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2 Sheets-Sheet 1

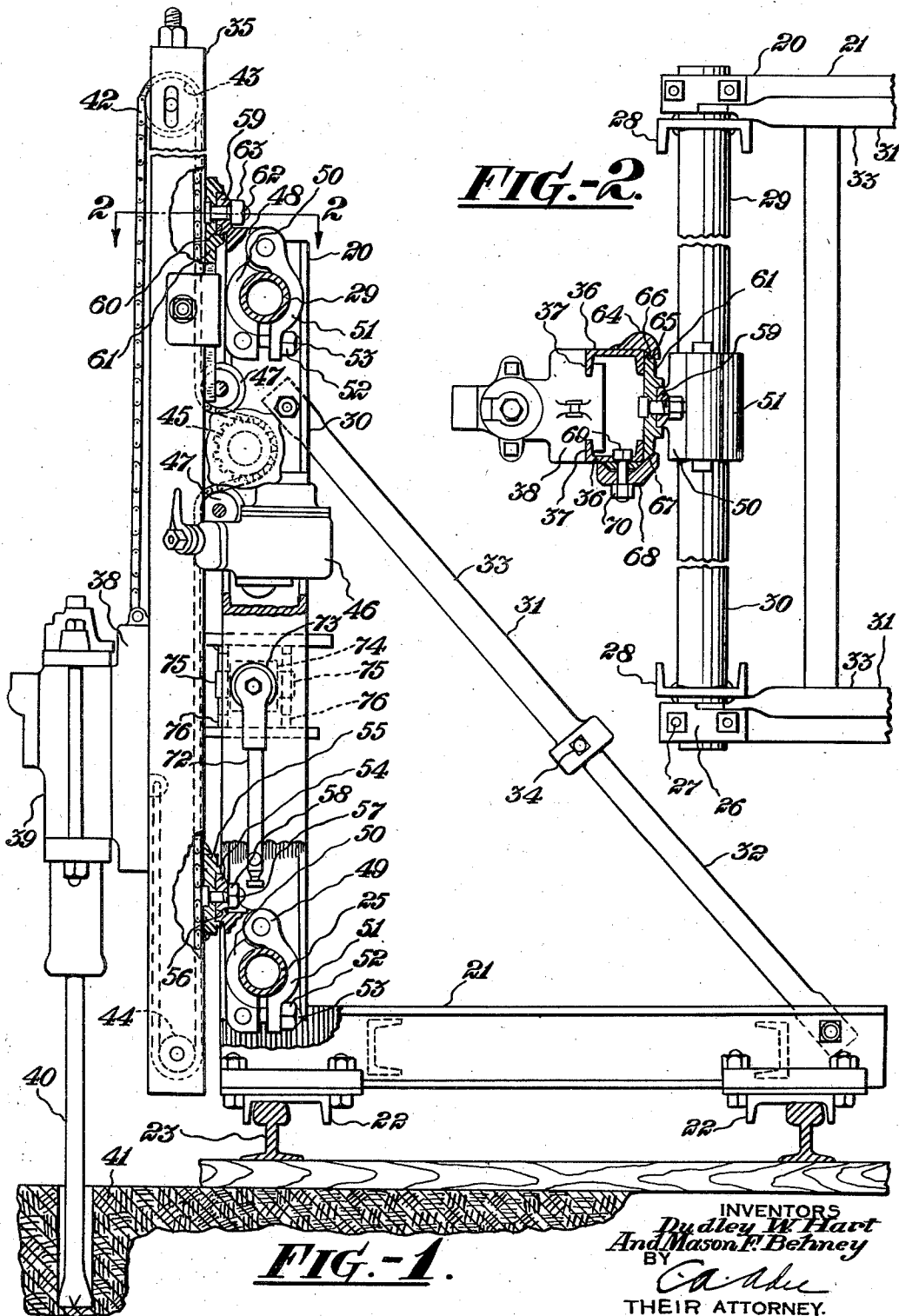


FIG.-1.

