ACCESSORY FOR A DRILL OR THE LIKE

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ACCESSORY FOR A DRILL OR THE LIKE
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Filed June 1, 1959, Ser. No. 817,345
1 Claim.
(Cl. 175—211)

The present invention relates to drills and more particularly to drills wherein a hammering force is combined with rotary movement of the drill bit to make holes in cement for the reception of anchor bolts. Such drills are commonly used in the installation of seating for theaters, stadiums and the like having cement floors or risers, but they may have many other applications.

Among the problems encountered in the use of such drills are the accumulation of cement dust in and around the holes being drilled. Such dust within the holes dulls the drill bit during the drilling operation, and also interferes with the installation of the anchor bolts within the holes. There is also a problem of cleaning up the accumulation of dust on the floor of the theater or other structure after the seating has been installed. The object of this invention, therefore, is to provide an accessory for such drills which eliminates these dust problems, thus prolonging the life of the drill bits used, thus facilitating installation of the anchor bolts and thus eliminating the troublesome cleaning-up of the cement dust after the installation has been made. A further object of the invention is to provide an accessory for a drill which automatically gauges the depth of the holes being drilled.

An illustrative embodiment of the invention is shown in the accompanying drawings, wherein:

FIGURE 1 is a perspective view of a drill having the new accessory mounted thereon, the drill here being illustrated in use;

FIGURE 2 is a perspective view of the new accessory per se;

FIGURE 3 is a fragmentary side elevational view of the lower part of the drill with the new accessory mounted thereon;

FIGURE 4 is a horizontal sectional view of parts thereof taken on line 4—4 of FIGURE 3;

FIGURE 5 is a horizontal sectional view of other parts thereof taken on line 5—5 of FIGURE 3;

FIGURE 6 is a fragmentary vertical sectional view taken on line 6—6 of FIGURE 5; and

FIGURE 7 is a sectional view similar to FIGURE 6 but showing certain parts in different positions which they occupy just prior to completion of the drilling of a hole.

Referring now in detail to these drawings, the drill shown in FIGURE 1 generally comprises a handle 10, a power section 11, a generally cylindrical shank 12, and a drill shaft 13 extending from the power section 11 whereby the shaft is driven, through the shank 12 and projecting outwardly therefrom. A drill bit 14 is seated in a socket 15 in the outer end of the drill shaft 13, and when the drill is in operation the power section 11 imparts to the drill bit 14 both a rotating movement and a hammering action. Electric current is supplied through a conduit 16 to the power section 11 from a suitable source, not shown.

The new accessory is secured to the drill by means of a clamp 17 having a collar portion 18 adapted to fit around the shank 12 of the drill, and flanges 19 which may be drawn together by means of a bolt 20 having a nut 21 to securely mount the accessory on the drill. Three radially spaced arms 22 are secured as by welding to the outside of the clamp's collar portion 18 and extend outwardly therefrom, terminating near the outer end of the drill shaft 13 and the inner end of the drill bit 14.

A sleeve 23 is secured to the outer ends of the arms 22 as by welding, and this sleeve 23 surrounds the drill bit 14 but terminates short of the outer end of said bit. A circular plate 24 is welded to the inner end of the sleeve 23 and extends laterally therefrom. This plate 24 has a central opening 25 through which passes the drill bit 14, three other openings 26 through which pass the arms 22, and four other openings 27 constituting guide holes for the hereinafter mentioned guide rods 29.

A hood 28 is slidably mounted on the outer end of the sleeve 23 and this hood 28 surrounds the outer end portion of the drill bit 14. Guide rods 29 are secured to the hood 28 as by welding and extend inwardly therefrom through the guide holes 27 in the plate 24. On the inner end of one of these guide rods 29 there is threaded a stop nut 30 and a lock nut 31, said stop nut 30 serving to limit the outward sliding movement of the hood 28 on the sleeve 23.

At one side of the sleeve 23 there is an opening 32 therethrough and a tube 33 is secured as by welding to the sleeve 23, surrounding the opening 32. The hose 34 of a conventional vacuum cleaner 35 is connected to the tube 33 so that when the vacuum cleaner 35 is energized through an electrical conduit 36 from a suitable source, not shown, a suction is created in the sleeve 23 and cement dust is removed therefrom through tube 33, hose 34 and into the collecting bag 37 of the vacuum cleaner during the drilling operation.

At the start of the drilling operation the parts occupy the positions shown in FIGURE 6. Stop nut 30 maintains hood 28 slightly above the floor so that the drill bit can be accurately located. As the drilling progresses the hood 28 contacts the floor and surrounds the hole being drilled, so that all of the dust is removed from in and around the hole by the vacuum cleaner. When the outer end or bottom of sleeve 23 contacts the surface of the cement 38 being drilled, as it is about to do in FIGURE 7, the drill is stopped, and thus the new accessory also serves as a depth gauge for the holes being drilled. The depth of holes to be drilled can be adjusted by vertically adjusting the position of the clamp 17 on the drill's shank 12 prior to tightening the clamp.

It will thus be seen that the invention provides a new and useful accessory for a drill or the like, and while but one specific embodiment of the invention has been herein shown and described it will be understood that numerous details thereof may be altered or omitted without departing from the spirit of the invention as defined by the following claim.

I claim:

An accessory for a drill or the like having a generally cylindrical shank, a drill shaft extending through the shank and projecting therefrom, said drill shaft being rotatably mounted in said shank, means for rotating said shaft, and a drill bit at the projecting outer end of said shaft, said accessory comprising: a clamp adapted for clamping around said shank in vertically adjusted position thereon; radially spaced arms connected to the clamp and extending outwardly therefrom and terminating near
the outer end of the drill shaft and the inner end of
the drill bit; a sleeve rigidly secured to the outer ends
of said arms and surrounding the drill bit but terminating
short of the outer end of said bit, the outer end of said
sleeve being adapted to contact the surface of the drilled
material so as to limit the depth of the drilled holes;
a plate secured to the inner end of said sleeve and ex-
tending laterally therefrom and having guide holes there-
in; a hood slidably mounted on the outer end of said
sleeve and surrounding the outer end portion of the drill
bit; guide rods secured to said hood and extending in-
wardly through said guide holes for sliding movement
therein; stop means on the inner end of one of said rods
for limiting outward sliding movement of the hood on
said sleeve; and suction means communicating with the
interior of said sleeve for collecting dust created during
a drilling operation.

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