Nov. 11, 1947. D. N. GOLDBERG 2,430,812

STOP FOR ELECTRIC DRILLS

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Fig. 1.

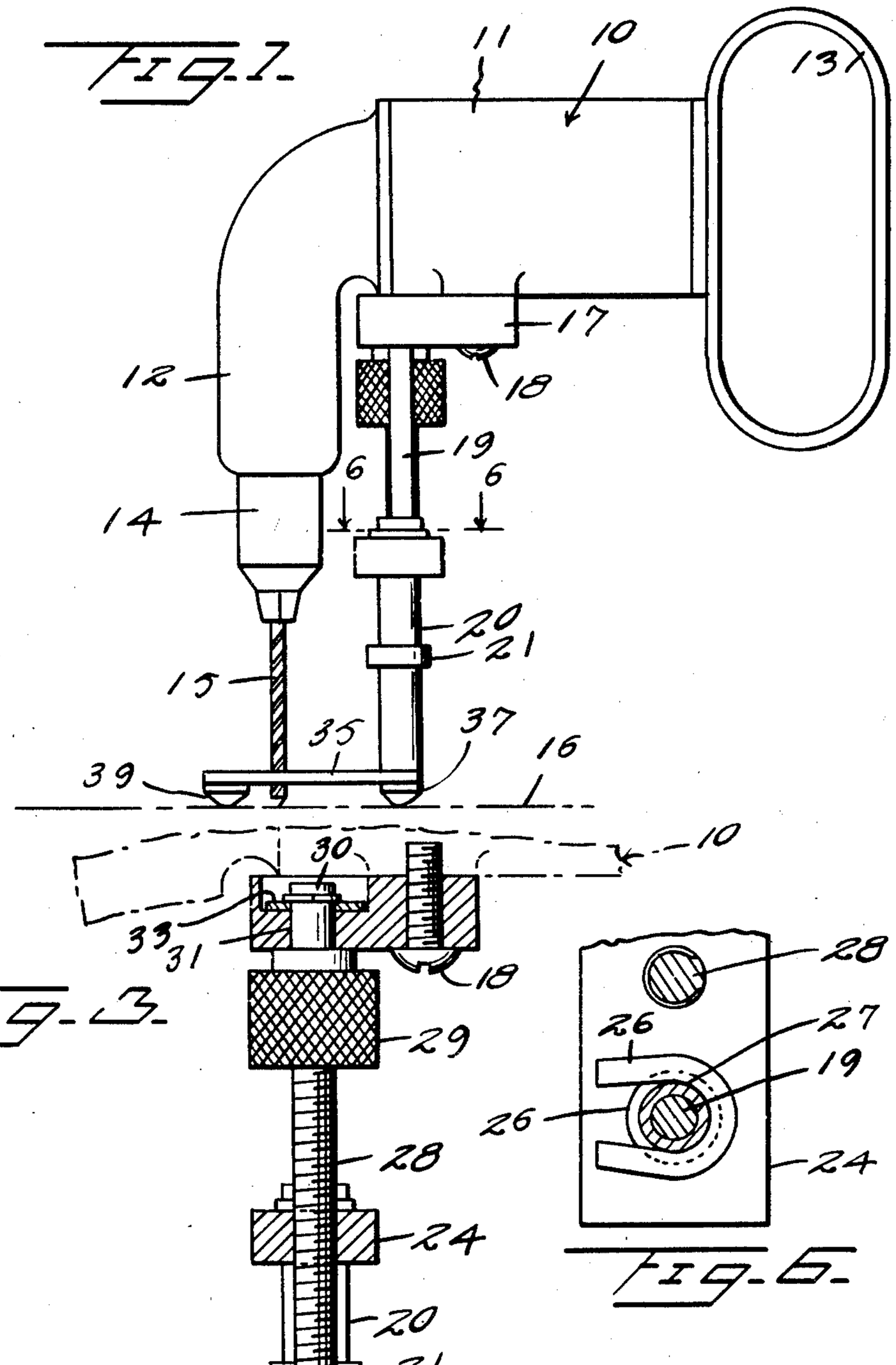

Fig. 3.

