March 24, 1931. B. E. PARK ET AL 1,797,361

ATTACHMENT FOR PORTABLE DRILLS

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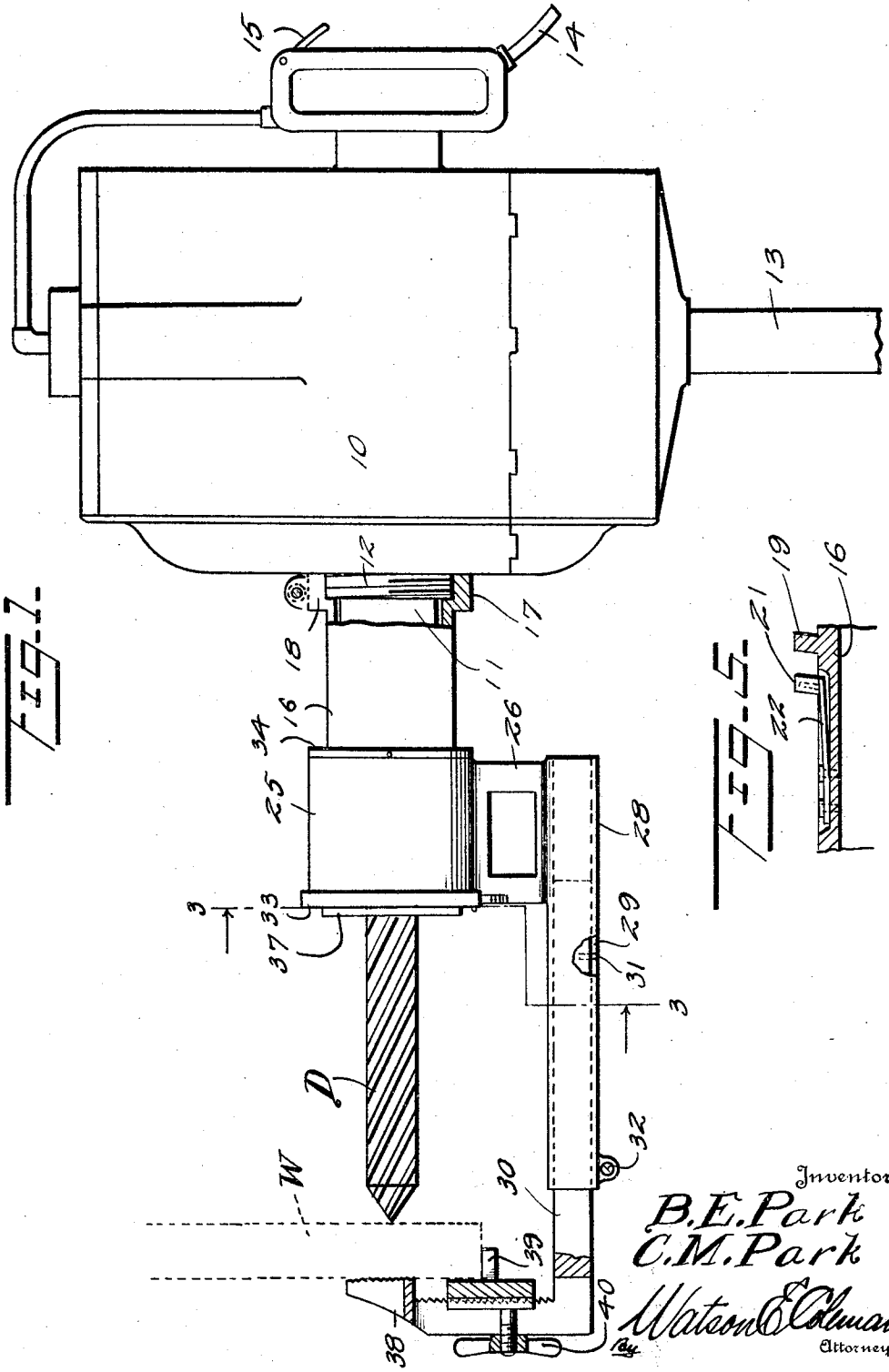


Fig. 1.

Fig. 5.

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FIG. 4.

