

T. R. SHEETZ.
 RATCHET DRILL.
 APPLICATION FILED APR. 13, 1909.

969,664.

Patented Sept. 6, 1910.

3 SHEETS—SHEET 1.

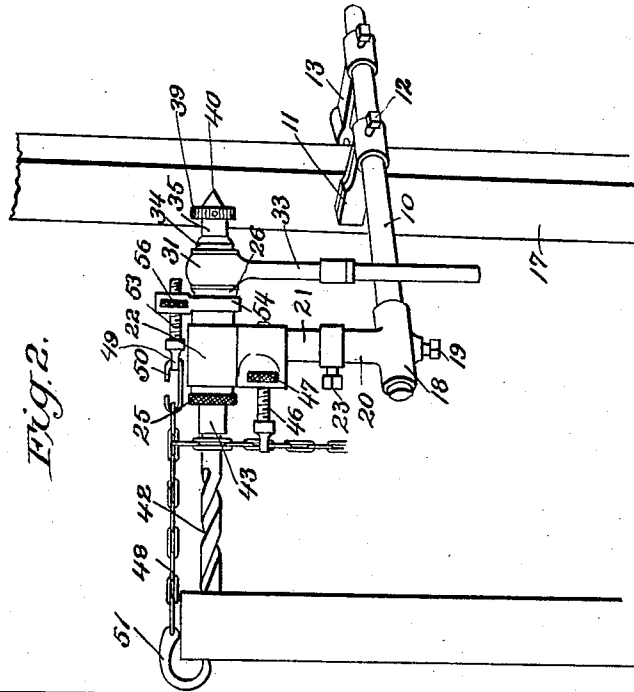


Fig. 2.

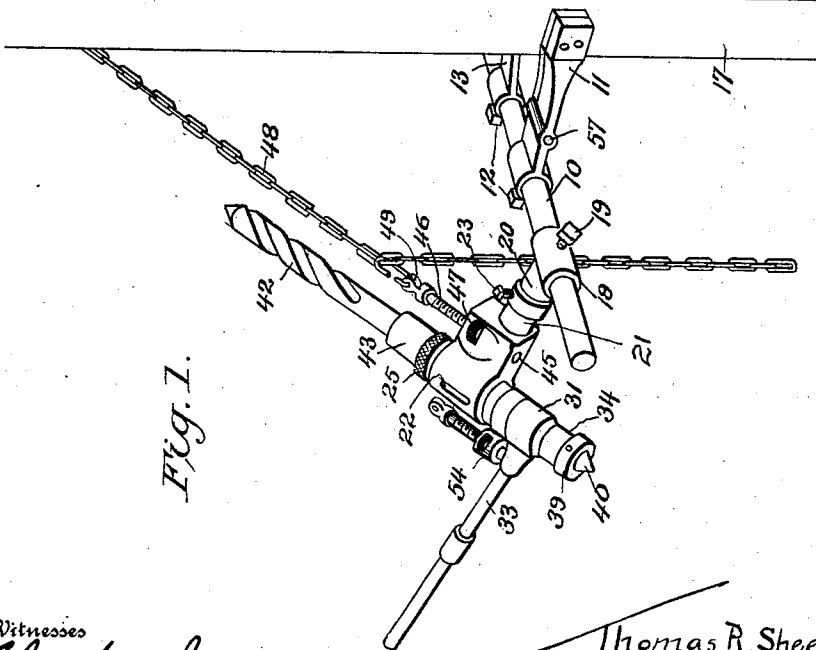


Fig. 1.

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Fig. 4.

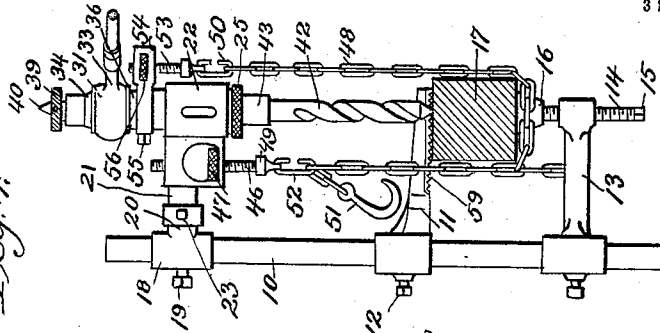
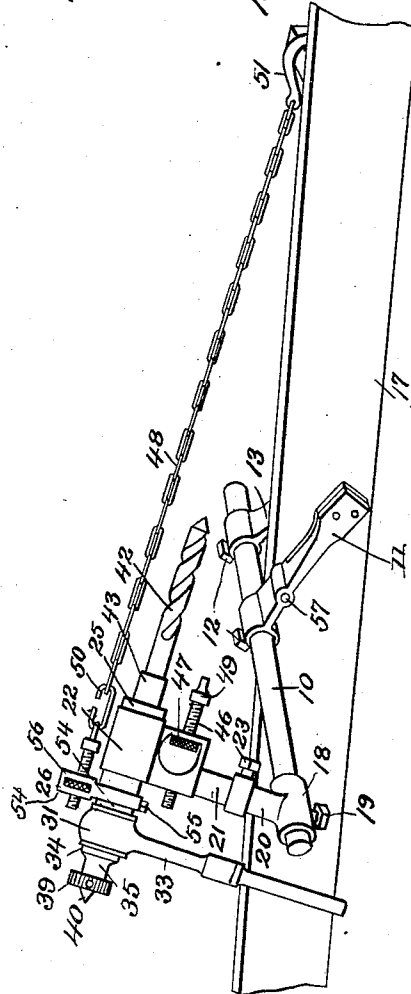


