

UNITED STATES PATENT OFFICE.

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BIT-STOCK.

SPECIFICATION forming part of Letters Patent No. 722,332, dated March 10, 1903.

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To all whom it may concern:

Be it known that I, IRA E. STUMP, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Bit-Stocks; and I 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 the figures of reference marked thereon, which form a part of this specification.

My invention relates to bit-stocks for operating screw-drivers, boring-tools, and the like, and particularly to that class thereof having a spindle with right and left spiral grooves, which spindle is operated by the reciprocation of an outer sleeve-handle having ratchet-pawls engaging in the grooves.

An object of the invention is to combine such a bit-stock with means for operating the same as a ratchet bit-stock by a side lever-handle independent of or rather without reciprocation of the sleeve-handle. To attain this object, pawls are provided which operate as such in both the reciprocation and the rotation of the sleeve—that is, they catch and yield in either longitudinal or rotary movement of the sleeve or ratchet-block. Means are provided to disengage either of the pawls, so as to permit or give right or left hand motion, as desired.

A further object is to provide such a bit-stock with a supplementary handle or lever, which may be thrown out sidewise to give a great purchase when desired. When so operated, the sleeve is not reciprocated, but serves to give the thrust while the lever gives the turning motion. As before stated, the pawls yield to give a ratchet effect for either reciprocal or rotary motion.

In the accompanying drawings, Figure 1 is a side view of the device. Fig. 2 is another side view taken at right angles to Fig. 1 and with the lever-handle swung out or down. Fig. 3 is a central longitudinal section. Fig. 4 is a cross-section on line 4 4 of Fig. 1. Fig. 5 is a fragmentary perspective with parts broken away. Fig. 6 is an enlarged fragmen-

tary section showing the pawl-block and pawls.

Referring specifically to the drawings, 6 indicates a spindle having right and left spiral grooves 6^a.

7 indicates a tubular sleeve, to one end of which is secured a handle 7^a, and the spindle slides and rotates freely in the sleeve. At its upper end the spindle has a collar 6^b to prevent its escape from the sleeve, and at its lower end has a chuck to hold the tool, as hereinafter specified. At the lower end of the sleeve is fixed a block 8, containing the pawls 9, to which block are pivoted the ends of a yoked handle 10, which is adapted to span or embrace the thrust-handle 7^a, as shown in Fig. 1, or to be turned out as a lever at a right angle to the spindle, as in Fig. 2. A spring-latch 10^a, engaging in a notch 10^b, formed in the ferrule of the handle 7^a, serves to normally retain the lever-handle in straight position. The pawls are contained in opposite tubular openings 8^a, formed in the block, and work laterally with respect to the spindle, in the grooves of which they are normally engaged by the pressure of springs 9^a. The engaging end or point of each pawl is beveled on one side, as at 9^b, to cause it to slip out of and over the grooves in backward movement, either along the spindle in the outside slide of the sleeve in reciprocation or around the spindle in the backward turn of the sleeve in rotation. In other words, the bevel of the pawl is diagonally presented with respect to the two motions and will consequently lift at either. In the working movement—that is, either the thrust or inward slide of the sleeve or the forward or thrust turn of the lever-handle—the pawl holds and causes the spindle to turn, in the former by travel of the pawl in the groove. In the latter the pawl does not travel; but the spindle takes the direct turn or motion of the lever-handle. The pawls are in opposition—that is, they catch and hold in opposite directions. Consequently they cannot both be in engagement at the same time unless it be desired to lock the spindle and form a solid or non-ratchet stock. The means to hold either pawl out of engagement will now

be described. The sides or edges of the block adjacent the pawl tubes or openings have ribs 8^b projecting therefrom. Cross bars or plates 9^c are fixed to the pawls and normally lie between said ribs, in which position the pawls are in engagement. To disengage either pawl, it is pulled out and turned until the plate 9^c is bridged across the ribs, as shown on one side in Fig. 5. This holds the pawl out of engagement, as the ribs project far enough to have that effect. The knurled heads 9^d enable the pawls to be readily grasped.

The chuck to hold the tool is indicated at 11 and has thereon an outer loose sleeve 12 of proper size to be conveniently grasped by the operator to direct the tool and hold the same to its work.

What I claim is—

1. In a ratchet bit-stock, the combination with a spirally-grooved spindle, of a block which will reciprocate and rotate thereon, said block having thrust and lever handles attached thereto, and a pawl carried by the block, having positive engagement in one direction and yielding engagement in the other direction, in the groove, in either reciprocation or rotation of the block.

2. In a ratchet bit-stock, the combination with a spirally-grooved spindle, of a reciprocating and rotating sleeve thereon, a laterally-extensive lever pivoted to the sleeve, and a pawl carried by the sleeve and having positive engagement in one direction and yield-

ing engagement in the other, in the groove, in either reciprocation or rotation of the sleeve.

3. The combination with a tool-carrying spindle having a spiral groove, of a reciprocating and rotatable sleeve thereon, and a pawl carried by the sleeve having yielding engagement in one direction and positive engagement in the other, in the groove in either reciprocation or rotation of the sleeve.

4. The combination with a tool-carrying spindle, having right and left spiral grooves, of a reciprocating and rotatable sleeve thereon, and pawls carried by the sleeve having yielding engagement in one direction and positive engagement in the other, in the groove, in either reciprocation or rotation of the sleeve in either direction.

5. The combination with a tool-carrying spindle having right and left spiral grooves, of a reciprocating and rotatable sleeve thereon, oppositely-acting pawls carried by the sleeve having yielding engagement in one direction and positive engagement in the other, in each groove, said pawls operating in either reciprocation or rotation of the sleeve, and means to hold one of the pawls out of engagement.

In testimony whereof I affix my signature in presence of two witnesses.

IRA E. STUMP.

Witnesses:

JOHN A. BOMMHARDT,
LOTTIE NEWBURN.