

No. 702,217.

**H. R. JACOBS.**

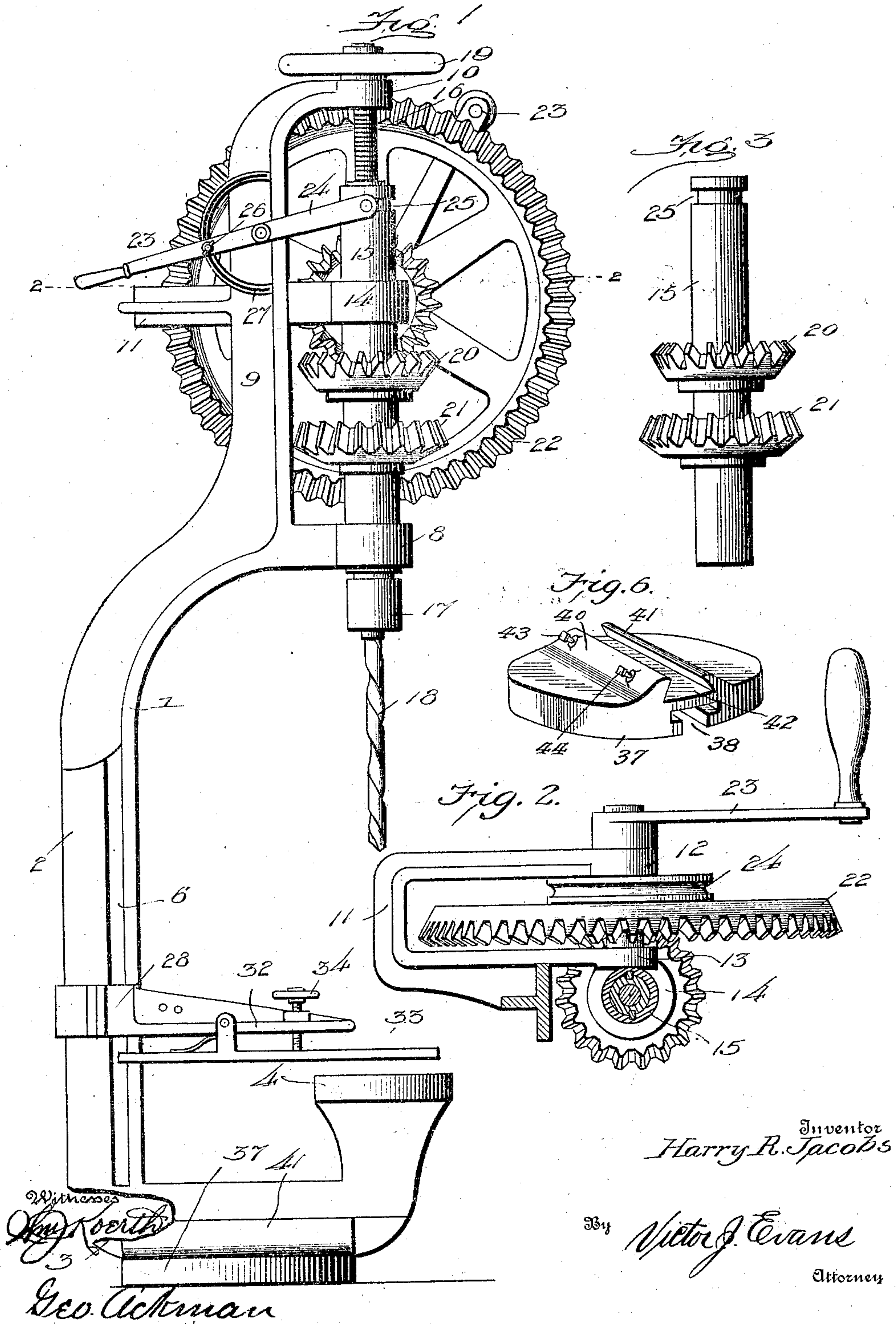
## DRILL.

