

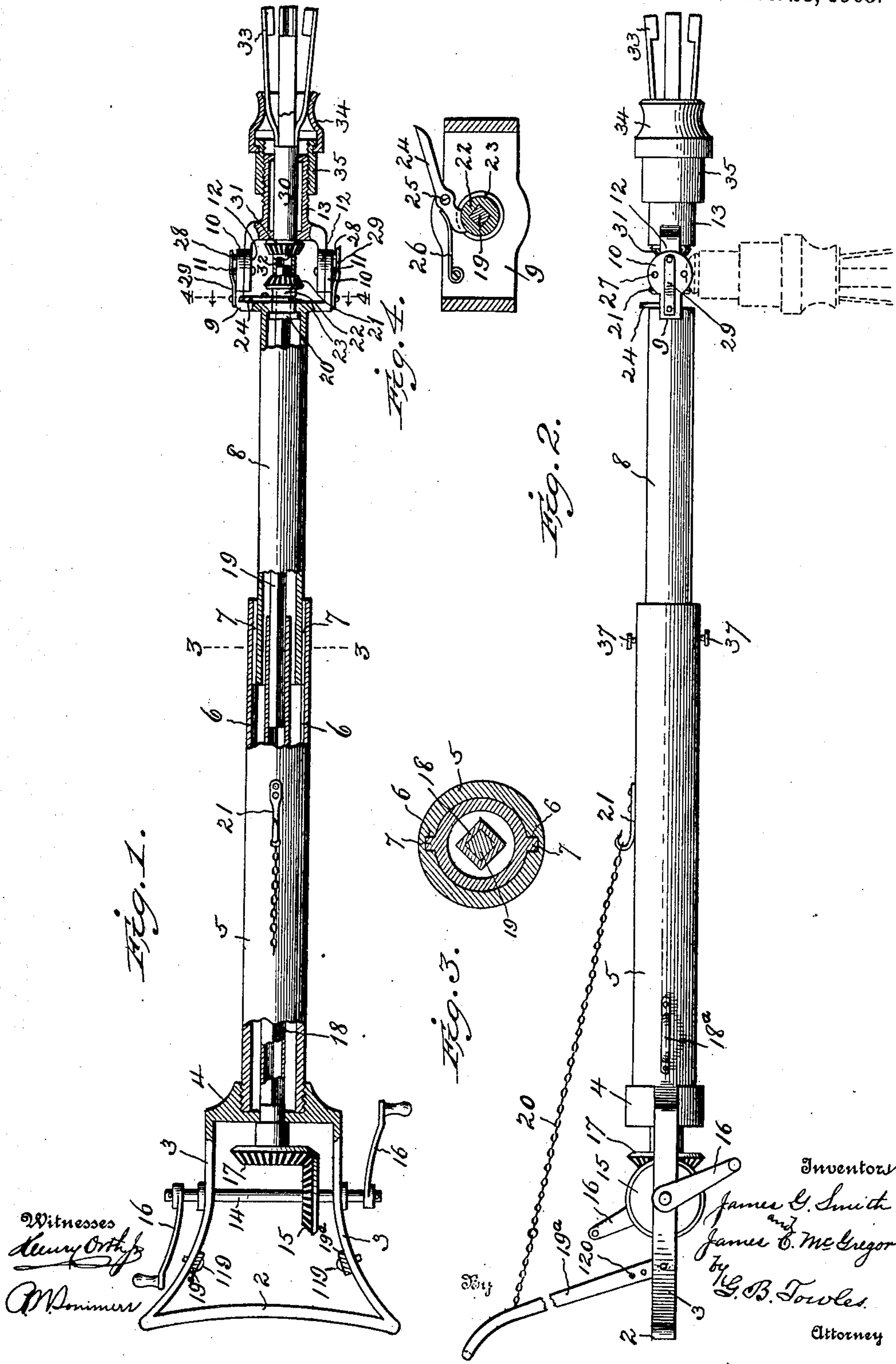
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BREAST DRILL.

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913,172.

Patented Feb. 23, 1909.



UNITED STATES PATENT OFFICE.

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BREAST-DRILL.

No. 913,172.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, JAMES G. SMITH and JAMES C. MCGREGOR, citizens of the United States, residing at Shippensburg, Pennsylvania, and New Bethlehem, Pennsylvania, respectively, have invented certain new and useful Improvements in Breast-Drills; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

Our invention relates to breast drills and has for its object to provide an extendible stock and means whereby the bit or tool holding end may be set at right angles to the stock when desired, as well as to details of construction hereinafter described and claimed.

Referring to the drawings in which like parts are similarly designated, Figure 1 is a plan view partly in horizontal section. Fig. 2 is a side elevation. Fig. 3 is a section line 3—3 of Fig. 1. Fig. 4 is a section showing a detail on the line 4—4 of Fig. 1.

The breast plate 2 is connected by arms 3 to an internally threaded head 4. In the head 4 is secured the end of a tubular stock 5 provided with grooves 6, into which engage feathers 7 on the tubular telescoping portion 8 of the stock. This tubular telescoping portion is provided with a head 9 having arms 10 extending therefrom, in the nature of a fork, said arms being preferably shaped to have circularly or substantially circular ends. Secured by means of pivots 11 to the arms 10 are similar arms 12 forming part of an externally threaded tubular end portion 13.

