Dec. 21, 1948. F. M. SLATER 2,456,745

MOUNTING FOR ROCK DRILLS

Filed Jan. 19, 1946 2 Sheets-Sheet 1

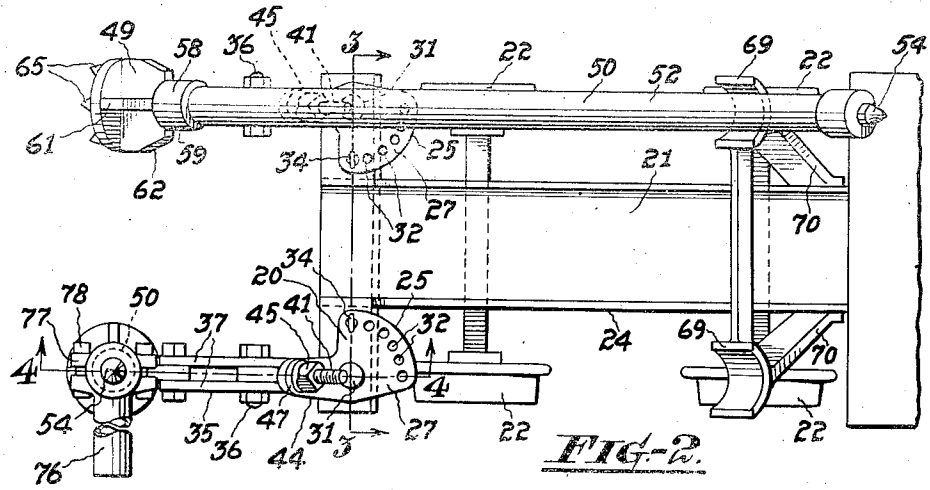
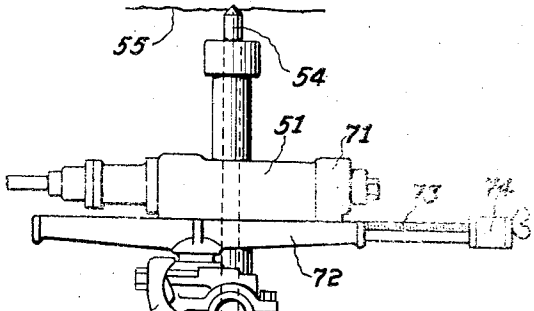


FIG-2.



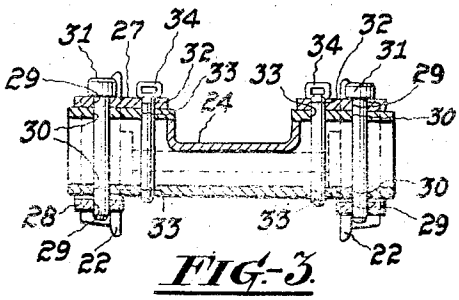


FIG-3.

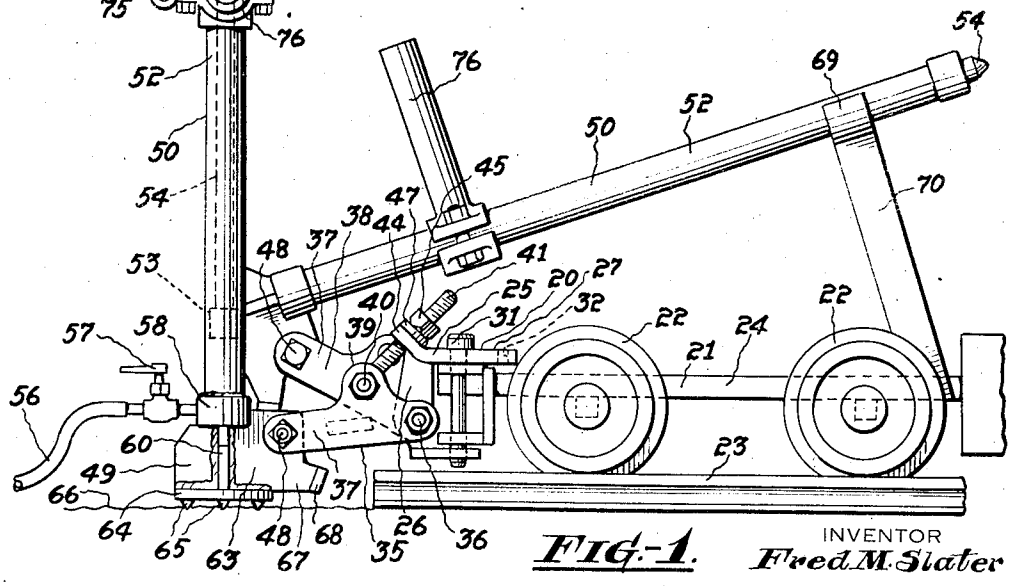


FIG-1.

