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ATTACHMENT FOR DRILL

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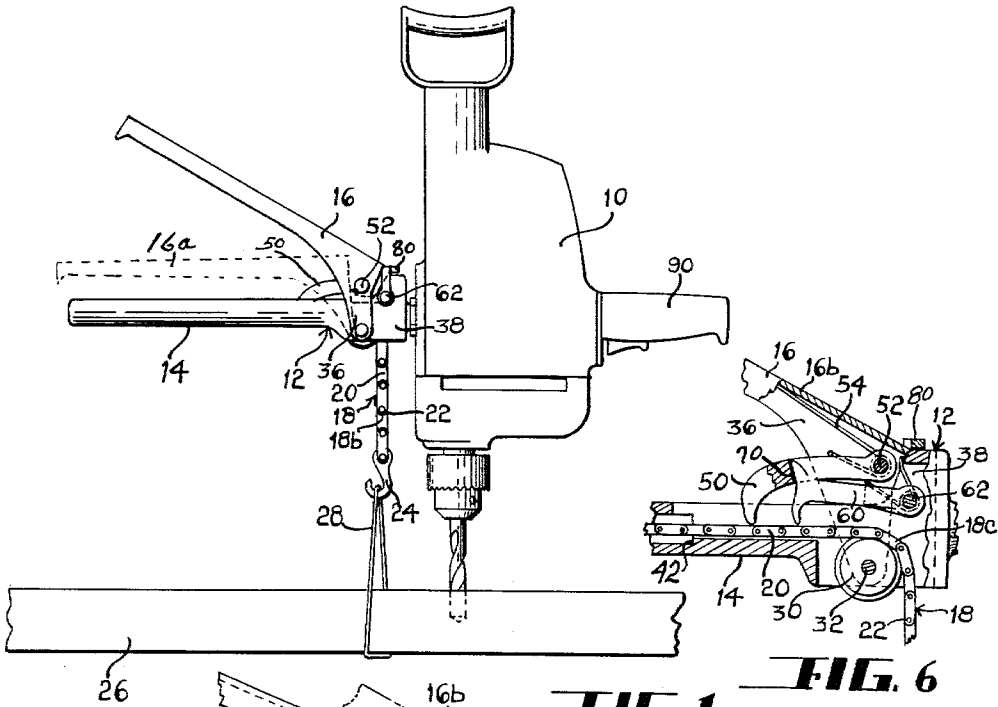


FIG. 1

FIG. 6

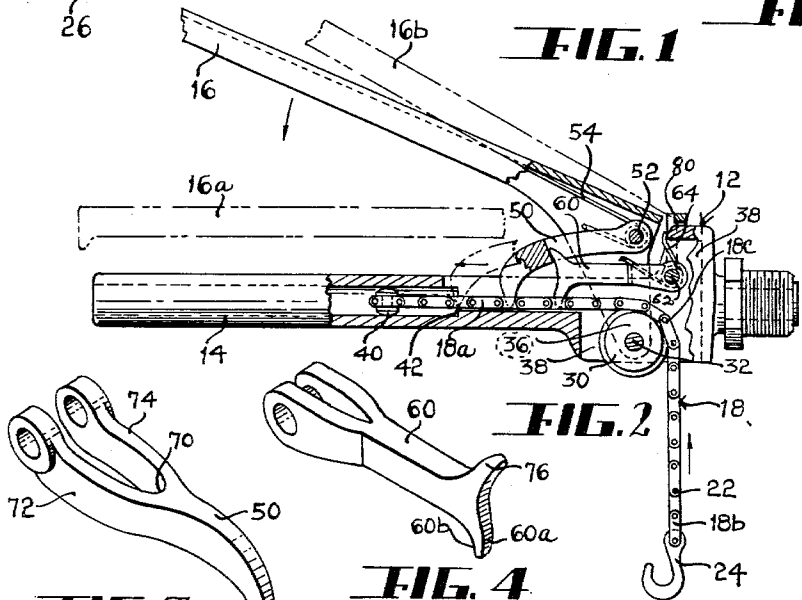


FIG. 2

FIG. 3

FIG. 4

FIG. 5

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ATTACHMENT FOR DRILL

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2 Claims. (Cl. 77-14)

This invention relates to an attachment for a portable electric hand drill, the attachment being adapted for use in exerting pressure on the drill against the work, although the adaptation of the attachment is not necessarily limited to hand drills.

