May 8, 1934. H. G. PANKRATZ 1,957,472

ROCK DRILL

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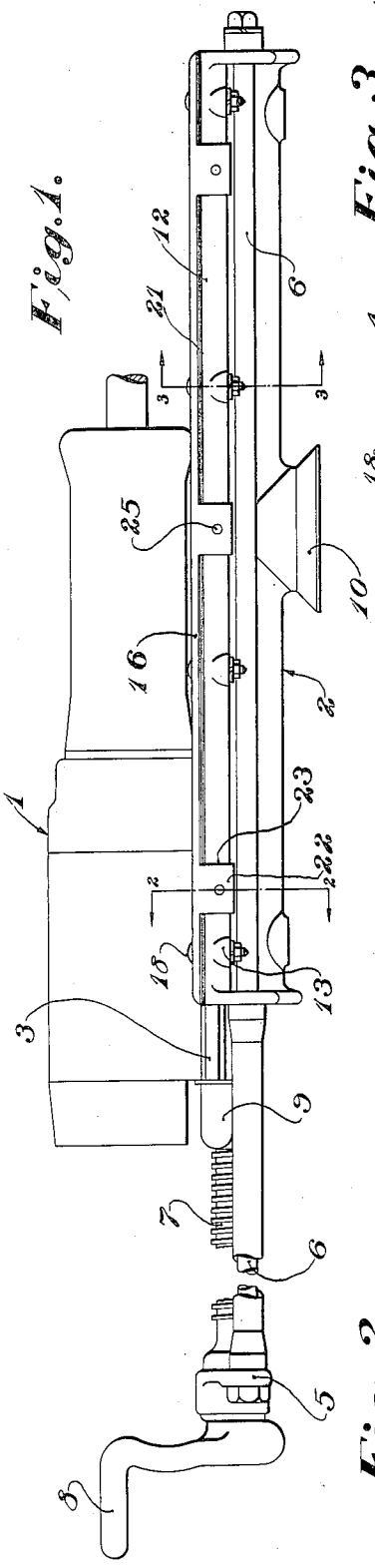


Fig. 1.

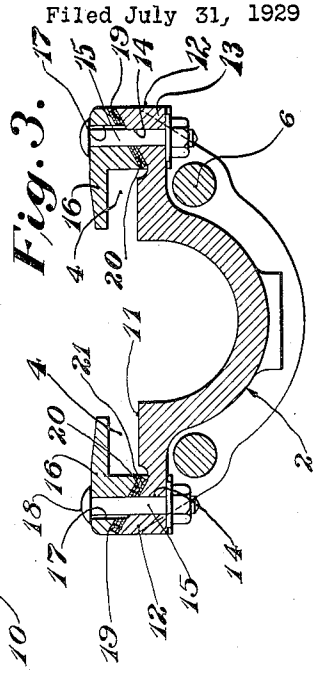


Fig. 3.

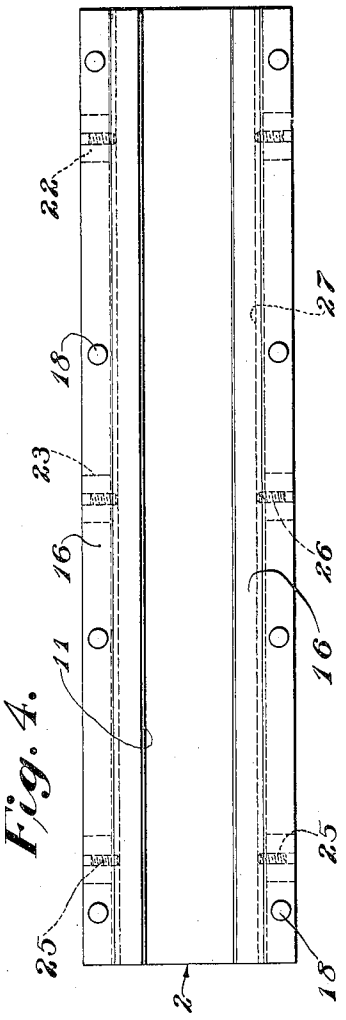


Fig. 4.

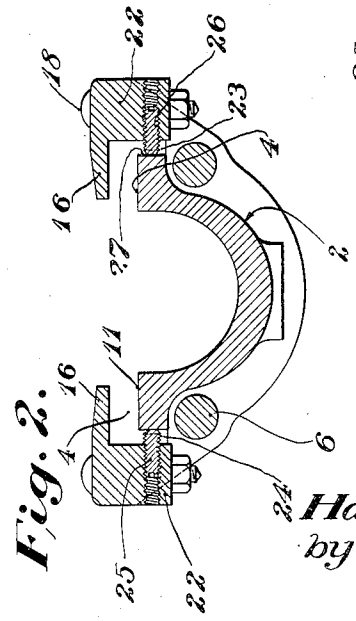


Fig. 2.

