

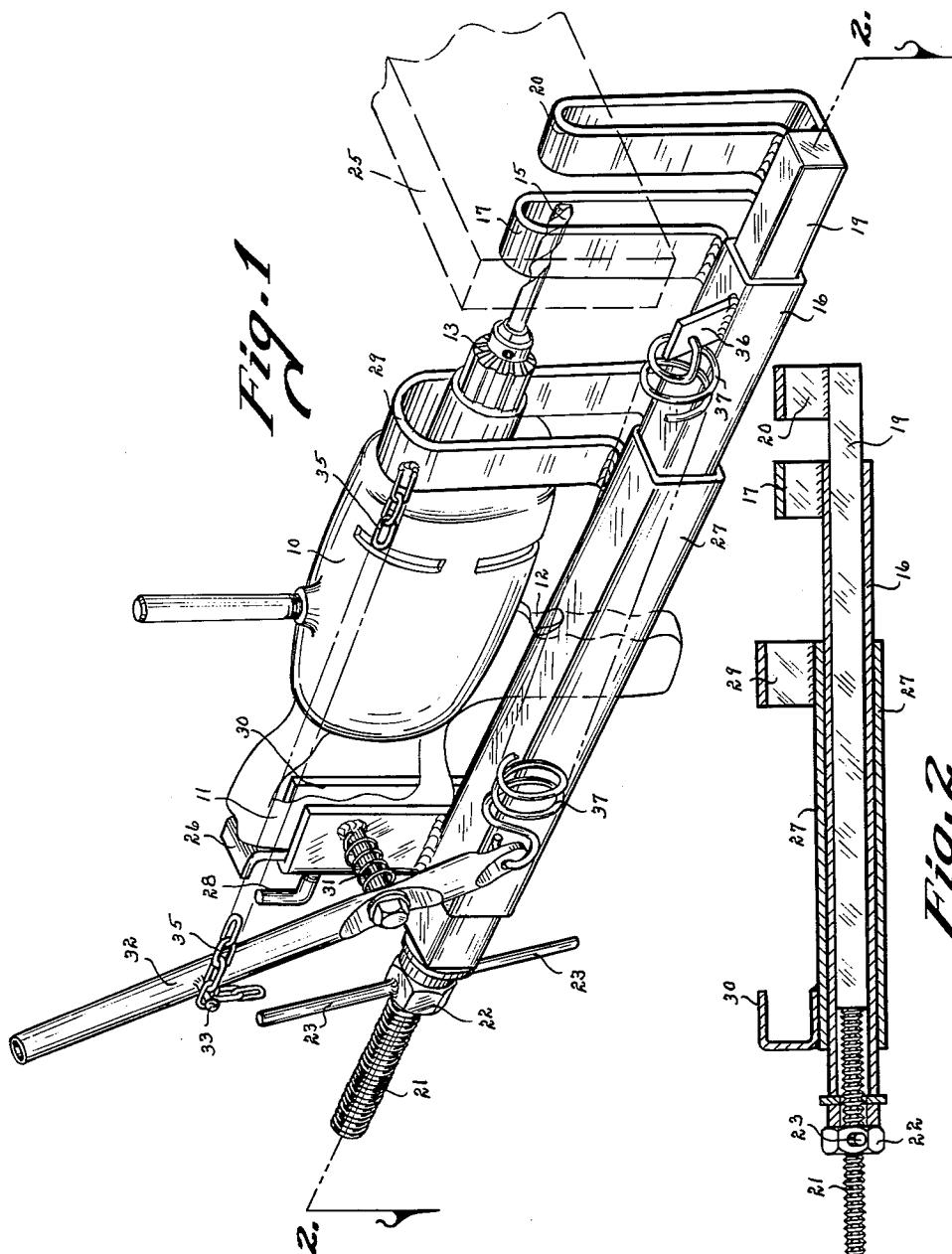
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PORTABLE SELF-DRILLING DEVICE

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1

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PORTABLE SELF-DRILLING DEVICE
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This invention relates to a hole drilling device and more particularly to one that will accomplish the entire drilling phase without attention from the user.