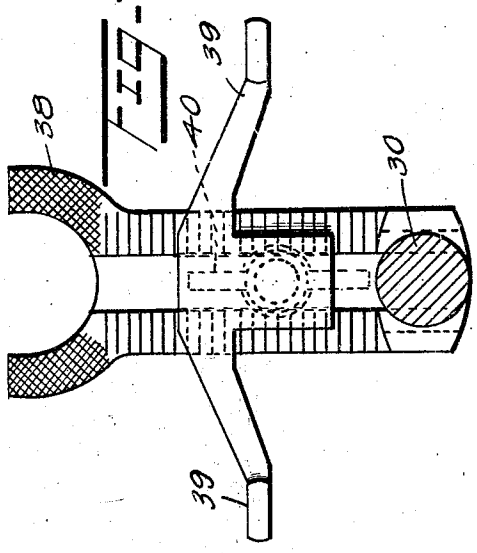


FIG. 2.

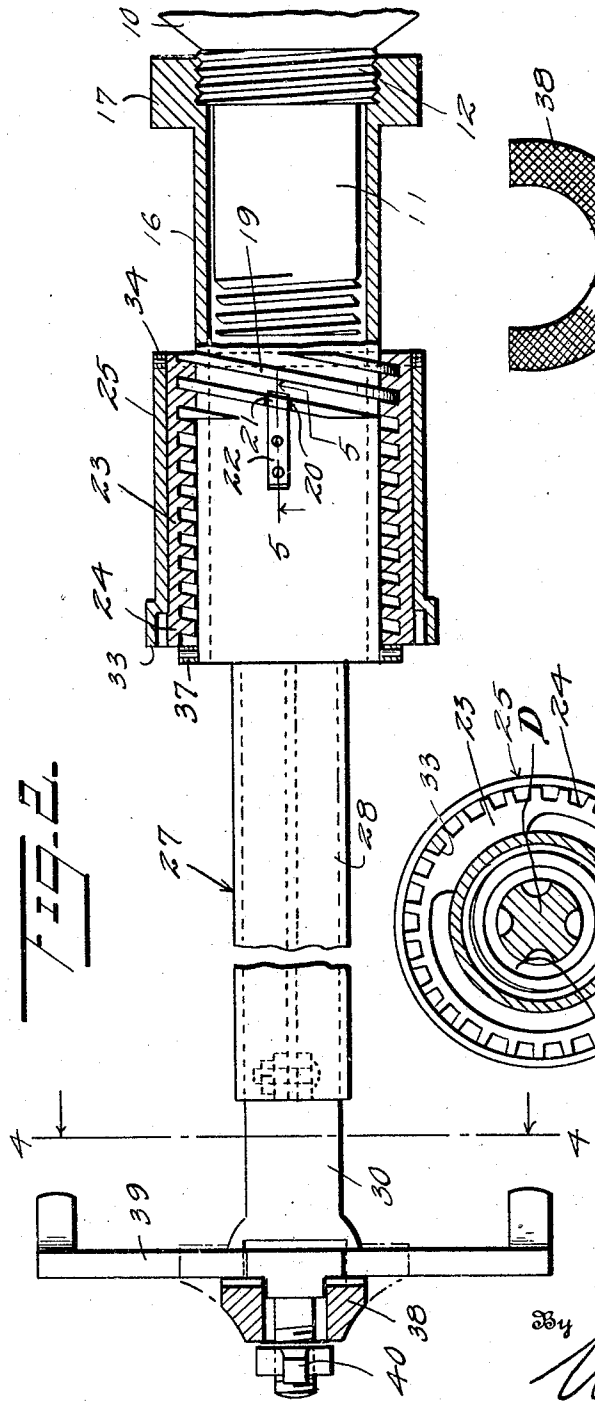
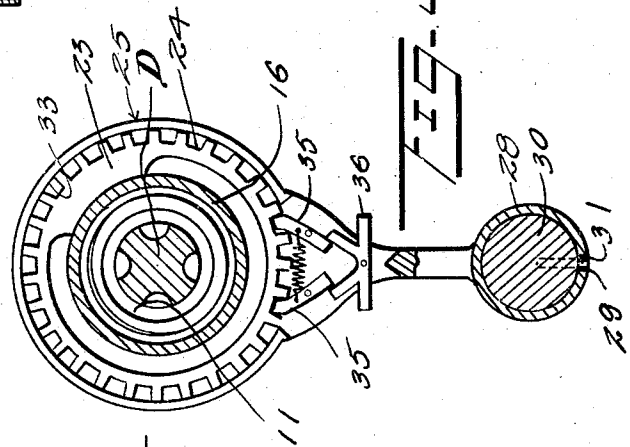


FIG. 3.