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ROCK DRILL

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9 Claims. (Cl. 308—3)

This invention relates to rock drills and more particularly to an improved adjustable guide shell for percussive rock drills of the mounted drifter type.

An object of this invention is to provide an improved adjustable guide shell for a percussive rock drill having improved adjusting means for effectively taking up wear upon the shell guides. Another object is to provide improved means to enable a rock drill shell to be adjusted in a simplified manner to compensate for wear of the guides and while at the same time the construction of the shell will not be materially heavier than the ordinary type of shell without such adjusting means. A further object is to provide an improved adjustable guide shell wherein the guides thereof may be adjusted to compensate for wear both laterally and vertically and wherein the vertical adjusting means is entirely separate and operable independently of the lateral adjusting means. Yet another object is to provide an improved adjustable guide shell for a rock drill which is of a simple and rugged construction well adapted to withstand the severe demands of service. These and other objects and advantages of this invention will, however, hereinafter more fully appear.

In the accompanying drawing there is shown for purposes of illustration one embodiment which the invention may assume in practice.

In this drawing,—

Fig. 1 is a side elevational view of a rock drill of the drifter type mounted on a guide shell embodying the improved guide adjusting means in an illustrative form.

Fig. 2 is a transverse vertical sectional view taken substantially on line 2—2 of Fig. 1 and illustrating the lateral guide adjusting means.

Fig. 3 is a transverse vertical sectional view taken substantially on line 3—3 of Fig. 1 and illustrating the vertical guide adjusting means.

Fig. 4 is a top plan view of the guide shell shown in Fig. 1.

In this illustrative embodiment of the invention there is shown a percussive rock drill of the well known drifter type generally designated 1 mounted on a guide shell 2. As is usual in rock drills of the type disclosed, the drill cylinder is provided with lateral guides 3 at the opposite sides thereof slidably mounted in parallel guideways 4 formed within the guide shell 2. Rotatably mounted at the forward end of the guide shell within a yoke 5 secured to the guide shell by parallel rods 6, is a feed screw 7 having a usual manual operating handle 8. This feed screw 7 is threadedly connected to a non-rotatable feed nut 9 suitably carried by the motor cylinder. The guide shell 2 has a usual conical swivel plate or support 10 which is adapted to be clamped in position on a usual tripod or column in accordance with the usual practice. As the specific construction of the rock drill 1 and the manual screw and nut feeding means therefor does not, per se, enter into this invention, further detailed description of the same is thought to be unnecessary other than to state that the feed screw when rotated by the handle 8 effects feed of the rock drill rectilinearly along the guideways 4 within the shell 2.

The improved adjusting means for the shell guides to compensate for both vertical and lateral wear of the guides will now be described. Referring more particularly to the adjusting means to compensate for vertical wear of the shell guides, it will be noted that the wearing plate 11 of each guide has projecting laterally therefrom an integral projecting portion or flange 12 extending throughout the length of the shell body as clearly shown in Fig. 1. At spaced points along the length of this flange 12 are bosses 13 which are perforated by round bolt holes 14 which receive adjusting bolts 15. As clearly shown in Fig. 3, the top plate 16 of the shell guides is provided with slots 17 through which the adjusting bolts 15 extend, the head portions 18 of these bolts engaging the upper surfaces of the top plates. The flange 12 has a top face 19, herein preferably cut at an angle of substantially 30 degrees, and cooperating with a similar bottom face 20 cut at a similar angle on the top plate 16. Shims 21 are interposed between the inclined faces on the top plates 16 and the flanges 12 on the shell and these shims also have slots through which the adjusting bolts extend, as clearly shown in Fig. 3.

Now referring to the improved means for effecting lateral adjustment of the shell guides to compensate for lateral wear, it will be observed that the top plates 16 of the guides each have at spaced points along their lengths depending projections or lugs 22 projecting downwardly through slots 23 formed in the lateral edges of the shell flanges 12. As shown in Fig. 2 at 24, there is substantial clearance between the inner surfaces of these projections 22 and the inner surfaces of the slots 23 to permit lateral adjustment of the top plates relative to the shell body. To effect lateral adjustment of the top plates, suitable set screws 25 are provided threadedly connected at 26 within each of the

lugs 22 and abutting at their inner ends at 27 against the bottom surfaces of the slots 23. It will be evident that if desired in lieu of the set screws 25, shims may be interposed in a suitable manner between the inner surfaces of the top plates and the outer lateral edges of the bottom wear plates, although it is obvious that the set screws make possible a more positive and accurate adjustment. It will also be evident that if desired, adjusting devices similar to the set screws 25 may be employed for vertically adjusting the top plates, instead of the shims 21, although in this instance the shims are better adapted for this purpose.