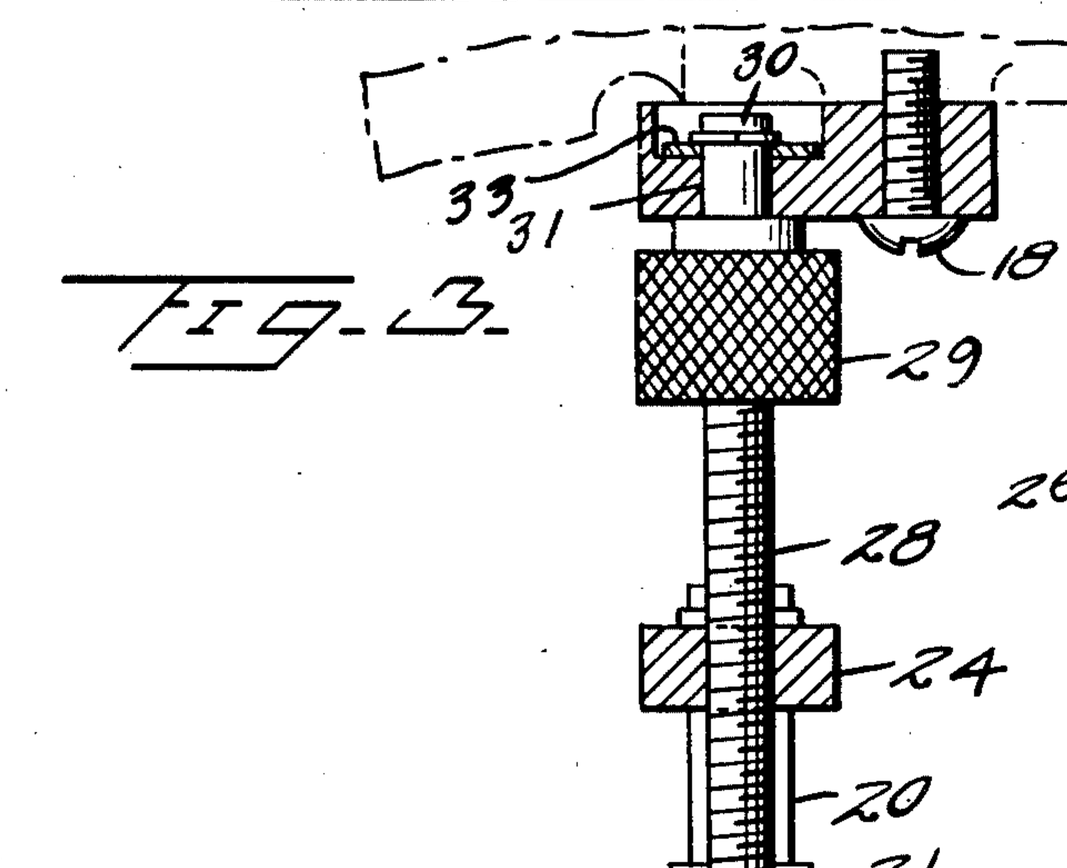

Fig. 6.