Revolubly mounted in the arms 3 is a power shaft 14 carrying a miter gear 15 and having at each end hand cranks 16. The miter gear 15 engages a miter gear 17 between arms 3 and fastened on a square hollow shaft 18 within the stock tube 5. Slidable within the square shaft 18 is a shaft 19 having secured to it a collar 20 and that portion of the shaft 19 beyond the collar passes through and projects slightly beyond a miter pinion 21 forming a sort of tenon. The miter pinion 21 is secured to shaft 19 in any suitable manner and has a boss 22 hav-

ing a groove 23 into which groove engages a thumb latch 24 pivoted at 25 to the head 9 and urged by a spring 26.

The arms 10 are provided with holes 27 capable of registering with similar holes in the arms 12. On each of the arms 10 is secured a spring 29 having a pin 28 capable of entering the registering holes in arms 10 and 12 and thereby hold the end of the drill either in alinement with the stock or at right angles thereto.

Mounted in the tool holder 13 from which the arms 12 project is a tool shaft 30 having a miter gear 31 that has a hollow projection or socket 32 capable of engaging the end of shaft 19 that projects beyond wheel 21. The tool shaft 30 carries at its end a gripping device 33 comprising a plurality of jaws capable of engaging a nut and thus acting as a wrench. These jaws are closed by means of a collar 34 revolubly connected to a sleeve 35 capable of being screwed back and forth on the tubular portion 13.

37 are thumb screws for locking the telescoping sections of the stock in their desired positions.

18^a is a handle to aid in handling the device.

A yoke 19^a capable of passing around the neck of the user is adjustably connected by pins 119 entering holes 120 to the arms 3, and is connected by means of a chain 20 to a hook 21 on the stock, whereby the drill is better supported, and the inclination of the yoke adjusted. The stock can be adjusted as to length by releasing the screws 37 and telescoping the sections as in the position shown in Fig. 1. By turning the hand crank 16, miter gears 15 and 17 are driven to rotate shafts 18 and 19. The end of shaft 19 fits into the hollow projection or socket 32, rotates the jaws 13, said jaws being capable of engaging a nut and therefor being used as a wrench.

Should it be desired to use the wrench in the position shown in dotted lines in Fig. 2, the thumb latch 25 is depressed and the gear wheel 21 and its shaft 19 slid to the left to disengage the end of shaft 19 from the socket 32. Pins 28 are removed from their holes and allow the tool and the tool holder 13 to rotate about pivots 11 as their centers, the shaft 19 is then moved back into position and locked therein by the latch 24, when the miter gears 21 and 31 will be in gear.

Should it be desired, the jaws 33 may be closed over the angular shank of any other tool, such as bits, drills, screw drivers and the like. The device may then perform the function of the usual brace.

We claim:

1. In a drill the combination with a telescoping stock, and tool driving mechanism including a telescoping driving shaft, a latch to connect the telescoping shaft to the stock whereby said shaft is capable of being telescoped simultaneously with the stock and also capable of being telescoped independently of the stock; of a tool carrier having a socket connection with said tool driving mechanism and carried by the stock.

2. In a drill, the combination with a telescoping stock; of driving mechanism including a driving shaft simultaneously telescoped with the stock, a tool carrier having a socket connection with said driving mechanism, a latch to connect the driving shaft and stock the disengagement of which also permits the disengagement of the socket connection, and means to permit angular displacement of the tool carrier with respect to the stock, and gearing brought into engagement by such displacement and after the disengagement of the socket connection.

3. A drill comprising a breast plate, a tubular stock portion distanced from and connected thereto, a telescoping stock portion, a telescoping tool driving shaft contained within the stock, mechanism for driving the shaft, two hand cranks for actuating the driving mechanism, a yoke adjustable with respect to the breast plate and stock, and means to flexibly connect the yoke and stock, whereby the drill may be supported leaving both hands of the user free to operate the driving mechanism.

4. In a drill, the combination with a tubular stock having a gear-driven hollow shaft therein, a telescoping stock portion having

a second shaft telescoping in said hollow shaft, a miter gear on the second shaft, said miter gear and its shaft axially movable, and means to hold the miter gear against axial displacement; of a tool carrier mounted in pivotal relation to the telescoping stock portion, means to lock the pivoted parts in position, and a gear wheel on the carrier having a socket connection with the second shaft.

5. In a drill, the combination with a telescoping stock, and tool driving mechanism including a telescoping shaft capable of being telescoped simultaneously with the stock; of a tool carrier having a socket connection with the telescoping shaft and pivotally supported by the stock, means to lock the tool carrier in angular relation to the stock and means to lock the telescoping shaft in operative connection to the carrier.

6. In a drill, the combination with a telescoping stock, a breast plate, arms holding the breast plate distanced from one end of the stock, a crank shaft journaled in said arms, and a miter gear wheel on the shaft; of a telescoping shaft contained in the stock, a miter gear wheel thereon engaging the afore-mentioned gear wheel, a miter pinion on the telescoping shaft, a latch engaging the pinion, a tool carrier pivotally connected to the stock, a tool holder in the carrier having a bevel pinion thereon, said tool holder having a socket connection with the shaft, and means to lock the pivotally connected parts together.

In testimony that we claim the foregoing as our invention, we have signed our names in presence of two subscribing witnesses.

JAMES G. SMITH.

JAMES C. MCGREGOR.

Witnesses:

CHAS. HILLIARD,

HOMER E. CORBETT.