

April 24, 1928.

1,667,022

H. C. WOOD

DRILLING MACHINE

Filed March 24, 1925

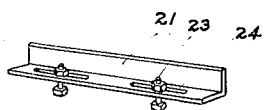


FIG. 2.

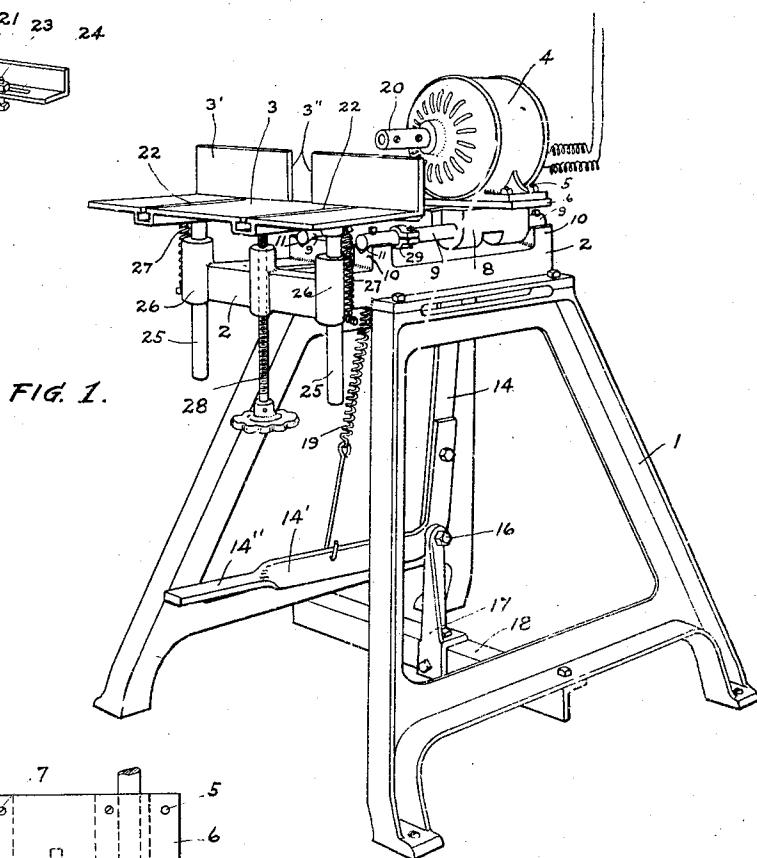


FIG. 1.

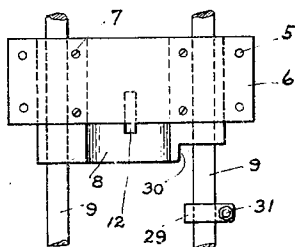


FIG. 3

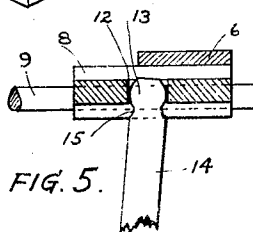


FIG. 5.

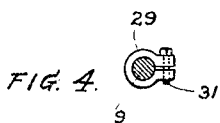


FIG. 4.

INVENTOR.

HUGH C. WOOD.

BY

Julien A. Bried.

ATTORNEY.

## UNITED STATES PATENT OFFICE.

HUGH C. WOOD, OF SAN FRANCISCO, CALIFORNIA.

## DRILLING MACHINE.

Application filed March 24, 1925. Serial No. 17,934.

My invention relates to power driven, foot controlled drilling machines or drill presses as used by mechanics, especially wood workers in the drilling of holes for dowels, etc., in wood framing.

The objects of my invention are to provide a machine of this character which will be more adaptable to the various drilling requirements, yet simple and cheap in construction.

I achieve the objects mentioned in the machine illustrated in the accompanying drawings and in which Figure 1 is a general view in perspective of the complete machine, Figure 2 a perspective view of an angle plate which bolts to the slots of the work table of the machine, Figure 3 a broken plan view showing the sliding motor carriage, guide rods, and stop collar or depth gage, Figure 4 an elevation of the depth gage and section of the guide rod which it embraces, and Figure 5 is a sectional view of the motor carriage showing the upper end of the foot lever engaging a slot in the same.

In further detail the machine will be seen to comprise a suitable floor stand or frame 1 with a bed casting 2 bolted to its upper end supporting a work table 3 and a motor 4.

The motor is bolted at 5 to a base plate 6 in turn secured at 7 to a sliding carriage block 8 slidable horizontally toward and from the work table on two aligned round bars 9 supported above the bed plate on bosses 10 provided with V grooves 11 into which the bars are seated and secured to the bosses.