Power drills are very old and usually are in the form of a drill press or electric hand drill. In the case of the drill press, the operator must apply continuous manual pressure on the hand lever to force the drill bit point through the object being drilled. When the hand drill is used, the entire unit is manually forced in a direction toward the hole being bored. Obviously, with either tool the pressure would vary between operators, and furthermore, the pressure would not be uniform or consistent throughout any one drilling operation. Such uneven and uncontrolled pressure on the bit may well burn its point and in any event, shorten its useful life. Furthermore, considerable labor and attention must be given to the drilling phase. A still further objection to the present drilling equipment is that the object to be drilled must be manually held and stabilized during the drilling and this is often difficult and dangerous especially in the matter of small objects.

Therefore one of the principal objects of my invention is to provide a hole drilling device that will automatically exert forward pressure on the drill bit without attention from the user.

A further object of this invention is to provide a drilling device that gives uniform yieldable forward pressure to the bit.

A still further object of this invention is to provide a drilling device that has adjustable yieldable forward pressure on the drill bit.

A still further object of this invention is to provide an automatic drilling device that securely holds the object against movement during the drilling phase.

A still further object of this invention is to provide a hole drilling means that drills a straight hole.

A still further object of this invention is to provide a hole drilling means that does not break the drill bits being used.

A still further object of this invention is to provide an automatic hole drilling device that is portable.

Still further objects of my invention are to provide an automatic hole drilling means that is economical in manufacture and durable in use.

These and other objects will be apparent to those skilled in the art.

My invention consists in the construction, arrangements, and combination, of the various parts of the device, whereby the objects contemplated are attained as herein-after more fully set forth, specifically pointed out in my claims, and illustrated in the accompanying drawings, in which:

FIG. 1 is a front perspective view of my device ready for use; and

FIG. 2 is a longitudinal sectional view of the device taken on line 2-2 of FIG. 1, and more fully illustrates its construction.

As a part of my equipment I prefer to use an ordinary electric hand drill having the usual body housing 10, rear handle 11, switch trigger 12, chuck 13, and forwardly extending drill bit 15. I use the numeral 16 to designate the base portion of my device and which is in the form of an elongated tube rectangular in cross section. The numeral 17 designates an upwardly extending inverted U-shaped post jaw on the forward end of the base 16. The numeral 19 designates a bar, rectangular in cross

2

section and slidable in the tubular base 16. This bar 19 extends forwardly of the base 16, and has on its forward end and beyond the post jaw 17, an upwardly extending inverted U-shaped post jaw 20. The numeral 21 designates a threaded projecting rod on the rear end of the bar 19, and which extends from the rear end of the base 16. The numeral 22 designates a nut threaded on the rear area of the rod 21. This nut has radial handles 23 and operatively bears on the rear end of the base 16 as shown in FIG. 2. The two jaw posts 17 and 20, each has its openings extending longitudinally of the base 16 for receiving the drill bit 15. When an object, such as 25, is to be drilled it is placed between the two post jaws, as shown in FIG. 1, and the nut 22 rotated to the right, thereby bringing the post jaw 20 rearwardly toward the post jaw 17, and thus rigidly clamping the object between the two post jaws. Slidable on the base 16 is an outer tube sleeve 27 rectangular in cross section. The numeral 29 designates an upwardly extending inverted U-shaped post on the forward end of the tube sleeve 27. On the rear end of the tube sleeve 27 is a vertical forwardly extending U-shaped bracket 30. When securing the hand drill to my frame means, the handle 11 is placed in the bracket 30 and the drill bit 15 and chuck 13 are extended through the inverted U-shaped post 29 as shown in FIG. 1. The hand drill is rigidly held in place by a plate 26 at the rear of its handle which is engaged by a hand rod 28 threaded through the back of the bracket 30.

Extending horizontally from the bracket 30 is a shaft 31. Rotatably secured to this shaft between its two ends is a hand lever 32. Near the upper end of the lever 32 is a hook peg 33. The numeral 35 designates a chain length having its forward end secured to the post 29 and certain of its links selectively detachable in the hook peg 33. The numeral 36 designates a lug on the forward end of the base 16. The numeral 37 designates a coil spring having one end secured to the lower end of the lever 32 and its other end secured to the lug 36.