INVENTOR
Fred M. Slater

BY

HIS ATTORNEY.

Dec. 21, 1948. F. M. SLATER 2,456,745

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Filed Jan. 19, 1946 2 Sheets-Sheet 2

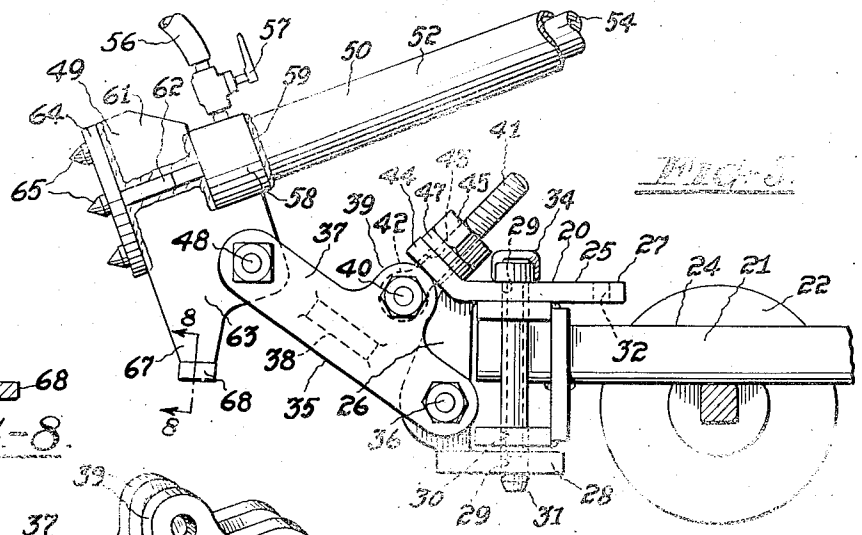


FIG. 5.

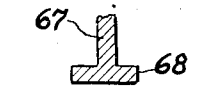


FIG. 8.

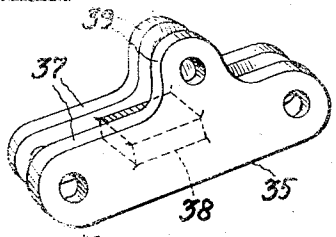


FIG. 7.

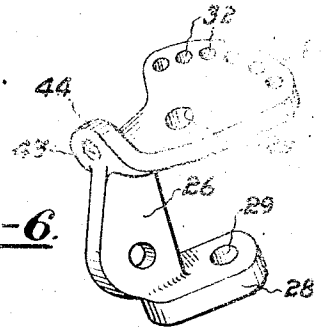


FIG. 6.

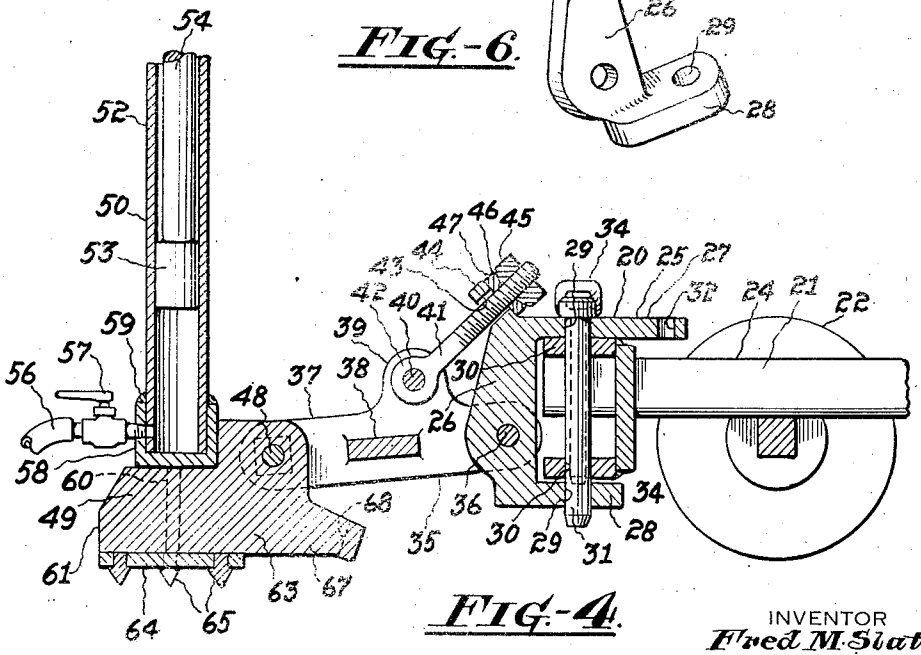


FIG. 4.

