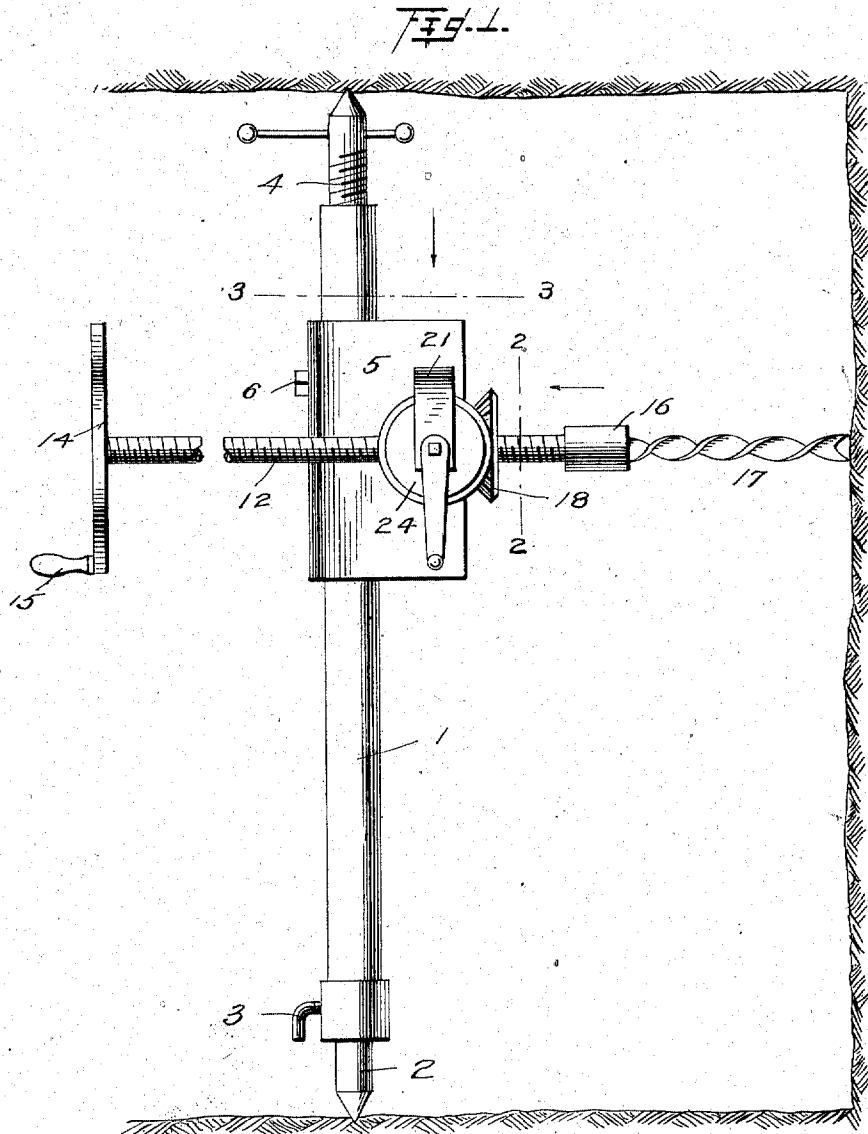


W. WETHERBEE.
 DRILLING MACHINE.
 APPLICATION FILED NOV. 17, 1909.

982,755.

Patented Jan. 24, 1911.

2 SHEETS—SHEET 1.



Witnesses
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 C. H. Grunauer.