(Application filed Aug. 17, 1901.)

**Patented June 10, 1902.**

(No Model.)

2 Sheets—Sheet 1.



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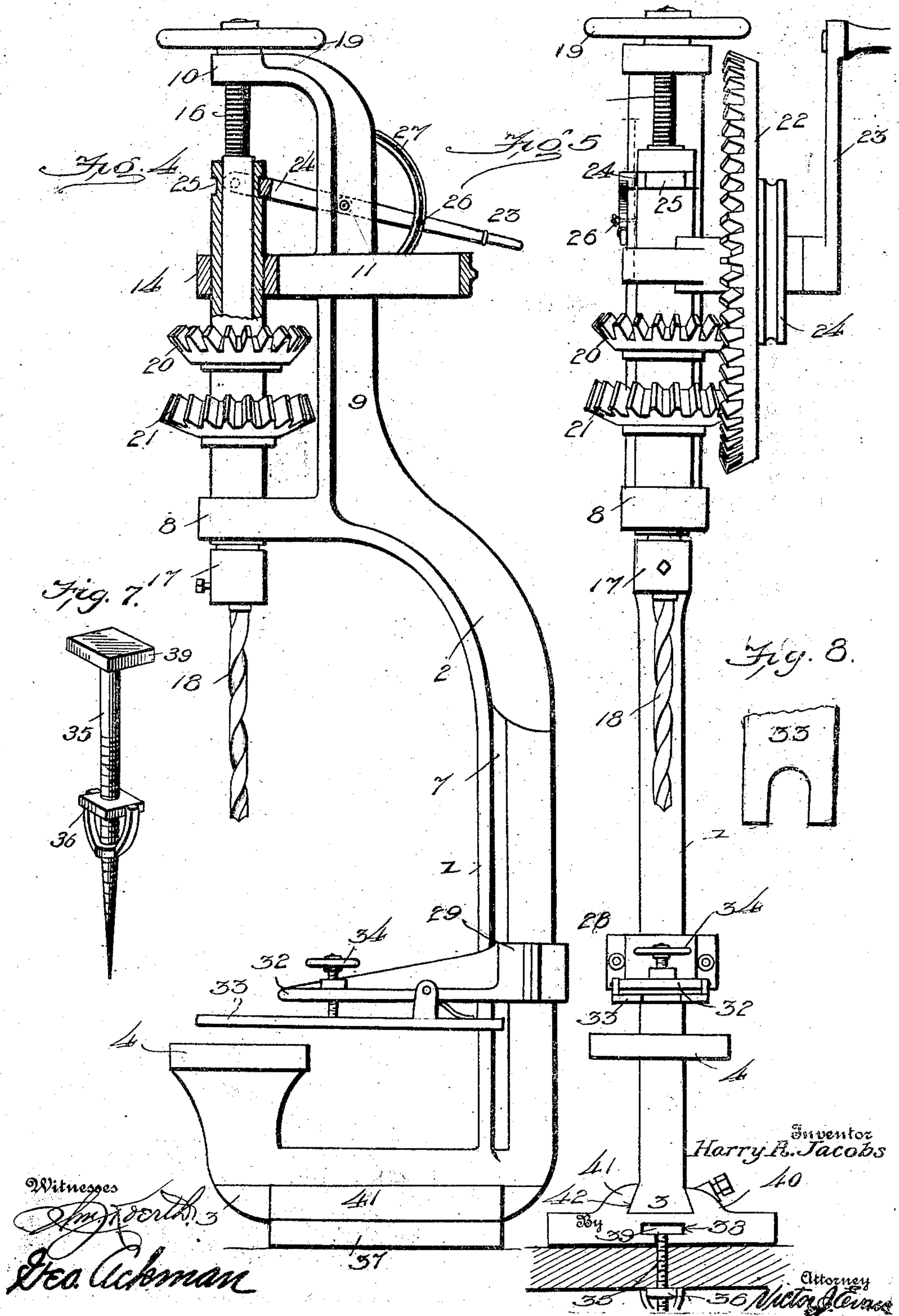
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(Application filed Aug. 17, 1901.)