INVENTOR
Fred M. Slater
BY C. A. Rader
HIS ATTORNEY.

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UNITED STATES PATENT OFFICE

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MOUNTING FOR ROCK DRILLS

Fred M. Slater, Phillipsburg, N. J., assignor to Ingersoll-Rand Company, New York, N. Y., a corporation of New Jersey

Application January 19, 1946, Serial No. 642,291

1 Claim. (Cl. 255—51)

1

This invention relates to drilling mechanisms, and more particularly to a mounting for rock drilling tools of the drifter type commonly used for drilling the vertical walls of tunnels, quarries, and the like.

One object of the invention is to enable the mounting to be quickly placed in and removed from the operative position and with a minimum of effort.

Another object is to enable the mounting to be expeditiously placed in different working positions relatively to the material intended to be drilled.

Other objects will be in part obvious and in part pointed out hereinafter.

In the drawings accompanying this specification and in which similar reference numerals refer to similar parts,

Figure 1 is a side elevation of a mounting constructed in accordance with the practice of the invention,

Figure 2 is a top plan view of the mounting,

Figure 3 is a transverse view taken through Figure 2 on the line 3—3,

Figure 4 is an elevation, partly broken away, of the mounting taken through Figure 2 on the line 4—4,

Figure 5 is a side elevation somewhat enlarged illustrating the positions in which the parts may be placed for transportation of the drilling mechanism from one drilling site to another,

Figures 6 and 7 are perspective views of details, and

Figure 8 is a transverse view taken through Figure 5 on the line 8—8.

Referring more particularly to the drawings, 20 designates, in general, a mounting that is arranged upon a truck 21 the wheels 22 of which stand upon a track 23.

In the arrangement shown the truck 21 carries two mountings 20 positioned at the opposite corners of one end of the truck frame 24. Each mounting comprises a bracket 25 having a vertical body 26 and arms 27 and 28 respectively overlying and underlying a corner section of the frame 24. The brackets are pivotally mounted upon the frame and accordingly have aligned apertures 29 in both arms to register with holes 30 in the frame 24 for the accommodation of a pivot pin 31.

The free ends of the arms 27 are flared to substantially the shape of a quadrant and are provided with groups of holes 32 spaced equi-distantly from the hole 29 to register selectively with a hole or holes 33 in the frame 24 for the accommodation of a pin 34 whereby the brackets are

2

held against unauthorized rotary movement. The arrangement is such that the brackets may be swung through a quarter circle or portions thereof and secured fixedly against rotation to the frame 24 in each position.

The brackets 25 differ from each other only in the respect that the flared portions lie on opposite hand sides of the arms 27. They are otherwise identical, as are also the remaining parts of the mountings.

The body 26 of each bracket serves as a support for an end of a link 35 and carries a pivot 36 in the form of a bolt that is arranged in a horizontal position in the body to extend into the end of the link 35. The link is thus tiltable in a vertical plane relatively to the bracket and, in a preferred form of construction, consists of a pair of plates 37 of identical shape that lie in parallelism with each other and are joined together intermediate their ends by a web 38. On the upper surface of the links are lugs 39, and a bolt 40 is seated in the lugs to serve as a pivot for an eye-bolt 41, the eye 42 of which lies between the lugs 39.

The body of the bolt 41 extends through an aperture 43 in an inclined wing 44 adjacent the upper end of the body 25, and a nut 45 on the bolt 41 acts against the wing 44 for raising and lowering the link 35. The aperture 43 is of somewhat larger diameter than the bolt so that the latter may adjust itself freely angularly with respect to the wing 44 accordingly as the link 35 is swung about the pivot 36. The bearing surface 46 of the nut 45 is of convex shape to conform with the end surface of a washer 47 to assure a large area of contact between the nut and the washer in the various positions which the bolt may assume relatively to the wing 44.