Fig. 3.



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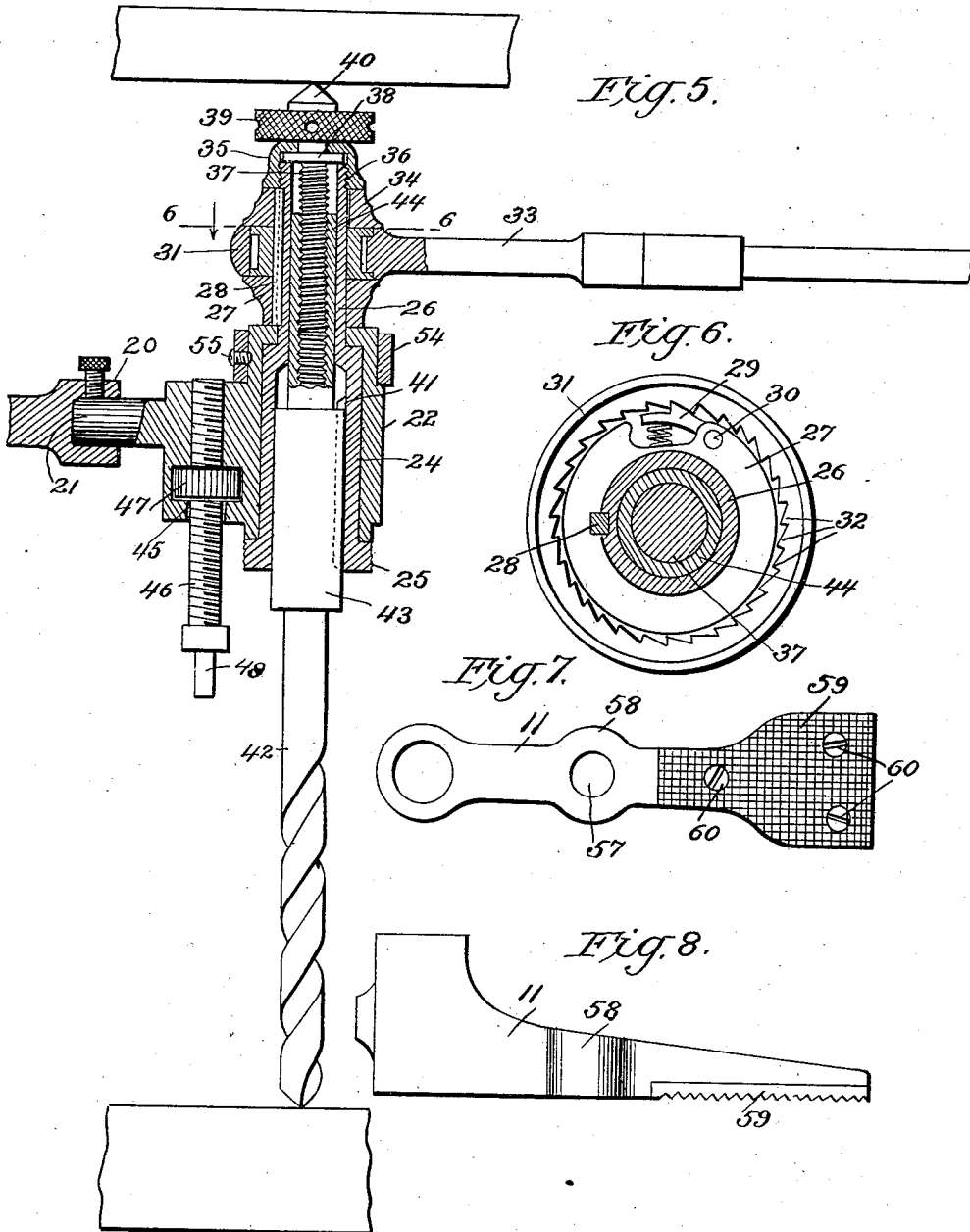
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UNITED STATES PATENT OFFICE.

