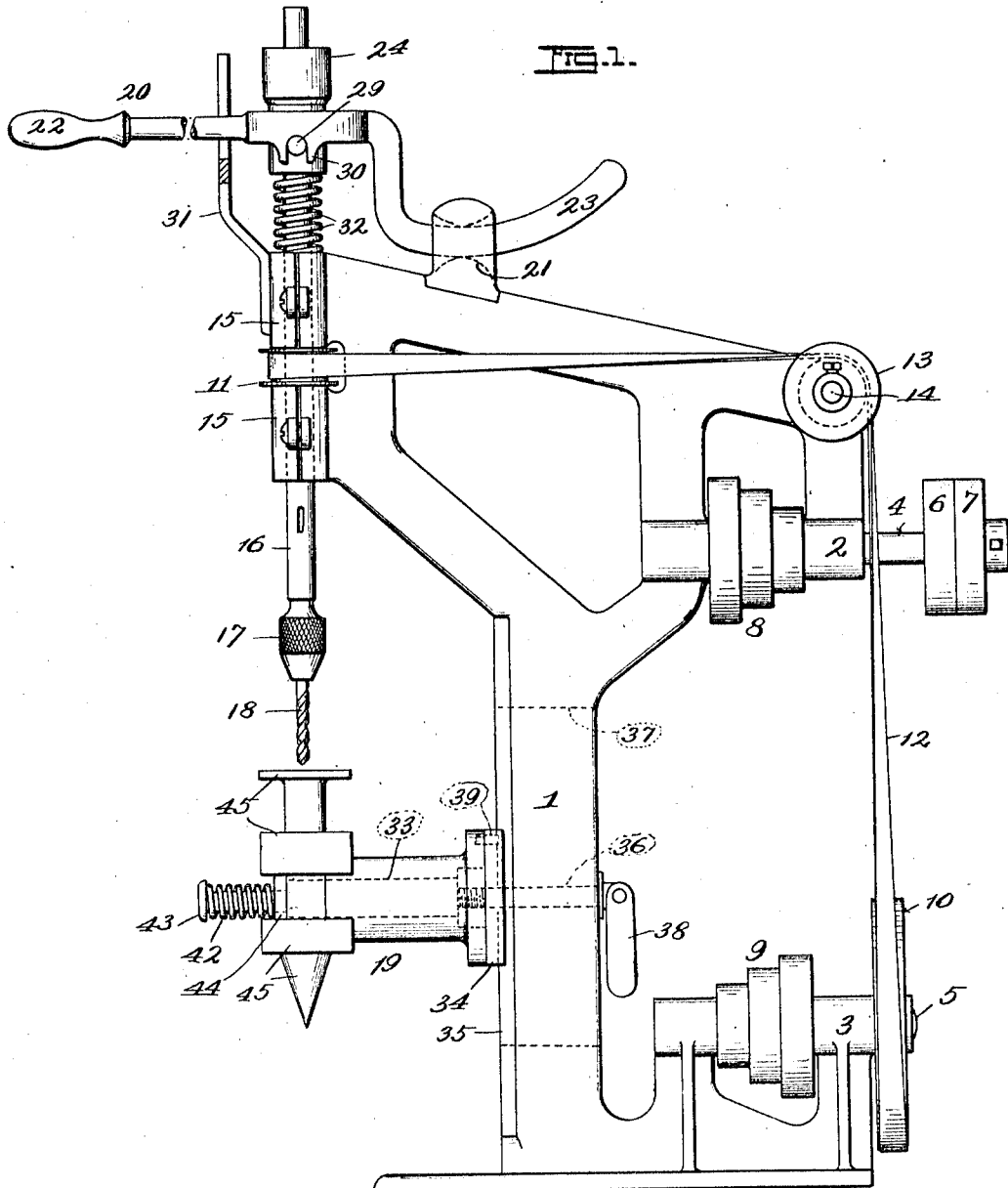


G. R. MELLON.
 DRILLING MACHINE.
 APPLICATION FILED MAR. 19, 1912.

1,061,622.

Patented May 13, 1913.

2 SHEETS—SHEET 1.



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2 SHEETS-SHEET 2.

FIG. 2.

