Nov. 18, 1924.

1,516,055

G. M. NELL

DRILL RETAINER

Filed July 27, 1923

Fig 1.

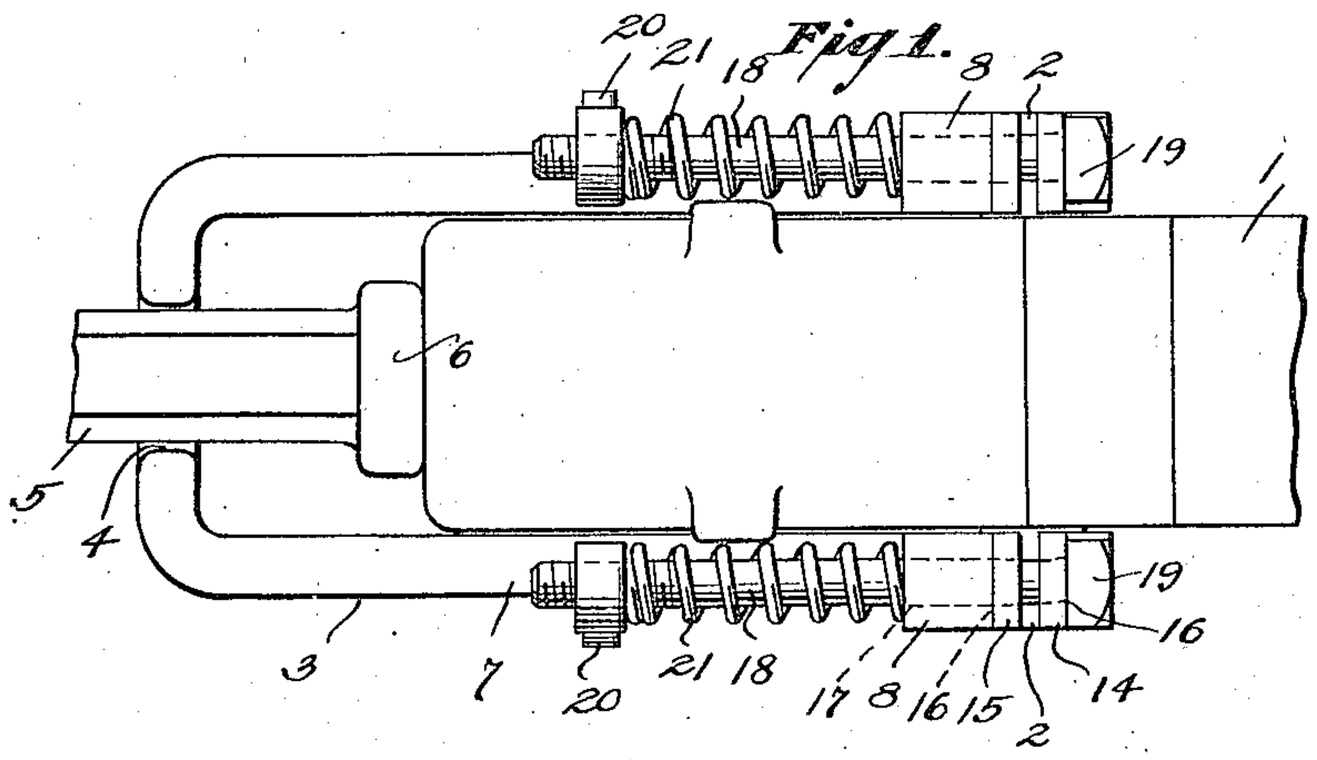
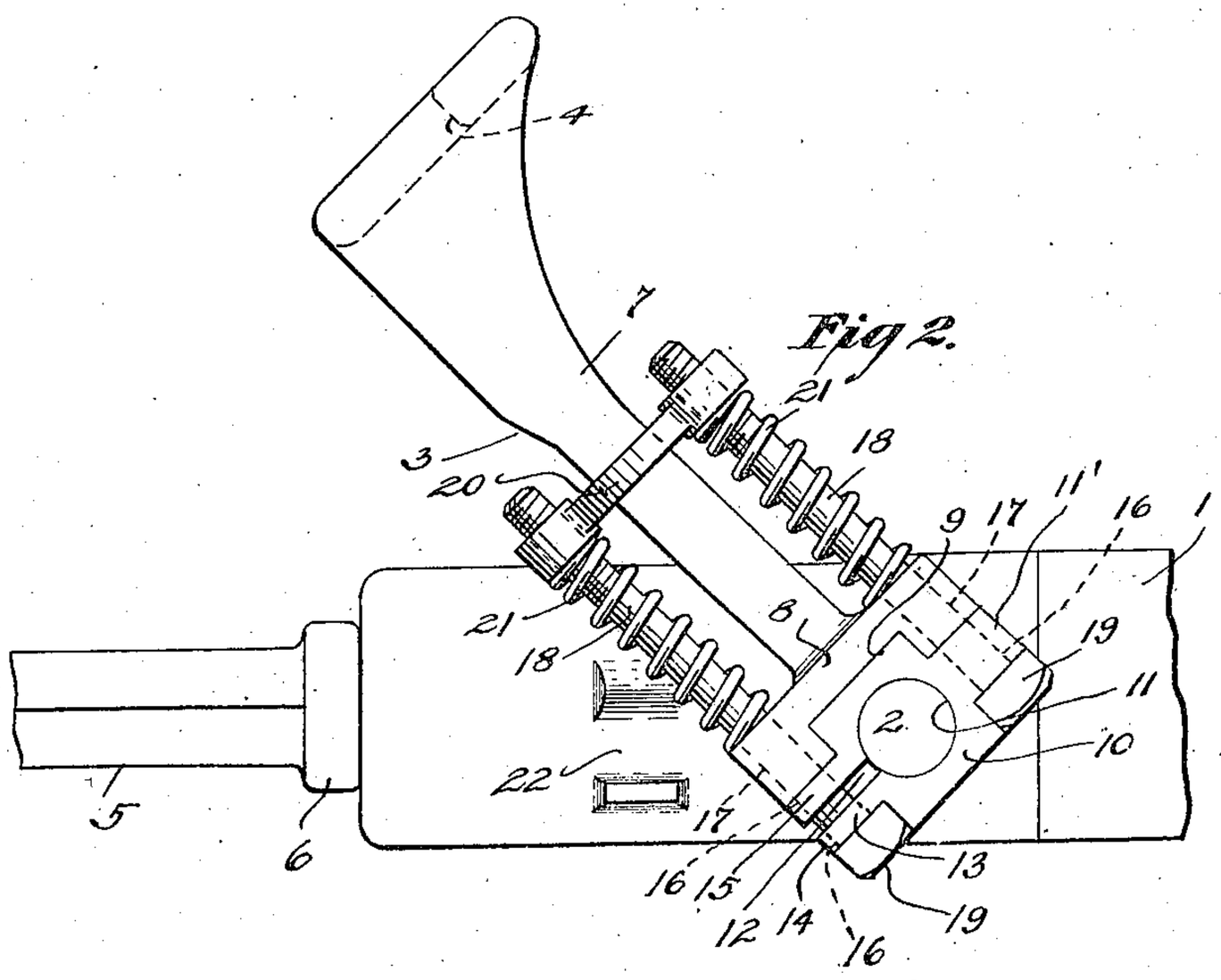