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Fig. 4

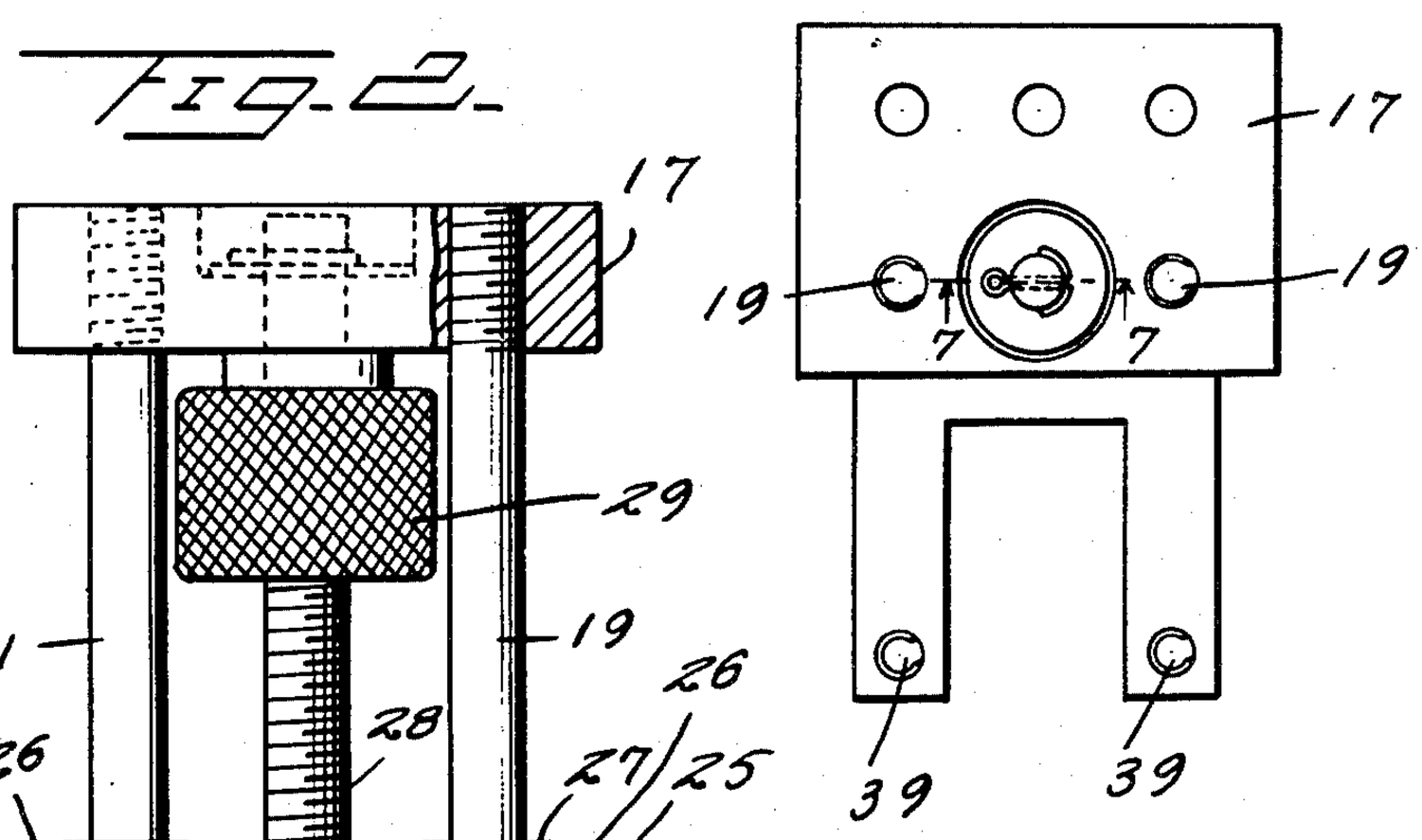


Fig. 2.