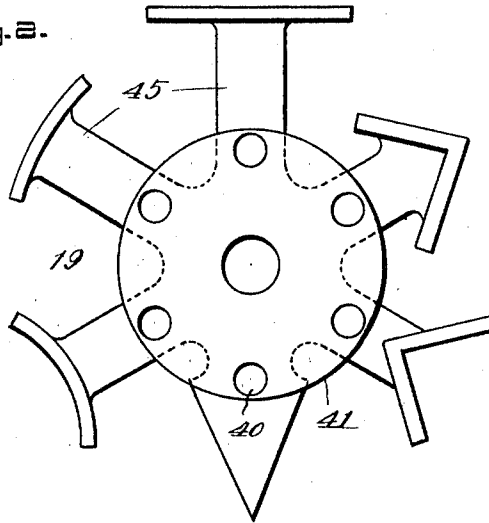


FIG. 4.

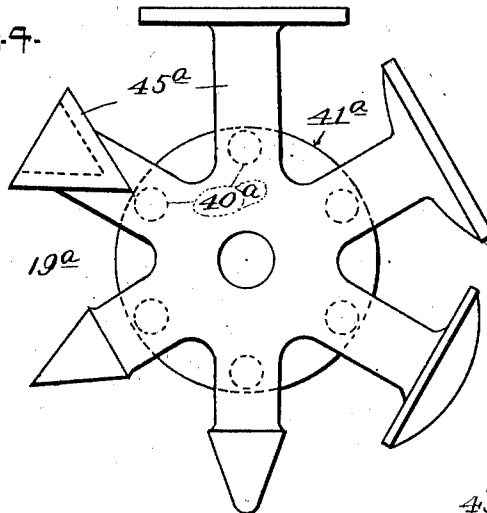


FIG. 3.

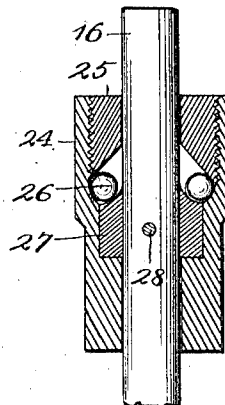
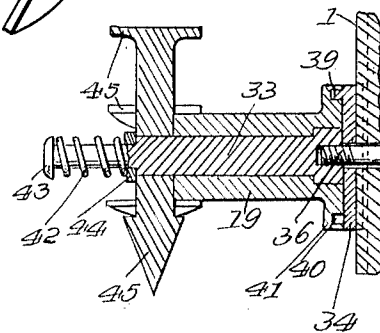


FIG. 5.



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UNITED STATES PATENT OFFICE.

GEORGE R. MELLON, OF KANSAS CITY, MISSOURI.

DRILLING-MACHINE.

1,061,622.

Specification of Letters Patent.

Patented May 13, 1913.

Application filed March 19, 1912. Serial No. 684,847.

To all whom it may concern:

Be it known that I, GEORGE R. MELLON, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Drilling-Machines, of which the following is a specification.

My invention relates to improvements in drilling machines, and one object is to provide a simple, light and efficient drill which can be readily mounted on an ordinary work-bench for use.

One feature of the invention resides in a rotary table provided with work-holding members of different forms to accommodate different kinds of work.

Another feature of the invention resides in novel means for feeding the drill toward the table.

Other features of the invention will hereinafter appear, and in order that said invention may be fully understood, reference will now be made to the accompanying drawings, in which:

Figure 1 is a side elevation of my improved drilling machine. Fig. 2 is a rear elevation of the rotary table forming one of the important features of the invention. Fig. 3 is an enlarged vertical section of a head secured to the spindle of the machine. Fig. 4 is a modified form of rotary table, and, Fig. 5 is a vertical sectional view taken through the rotary work holding table.

In carrying out the invention I employ a frame 1, having bearings 2 and 3 in which are journaled main and countershafts 4 and 5, respectively. Main shaft 4 is provided with a tight pulley 6, a loose pulley 7 and a cone pulley 8, which latter is fixed to shaft 4 and adapted, through the intermediacy of a belt (not shown) to drive a cone pulley 9 fixed upon the counter-shaft 5, which latter also, is provided with a large fixed pulley 10. Pulley 10 drives a flanged pulley 11 through the intermediacy of a belt 12, running over idlers 13, mounted upon a stub-shaft 14, carried by the upper rear portion of frame 1. Pulley 11 is interposed between a pair of vertical bearings 15 in which a vertically-movable spindle 16 is journaled, said spindle having the customary groove-and-feature connection (not shown) with the pulley, so that the same may rotate said spindle without moving vertically therewith.