THOMAS RICHARD SHEETZ, OF GOLDFIELD, NEVADA.

RATCHET-DRILL.

969,664.

Specification of Letters Patent.

Patented Sept. 6, 1910.

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To all whom it may concern:

Be it known that I, THOMAS RICHARD SHEETZ, a citizen of the United States, residing at Goldfield, in the county of Esmeralda and State of Nevada, have invented certain new and useful Improvements in Ratchet-Drills; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to ratchet drills for any desired use.

An object of the present invention is to provide an improved form of ratchet drill having improved means for adjusting the drill to a very great number of positions to permit operation upon various objects.

A further object of the invention is to provide improved means for advancing the drill in operation.

A further object of the invention is to provide improved means for holding the drill to its work.

With these and other objects in view, the invention comprises certain novel constructions, combinations and arrangements of parts, as will be hereinafter fully described and claimed.

In the drawings:—Figure 1 is a perspective view of the drill showing one of the many positions it will assume. Fig. 2 is a perspective view of the drill shown in still another position. Fig. 3 is a perspective view of the drill in still a third position. Fig. 4 is a perspective view of the drill shown in a fourth position. Fig. 5 is a sectional view of the drill longitudinally through the ratcheting and feed portions. Fig. 6 is a sectional view showing the ratchet member in plan. Fig. 7 is a plan view of the adjustable foot. Fig. 8 is a view of the adjustable foot in side elevation.

Like characters of reference designate corresponding parts throughout the several views.

The present invention comprises a drill which may be secured to a beam or any stationary object by means of a strut 10 having an adjustable foot shown as a whole at 11 slidably mounted upon the strut 10 and secured in operative position by the binding of such foot upon the strut and further assisted, if found necessary, by means of any approved form of securing means as the set screw 12. Slidable also upon the strut 10 is

an arm 13 spaced from the foot 11 and provided adjacent its extremity with a screw 14 having its end formed as shown at 15 with a multi-angular portion to receive a wrench or similar implement and with a gripping member 16 carried upon the extremity of the screw whereby a beam as 17 may be firmly clamped between the gripping member 16 and the foot 11. The foot 11 and arm 13 are rotatable upon the strut 10 and may be made to assume and lock in any desired position thereon longitudinally or rotatably. Also slidably mounted upon the strut 10 is a T-shaped member 18 which may be locked in position upon the said strut by means of a set screw 19 and is provided with a sleeve 20 extending perpendicular to the strut 10 into which is rotatably inserted a spindle 21 having formed integral therewith a bearing 22 for the drill chuck. The sleeve 20 is provided with any approved form of fastening means as the set screw 23 by means of which the spindle 21 may be secured at any approved angular adjustment to maintain the bearing 22 at the desired angle. Within the bearing 22 a chuck 24 is mounted to rotate provided at one end with a knurled flange 25 and at its opposite end with an extension sleeve 26. Upon the extension sleeve a hub 27 is mounted secured from rotation relative thereto by means of a key 28. The hub 27 is provided with a ratchet pawl 29 pivoted thereto as at 30 seen in detail at Fig. 6 and surrounding such hub is a ratchet member 31 having teeth 32 as seen in Fig. 6 positioned to engage the pawl 29 and provided with a handle 33 by which said ratchet member is rotated.

Upon the sleeve 26 and engaged by the key 28 is a collar 34 serving to maintain the ratchet member 31 against longitudinal displacement, such collar 34 and hub 26 being maintained in position by means of a cap 35 internally screw-threaded and engaged upon screw-threads at 36 upon the extremity of the sleeve 26. The cap 35 also serves to position a screw 37 which extends downwardly axially within the sleeve 26, such positioning being accomplished by means of a disk 38 rigid or integral with such screw 37 and externally of the cap a knurled head 39 is also provided integral or rigid with the screw 37 and terminating in the centering point 40 also integral or rigid with the screw 37, disk 38 and knurled head 39.

The chuck 24 is provided with an integral

or rigid spline 41 extending longitudinally thereof and a drill is provided preferably embodying the auger portion 42 here shown as of the twist drill form, but it is to be understood that any form of boring tool
 5 may be employed. The boring tool is provided with a shank 43 formed integral therewith or rigidly connected thereto in any desired manner, the shank having a key-
 10 way adapted to accommodate the spline 41 and movable longitudinally within the chuck. The shank 43 has projecting therefrom and formed preferably integral therewith a hollow internally screw-threaded
 15 spindle 44 engaging upon the screw 37. By this arrangement whenever drill 42 is to be rotated shank 43 will be rotated and also sleeve or spindle 44. In addition to spindle 44 rotating with drill 42, screw 37 will also
 20 rotate therewith by reason of friction between spindle 44 and the screw. The point 40 is designed to permit the free rotation of screw 37, but if the friction thereof should cause any excessive binding the
 25 screw may be loosened by turning the knurled head 39.

