

(No Model.)

O. R. ALDEN.
BIT STOCK.

No. 478,248.

Patented July 5, 1892.

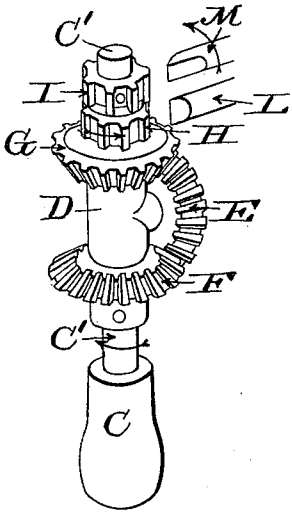


Fig. 2.

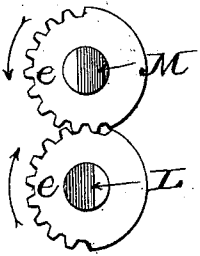


Fig. 3.

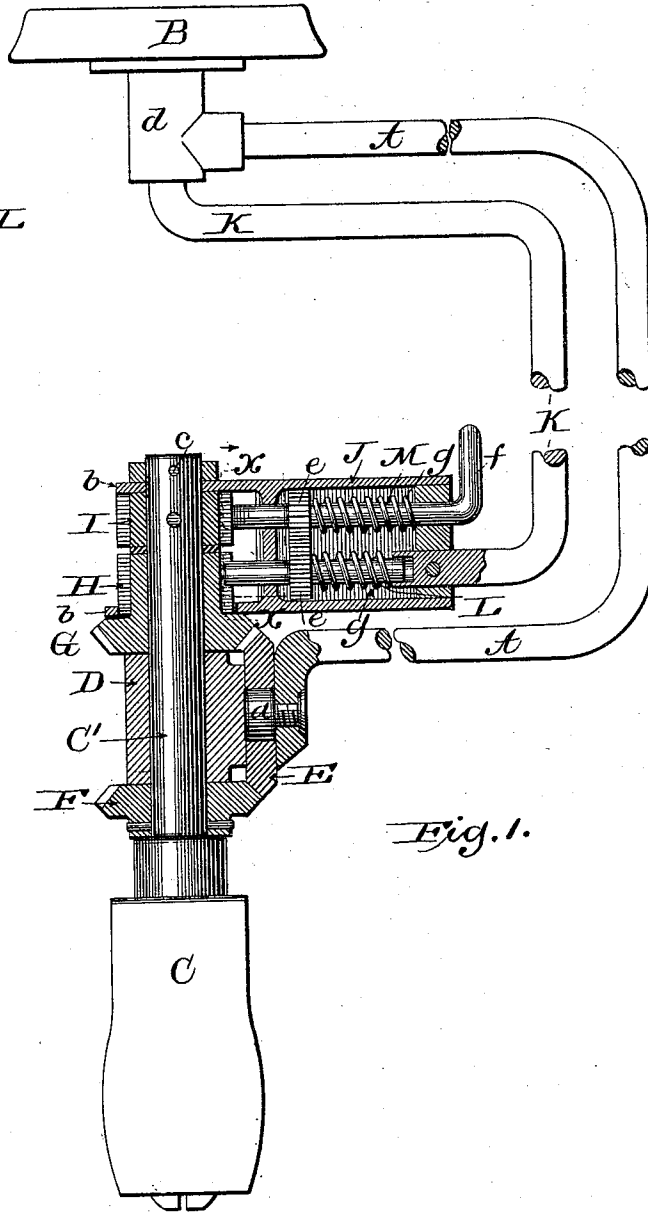


Fig. 1.

Witnesses:

Arthur Ashley
Geo. H. Ashley.

Inventor:

Oliver R. Alden
by J. M. Ashley atty.

UNITED STATES PATENT OFFICE.

OLIVER R. ALDEN, OF NICHOLSON, ASSIGNOR OF ONE-HALF TO HUMPHREY W. LORD, OF LATHROP, PENNSYLVANIA.

BIT-STOCK.

SPECIFICATION forming part of Letters Patent No. 478,248, dated July 5, 1892.

Application filed August 20, 1891. Serial No. 403,184. (No model.)

To all whom it may concern:

Be it known that I, OLIVER R. ALDEN, a citizen of the United States, residing at Nicholson, in the county of Wyoming and State of Pennsylvania, have invented certain new and useful Improvements in Bit-Stocks, of which the following is a specification.

My invention relates to bit-stocks; and it consists of various features, details, and combinations, all as hereinafter fully pointed out and claimed.

In the drawings, Figure 1 is a side elevation, partly in section; Fig. 2, a perspective view of certain parts, showing the direction of rotation of the same; and Fig. 3, a partial vertical sectional view on the line *xx*, Fig. 1, showing the operative relation of the pawls and their stop-gear wheels.