Fig 2.



Inventor
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By

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UNITED STATES PATENT OFFICE.

GUSTAVE M. NELL, OF CLEVELAND, OHIO, ASSIGNOR TO THE CLEVELAND ROCK DRILL COMPANY, OF CLEVELAND, OHIO.

DRILL RETAINER.

Application filed July 27, 1923. Serial No. 654,176.

To all whom it may concern:

Be it known that I, GUSTAVE M. NELL, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented new and useful Improvements in Drill Retainers, of which the following is a specification.

The present invention is directed to improvements in drill retainers for use in connection with rock drills of the percussive type.

The primary object of the invention is to provide a novel and simple form of retainer so constructed that complicated parts for holding the same in its open or inoperative position are eliminated.

A further object of the invention is to provide a retainer which is durable, efficient in operation, cheap to manufacture, and one in which the drill steel will be effectively interlocked therewith to enable the steel to be pulled from the hole when becoming stuck therein, provision being made to absorb the shock upon the drill incident to the drill steel striking retainer when not striking the work.

The above and other objects and advantages of my improvement will fully appear from the following description taken in connection with the accompanying drawing and be explicitly defined in the appended claims. I wish it understood, however, that this disclosure is illustrative only, and that the principle of my invention can be embodied in the constructions other than the one specified herein.

In the accompanying drawing:—

Figure 1 is a plan view.