(No Model.)

2 Sheets—Sheet 2.





# UNITED STATES PATENT OFFICE.

HARRY R. JACOBS, OF CASTLEGATE, UTAH.

## DRILL.

SPECIFICATION forming part of Letters Patent No. 702,217, dated June 10, 1902.

Application filed August 17, 1901. Serial No. 72,416. (No model.)

*To all whom it may concern:*

Be it known that I, HARRY R. JACOBS, a citizen of the United States, residing at and whose post-office address is Castlegate, in the county of Carbon and State of Utah, have invented new and useful Improvements in Drills, of which the following is a specification.

This invention relates to the general class of drills, but more particularly to a drill especially designed for light work, such as is accomplished by jewelers and others doing work of a similar character.

The primary object of the device is to provide a cheap, durable, and efficient portable drill embracing and combining all of the desirable features of the post-drill, the ratchet, and the breast-drill.

A further object is to provide a simple and effective drill-press which may be readily attached and detached from the machine and which may be operated by hand to govern the amount of pressure exerted upon the drill *per se*.

With these objects in view the invention consists in certain novel parts and combinations of parts, all of which will be specifically described hereinafter and recited in the claims.

In order to fully understand the construction of the novel parts of this device, reference should be had to the accompanying drawings, in which—

Figure 1 is a side elevation of a drill constructed in accordance with my invention. Fig. 2 is a sectional view on the line 2 2 of Fig. 1. Fig. 3 is a detail view of the gear-carrying sleeve. Fig. 4 is a side elevation of the frame and drill, the driving-gears being removed. Fig. 5 is a front elevation of the drill complete, partly in section. Fig. 6 is a perspective view of the work-holder. Fig. 7 is a perspective view of a bolt for securing the frame to a support. Fig. 8 is a fragmentary detail view of one end of the guide.

Referring to the drawings by numerals of reference, 1 designates the frame of the drill, which is constructed for and designed to carry the drill mechanism, to be hereinafter described. This frame comprises a standard 2, having a right-angular and laterally-projecting extension or arm 3 at its lower end, car-

rying at its free end a drill-table 4, provided with a central bore. (Not shown.) The base edge of the extension 3 is formed in the shape of a dovetail and is designed to be clamped into a base-plate, to be referred to hereinafter. The standard 1 is T-shaped in cross-section and provided with oppositely-disposed grooves 6 and 7 to receive the edges of the jaws of a work-clamp. The upper extremity of the standard 2 is curved on an arc of a circle and terminates in a perforated bearing or collar 8, concentric with the table 4.

9 designates a secondary standard or extension, which projects from the top of the standard 2 and is also curved to form a bearing or collar 10, concentric with the collar and table above referred to. Secured to the secondary standard and intermediate its ends is a right-angularly-disposed U-shaped extension 11, having bearings 12 and 13 at its extremities for the reception of a horizontal shaft. A collar or bearing 14 is formed at right angles to the bearing 13, and the central perforation is concentric with the bearings 8 and 10, as well as the table 4.

Loosely and revolubly mounted in the bearings 8 and 14 is a sleeve 15, through which projects a threaded drill-feed 16, carrying on its lower end a chuck 17 to receive a suitable drill—as, for instance, one similar to the one designated by the reference-numeral 18. The upper end of the drill-press projects through the bearing or collar 10 and carries on its free end a hand operating-wheel 19, whereby the press and the drill may be fed toward and away from the table 4, as occasion demands.