The opposite end of the link 35 is pivotally connected for swinging movement in a vertical plane, as by means of a bolt 48, to the base 49 of a column 50 serving as a support for the rock drilling mechanism 51. The column, proper, may be of conventional type comprising a cylinder 52 and a pneumatically actuated piston 53 in the cylinder having a rod 54 that projects from the upper end of the cylinder 52 for engagement with an overlying rock surface 55. The pressure fluid serving to extend the column 50 is introduced into the lower end of the cylinder 52 through a supply conduit 56 that is controlled by a valve device 57.

The lower end of the cylinder 52 is sealed by a cap 58 that is attached to the cylinder by welding 59 and in like manner to the base 49

which is of cruciform shape having four wings 60, 61, 62 and 63 arranged at right angles to each other. The cap 58 seats upon the upper surfaces of the wings and on the lower surfaces of the wings in coaxial relation with the column is a foot plate 64 carrying calks 65 for engagement with a supporting surface 66, as for instance the floor of a mine tunnel.

Three of the wings of the base 49 are identical and the remaining wing is extended laterally beyond the edge of the foot piece 64 and is apertured near its outer edge to receive the bolt 48. The wing 63 is, moreover, provided with a spur 67 of T-shape, the cross bar 68 of which is adapted to engage the lower edges of the link 35 to limit the degree that the column may lean away from the link 35 when the latter is tilted upwardly to support the entire weight of the column and the drilling mechanism.

The column is free to swing through a wide arc in the opposite direction, relatively to the link, to place it in a reclining position for transportation. Thus, the column, or columns, may be laid directly on the frame 24 of the truck or, as shown, in a yoke 69 at the upper end of a support arm 70 that may be attached at its other end in any suitable manner to the frame of the truck.

The drilling mechanism 51, selected for illustrative purposes, is of the well known drifter type comprising a rock drill 71 that is mounted slidably in a guide shell 72 having a feed screw 73 and a motor 74 to rotate it for moving the rock drill endwise of the shell. The shell 72 is secured by means of suitable clamping mechanism 75 to a bar 76 secured to the cylinder 52 by a clamp plate 77 and bolts 78.

In the operation of the device, and during the moving of the drilling mechanism for considerable distances, the link 35 is tilted upwardly, by means of the bolt 41 and the nut 45, to the position shown in Figure 5 of the drawings and the column will rest upon the yoke 69.

After the mounting has been moved to approximately the desired position with respect to a rock surface the nut 45 is manipulated to partly lower the column. The column may then be tilted about the pivot 48 to bring the cross bar 68 into engagement with the lower edges of the link 35 and will be held thereby in a position slightly inclined from the vertical. The nut 45 may then be further unthreaded on the bolt 41 to lower the column to the supporting surface 66. Pressure fluid is next introduced into the cylinder 52 to drive the piston 53 outwardly for pressing the rod 54 into engagement with the overlying surface 55 to hold the column fixedly between the surfaces 55 and 66.

Thereafter, the drilling mechanism may be set in operation to drill all the holes that may be drilled from a given setting of the mounting relatively to the truck, and if it be desired to drill other rows of holes from the same setting of the truck the pin 34 is removed and the bracket is swung around to bring another hole of the group designated 32 into registry with the holes 33 and secured in that position by the pin 34.

Whenever a round of drilling has been completed and it is intended to remove the entire drilling apparatus from the working surface the rod 54 is released from the surface 55 and the nut 45 is manipulated to rock the link 35 upwardly. Such movement of the link will have the effect of tilting the column out of the operative, vertical position, away from the truck, and bring the cross bar 68 into engagement with the link 35 and, next, to lift the column off of the surface 66. The apparatus may then be shifted to a new position and the column may be quickly set up by merely lowering the link 35 and valving pressure fluid into the cylinder 52 to press the calks 65 and the rod 54 against the supporting surfaces 66 and 55.

I claim:

A mounting, comprising a bracket, a link, a pivot connecting one end of the link to the bracket to permit of swinging movement of the link in a vertical plane, a column base, a pivot to connect the other end of the link to the column base and being arranged in parallelism with the first mentioned pivot, a screw pivotally connected to the intermediate portion of the link and extending slidably through the bracket at a point above the first mentioned pivot, a nut on the screw bearing against the bracket for moving the link and the column base about the first mentioned pivot, and a stop member on the column base underlying the link for engagement therewith to limit movement of the column base in one direction about the second mentioned pivot.

FRED M. SLATER.

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The following references are of record in the file of this patent:

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