A indicates the handle of the bit brace or stock, B the breast-plate or knob, and C the tool-holder or chuck, the shaft C' of the latter being mounted and adapted to turn or rotate within a block D, carried by the handle A, as shown in Fig. 1. The block D, through which the shaft or tool-arbor C' passes freely, is provided with a lateral stud or projection *a*, which serves as a journal for the bevel gear-wheel E, which latter engages the fast and loose bevel-gears F and G, mounted upon the shaft C'. The pinion or gear F is secured rigidly upon the shaft C' below the block D, while the gear G is mounted loosely upon the upper face of the block. The loose gear G is formed or provided with a ratchet-wheel H, which always moves in unison with the gear, while immediately above is a second ratchet-wheel I, which is keyed, pinned, or otherwise rigidly secured to the shaft or arbor C'.

J indicates a hollow block or housing, which is provided with two perforated arms *b b*, adapted to fit, respectively, upon the upper faces of ratchet I and gear G, as shown in Fig. 1, the housing being held in place by a pin *c*, passing through the shaft, or equivalent means. This block or housing J is so mounted as to be free to swing horizontally upon or with reference to the shaft C'.

K indicates the bow, which is secured at its lower end to the housing or block and at its upper end to a socket-piece *d* on the under side of the breast-piece B.

Mounted within the housing J are two pawls or dogs L and M, adapted to engage, respectively, the ratchets H and I, the said pawls having their noses beveled in opposite directions, so that one pawl will act when the bow is moved in one direction and the other pawl will act when the bow is moved in the opposite direction. These pawls are each provided with a stop-gear wheel *e*, and one of them (the pawl M) has its outer end bent or extended laterally, so as to form a handle *f*, by means of which it may be turned or rotated. As the gears *ee* on the pawls mesh, a rotation of the pawl M will cause a corresponding rotation of the pawl L, the stop-face of the gears limiting the rotation or turning to a half-revolution, permitting the reversal of the active faces of both pawls. A coiled spring *g* encircles the stem of each pawl and holds the latter yieldingly in engagement with their respective ratchets.

The handle A is held firmly in one hand, while the bow or auxiliary handle is grasped by the other hand and given either a continuous circular motion, with the shaft C' as an axis, or else it may be given an oscillating or back-and-forth motion, this depending upon the amount of room available.

Of course where the operator is at work in corners or similarly-contracted spaces the bow cannot be given the continuous motion ordinarily given to a bit-brace, but must be oscillated backward and forward. This oscillation of the bow K imparts to the tool-holder or chuck a continuous rotary motion in one and the same direction, thereby enabling the operator to do a given amount of work in about one-half the time ordinarily employed. I utilize both the backward and forward movement of the bow in the following manner: When the bow to which the housing J is attached is swung around in the direction represented by the arrow in Fig. 2, the beveled nose of pawl M will ride over the teeth of the ratchet-wheel I without affecting the latter; but as the active or abrupt face of the pawl L is opposite to that of pawl M the said pawl L will engage the ratchet-wheel H and turn said wheel and the attached gear G. The latter being loose upon shaft C' turns freely thereon, and, acting through the idler E and

the fast gear F, imparts to the shaft and tool-holder a rotary motion, as indicated by the arrow in Fig. 2. When the bow is swung or moved backward, the beveled nose of pawl L will ride over the teeth of ratchet-wheel H without affecting the latter; but the abrupt face of pawl M, engaging the teeth of wheel I, will, inasmuch as the wheel is fast to the shaft or arbor C', turn or rotate the said shaft or arbor in the same direction in which it was turned when the bow was moved forward, as above described.

It frequently becomes desirable or necessary to give to the arbor or shaft C' and the attached chuck or tool-holder a motion in the reverse direction—as, for instance, in withdrawing screws—and to secure this result I mount the pawls or dogs in such manner as to permit of their reversal. By grasping the handle *f* and turning the pawl or dog M through a half-revolution it will be reversed—that is to say, its abrupt or working face or nose will be brought into such position as to rotate the shaft when the bow is swung backward instead of forward, as in the previous adjustment. As the pawls or dogs are geared together, this adjustment or reversal of the pawl M will effect a like reversal of the pawl L and cause the latter to actuate the shaft when the bow is swung forward instead of backward.

Having thus described my invention, what I claim is—

1. In combination with a tool-holder and a bow, the reversible and reversely-acting pawls and intermediate connections, substan-

tially such as shown, between the pawls and the tool-holder, whereby a continuous motion in either direction may be imparted to the holder by the oscillation of the bow.

2. In combination with the handle and with the bow of a bit-stock, a tool-holder adapted to turn therein and provided with fast and loose ratchets and gear-wheels, the idler, and the reversible pawls.

3. In combination with the handle, bow, tool-holder, and fast and loose ratchets, the fast and loose gears, the idler, and the pawls or dogs geared together.

4. In combination with the handle, bow, tool-holder, and fast and loose ratchets, the fast and loose gears upon the tool-holder, the idler, the pawls or dogs for engagement with the ratchets, and the stop-gears thereon.

5. In combination with the handle, bow, tool-holder, and fast and loose ratchets, the fast and loose gears and idler, the pawls or dogs provided with meshing gears, and the coiled springs.

6. In combination with the handle, bow, tool-holder, and fast and loose ratchets, the fast and loose gears and idler, the pawl L, provided with gear *e*, and the pawl M, provided with a similar gear *e* and with a tail or handle *f*.

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

OLIVER R. ALDEN.

Witnesses:

CHAS. F. BUCK,
GEORGE ROUGHT, Jr.