FIG.-2.

INVENTORS
Dudley W. Hart
And *Mason F. Betney*
BY *C. A. Allen*
THEIR ATTORNEY.

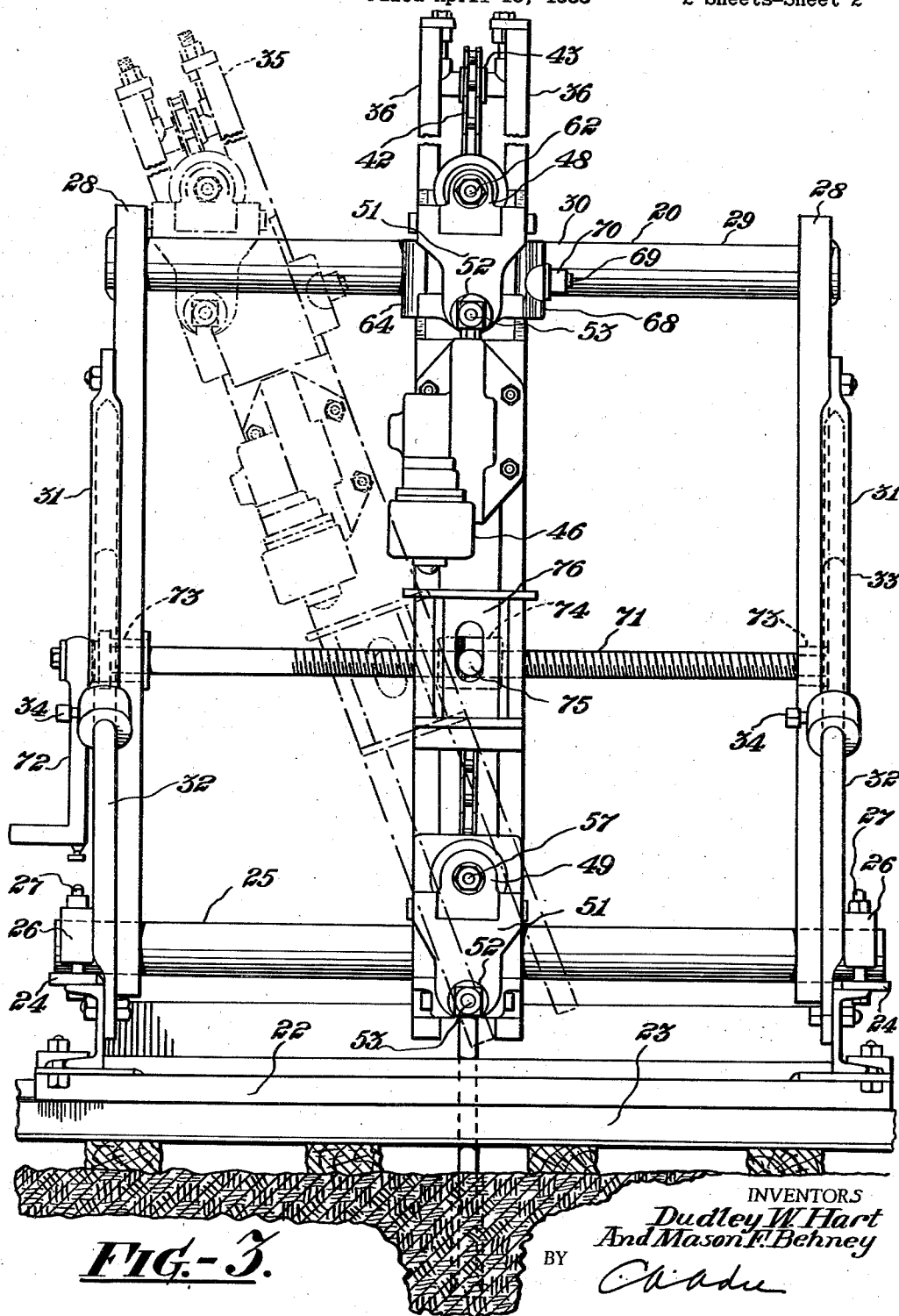
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UNITED STATES PATENT OFFICE

