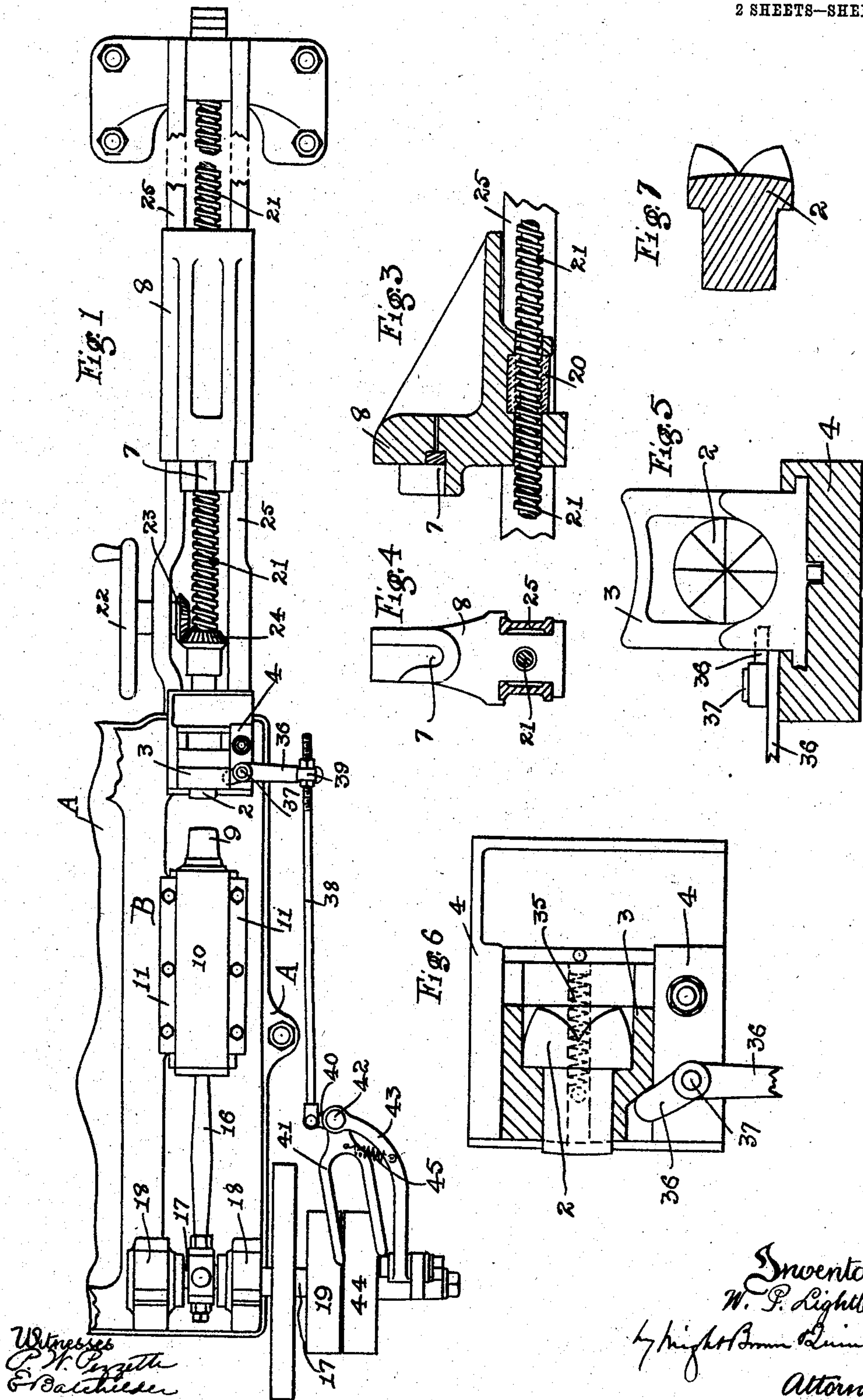
No. 815,843.

PATENTED MAR. 20, 1906.

W. P. LIGHTBODY.
MECHANISM FOR SHARPENING ROCK DRILLS.

APPLICATION FILED JULY 2, 1904.

2 SHEETS—SHEET 1.



Inventor
W. P. Lightbody
by *Lightbody & Quincy*
Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM PARR LIGHTBODY, OF JOHANNESBURG, TRANSVAAL.

MECHANISM FOR SHARPENING ROCK-DRILLS.

No. 815,843.

Specification of Letters Patent.

Patented March 20, 1906.

Application filed July 2, 1904. Serial No. 215,139.

To all whom it may concern:

Be it known that I, WILLIAM PARR LIGHTBODY, a subject of the King of Great Britain, and a resident of Langlaagte Deep, (Box 1056,) Johannesburg, Transvaal, but at present of Beehive Works, Bolton, in the county of Lancaster, England, have invented certain new and useful Improvements in Mechanism for Sharpening Rock-Drills, of which the following description, together with the accompanying sheets of drawings, is a specification.

My present invention relates to improvements in mechanism for sharpening rock-drills of the class wherein the cutting edges converge so that they form a kind of star or cross, the bar of metal out of which they are formed having three or four ribs; and my said invention relates more particularly to means for performing the "dollying" actions upon said drills, which consists in forming the cutting edges of the drill of a desired shape by a die or "dolly."