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UNITED STATES PATENT OFFICE

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ATTACHMENT FOR PORTABLE DRILLS

Application filed January 24, 1928. Serial No. 249,138.

This invention relates to attachments for portable drills and more particularly to a substitute for the fixture employed with such drills for holding work and usually designated as "old man."

An important object of the invention is to provide a device which is attached to and supported by the drill which provides means for maintaining the drill motor in fixed relation to the work and additionally provides means for advancing the motor toward the work upon the axis of the drill.

A still further object of the invention is to produce a device of this character which may be attached to the drill motor without altering the construction at present employed therein, and which may be employed both to advance the drill for engagement with the work and to withdraw the drill from the work.

A still further object of the invention is the production of a device of this character which provides an adjustable gauge adapted to abut the element to be drilled and fix the position of the drill with relation to one edge thereof.

These and other objects we attain by the construction shown in the accompanying drawings, wherein for the purpose of illustration is shown a preferred embodiment of our invention and wherein:—

Figure 1 is a side elevation partially in section showing an attachment constructed in accordance with our invention applied to the drill;

Figure 2 is a longitudinal sectional view through the attachment;

Figure 3 is a section on the line 3—3 of Figure 1;

Figure 4 is a section on the line 4—4 of Figure 2;

Figure 5 is a detail sectional view on the line 5—5 of Figure 2.

Referring now more particularly to the drawings, the numeral 10 indicates the casing of what may be either an air or electric drill and 11 the drill spindle thereof. The casings 10 of such devices are usually provided about the spindle with a projecting exteriorly threaded boss 12 normally receiving a knurled cap (not herein shown). These casings are further provided with a handle 13 for convenience in rotating the casing as a unit about the axis of the drill. In the present instance, the casing is shown as that of an air motor and is provided with a holding handle 14 having the usual conveniently arranged trigger 15 for controlling the flow of air to the motor.

In accordance with our invention, we provide a tubular housing 16 adapted to fit about the motor spindle and having at its end an enlarged interiorily threaded portion 17 adapted to engage the boss 12 and split, so that it may be clamped thereon, as indicated at 18. This housing is provided exteriorly intermediate the ends thereof with a short left hand threaded section 19. One of the threads of this threaded section is interrupted, as indicated at 20, and the gap formed is filled by a block 21 of friction material urged outwardly by a spring 22 secured to the wall of the housing and disposed in a recess formed therein.

The numeral 23 designates an interiorly threaded sleeve for engagement with the threads 19 having at one end an external flange 24 formed with ratchet teeth. This sleeve is extended through an eye 25 formed upon one arm 26 of a U-shaped bracket element, generally designated at 27. The cross bar of this bracket element consists of a tubular section 28 attached to the arm 26 and longitudinally split as indicated at 29, and a solid section 30 adapted to slidably engage in the tubular portion 28 and having a spline pin 31 adapted to operate in the slot formed by the split 29. The section 28 is eared at opposite sides of the split and provided with a clamping screw 32, so that it may be clamped upon the solid section 30 to hold the same in adjusted position.

The eye 25 has an enlargement at one end of the bore thereof, indicated at 33, to receive the flange 24 of the sleeve 23 and the sleeve 23 has mounted thereon at the opposite end thereof from this flange a collar 34 to hold the eye against longitudinal movement upon the sleeve. The arm 26 has a recess mounting right and left hand ratchet ele-

ments 35 and a coacting adjusting element 36, whereby either of these ratchet elements may be rendered inoperative or both ratchet elements permitted to simultaneously engage the teeth of the flange 24 to hold the sleeve locked with relation to the bracket. Upon the tubular housing 16 at the outer end thereof, a collar 37 is mounted to limit outward movement of the sleeve 23 upon this housing. Inward movement thereof is limited by the enlargement 17.

In the use of the device, the second arm 38 of the bracket 27 is arranged at the opposite face of the work W from the drill D. This arm of the bracket is longitudinally slotted and has mounted thereon a work support 39 held in adjusted positions by a clamping screw 40 directed through the slot.