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MOUNTING FOR ROCK DRILLS

Dudley W. Hart and Mason F. Behney, Phillipsburg, N. J., assignors to Ingersoll-Rand Company, Jersey City, N. J., a corporation of New Jersey

Application April 15, 1938, Serial No. 202,181

6 Claims. (Cl. 255—51)

This invention relates to mountings, and more particularly to portable mountings for rock drills and the like.

One object of the invention is to enable the guide column whereby the rock drill is supported and guided to be conveniently adjusted to a desired position with respect to the face of the material being 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, partly broken away, of a mounting constructed in accordance with the practice of the invention,

Figure 2 is a plan view, partly in section, taken through Figure 1 on the line 2—2, and

Figure 3 is an end elevation of the mounting.

Referring more particularly to the drawings, the mounting, designated in general by 20, comprises a horizontal frame or support 21 carrying on its lower surface a pair of channels 22 to serve as skids shown, in the present instance, seated upon guide rails 23.

On the upper surface and near the edge of the support 21 are bearings 24 for a tubular guide member 25 which may be clamped to the bearings by caps 26 and bolts 27. Adjacent the bearings 24 and affixed to the guide member 25, as by welding, are a pair of up-right posts 28 of structural shape which are connected at their upper ends by a tubular guide member 29 arranged in parallelism with the guide member 25.

The guide members and the posts 28 thus constitute a frame 30 which is pivotally connected upon the support 21 to which it may be clamped by means of the caps 26 and the bolts 27. The frame 30 is, however, additionally supported by diagonal braces 31 connected with their ends to the support 21 and the frame 30. The braces 31 are adjustable and are shown as comprising rods 32 which extend telescopically into hollow rods 33 having set screws 34 for locking the rods 32 and 33 together.

The guide members 25 and 29 serve as supports for a column 35 comprising a pair of channels 36 of which one leg 37 of each channel serves as a guide for a saddle 38 arranged slidably on the column. The saddle 38 carries a rock drill 39 which may be of the pressure fluid actuated reciprocatory type for actuating a working implement 40 into the rock 41.

Suitable means are provided for raising and lowering the rock drill 39 relatively to the col-

umn 35. To this end a chain 42, connected with its ends to the saddle 38, is trained over sprocket wheels 43 and 44 located at the upper and lower ends, respectively, of the column 35. On an intermediate portion of the column 35 is a sprocket wheel 45 over which the chain is trained and which may be connected in any suitable manner with a motor 46 providing the power for actuating the chain 42. Guide rollers or sprockets 47 arranged on opposite sides of the sprocket wheel 45 assure ample areas of contact between the chain 42 and the sprocket wheel 45.

In accordance with the practice of the invention, means are provided to enable the column to be readily tilted to angular positions with respect to the frame 30 and to conveniently and expeditiously move the column into such positions. The mounting is accordingly provided with a pair of bearings 48 and 49 disposed upon the guide members 29 and 25, respectively. The bearings have clamp arms 50 and 51 which embrace the guide members and are forced into gripping engagement by a nut 52 threaded on a bolt 53 pivotally connected to one of the clamp arms.

Each bearing is pivotally connected to the column and has a cylindrical boss of which that of the bearing 49 is designated 54 and is in pivotal engagement with a plate 55 affixed to the lower portion of the column 35. The boss 54 extends into a recess 56 in the plate 55 and a bolt 57, extending through the plate 55 and the boss 54 and having a nut 58 threaded thereon, serves to secure the column and boss 54 of the bearing 49 together.