In the accompanying sheets of drawings, which are illustrative of my said invention, Figure 1 is a plan of my improved mechanism. Fig. 2 is a side elevation thereof. Figs. 3 and 4 are sectional side and end elevations, respectively, of the anchorage or holding device for the drill hereinafter described. Figs. 5 and 6 are sectional end elevation and sectional plan, respectively, drawn to an enlarged scale, of the dolly and its bearings. Fig. 7 is a sectional side elevation of said dolly. Figs. 8 and 9 are sectional plan and sectional end elevation, respectively, also on enlarged scale, of the striking mechanism hereinafter described. Fig. 10 is a detail drawing showing the form of rock-drill for the treatment of which my improved devices are applicable.

As is well known, the rock-drills are subjected to the dollying operations while in a heated state to shape the cutting-surfaces after they have been operated upon by "fullering" mechanism or other devices, through the instrumentality of which the converging edges of the ribs are forced outwardly to fill out the parts worn away from their extending edges.

A indicates the base-plate of the machine, and B the framework thereof. Upon the framework B, I secure the supplementary base-plate 4, upon which are mounted the sliding bearings 3. The dolly or die 2 is mounted in said bearings 3 and is capable of slight reciprocatory movement therein. The dolly is acted upon by the reciprocating

hammer 9, mounted in the casing 10, which slides upon bearings 11 on the framework B. Within the casing 10 are also mounted the springs 12 13, between which take the split washers 14, surrounding the end 15 of the rod 16, the opposite end of which is operated by the crank-shaft 17, mounted in bearings 18 and driven by the pulley 19. In this manner the blows given to the dolly 2 are transmitted through the springs 12 13.

Upon the framework 25, connected to the framework B, I mount the anchorage or holder 8 within the opening 7, in which takes the end 6 of the drill during the actions upon it of the dolly or die 2. The anchorage or holder 8 is provided with a nut 20, which meshes with the screw 21, so that as this latter is rotated by the hand-wheel 22, through the bevel-gears 23 24, said nut 20 and anchorage 8 will be traversed along the framework 25 nearer to or farther from the dolly 2, so that drills of varying lengths may be held between said dolly and anchorage. The drill while being acted upon rests loosely in bearing 7 and an extension of bearing 3 and is free to turn to adjust itself to the shaping-surface of the dolly. The force of the blows given by the hammer 9 is withstood by the head 26 of the screw 21, which takes against a part 27 of the framework B, as shown in broken lines, Fig. 2.

In order to bring the striking mechanism into use only at such times as a drill is in position for the dolly 2 to act upon it, I arrange the bearings 3 to slide upon the plate 4 against the tension of the spring 35 as the anchorage 8, containing a drill 5, is moved longitudinally to bring said drill into position. This movement of the bearings 3 transmits movement to the lever 36, fulcrumed at 37 on the plate 4, its outer end being connected to the rod 38 by the eyebolt 39. The rod 38 is connected to the arm 40 of the belt-fork 41, which is fulcrumed at 42 in the bearings 43. By these means as the dolly 2 and bearings 3 are moved by the drill 5 the belt-fork 41 moves the driving-belt from the loose pulley 44 to the fast pulley 19, and so brings into action the striking-hammer 9. The parts are returned to their normal or inoperative positions by the springs 35 and 45 after the drill has been withdrawn.

The mouth of the dolly 2 is formed of the shape shown by Fig. 7 in order that it may cause the outer edges of the wings of the drill to extend in front of the central parts, this formation of the drill being necessary before

subjecting it to other parts of the process of sharpening or making the drill, while when it is desired to form the cutting edges straight or at right angles to the body part of the drill this may be effected by raising the end 6 within the opening 7, as shown by the broken line *a*, Fig. 2, or it may in some cases suffice to employ a dolly with a "straight" mouth instead of the one hereinbefore described.

10 The dolly herein shown is for operating upon a drill having four wings or ribs. However, it will be readily understood that it may be modified in construction so as to operate upon drills having three of such wings or ribs.

15 Having thus described the nature and object of my said invention, what I claim is—

1. An apparatus of the character described comprising a dolly, an operating device therefor, means for supporting a drill, and means 20 for automatically controlling said operating device, said means including the drill-support.

2. An apparatus of the character described comprising a yieldingly-mounted dolly, means for operating the same, and means for automatically controlling said operating means, 25 said controlling means being connected with said dolly.

3. An apparatus of the character described comprising a dolly, a reciprocating yielding 30 bearing therefor, means for operating said dolly, and a controller for said operating means, said controller being in engagement with said bearing.

4. An apparatus of the character described comprising a dolly, a reciprocating bearing 35 therefor, means for operating said dolly said means including a power-shaft having fast and loose pulleys thereon, and a belt-shifter adjacent said pulleys and operatively connected with said bearing. 40

5. An apparatus of the character described comprising a dolly, a spring-pressed yielding bearing therefor, a hammer adapted to strike said dolly, and means connected with said 45 dolly-bearing for automatically controlling the operation of said hammer.

6. An apparatus of the character described comprising a dolly, a spring-pressed yielding bearing therefor, a hammer adapted to strike said dolly, means for reciprocating said ham- 50 mer, and a controller for said reciprocating means, said controller being in engagement with said dolly-bearing.

7. An apparatus of the character described comprising a yieldable bearing, a dolly mount- 55 ed therein and having an enlarged head forming a shoulder engaging said bearing, means for operating said dolly, and a controller for said operating means, said controller being in engagement with said bearing. 60

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

WILLIAM PARR LIGHTBODY.

Witnesses:

SAMUEL HEY,

JAMES HENRY ELLISON.