Spindle 16 is provided at its lower end with a suitable chuck 17 for holding drill 18, and said spindle 16 is adjusted toward a rotary table 19 through the intermediacy of a feed-lever 20, slidably-mounted in a fulcrum 21 on the upper portion of frame 1. Feed-lever 20 has a handle 22 at one end and a curved extension 23 at its opposite end, which is free to slide in fulcrum 21 and permit handle 22 to swing upward with a head 24 having a cup 25 resting upon balls 26 supported by a cone 27, secured to spindle 17 by a transverse pin 28. Head 24 and its cup 25 do not rotate with the spindle 16, but on the contrary are held from rotation by a pair of trunnions 29 projecting laterally from opposite sides of said head 24 and engaged by the bifurcated portions 30 of the feed-lever 20. Feed-lever 20 is held from lateral movement by the bifurcated upper end of a guide 31, fixed to the uppermost bearing 15. Spindle 16 is normally held in raised position by a helical spring 32, interposed between the uppermost bearing 15 and the lower terminal of head 24.

The rotary table 19 is journaled upon a stub-shaft 33 projecting from a cross-head 34 movably-mounted upon a vertical slide-way 35 on frame 1. Cross-head 34 is locked at any point of its adjustment on the slide-way 35 by a screw 36 extending through a vertical slot 37 in frame 1 and provided at its rear end with a pivoted handle 38 whereby it may be turned to loosen or tighten the cross-head. Cross-head 34 is provided at its upper portion with a forwardly-projecting stud 39 adapted to enter any of the holes 40, extending through the rear circular end 41 of the table 19. The rotary table 19 is prevented from accidentally moving forward out of engagement with stud 39 by a helical spring 42 embracing the forward reduced portion of stub-shaft 33, which is provided at its forward end with a head 43, to hold the spring 42 under compression against a washer 44 bearing against the front end of the table 19. Table 19 is provided at its forward portion with a plurality of radial work-holding members 45, equal in number to the holes 40, and of different shape to accommodate various kinds of work.

In practice the spindle 16 is driven at suitable speed and after the table 19 has been adjusted vertically to accommodate the work

to be operated upon, the drill is forced down into engagement with the work by pressing downward upon the feed-lever 20. When the hand-lever is forced downward, friction between the non-rotary head 24 and the rotary spindle 16 is reduced to a minimum by the ball-bearing 26 interposed between said head and spindle. When it is desired to raise the drill 18 from the work, it is only necessary to relieve the feed-lever 20 of downward pressure, so that spring 32 may push spindle 16 upward. When it is desired to bring a different work holding member 45 in position beneath the drill, table 19 is drawn forward against the action of spring 42 until the stud 39 is disengaged. The table is then rotated until the proper work-holding member is brought into position, when the table is released to engage the stud 39, where it is reliably held by the spring 42.

Having thus described my invention what I claim and desire to secure by Letters Patent, is:

25 1. In combination with a frame, a cross-head connected to the frame, a horizontal stub-shaft rigidly carried by the cross-head, a rigid stud carried by the cross-head, a table slidable and rotatable on said stub-shaft and having a series of openings to receive said stud, the forward end of the stub-shaft projecting beyond the front end of the table and having an abutment thereon, and a coil spring surrounding said projecting

end of the stub-shaft and engaging said abutment and the front end of the table. 35

2. In combination with a frame, a cross-head connected to the frame, a rigid horizontal stub-shaft carried by the cross-head, a table slidably and rotatably mounted on the stub-shaft, means between the cross-head and the inner end of the table to lock the latter in various positions to the cross-head, and spring means engaging the outer end of the table to normally hold same against sliding movement. 40 45

3. In combination with a frame, a cross-head connected to the frame, a horizontal stub-shaft rigidly secured at its rear end to said cross-head, a stud rigidly secured to the cross-head and projecting outwardly therefrom, a table slidable and rotatable on said stub-shaft, said table having a rear circular enlarged end having a series of openings to receive said stud, the front end of said stub shaft being reduced in diameter and projecting beyond the front end of the table, a coil spring surrounding the reduced front end of the stub-shaft and engaging the front end of the table, and a head on the extremity of said reduced end of the stub shaft engaging the outer end of said spring. 50 55 60

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

GEORGE R. MELLON.

Witnesses:

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F. G. FISCHER.