Figure 2 is a side elevation, showing the retainer in its open or inoperative position.

Referring to the drawing 1 designates the front head of a conventional form of percussive drill, and upon apposite sides thereof are located outwardly extended lugs 2, circular in cross section, and serving as the medium for pivotally connecting the retainer to the drill.

The retainer comprises a yoke 3 the bight portion thereof being provided with a lateral open loop 4 adapted to embrace the drill steel 5 mounted for rotary and reciprocatory movement in the front head 1, said loop being of such size as to prevent the drill collar 6 from passing therethrough.

The side arms 7 of the yoke have their inner ends formed with transverse heads 8, in the outer sides of which are formed rectangular recesses 9, the purpose of which will appear later.

Rectangular blocks 10 are provided and have central circular bearings 11 formed therethrough for pivotally receiving the lugs 2, said blocks being provided upon one of their ends with solid projections 11′. The opposite ends of the blocks are formed with kerfs 12 which open into the bearing 11 and thereby split the projections 13 so as to normally space the fingers 14 and 15 constituting the said projections. It will be thus observed that the blocks are capable of being expanded and contracted owing to the presence of the kerfs 12, as the occasion may require.

The projections 11′ and the fingers 14 and 15 of the projections 13 are provided, respectively, with openings 16 which register with openings 17 formed in the ends of the heads 8, and it is in these registered openings that the paired retaining bolts 18 are engaged, the square heads 19 of which being engaged flush against the adjacent ends of the outer portions of the blocks 10 when said heads are engaged with the respective projections, whereby accidental rotation of said bolts are prevented.

The outer ends of the bolts 18 are threaded in the ends of the connecting bars 20, said bars being disposed upon the outer sides of the side arms 7 of the yoke, there being coil springs 21 encircling the bolts and having their terminals respectively engaged with the ends of the heads 8 and ends of the bars 20, said springs tending to urge the heads inwardly so that the forward portions of the blocks 10 will be yieldably received in the recesses 9 of the heads 8.

The front head 1 is provided upon opposite sides with recesses 22 in which the side arms 7 of the yoke engage, the inherent resiliency of the yoke causing the side arms to yieldingly engage said recesses, and in this manner the yoke is held positively against accidental opening.

It will be apparent that the spring 21 which encircles the bolt 18 which engage in the fingers 14 and 15 will urge the bars 20 forwardly, thereby exerting stress upon the fingers 14 to cause the same to approach

the fingers 15 thus contracting the blocks 10 to cause the same to frictionally and yieldably engage the lugs 2. Thus the retainer can be swung to its open position and will remain in a selected position owing to the normal contraction of the blocks with respect to the lugs.

It will be observed that when strain is applied to the yoke incident to the engagement of the collar 6 with the loop 4 the yoke will move forwardly against the tension of the springs 21, and at which time the blocks 10 and heads 8 move relatively, the movement, however, will not be sufficient to cause the forward portions of the blocks to disengage the recesses 9 in which they slidably engage.

What is claimed is:—

1. In a device of the class described, the combination with a front head of a drill having lugs on the opposite sides thereof, of a drill steel retainer comprising a yoke, blocks pivotally connected to the lugs, the side arms of the yoke being slidably engaged with the blocks, and means for yieldably connecting the blocks with the lugs and the yoke with the blocks.

2. In a device of the class described, the combination with a front head of a drill having lugs upon the opposite sides thereof, of resilient blocks pivotally engaged with the lugs, a drill steel retainer comprising a yoke, and spring restrained bolts passing through the side arms of the yoke and through the blocks.

3. In a device of the class described, the combination with a front head of a drill, of lugs upon opposite sides of the front head, blocks pivotally connected with the lugs, said blocks having resiliently connected fingers carried thereby, a drill steel retainer comprising a yoke, the side arms thereof being slidably connected with the blocks, spring restrained bolts yieldably connecting the yoke with the blocks, one of said bolts being co-operatively connected with the fingers to hold the blocks normally in contracted engagement with the lugs, as and for the purpose set forth.

4. In a device of the class described, the combination with a front head of a drill, of blocks pivotally connected therewith, a drill steel retainer comprising a yoke, the side arms thereof being slidably and yieldably connected with the blocks, said blocks being contractible for resilient engagement with the pivotal connections with the front head.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

GUSTAVE M. NELL.

Witnesses:
E. L. OLDHAM,
L. L. RICHARDSON.