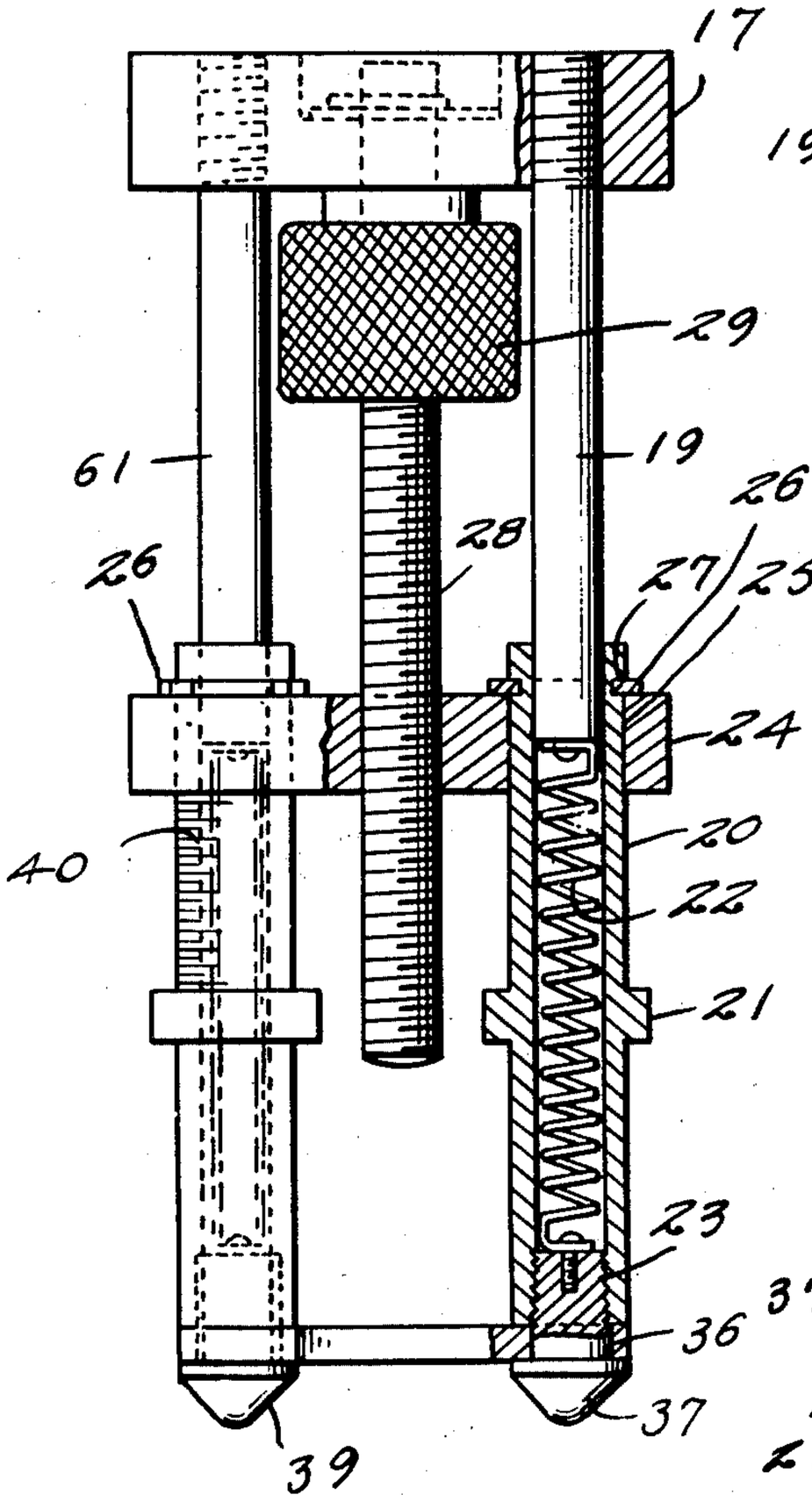


Fig. 5.

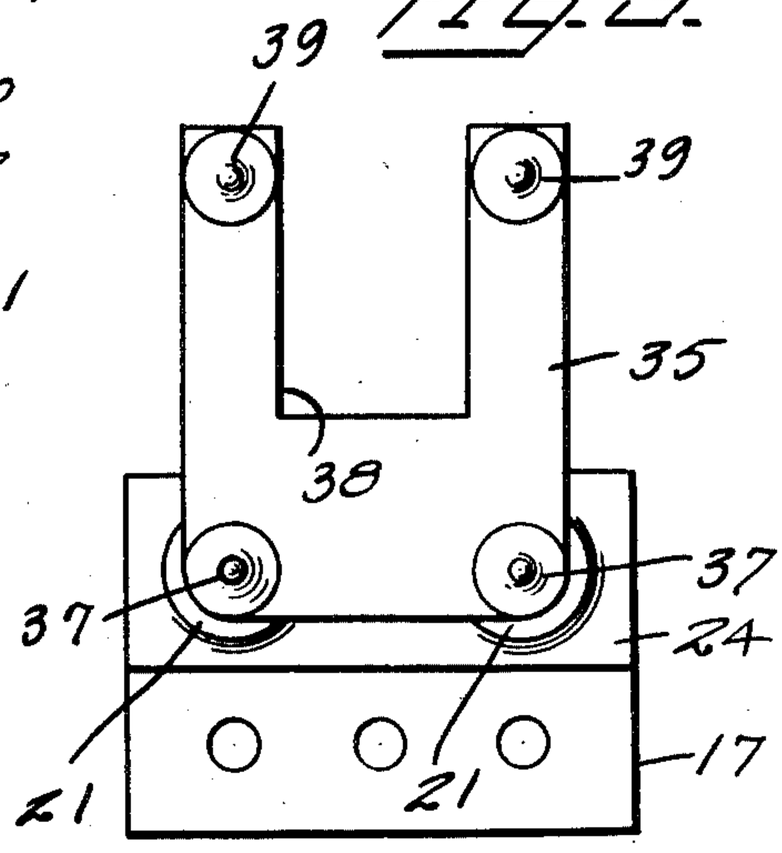
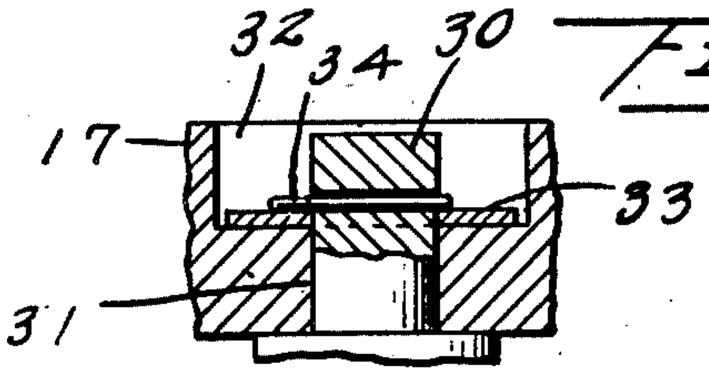