This construction insures absolute parallelism of the bars and consequent free sliding of the carriage in a cheap construction easily made.

The sliding carriage block 8 is centrally slotted at 12 as shown in Figures 3 and 5 to receive the rounded upper end 13 of a lever 14, and the rounded end 13 is relieved at 15 so that the lever may work freely in the slot to move the carriage back and forth. The lever 14 is pivotally supported at 16 on a bracket 17 secured to a cross member 18 of the frame and is provided with a horizontally and forwardly extending foot treadle portion 14' having its outermost end flattened at 14'' to receive the foot of the operator, and a spiral spring 19 tensioned between the lever 14' and the bed of the machine keeps the carriage forced back to the limit of its travel on the guide bars to withdraw the

drill from its work when the machine is in use.

Directly secured to the spindle of the motor is a drill chuck 20 adapted to receive a standard drill, and if desired a multiple drilling head may be substituted for the single drill chuck and suitably braced to prevent rotation as a whole.

The work table 3 is provided with a vertical wall 3' lying in a plane at right angles to the axis of rotation of the drill chuck and is formed with a vertical slot 3'' for the passage of a drill at various elevations of the table. The table is also provided with a detachable angle bar 21 shown in Figure 2, and which bolts to the slots 22 in the work table by means of the bolts 23, and the angle bar being slotted at 24 for the passage of the bolts is adjustable to any angle when in place on the table.

The table is secured to two vertically depending bars 25 which are vertically slidable in bosses 26 cast to the bed of the machine and is provided with tension springs 27 to pull the work table downward, while it may be adjusted upwardly to any height within the limit of its guiding bars 25 by the hand screw 28 threaded through a boss on the bed plate and bearing against the lower side of the table to push it upwardly against the resistance of the springs.

The vertical adjustment of the table 3 is from a position considerably below the center of the drill chuck to a position about the same height above it.

The table would ordinarily fall by gravity without the aid of springs 27, but the use of the springs in the position shown pulling from the table to the bed, makes the motion smooth and overcomes any tendency for the table to stick.

To adjust the depth of the hole being drilled, I provide an adjustable stop or gage 29 preferably positioned on one of the carriage guide bars 9 to limit the forward motion of the carriage, and one corner of the carriage block is conveniently notched at 30 to receive the stop so that the latter will not reduce the guiding limit of the bars. The stop is split through one side and clamped to the bar by the bolt 31 as indicated in Figures 3 and 4, and while this stop as described forms an effective depth gage, it is capable of considerable modification.

In operation the desired drill is placed in the chuck 20, the motor started, work placed

- on the table; table adjusted to the proper height, stop gage adjusted for depth of hole, and the motor and drill moved forward by a pressure of the foot upon the foot lever, thus forcing the drill into the work. Upon release of the foot lever the spring 19 immediately returns the motor to starting position, withdrawing the drill from the work.
- 10 Small light work is held on the table 3 against the outside of the vertical wall 3' (or side farthest from the motor), the work may also be held against the other side if desired.
- 15 Large work is usually supported on the table between the wall 3' and the angle bar 21 which is bolted to the slots of table outside of the work so as to hold it against the feed of the drill.
- 20 This arrangement of horizontal table with its vertical wall and auxiliary angle bar has been found a great improvement in its adaptability to a variety of work and utmost speed of operation, as it provides for a number of different positions for the work with minimum adjusting of the machine.

I claim:

1. In a drilling machine of the character described, a floor stand, a pair of horizontally arranged bars thereon supported by and above the upper end of the stand, and a

drilling carriage block slidably mounted on said bars, said bars being seated and secured in vertically open horizontal grooves formed on top of the stand and the bars being removable vertically from the open sides of the grooves. 35

2. In a drilling machine of the character described, a floor stand supporting a horizontally slidable carriage block, a foot lever provided with arms extending substantially at right angles to one another pivoted at the junction of the arms to the stand with one of its arms extending horizontally as a foot lever and the other arm being rounded at its end and operative directly against the carriage in a slot therein. 40 45

3. In a drilling machine including a drill chuck mounted to revolve on a horizontal axis, a work table positioned in front of the chuck arranged in a horizontal plane and provided with a vertically extending plain wall along its edge nearest the chuck, said wall having a relatively narrow vertical slot therethrough for the passage of the drill and adapted for the placing of work for drilling along either side thereof, and the table being immovable on its mounting in a lateral direction and provided with work bolting slots extending at right angles to said wall parallel to the axis of the chuck. 50 55 60

HUGH C. WOOD.