No. 719,703. PATENTED FEB. 3, 1903.

N. R. THIBERT.

BIT STOCK.

APPLICATION FILED MAY 12, 1902.

NO MODEL.

Fig. 1.

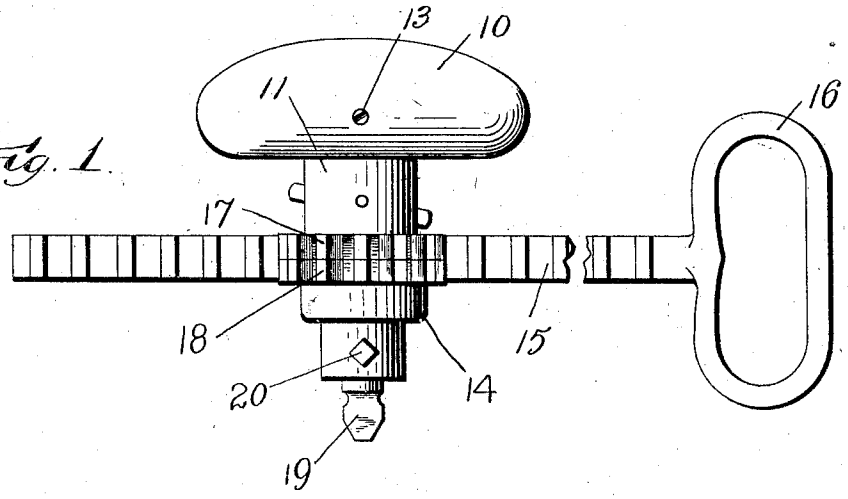


Fig. 2.

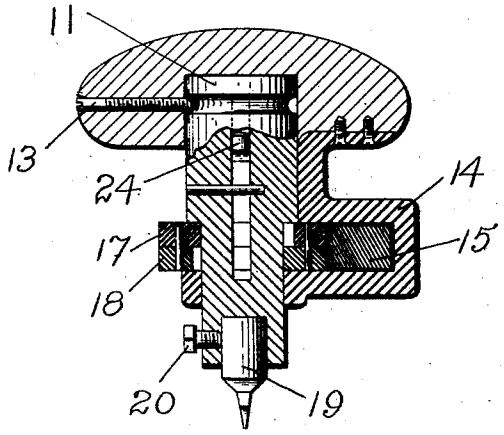


Fig. 3.

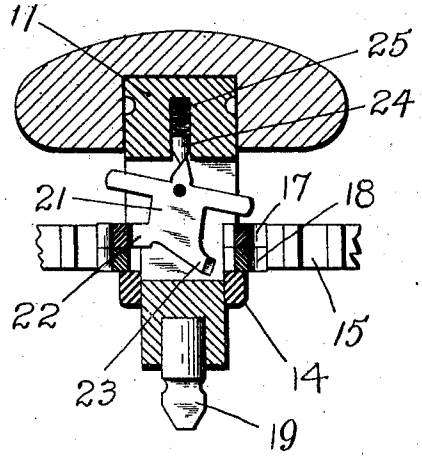


Fig. 4.

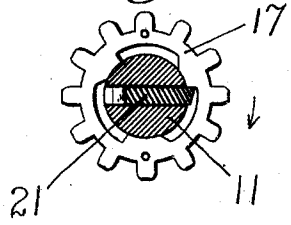
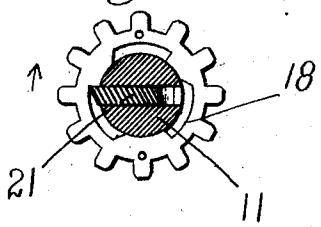


Fig. 5.



Witnesses:
C. F. Wesson.
M. E. Forde.

Inventor:
N. R. Thibert.
By
Southgate & Southgate
Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

NAPOLEON R. THIBERT, OF WORCESTER, MASSACHUSETTS.

BIT-STOCK.

SPECIFICATION forming part of Letters Patent No. 719,703, dated February 3, 1903.

Application filed May 12, 1902. Serial No. 106,851. (No model.)

To all whom it may concern:

Be it known that I, NAPOLEON R. THIBERT, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Bit-Stock, of which the following is a specification.

This invention relates to that class of devices which are employed for operating ordinary drills, screw-drivers, boring-bits, or similar tools by hand.

The especial object of this invention is to provide a novel operating mechanism for turning the tool-carrying spindle of a bit-stock and to provide a simple, efficient, and compact form of tool which may be used in locations where an ordinary crank bit-stock cannot be employed.

To these ends this invention consists of the bit-stock and of the combinations of parts therein, as hereinafter described, and more particularly pointed out in the claims at the end of this specification.

In the accompanying drawings, Figure 1 is a side view, partially broken away, of a bit-stock constructed according to my invention. Fig. 2 is a transverse sectional view of the same. Fig. 3 is a sectional view taken at right angles to Fig. 2. Fig. 4 is a plan view, partially in section, showing the double pawl set in position to turn the drill-spindle in one direction; and Fig. 5 is a similar view showing the double pawl set to turn the drill-spindle in the opposite direction.