In adjusting the shell guides to compensate for vertical wear, the adjusting bolts 15 may be loosened and one or more of the shims 21 can be removed or added as desired, and the top plates 16 again bolted in position. In adjusting the shell guides for lateral wear, the bolts 15 are loosened and the set screws 25 adjusted to permit inward or outward movement of the top plates relative to the shell body, the slots 17 in the top plates 16 permitting such lateral adjustment thereof and the adjusting bolts 15 thereafter being tightened. It will therefore be evident that removal of one or more of the shims 21 compensates for vertical wear of the guides while a simple adjustment of the set screws 25 compensates for lateral wear, it being possible by these separate adjusting means to separately adjust the guides both laterally and vertically to different extents, thereby compensating for different degrees of lateral and vertical wear of the guides.

As a result of this invention it will be noted that an improved adjustable guide shell for a percussive rock drill is provided having improved and simplified adjusting means for effectively taking up both lateral and vertical wear of the shell guides. It will further be noted that the improved adjusting means are of a simple and rugged construction which may be readily adjusted, and which are of a construction whereby the shell will not be materially heavier than the ordinary type of guide shell without such adjusting means. It will still further be evident that by the provision of separate adjusting devices for effecting lateral and vertical adjustment of the top plates of the shell guides, it is possible to compensate for different degrees of vertical and lateral wear upon the guides, a feature of distinct advantage over guide shells of the ordinary type or adjustable guide shells having but a single adjustable device for both adjustments. These and other uses and advantages of the improved adjustable guide shell will be clearly apparent to those skilled in the art.

While there is in this application specifically described one form which the invention may assume in practice, it will be understood that this form of the same is shown for purposes of illustration and that the invention may be modified and embodied in various other forms without departing from its spirit or the scope of the appended claims.

What I claim as new and desire to secure by Letters Patent is:

1. An adjustable guide shell for rock drills including a shell body having bottom wear plates, cooperating adjustable top plates, means for adjusting said top plates vertically toward and from said bottom wear plates, and separate means for adjusting said top plates laterally relative to the shell body including adjustable devices carried by the top plates and engaging the shell body.

2. An adjustable guide shell for rock drills including a shell body having bottom wear plates each having bolt holes therein, cooperating adjustable top plates having slots therein, means for adjusting said top plates vertically toward and from said bottom wear plates including bolts passing through said bolt holes and slots, and separate means for adjusting said top plates laterally relative to the shell body including adjustable devices carried by the top plates and engaging the shell body.

3. An adjustable guide shell for rock drills including a shell body having bottom wear plates each having bolt holes therein, cooperating adjustable top plates having slots therein, means for adjusting said top plates vertically toward and from said bottom wear plates including bolts passing through said bolt holes and slots and removable shims interposed between said plates, and separate means for adjusting said top plates laterally relative to the shell body including adjustable devices carried by the top plates and engaging the shell body.

4. An adjustable guide shell for rock drills including a shell body having bottom wear plates, cooperating adjustable top plates, means for adjusting said top plates vertically toward and from said bottom wear plates, and separate means for adjusting said top plates laterally relative to the shell body including set screws carried by the top plates and engaging the shell body.

5. An adjustable guide shell for rock drills including a shell body having bottom wear plates each having bolt holes therein, cooperating adjustable top plates having slots therein, means for adjusting said top plates vertically toward and from said bottom wear plates including bolts passing through said bolt holes and slots, and separate means for adjusting said top plates laterally relative to the shell body including set screws carried by the top plates and engaging the shell body.

6. An adjustable guide shell for rock drills including a shell body having bottom wear plates each having bolt holes therein, cooperating adjustable top plates having slots therein, means for adjusting said top plates vertically toward and from said bottom wear plates including bolts passing through said bolt holes and slots and removable shims interposed between said plates, and separate means for adjusting said top plates laterally relative to the shell body including set screws carried by the top plates and engaging the shell body.

7. An adjustable guide shell for rock drills including a shell body having bottom wear plates and flanges projecting laterally from said wear plates, said flanges having slots cut therein, cooperating adjustable top plates having portions overlying said flanges and depending lugs projecting within the slots in the bottom wear plate flanges, means for adjusting said top plates vertically toward and from said bottom wear plates, and separate means for adjusting said top plates laterally relative to the shell body including adjustable devices carried by said depending lugs and engaging the inner surfaces of said slots.

8. An adjustable guide shell for rock drills including a shell body having bottom wear plates and flanges projecting laterally from said plates, said flanges having slots cut therein, cooperating adjustable top plates having depending lugs projecting within the slots in the bottom wear plate flanges, means for adjusting said top plates ver-

tically toward and from said bottom wear plates, and separate means for adjusting said top plates laterally relative to the shell body, said lugs moving within said slots during both said vertical and lateral adjustments.

9. An adjustable guide shell for rock drills including a shell body having bottom wear plates having faces cut at a substantial angle, cooperating adjustable top plates having cooperating faces cut at a similar angle, means for adjusting said top plates vertically toward and from the bottom wear plates including bolts extending through said plates and removable shims interposed between the inclined surfaces of said plates, and separate means for adjusting said top plates laterally relative to the shell body and including adjustable devices carried by said top plates and engaging the shell body.

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