Fig. 7.



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STOP FOR ELECTRIC DRILLS

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Application September 24, 1945, Serial No. 618,297

4 Claims. (Cl. 77—7)

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This invention relates to improvements in hand drills and more particularly to an attachment for a Howard hand drill for limiting the movement of the bit into the work.

An object of this invention is to provide an improved adjustable stop means which may be mounted on a conventional powered hand drill which will provide for limiting the drilling of the bit into the work.

Another object of this invention is to provide an attachment of this kind which can be mounted on the motor housing of a hand drill and disposed in a position to limit the extension of the drill into the work so that holes of desired depth can be drilled accurately with the hand drill.

Another object of this invention is to provide a device of this kind which acts as a steadying means to steady the drill and maintain the drill at right angles to the work.

A further object of this invention is to provide a device of this kind which can be accurately calibrated with respect to the drill so that the movement of the drill into the work will be stopped after a hole of a predetermined depth has been formed.

With the foregoing objects in view, and others which may hereinafter more fully appear the invention consists of the novel construction, combination and arrangement of parts, as will be more specifically described, and illustrated in the accompanying drawings, wherein are shown embodiments of the invention, but it is to be understood that changes, variations and modifications may be resorted to which fall within the scope of the invention, as claimed.

In the drawings:

Figure 1 is a detail side elevation of a hand drill having a stop means mounted thereon, according to an embodiment of this invention.

Figure 2 is a detail rear elevation, partly in vertical section, of the device.

Figure 3 is a detail side elevation, partly broken away, and in vertical section, of the device.

Figure 4 is a detail top plan of the device.

Figure 5 is a bottom plan of the device.

Figure 6 is a fragmentary sectional view taken on the line 6—6 of Figure 1.

Figure 7 is a fragmentary sectional view taken on the line 7—7 of Figure 4.

Referring to the drawings the numeral 10 designates generally a hand drill which includes a motor 11, having a handle 13 extending from the rear thereof, and a housing 12 extends right angularly from the forward end of the motor 10. The housing 12 includes a chuck 14 which is operatively connected through gear means with the motor 11. A drill bit 15 is adapted to be engaged with the chuck 14 for drilling a hole in a workpiece 16.

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In order to provide a means whereby the movement of the drill bit 15 may be limited with respect to the workpiece 16, I have provided a stop means which includes a base plate 17, secured by fastening members 18 to the lower side of the motor 11 and rearwardly of the housing 12. The plate 17 has extending downwardly therefrom a pair of guide bars 19 which may be threaded or otherwise firmly secured to the plate 17 the guide members 19 having slidable thereon tubular members 20. The slide members 20 are each provided with an annular rib 21, between the ends thereof, and a spring 22 is disposed within each slide member 20, and bears at its upper end against a guide member 19. A plug 23 is threaded into the lower end of each slide member 20, and bears against the lower end of the spring 22. A bar 24 is provided with a pair of openings 25 within which the tubular members 20 slidably engage, and the tubular members 20 are limited in their downward movement by means of a U-shaped locking member 26 which engages in an annular groove 27 formed in the tubular member 20, adjacent the upper end thereof.

A locking member 26 is adapted to bear against the upper side of the bar 24 so as to thereby limit the downward movement of the tubular member 20. The bar 24 provides adjustable stop means for limiting the sliding movement of the two tubular members or slides 20, and the bar 24 is adjusted with respect to the base plate 17, by means of a threaded shaft 28. The shaft 28 is disposed between the two guides 19 and is provided adjacent the upper end thereof with a knurled wall 29 by means of which the shaft 28 may be manually rotated.