The work W which is punch marked at the point where it is to be drilled, is placed against the arm 38 with its lower edge above the support 39. The device is then adjusted to position the drill D in engagement with the punch mark of the work W, to position the handle 13 in an upwardly extending vertical position, and to render the right hand pawl 35 inoperative. The support 39 is then moved into contact with the lower edge of the work, and is secured in such position by its clamping screw 40. The motor is then started to effect the turning of the drill D, and the casing 10 is then turned first to the left and then to the right by the handle 13 to effect the feeding of the drill to the work. During the turning movement of the casing 10 to the left, the sleeve 23 is held against rotation in the same direction by the left hand or active pawl 35, with the result that the tubular housing 16 is moved forwardly and a feeding impulse imparted to the drill D. During the turning of the casing 10 to the right, the friction element 21 causes the sleeve 23 to turn with the housing 16, with the result that no rearward movement is imparted to the drill D and the next movement of the casing to the left will impart a further advancing or feeding movement to the drill. The motor turns the drill D to the right and the feeding movement of the drill is accomplished by the left hand turning movements imparted to the casing 10. The motor tends to turn the casing 10 to the left, and this force is utilized to assist the operator in feeding the drill D to the work. After the hole has been drilled, the left hand pawl 35 is rendered active to hold the sleeve 23 against turning movement in a right hand direction and thus permit the drill D to be withdrawn from the work by turning the casing 10 to the right.

It will, of course, be obvious that a construction of this character is capable of a considerable range of change and modification, particularly in the construction of the bracket employed for engagement with the work and we accordingly do not limit ourselves to such specific structure except as hereinafter claimed.

We claim:—

1. An attachment for motor operated drills, a member co-axial with the drill and having external screw threads, a sleeve interiorly threaded for engagement with the threads of the member, means frictionally resisting rotation of the sleeve with relation to the member when the latter is turned in one direction, a work engaging bracket having two arms one adapted to engage the opposite face of the work from the drill and the other rotatably receiving the sleeve, a ratchet connection between the work engaging bracket and the sleeve and adapted to hold the latter against rotation when the member is turned in the opposite direction, means for rotating said member, the first named arm of the bracket having a stop adjustable therealong and adapted to engage the side edge of the work, and a connection between the arms of the bracket adjustable as to length.

2. An attachment for portable drills which include the usual motor casing and drill spindle, the motor casing having a boss concentric with the drill spindle, said attachment comprising a housing having means at one end for engaging said boss and having screw-threads upon its exterior, a sleeve having engagement with the screw threads of the housing, a U-shaped bracket one arm of which rotatably receives the sleeve and the other arm of which is adapted to engage the work, and a ratchet connection between the last named arm and the sleeve and adapted to hold the sleeve against movement when the motor casing is turned in one direction and adapted to permit the rotation of the sleeve when the motor casing is turned in the opposite direction, and the other arm of the bracket having an edge guide adjustable therealong for engagement with the edge of the work.

3. An attachment for portable drills which include the usual motor casing and drill spindle, the motor casing having a boss concentric with the drill spindle, said attachment comprising a housing having means at one end for engaging said boss and having screw-threads upon its exterior, a sleeve having engagement with the screw threads of the housing, a U-shaped bracket one arm of which rotatably receives the sleeve and the other arm of which is adapted to engage the work, and a ratchet connection between the last named arm and the sleeve and adapted to hold the sleeve against movement when the motor casing is turned in one direction and adapted to permit the rotation of the sleeve when the motor casing is turned in the opposite direction, and the other arm of the bracket having an edge guide adjustable therealong for engagement with the edge of

the work, the connection between the arms of the bracket being adjustable as to length.

4. An attachment for portable drills which include the usual motor casing and drill spindle, the motor casing having a boss concentric with the drill spindle, said attachment comprising a housing having means at one end for engaging said boss and having screw-threads upon its exterior, a sleeve having engagement with the screw threads of the housing, a U-shaped bracket one arm of which rotatably receives the sleeve and the other arm of which is adapted to engage the work, and a ratchet connection between the last named arm and the sleeve and adapted to hold the sleeve against movement when the motor casing is turned in one direction and adapted to permit the rotation of the sleeve when the motor casing is turned in the opposite direction, the connection between the arms of the bracket being adjustable as to length.

5. An attachment for a portable drill including a motor casing and drill spindle driven by the motor, said attachment comprising a bracket, a sleeve rotatably carried by the bracket and held against axial movement thereby and provided with internal screw threads, a housing adapted to be secured to the motor casing in surrounding relation to the spindle and threaded through the sleeve, means adapted to cause the sleeve to rotate with the housing when the housing is turned in one direction, said means being carried by one of said parts and frictionally contacting with the other, and means carried by the bracket and adapted to hold the sleeve against rotation when the housing is turned in the opposite direction.

In testimony whereof we hereunto affix our signatures.

BRUCE E. PARK.
CURTIS M. PARK.