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F. H. MUELLER ET AL

2,302,793

DRILLING APPARATUS

Original Filed July 17, 1940

FIG. 1.

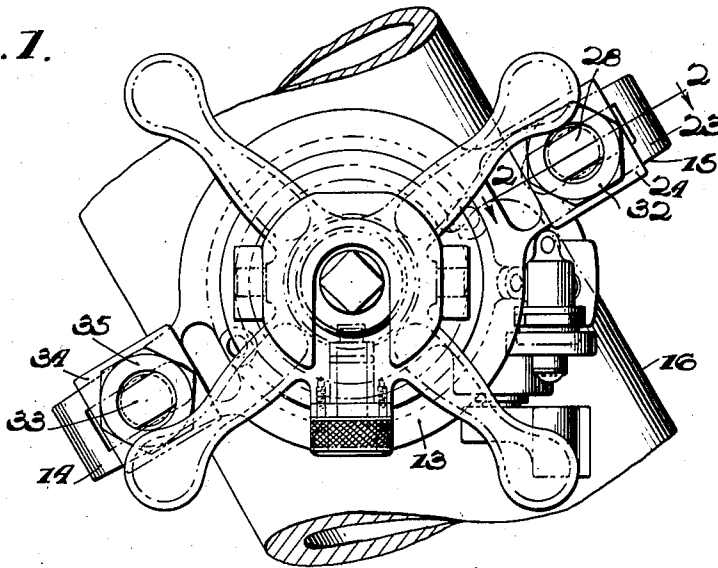


FIG. 2.

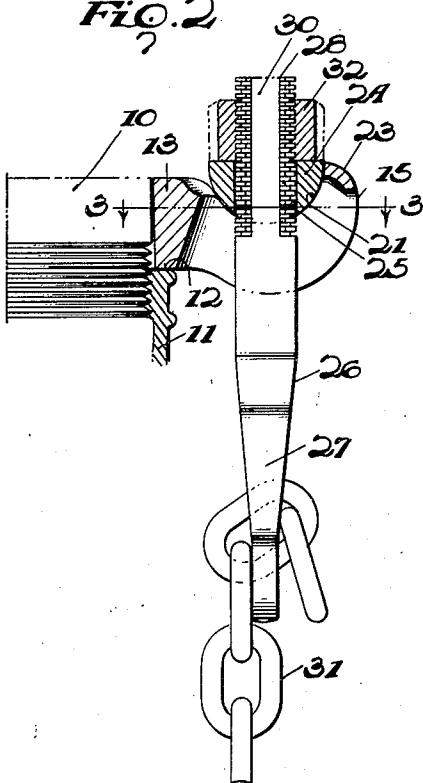


FIG. 3.

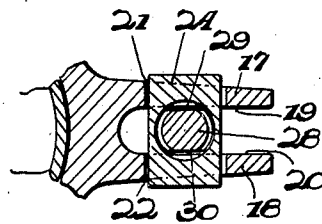
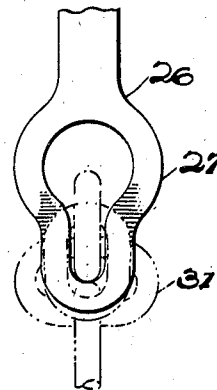


FIG. 4.



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DRILLING APPARATUS

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Original application July 17, 1940, Serial No. 346,052. Divided and this application December 12, 1941, Serial No. 422,770

3 Claims. (Cl. 77—37)

This invention relates to drilling machines of the type used in drilling and tapping mains containing pressure fluid, and relates in particular to means whereby the machine is secured to the main.

In ordinary practice a flexible means such as a chain is engaged with the wall of the main opposite the barrel or housing of the drilling machine and has threaded terminal portions provided with tensioning nuts engaging abutments on the barrel. In tightening the nuts against the abutments, the chain twists to some extent and then, due to causes such as jarring during subsequent operations, will untwist or return, occasionally to an extent impairing the seal between the main and the machine. Moreover, adjustment of the nuts is often rendered difficult by mud and the like on the threads of the terminal portions. Objects of the present invention are to overcome these difficulties. Illustrative means for accomplishing these purposes are shown in the accompanying drawing with reference to which the description of the invention will proceed.

In the drawing:

Figure 1 is a plan view of the drilling machine and a section of a main to which it is applied, the machine being equipped in accordance with the invention.

Figure 2 is a section substantially on line 2—2 of Figure 1.

Figure 3 is a section on line 3—3 of Figure 2, and

Figure 4 shows a detail in elevation.