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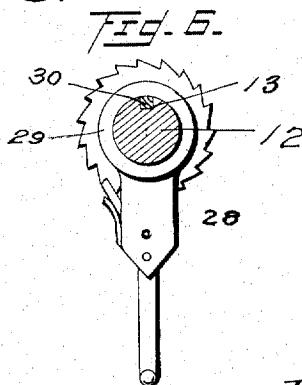
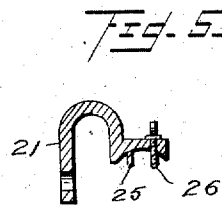
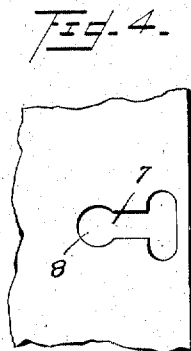
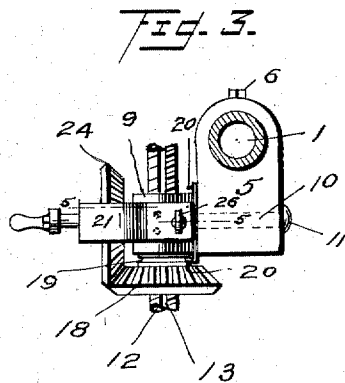
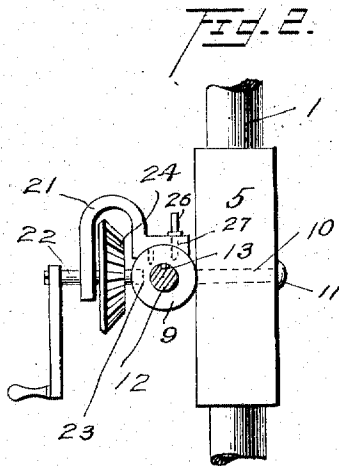
By *A. B. Wilson & Co.*
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

WILLIAM WETHERBEE, OF COKEDALE, COLORADO.

DRILLING-MACHINE.

982,755.

Specification of Letters Patent. Patented Jan. 24, 1911.

Application filed November 17, 1909. Serial No. 528,458.

To all whom it may concern:

Be it known that I, WILLIAM WETHERBEE, a citizen of the United States, residing at Cokedale, in the county of Las Animas and State of Colorado, have invented certain new and useful Improvements in Drilling-Machines; and I do 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 improvements in drilling machines.

The object of the invention is to provide a machine of this character having an improved construction and arrangement of drill supporting and operating mechanism which may be adjusted and reversed to enable the drill to be operated at any desired position.

With the foregoing and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts, as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a side view of the machine, showing the same in operative position; Fig. 2 is a vertical section through the drill operating shaft on the line 2—2 of Fig. 1, showing an edge view of the machine, with certain parts removed; Fig. 3 is a horizontal sectional view on the line 3—3 of Fig. 1; Fig. 4 is a detail side view of the adjustable supporting block for the drill operating mechanism; Fig. 5 is a detail sectional view on the line 5—5 of Fig. 3; Fig. 6 is a detail side view of the ratchet wrench or handle for turning the drill operating shaft in close places.

Referring more particularly to the drawings, 1 denotes a tubular supporting post, in one end of which is slidably mounted a pointed anchoring bar 2 which is held in adjusted position in the end of the post by means of a set screw 3. The opposite end of the post is provided with interior screw threads and with said threaded end is engaged a jack-screw 4 having a pointed outer end and adapted to coact with the bar 2 to securely fasten the post 1 between the floor, and ceiling or between the walls of the cut or passage.

Slidably mounted on the post 1 is a drill

supporting block 5 which is adjustably secured to the post at any desired position by a set screw 6. The block 5 projects laterally at one side of the post and in said laterally projecting portion is formed a horizontally disposed T-shaped slot 7, at the inner end of which is formed an enlarged passage 8.

Adapted to be supported by the block 5 is a bearing box 9 to one side of which is secured a fastening stud or bolt 10 having on its outer end a head 11. In attaching the bearing box 9 to the block 5, the headed end of the bolt 10 is inserted through the passage 8 of the block and the bolt then moved along the horizontal portion of the slot 7 and engaged with one end of the vertical portion of the slot, as shown. When the bolt is thus engaged with the slot, the bearing box 9 will closely engage one side of the block 5, while the head 11 of the bolt will bind against the opposite side of the block thus pivotally securing the box 9 in engagement with the block.