To assist in holding the drill to its work the bearing sleeve 22 is provided with a
 30 socket 45 through which is slidably inserted a screw 46 engaged by a knurled nut 47 and by which the screw 46 is moved to exert tension upon the chain 48 which is secured thereto in any approved manner. As here
 35 shown the screw 46 is provided with an eye 49 and the chain with an open link 50 adapted to hook through such eye. The chain may be secured to the work by means of a hook 51 carried thereby as in Figs. 2 and 3
 40 or may be passed around the work as in Fig. 4 and secured by means of a second open link 52 to a screw 53 inserted through a portion 54 off set from and preferably rigid or
 45 integral with the bearing sleeve 22. As shown at Fig. 5 the portion 54 embraces the bearing sleeve 22 and is rigidly secured thereon by a set screw 55, but it is to be understood that such specific construction is
 50 not essential to the invention. To exert tension upon the screw 53 a knurled nut 56 similar to the nut 47 is provided.

At times it becomes desirable to otherwise secure the mechanism to the work and for this purpose the foot 11 is provided with a
 55 hole 57, a bulge 58 being provided in the foot for that purpose and through such opening 57 a bolt may be inserted passing through the work or through any stationary
 60 object. The foot is also preferably provided with a serrated facing 59 which prevents slipping of the foot relative to the work. The facing 59 is preferably made removable and is secured in position by any approved means as the screws 60.

In operation the strut 10 is secured either
 65 to the work or to any adjacent stationary

object by clamping the foot and arm rigidly thereon by means of the screw 15 and if clamped to the work the chain 48 may be
 70 passed about the work as shown at Fig. 4. If clamped to some other stationary object the chain may be secured to the work or to some adjacent stationary object to give the
 75 necessary rigidity to withstand the pressure of the drill. In whatever manner the strut 10 is secured the drill may be adjusted by rotating the T coupling upon such strut and
 the stud 21 within the sleeve 20 whereby any angular adjustment desired may be secured.

If the drill is to work between two stationary objects one of which is the work the
 80 centering point 40 may bear against one stationary object as shown at Fig. 5 while the drill 42 engages the opposite object which will be the work. The knurled nut
 85 is rotated rotating therewith the screw 37 until the drill bit has been fed out of the chuck to engage the work with sufficient force upon which the handle 33 is given a
 90 rotating motion about the work moving the drill by means of the ratchet as will be apparent. As the drill 42 is forced into the
 95 work the knurled nut 39 will be rotated to further advance the drill. To assist in rotating the nut 39 and to provide the necessary or desired pressure upon the drill holes
 are provided in such nut which permit the insertion of an implement therein to serve
 100 as a lever for rotating the nut.

From the above and foregoing description it is believed that the various uses to
 105 which the drill may be put and the manner of operation will be fully and clearly understood.

What I claim is:—

1. In a device of the class described, a
 110 strut, means to secure the strut rigidly to an article, a sleeve mounted and movable longitudinally and rotarily upon the strut, a bearing carried by the sleeve and rotatable
 115 relative thereto, a chuck journaled in the bearing, a ratchet member connected to the chuck, a lever and detent adapted to operate the ratchet, a drill shank disposed within the chuck and movable longitudinally there-
 120 of but held against rotary movement independent of the chuck, means to move the shank longitudinally of the chuck, a flexible member adapted to engage the work and a tension member carried by the bearing, and
 125 adapted to engage with the flexible member.
2. In a device of the class described, a
 130 strut, means movable longitudinally of the strut adapted to secure the strut to an article, a sleeve mounted upon the strut adapted to be rotated thereon and also to be moved
 135 longitudinally thereof, a bearing member carried by the sleeve and rotatable relative thereto, means to maintain all of the movable parts at a secured adjustment, a chuck carried and
 140

rotatable within the bearing member, a ratchet wheel connected to the chuck, a pawl and lever adapted to engage and rotate the ratchet, a hollow internally threaded drill
5 shank disposed within the chuck and adapted to move longitudinally but maintained against rotary movement independent of the chuck, a cap carried above the ratchet, a screw extending through the cap and with-
10 in and engaging the threaded portion of the shank, means above the cap for operating

the screw, a flexible member adapted to engage the work, and a tension member carried by the bearing adapted to connect with the flexible member.

15

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS RICHARD SHEETZ.

Witnesses:

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Mrs. S. T. GINGLES.