The shaft 28 is provided with a hand wheel 29 with a stud 30 which is rotatable through an opening 31 formed in the plate 17, and the plate 17 is formed with a recess or counter bore 32 extending downwardly from the upper side thereof. A washer 33 is disposed about the stud 30 in the recess or counter bore 32 and a cotter pin 34 is extended through the stud 30 above the washer 33 so that the shaft 28 will be held against endwise movement and at the same time permitted to freely rotate relative to the plate 17.

A lower plate 35 is disposed at the lower ends of the slide members 20, and is provided with openings 36 through which the plugs 23 engage, and the plugs 23 are provided with pointed heads 37 below the plate 35. The plate 35 is also pro-

vided with a U-shaped cutout 38 which forms an opening through which the drill bit 15 is adapted to loosely extend. The plate 35 is also provided with a pair of feet 39 at the ends of the U-shaped member, formed by the cutout 38, so that the plate 35 will lie flat on the upper surface of the workpiece 16.

In the use and operation of this device the attachment is secured by means of the fastening members 18 to the lower side of the motor 11. The guides 19 are disposed in parallel relation with the longitudinal axis of the drill bit 15, and at a point rearwardly from the drill bit so that the latter may be positioned in the cutout 38, as shown in Figure 3.

The bar 24 is adjusted by the threaded shaft 28, and preferably one of the guide members 20 is formed with graduations 40 which are correlated with the drill bit 15 so that the depth of the opening formed by the bit 15 can be accurately determined. In practice the bar 24 is adjusted so that the zero graduation will appear at the time the drill bit 15 is in contact with the workpiece. The drill may then be moved inwardly of the workpiece to the limit provided by the collar 21. If desired, the drill may be stopped at any point indicated by a selected graduation 40 so that the attachment may provide a guide for the drill, and also serve as a depth gage to indicate the depth of the opening formed by the drill. After the hole has been drilled the springs 22 will assist in removing the drill bit from the opening formed thereby.

The depth gauge also may be used to advantage with conventional electric powered hand drills whose housing 12 and chuck 14 are in a longitudinal line with motor 11 but whose handle 13 extends right angularly from the rest of the drill. Plate 35 is provided with two pair of feet, 37 and 39, of equal length so that the plate 35 will keep the drill or countersink bit at right angles and also act as a steadying table, regardless as to whether workpiece 16 has a flat, concave or convex surface.

What I claim is:

1. In an electric hand drill, a stop for limiting the movement of the drill bit, comprising a base plate adapted for attachment to the hand drill, a pair of guide bars extending from said plate in parallelism with respect to said drill bit, a pair of tubular slide members slidable on said guide bars, a working engaging plate fixed to the outer

ends of said slide members and disposed at right angles thereto, a threaded shaft rotatably carried by said base plate between and parallel to said guide bars, a connecting bar threadable on said shaft loosely engaging said slide members and means limiting the movement of said connecting bar on said slide members.

2. An attachment for a hand drill for limiting the movement of the drill bit into the work, comprising a base plate for attachment to the drill housing, a pair of guide bars carried by said plate disposed in parallel relation to the drill bit, a pair of slide members engaging said guide bars, a work engaging plate fixed to said slide members, a shaft rotatably carried by said base plate, a connecting bar slidably carried by said slide members, means for limiting the movement of said connecting bar on said slide members and means for adjustably securing said connecting bar on said shaft.

3. An attachment as set forth in claim 2, wherein said shaft is threaded and said connecting bar threadably engages said shaft.

4. An attachment for a hand drill for limiting the movement of the drill bit into the work, comprising a base plate for attachment to the drill housing, a pair of guide bars carried by said plate disposed in parallel relation to the drill bit, a pair of slide members engaging said guide bars, a work engaging plate fixed to said slide members, a connecting bar slidable on said slide members, means carried by said slide members for limiting the movement of said connecting member thereon, and a threaded shaft engaging said base plate and said connecting bar for adjustably fixing the distance therebetween.

DAVID N. GOLDBERG.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,590,643	Neuwelt	June 29, 1926
833,001	Press	Oct. 9, 1906
712,367	Dummer	Oct. 28, 1902

FOREIGN PATENTS

Number	Country	Date
557,254	Great Britain	Nov. 11, 1943