The bearing box 9 has formed therein a longitudinally disposed threaded passage, with which is engaged a drill supporting and operating shaft 12. The shaft 12 is threaded throughout its length and is provided with a longitudinally disposed groove or key-way 13 which extends from one end of the shaft to the other. On one end of the shaft 12 is detachably mounted an operating wheel 14 having a crank handle 15 by means of which the shaft is revolved in the bearing box 9 to feed and operate the drill. On the opposite end of the shaft 12 is secured a chuck 16 for the reception of a suitable drill 17.

On the threaded shaft 12 is loosely mounted a bevel operating gear 18, said gear being provided with a key or feather which is engaged with the groove or key-way 13 in the shaft 12, thereby operatively connecting the gear to the shaft. The hub of the gear 18 is extended inwardly and engages the adjacent end of the bearing box 9, and this extended portion is provided with an annular groove 19 in which is engaged a gear-holding stud 20 arranged upon an extension upon either end of the bearing box 9. By thus connecting the gear 18 with the bearing box, the gear is held in position to revolve the shaft 12 by means of the key which engages the groove 13 and at the

same time permits the shaft to be fed forwardly by reason of its threaded engagement with the passage in the bearing box 9.

Secured to the upper side of the bearing box 9 is a bearing bracket or hanger 21 in which is mounted a drive shaft 22, the inner end of which is revolubly engaged with a bearing socket 23 formed in one side of the box 9, as shown. The outer end of the shaft 22 is squared or otherwise formed to receive a wrench or operating handle 32 by means of which the shaft is revolved. On the shaft, between the end of the bracket 21 and the adjacent side of the box 9, is fixedly mounted a bevel gear 24, which is in operative engagement with the gear 18 and is adapted to drive said gear when the shaft 22 is turned. The bearing bracket or hanger 21 is preferably detachably secured to the box 9 by means of studs 25 which engage sockets formed in the side of the box and by means of a thumb screw 26 which is adapted to be screwed into engagement with a threaded socket 27, also formed in the side of the box 9. By thus securing the bearing bracket to the box, the latter, the gear 24 and the shaft 22 may be readily removed when desired. By providing the operating gears 18 and 24, the shaft 12 may be operated thereby or by means of the hand wheel 14 secured to the outer end thereof.

In the use of the machine, it is frequently necessary to bore holes so close to the floor, ceiling or side walls of a passage, that the operating wheel 14 or the crank handle of the shaft 22 cannot be employed for revolving the drill operating shaft 12, and in such a contingency, I employ a suitable ratchet wrench 28, preferably as is shown in Fig. 6 of the drawings, for turning the operating shaft 12 of the drill, said wrench being engaged with the shaft after the hand-wheel 14 has been removed therefrom. The shaft engaging portion 29 of the wrench is provided with a key 30 which is adapted to slidably engage the key-way in the shaft, whereby the latter is turned when the wrench is operated.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the

invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention, as defined in the appended claims.

Having thus described my invention, what I claim is:

1. The combination of a supporting block, a bearing box secured against one side of the supporting block, a drill shaft mounted in said bearing box, a gear wheel slidably engaging said shaft adjacent the end of the bearing box and having a grooved hub, a stop on the end of the bearing box engaging said grooved hub, a bracket secured on the upper side of the bearing box and projecting laterally therefrom, a shaft inserted through the end of said bracket and having one end journaled in the side of the bearing box, and a gear wheel on said shaft between the end of the bracket and the side of the bearing box and meshing with the gear wheel on the drill shaft.

2. The combination of a supporting block, a bearing box secured against one side of the same and having sockets in its top, a bracket fitted in the top of the bearing box and having a depending arm spaced laterally from said box, a stud in the under side of the bracket engaging the socket in the bearing box, a thumb screw mounted in the bracket and engaging another socket in the bearing box, a drill shaft extending through the bearing box, a gear wheel slidably fitted on the drill shaft, a stop on the end of the bearing box engaging said gear wheel, a shaft supported by the bracket and having one end journaled in the side of the bearing box, and a gear wheel on said shaft between the bracket and the side of the bearing box.

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

WILLIAM WETHERBEE.

Witnesses:

Wm. B. LLOYD,
J. TAYLOR MORE.