Referring to the drawing, the machine includes a barrel comprising upper and lower portions 10 and 11 threaded together with the lower portion on the outside so that an annular shoulder 12 is provided at its upper end. A collar 13 embraces the lower part of the barrel portion 10 and rests on the shoulder 12. The collar is fixed in any suitable manner against rotation relative to the barrel and has diametrically opposite lugs 14 and 15 which project transversely of the main 16 when the machine is operatively disposed thereon. In the use of the apparatus, the lower end of the barrel is supported on the main through the intermediary of a saddle conforming to the latter and through suitable sealing gaskets and is secured in position by means which will now be explained.

Lugs 14 and 15 are identical and the latter will be described, since it appears in Figures 2 and 3 as well as in Figure 1. As will be seen from these figures, the lug 15 has parallel portions 17 and 18 between which is a vertical opening having paral-

lel side walls 19 and 20. The tops of portions 17 and 18 are arcuately recessed at 21 and 22 and their outer ends are connected by a top web 23. A semi-cylindrical rocking block 24 is supported in the recesses 21 and 22 and is provided with a smooth radial bore 25.

Reference numeral 26 designates a chain harp having a harp portion 27 and a threaded stem portion 28 which has opposed flat sides 29 and 30 which interrupt the threads, the distance between the flat faces being slightly less than that between the walls 19 and 20 of the lug 15. The harp portion 27 is engaged with a chain 31 which passes under the main 16 and is engaged on the other side with a similar harp. The stem portion 30 of harp 26 is passed upwardly through the opening of lug 15 and the bore of block 24 and has threaded thereon a tensioning nut 32 which bears against the abutment surface afforded by the top face of block 24. The stem 33, Figure 1, of the other harp is passed upwardly through the opening in lug 14 and the bore of a rocking block 34 and has threaded thereon a tensioning nut 35. When the nuts are tightened to tension chain 31 it will be evident that by reason of the engagement of their flat faces with the flat walls of the lug openings, the harps are prevented from turning and twisting the chain since the anchoring means, here shown as constituted by the lugs and blocks, are rigid on the axes of the harps and thus cannot turn with the nuts. Consequently, once the desired tension has been obtained it will hold until purposely released.

Another advantage arising from the use of the flat sided threaded portions is that the threads readily clean themselves as the nuts are threaded on, any mud or the like being forced out of the threads into the spaces at the flat faces and falling away.

The invention is, of course, susceptible of variation in details of form and arrangement and, consequently, we do not limit ourselves in these respects except as in the claims.

This application is a division of our application Serial No. 346,052, filed July 17, 1940, now Patent No. 2,291,979, Aug. 4, 1942.

We claim:

1. In a drilling machine, a barrel adapted to be disposed in substantially radial relation to a main, flexible means adapted to engage the wall of the main opposite the barrel and have its ends secured to the latter, at least one of said ends being constituted by a threaded portion having a flat side interrupting the threads, and anchoring means on the barrel providing an opening in

which said threaded portion is longitudinally movable to tension the flexible means, said anchoring means being rigid on the axis of said threaded portion, said opening having a flat wall cooperating with said flat side to prevent turning of said threaded portion, said anchoring means presenting an abutment surface for a tensioning nut threaded on said threaded portion.

2. In a drilling machine, a barrel adapted to be disposed in substantially radial relation to a main, flexible means adapted to engage the wall of the main opposite the barrel and have its ends secured to the latter, at least one of said ends being constituted by a threaded portion having opposed flat sides interrupting the threads, and anchoring means on the barrel providing an opening in which said threaded portion is longitudinally movable to tension the flexible means, said anchoring means being rigid on the axis of said threaded portion, said opening having opposed flat walls cooperating with said flat sides to prevent turning of said threaded portion, said anchoring means presenting an abutment

surface for a tensioning nut threaded on said threaded portion.

3. In a drilling machine, a barrel adapted to be disposed in substantially radial relation to a main, flexible means adapted to engage the wall of the main opposite the barrel and have its ends secured to the latter, at least one of said ends being constituted by a threaded portion having opposed flat sides interrupting the threads, and anchoring means on the barrel including a lug having an opening in which said threaded portion is longitudinally movable to tension the flexible means, said anchoring means being rigid on the axis of said threaded portion, said opening having opposed flat walls cooperating with said flat sides to prevent turning of said threaded portion, said anchoring means presenting an abutment surface for a tensioning nut threaded on said threaded portion.

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