This invention is an improvement upon the disclosure in my Patent No. 2,827,807, patented March 25, 1958.

An object of this invention is to provide an attachment wherein a flexible member is used as a ratchet for an attachment used in forcing a drill in an electric drill towards the work. This has been accomplished by the use of a link chain as a ratchet bar in a tubular handle member, the chain being actuated by a pawl mechanism associated with the tubular handle member used in forcing the drill into the work to be drilled.

Other objects and advantages reside in the construction of parts, the combination thereof, the method of manufacture and the mode of operation, as will become more apparent from the following description.

In the drawings, FIGURE 1 is a side elevational view of a portable electric drill provided with an attachment for exerting force against the drill into the work.

FIGURE 2 is a side elevational view of the attachment showing parts in section and broken away to disclose the operating mechanism.

FIGURE 3 is an enlarged view of an actuating pawl.

FIGURE 4 is an enlarged, perspective view of the arresting pawl.

FIGURE 5 is a perspective view of a locking member for locking the actuating lever against the side of the tubular handle.

FIGURE 6 is a fragmentary view of the pawl mechanism, the handle and the actuating lever, with parts broken away and in section.

Referring to the drawing in detail, FIGURE 1 illustrates a conventional pistol type electric hand drill 10 to which the attachment which is the subject matter of this invention is attached.

The attachment shown herein consists of a tubular member adapted to be substituted for one of the usual handles used on electric hand drills. The tubular handle is provided with an enlarged head portion, provided with a pair of oppositely disposed slots or openings, one on top of another below, as viewed in FIGURES 2 and 6. A roller or pulley is rotatably mounted in the lower opening and has a chain, such as a bicycle chain, trained over it, so that one end extends into the tubular handle and the other end projects outwardly at right angles to the handle and in a direction parallel to the drill. A suitable attaching device is used in attaching the outer end of the chain to the work to be drilled. The drill is forced against the work to be drilled by a lever and pawl mechanism, as will appear more fully in the following detailed description.

The attachment 12 comprises the tubular handle portion 14, an actuating lever 16 and a chain 18. The chain 18 may be a bicycle type of chain, having longitudinally extending link members 20 pivotally attached together by transverse bars 22. The chain 18 may be selectively drawn into and released from the handle portion 14. The outer end of the chain 18 is provided with a hook 24 adapted to engage suitable means surrounding or engaging the work 26 to be drilled. In FIGURE 1, a cable 28 has been used for the purpose of illustration. Instead of a cable, a chain like that disclosed in my Patent No.

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2,827,807 may be used, or any other suitable means for attaching the hook 24 to the work.

As best seen in FIGURES 2 and 6, the chain 18 passes over a roller or pulley 30 rotatably mounted upon a transverse pin 32 functioning as an axle for the pulley 30, as a pivotal mounting for the bifurcated end 36 of the lever 16 and passing through suitable apertures in the head-like portion 38 integral with the tubular handle portion 14. The portion 18a of the chain 18 located in the tubular handle portion 14 extends at right angle to the portion 18b of the chain that normally extends parallel to the drill. The intermediate portion 18c of the chain passes over the pulley 30. As clearly shown in FIGURE 2, the innermost link of the chain supports an arresting member 40 which may be a rivet having the ends upset and adapted to engage the shoulders 42 in the tubular handle portion 14. This limits the outward movement of the chain.