The practicable operation of the device is as follows: With the object to be drilled secured between the two jaw posts, with the hand drill secured in the frame, and with the chain detached from hook peg 33, the tube sleeve carrying the hand drill may be slid forwardly or rearwardly on the base 16. By manually moving the upper end of the hand lever forwardly, the coil spring will yieldingly slide the tube sleeve and hand drill toward the object to be drilled. The further the hand lever is moved forwardly, the greater the coil spring will be extended and thus the greater will be the yieldable force for moving the hand drill toward the object to be drilled. This adjustment of the tension of the coil spring adjusts the relative forward pressure on the drill bit, and this selected yieldable force continues throughout the drilling phase. After the proper pressure force has been selected, the appropriate link of the chain is placed around the hook peg as shown in FIG. 1. With the electric hand drill switch turned on, the drill will complete the drilling operation automatically without further attention from the user. After the hole has been drilled, the chain is unhooked, the drill slid rearward, and the drilled object removed. The coil spring will provide adjustable uniform yieldable force for moving the drill bit forwardly. If the object to be drilled is rigidly supported, such as a beam, the tightening of the two jaw posts thereon will detachably rigidly secure my entire unit onto the beam, or like. My device will operate in almost any position, i.e., upside down, right side up, vertically, or horizontally.

Some changes may be made in the construction and arrangement of my portable self-drilling device without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims, any

modified forms of structure or use of mechanical equivalents which may be reasonably included within their scope.

I claim:

1. In a hole drilling device, a tubular base, a bar slidably mounted in said tubular base, a post jaw on said tubular base, a post jaw on said bar, means for mechanically sliding said bar in one direction relative to said tubular base, a sleeve slidably embracing said tubular base, a power drill on said sleeve, a lever operatively hinged between its two ends to said sleeve, means for adjustably connecting the upper free end area of said lever to said sleeve against movement in at least one direction, and a coil spring having one end connected to said tubular base and its other end connected to the lower free end of said lever.

2. In a hole drilling device, a tubular base rectangular in cross section, a bar rectangular in cross section slidably mounted in said tubular base, a post jaw on said tubular base, a post jaw on said bar, means for mechanically sliding said bar in one direction relative to said tubular base, a sleeve rectangular in cross section slidably embracing said tubular base, a power drill on said sleeve, a lever operatively hinged between its two ends to said sleeve, means for adjustably connecting the upper free end area of said lever to said sleeve against movement in at least one direction, and a coil spring having one end connected to said tubular base and its other end connected to the lower free end of said lever.

3. In a hole drilling device, a tubular base, a bar slidably mounted in said tubular base, an inverted U-shaped post jaw on said tubular base, an inverted U-shaped post jaw on said bar, means for mechanically sliding said bar in one direction relative to said tubular base, a sleeve slidably embracing said tubular base, a power drill on said sleeve, a lever operatively hinged between its two ends to

said sleeve, means for adjustably connecting the upper free end area of said lever to said sleeve against movement in at least one direction, and a coil spring having one end connected to said tubular base and its other end connected to the lower free end of said lever.

4. In a hole drilling device, a tubular base, a bar slidably mounted in said tubular base, a post jaw on said tubular base, a post jaw on said bar, means for mechanically sliding said bar in one direction relative to said tubular base, a sleeve slidably embracing said tubular base, a power drill on said sleeve, a lever operatively hinged between its two ends to said sleeve, link chain means for adjustably connecting the upper free end area of said lever to said sleeve against movement in at least one direction, and a coil spring having one end connected to said tubular base and its other end connected to the lower free end of said lever.

5. In a hole drilling device, a tubular base, a bar slidably mounted in said tubular base, a post jaw on said tubular base, a post jaw on said bar, threaded nut means for mechanically sliding said bar in one direction relative to said tubular base, a sleeve slidably embracing said tubular base, a power drill on said sleeve, a lever operatively hinged between its two ends to said sleeve, means for adjustably connecting the upper free end area of said lever to said sleeve against movement in at least one direction, and a coil spring having one end connected to said tubular base and its other end connected to the lower free end of said lever.

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