The bearing 48 also carries a cylindrical boss 59 which extends into a recess 60 in a plate 61 wherewith it is in pivotal engagement. The plate 61 is slidable on the adjacent surface of the column 35 and is secured to the boss 59 by a bolt 62 and a nut 63.

Suitable guide means are provided for the plate 61 to maintain it in substantially the correct operative position with respect to the column. The column is accordingly provided with a rib 64 having a bevelled surface 65 to engage and form a bearing surface for a bevelled surface 66 on the adjacent side of the plate 61. The opposite side or edge 67 of the plate 61 is similarly bevelled and provides a seating surface for a clamp 68 arranged on the side of the column 35 and serving both to secure the plate 61 to the column and as a guide for the plate. A bolt 69 arranged in the column 35 and having a nut 70 secures the clamp 68 in position.

To the end that the column may be readily shifted along the guide members a screw 71 having a crank 72 whereby it may be rotated is arranged on the posts 28 intermediate the guide members. The screw is journaled in bearings 73 carried by the posts 28 and is in threaded engagement with a nut 74 carried by the column 35. The nut 74 has a sliding movement in the column in order to avoid flexion of the screw 71 when the column is placed in an inclined position and has a pair of trunnions 75 which are slidably interlocked with plates 76 arranged in the column to guide the nut.

The operation of the device is as follows: Whenever it is desired to drill vertical holes the frame 30 is placed perpendicular to the support 21 as shown in Figure 1 of the drawings. After each hole is drilled the clamp arms of the bearings are loosened and the screw 71 is then manipulated to move the column and the rock drill longitudinally of the guide members. After the column has been placed in a new position the clamp arms are again forced into gripping engagement with the guide members.

In the event that it be intended to drill inclined holes the nuts 58, 63 and 70 are loosened to permit of free pivotal movement between the trunnions 54 and the plates which they engage and relative sliding movement between the plate 61 and the column. After the clamp arms 50 and 51 of the bearing 48 have been loosened on the guide member 29 the screw 71 is rotated and in that way the column is tilted to an inclined position, as for example that shown in dot and dash lines in Figure 3 of the drawings. After the desired position of the column has been attained the nuts 52, 58, 63 and 70 are again tightened, thereby clamping all the various members securely together preparatory to a new drilling operation.

We claim:

1. A mounting for rock drills, comprising a frame having a pair of guide members, a column, bearings on the guide members pivotally connected to the column and adjustable longitudinally along the guide members, and means forming a slide connection between the column and one of the bearings.

2. A mounting for rock drills, comprising a frame having upper and lower guide members, a column, bearings on the guide members pivotally connected to the column and adjustable longitudinally along the guide members, and means forming a slide connection between the column and the bearing on the upper guide member.

3. A mounting for rock drills, comprising a frame having upper and lower guide members, a column, bearings on the guide members pivotally connected to the column and adjustable longitudinally along the guide members, and means for tilting the column relatively to the guide members.

4. A mounting for rock drills, comprising a frame having upper and lower guide members, a column, bearings on the guide members and adjustable longitudinally along the guide members, a pivot connecting the column and the bearing on the lower guide member, and a plate pivotally connected to the bearing on the upper guide member and in slidable engagement with the column.

5. A mounting for rock drills, comprising a frame having upper and lower guide members, a column, bearings on the guide members and being adjustable longitudinally thereof, a pivot connecting the column and the bearing on the lower guide member, a plate pivotally connected to the bearing on the upper guide member and being in slidable engagement with the column, and means for clamping the plate to the column.

6. A mounting for rock drills, comprising a frame having upper and lower guide members, a column, bearings on the guide members and being adjustable longitudinally thereof, a pivot connecting the column and the bearing on the lower guide member, a plate pivotally connected to the bearing on the upper guide member and being in slidable engagement with the column, means for clamping the plate to the column, and a screw on the frame for moving the column and the bearings longitudinally of the guide members.

DUDLEY W. HART.
MASON F. BEHNEY.