Suitably spaced apart on the sleeve 15 are two gears 20 and 21. Journaled in the bearings 12 and 13 is a crown-gear 22, having teeth upon its periphery and teeth upon its hub to mesh with the gears 20 and 21 alternately. This gear 22 may be driven by a crank-handle 23 or a pulley 24, according to the power employed. The speed at which the drill travels will be governed according to whether the gear 21 is in mesh with the teeth on the periphery of the crown-wheel 22 or whether the gear 20 is in mesh with the teeth on the hub of said crown-wheel. It should be stated that the sleeve 15 is slidably mounted in the bearings 8 and 14, so that said gears



20 and 21 may be brought into mesh with either set of teeth on the crown-gear desired.

In order to operate the sleeve for the purpose just described, I have provided a pivoted lever 23, secured to the secondary standard 9 and having a bifurcated end 24, which engages a circumferential groove 25 in said sleeve 15, so that by pressing upon the lever the sleeve may be raised or lowered to suit the operator. This lever may be held in its determined adjustment by means of a set-screw 26, which passes through the same and engages a segment 27, carried by the standard 9.

A work-holder is preferably utilized in connection with this device, and it comprises an arm 28, firmly engaging the standard 2. The arm 29 carries an integral support or plate 32, beneath which is pivoted a spring-pressed guide-plate 33, adapted to be adjusted by a set-screw 34, threaded in the support forward of the fulcrum of the guide-plate 33, which is bifurcated at its respective ends to form a guide for the work to be drilled and also to embrace the drill-frame.

35 designates a threaded bolt carrying a loosely-mounted nut 36 on the shank thereof. This bolt is designed to be screwed into the support, so that the base-plate 37 of the same may be fastened by sliding the slotted groove 38 of said plate into engagement with the head 39 of said bolt. The nut 36 will then be screwed up in place and the plate firmly secured to the support. The converging flanges 40 and 41 of said base-plate 37 form a dovetail slot 42 to receive the correspondingly-shaped edge of the extension 3 of the frame 1, and said frame may then be fastened against accidental displacement by the bolts 43 and 44 or by other suitable means. Thus a temporary but firm fastening is provided for the frame.

It will thus be seen that I have provided a cheap, simple, and durable device of the character described which will effectually perform the work for which it is intended, and while I have specifically described in detail what to me at this time appears to be the very best means of accomplishing the desired result I would have it understood that I do not limit myself to the exact details of construction shown, but reserve the right to make such slight changes and alterations as would properly come within the scope of the claims and without departing from the spirit thereof. Having thus fully described my invention,

what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a drill; of a drill-frame comprising a standard, arms projecting from each end of the standard, one of said arms forming a bearing, an extension on the top of the standard, an arm projecting from the top of the extension and having a bearing concentric with the first-named bearing, a right-angular bearing carried by the last-named arm, a U-shaped arm also carried by the last-named arm and having a bearing concentric with the right-angular bearing.

2. A frame for a drill comprising a standard having an arm at its top, an extension at the top of the standard, and provided with bearings concentric with the bearing in the first-named arm, and an extension or arm at the lower end of the standard, a drill-table carried thereby, said extension being formed in the shape of a dovetail in combination with a face-plate being correspondingly grooved to receive the dovetail extension.

3. A frame for a drill comprising a standard having an arm at its top, an extension at the top of the standard, and provided with bearings concentric with the bearing in the first-named arm, and an extension or arm at the lower end of the standard, a drill-table carried thereby, said extension being formed in the shape of a dovetail in combination with a face-plate being correspondingly grooved to receive the dovetail extension, and a threaded bolt adapted to be secured to a suitable support and provided with a head designed to engage the lower face of the base-plate.

4. The combination with a frame; of a work-holder comprising an arm adapted to embrace the said frame, an integral plate carried by said arm and a spring-pressed guide-plate secured to the first-named plate and means for adjusting said guide-plate.

5. A work-holder comprising an arm, an integral plate or support carried by the frame, a pivoted plate carried by the first-named plate, a spring interposed between the two plates and a set-screw carried by the first-named plate for adjusting the guide-plate.

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

HARRY R. JACOBS.

Witnesses:

THOS. W. LEWIS,  
PAUL HUNTEN.