The ordinary form of bit-stock which has heretofore usually been employed for holding and operating the ordinary boring-bits, drills, screw-drivers, or similar tools has usually been operated by connecting the tool-carrying spindle or clutch with a crank which is rotated or turned by hand.

To adapt the ordinary bit-stock for use in corners or in other locations where a complete revolution cannot be given the operating-crank, reversible ratchet connections have been employed for connecting the crank with the tool-socket. In many locations, however, an ordinary bit-stock or even the ratchet bit-stock cannot be employed on account of its vertical dimension.

One especial object of my present invention is to provide a form of bit-stock which will sit down sufficiently close to its work to permit the same to be used in comparatively small spaces. Furthermore, in the use of the ordinary crank bit-stock the speed of operation is comparatively limited—that is to say, the drill-holding spindle can be turned only as rapidly as the crank can be rotated by hand.

A further object of my present invention is to provide a form of bit-stock which may be operated at greater speed than the bit-stocks which have heretofore been employed.

To accomplish these results, a bit-stock constructed according to my invention comprises a tool-carrying spindle and a sliding rack which is movable transversely with respect to the spindle and is geared to operate the same.

In practice the connection between the operating rack and spindle preferably includes a double ratchet and pawl for producing continuous rotations of the tool-carrying spindle in either direction from repeated reciprocations of the operating-rack.

Referring to the accompanying drawings for a detail description of a bit-stock constructed according to my invention, 10 designates a handle or top piece. Pivoted in the handle or top piece 10 is a tool-carrying spindle 11, which may be secured in the top piece 10 by a screw 13. Screwed into or otherwise fastened in the under side of the handle 10, as illustrated in Fig. 2, is a guide-frame 14, mounted in which is a sliding rack 15, having a handle 16 at one end. The rack 15 meshes with a gear loosely mounted upon the tool-carrying spindle 11. In the present instance I preferably form the gear from two sections 17 and 18, pinned together.

As illustrated in Fig. 4, the gear-section 17 is provided with internal ratchet-teeth facing in one direction and the gear-section 18 is provided with ratchet-teeth facing in the opposite direction.

Pivotally mounted in a slot in the tool-carrying spindle 11 is a pawl-plate 21, provided with pawl-sections 22 and 23, adapted to cooperate with the ratchet-teeth of the gear-sections 17 and 18, respectively.

The pawl-plate 21 is provided with operating-fingers extending out through the sides of the spindle 11, and extending up from the center of the pawl-plate 21 is a projection ar-

ranged to snap past a holding-pin 24, which is forced down by a spring 25.

The tool-carrying spindle 11 is provided at its lower end with a socket for receiving the shank of any desired tool—for example, of a small screw-driver 19, which may be fastened in place in its socket by a set-screw 20.

In the use of a bit-stock as thus constructed the pawl-plate 21 is first tipped to set the same into proper position, so that by reciprocating the sliding rack 15 the tool-carrying spindle will be revolved in the desired direction, and the rack is then reciprocated to produce the desired result. During the retractions or return movements of the rack the pawl-plate will yield, so that the spindle will remain stationary and will not be turned except when the rack is being moved in one direction. It is to be noted that in thus operating a bit-stock constructed according to my invention a much faster rotation of the tool-carrying spindle can be secured than in the use of a crank-operated bit-stock—that is to say, in using an ordinary bit-stock for each complete circle or forward-and-backward movement of the hand but a single turn will be given to the tool-carrying spindle, whereas by operating the tool-carrying spindle by a reciprocating rack each forward-and-backward stroke of the rack may be made to impart several revolutions to the tool-carrying spindle. It is also to be noted that by means of this construction I have provided an exceedingly compact form of tool which may be used in many locations where an ordinary crank-actuated bit-stock could not be employed.

I am aware that numerous changes may be made in constructing bit-stocks according to my invention without departing from the scope thereof as expressed in the claims. I do not wish, therefore, to be limited to the construction I have herein shown and described; but

What I do claim, and desire to secure by Letters Patent of the United States, is—

1. As an article of manufacture, a bit-stock comprising a substantially disk-shaped top piece or handle adapted to be grasped in the palm of the hand of the operator, a spindle, a guide-frame, and an operating-rack arranged to be moved back and forth in a straight line in the guide-frame and geared to turn the spindle, whereby a bit-stock is provided in which a direct vertical pressure may be applied by the hand of the operator in comparatively small vertical spaces.

2. As an article of manufacture, a bit-stock comprising a substantially disk-shaped top piece or handle adapted to be grasped in the palm of the hand of the operator, a spindle, a guide-frame, an operating-rack movable back and forth in the guide-frame, in a straight line, a double gear journaled loosely on the spindle, and meshing with the rack, one section of the gear having ratchet-teeth facing in one direction, the other section of the gear having ratchet-teeth facing in the opposite direction, a double-pointed pawl pivoted in the spindle, and a spring for holding either point of the pawl in engagement with the proper set of ratchet-teeth, while permitting the same to yield while the operating-rack is on its return stroke.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

NAPOLEON R. THIBERT.

Witnesses:
PHILIP W. SOUTHGATE,
LOUIS W. SOUTHGATE.