An arresting pawl 50 is pivotally attached at 52 to the furcations 36 of the lever 16. A spring 54 is used to bias the chain engaging end of the pawl 50 into the position shown in FIGURE 2 and to bias the lever 16 away from the handle 14. An arresting pawl 60 is pivotally mounted at 62 to the enlarged head-like portion 38 of the tubular handle portion 14. A spring 64 is used to bias the arresting pawl 60 into the position shown in FIGURE 2. As can best be seen in FIGURE 4, the pawl portion 60a is provided with an inclined surface 60b on the under side thereof, so that as the lever 16 is actuated from the full line position shown in FIGURE 2 into the dot-dash position 16a, the pawl 60 actuates the chain to the left, as shown in FIGURES 2 and 6. The arresting pawl will be moved upwardly out of engagement with the cross bar 22 and by the time the lever 16 is in the dot-dash position 16a, the pawl 60 has dropped into a succeeding opening in the chain, permitting the lever 16 to be actuated by the spring 54 from the dot-dash position 16a in FIGURE 2 back into the full line position without the chain being retracted. The lever 16 and the handle portion 14 may be conveniently grasped by a hand, so as to move the lever 16 towards the dot-dash position 16b and the spring 54 actuating the lever back into the full line position cyclically, to thereby continue forcing the rotating drill into and through the work piece. After the hole has been drilled, it is necessary to release the chain 18 so that it may be withdrawn. This is accomplished by actuating the lever 16 into the dot-dash position 16b shown in FIGURE 6 and the full line position shown in FIGURE 6. The pawl 50 has a bight 70 formed between the furcations 72 and 74. This bight engages the upwardly directed prong 76 integral with the arresting pawl 60 to raise the arresting pawl out of engagement with the chain 18, as clearly shown in FIGURE 6, at which time the chain, of its own weight, may move to the right, as viewed in FIGURE 2, until the arresting member 40 engages the shoulder 42. The drill may then be reset for drilling another hole.

When not in use, a latch member 80, straddling the enlarged head portion 38 of the tubular handle portion 14, may be moved from the full line position shown in FIGURE 1 to the dot-dash position shown in this figure, holding the handle in a dot-dash position 16a shown in FIGURE 1 for convenience in carrying the drill from place to place or when the drill is in storage. This attachment may be substituted for a handle normally mounted opposite the handle 90 of the drill. This handle is usually screwed into the housing of the electric motor driving the drill. The attachment is secured into position in the threaded hole vacated by the handle usually supplied by the manufacturer.

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Although the preferred embodiment of the device has been described, it will be understood that within the purview of this invention various changes may be made in the form, details, proportion and arrangement of parts, the combination thereof and mode of operation, which generally stated consist in a device capable of carrying out the objects set forth, as disclosed and defined in the appended claims.

Having thus described my invention, I claim:

1. An attachment for a portable hand drill having an electric motor mounted in a motor housing including a tubular handle portion attachable to one side of the motor housing and adapted for use in holding the hand drill, said handle portion having an opening in the wall thereof and near the motor housing, a link chain passing through the opening in the tubular handle portion, said link chain having transverse bars, the outer end of the chain extending along the side of the motor housing and parallel to and in the direction of the drill, the portion of the chain within the tubular handle portion extending

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substantially at a right angle to the portion of the outer end of the chain, roller means for supporting the portion of the chain connecting the outer portion thereof to the inner portion thereof, a lever pivotally attached to the handle portion and ratchet means engaging the transverse bars of the link chain to draw the chain step by step into the handle portion upon the lever being reciprocated, and means for connecting the chain to the work to be drilled so that as the lever is actuated the drill is drawn toward the work,

2. An attachment according to claim 1, wherein the inner end of the chain is provided with a chain arresting member engaging an abutment in the handle portion to prevent withdrawal of the entire chain when withdrawing the chain from the tubular handle portion.

No references cited.

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