(No Model.)

E. A. WALKER.

BELT SHIFTER FOR PLANING MACHINES.

No. 454,958. Patented June 30, 1891.

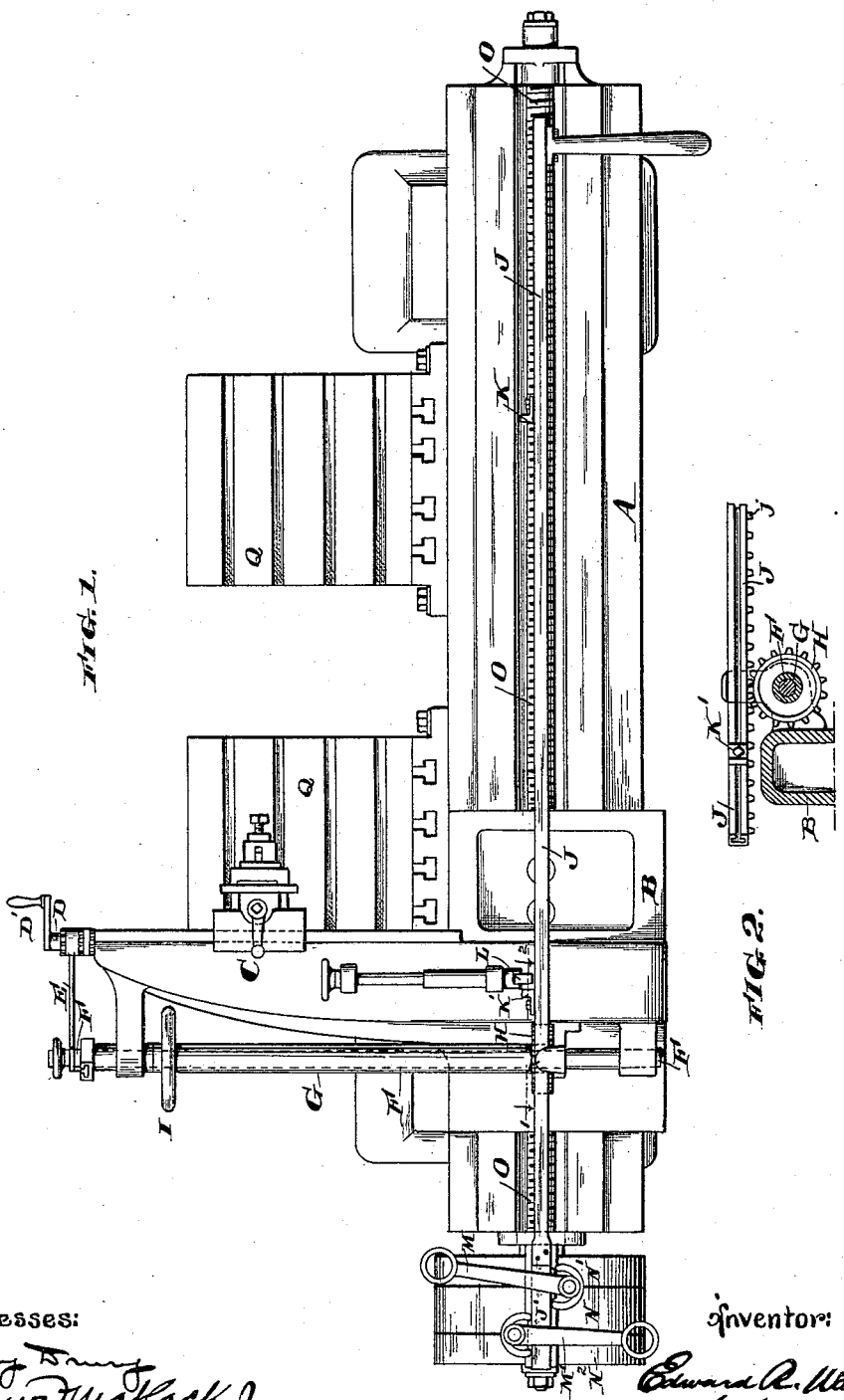

FIG. 1.

FIG. 2.

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BELT-SHIFTER FOR PLANING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 454,958, dated June 30, 1891.

Application filed October 1, 1890. Serial No. 366,776. (No model.)

To all whom it may concern:

Be it known that I, EDWARD A. WALKER, of the city and county of Philadelphia, State of Pennsylvania, have invented a certain new and useful Improved Belt-Shifter for Planing-Machines, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to belt-shifting devices used on the class of planing-machines in which the carriage traveling over the bed of the machine is used to hold the tool and carry it over the face of a stationary work-bed; and the object of my invention is to provide improved means for enabling the operative to start, stop, and reverse the machine at will and from the position which he should occupy in watching the work. My new device for accomplishing this result will be best understood as described in connection with the drawings, in which it is illustrated, and the novel features which I desire to protect are hereinafter clearly pointed out in the claims.

In the drawings, Figure 1 is a plan view of a planing-machine provided with my improvement, and Fig. 2 a section taken on the line 1 2 of Fig. 1.

A is the bed of the planer; B, the carriage supported on said bed and carrying the tool-holder C.

D is a shaft directly controlling the feed of the tool; D′, a crank-handle on the end of said shaft; E, a connecting-rod by which motion is given to shaft D from the feed-shaft F, which last-mentioned shaft is journaled on the carriage, as shown, and is given an oscillatory motion by mechanism which, as it forms no part of my present invention, I have not thought it necessary to illustrate.

G is a sleeve-shaft loosely journaled on the shaft F and having at one end a hand-wheel I, situated near the end of the carriage at which the operative should stand, and at its other end a spur-pinion H, placed so as to be in engagement with a rack *j* of slightly greater length than the maximum travel of the table, formed on or secured to a belt-shifting rod J, which runs parallel to the bed and is connected at its end J′ with belt-shifting devices (indicated at M and M′,) and the function of which is to shift the belts to and from the two loose pulleys N′ and N^2 and the fast pulley N.

K and K′ are stops secured upon the shifting-rod J, and L a stop adjustably secured upon the carriage B.

O is a feed-screw journaled in the bed of the machine and engaged with a nut, (not shown,) which is secured to the bottom of the carriage B. The loose pulleys N′ and N^2 are journaled to the end of this feed-screw, and the fast pulley N is secured between the said loose pulleys upon the shaft of the screw.

Q is the work-carrying bed, secured, as shown, to the side of the stationary bed of the planer. The belts running upon the pulleys N N′ N^2 are of course of the usual character, arranged to run in opposite directions. I have not thought it necessary to illustrate them in the drawings.

The operation of the machine is as follows: The forward driving-belt being engaged with the fast pulley turns feed-shaft O and causes the table B to move forward along the bed of the machine until the stop L comes in contact with the stop K on the belt-shifting rod, upon which said rod is moved, so as to draw the forward driving-belt onto a loose pulley, and at the same time draw the backward driving-belt onto the fast pulley. The revolution of the feed-screw is thus reversed and the carriage moved backward until the stop L comes in contact with the stop K′, when the direction of movement is again changed. As the carriage moves forward and backward upon the bed of the planer, the pinion H, which is engaged with the rack *j* on the belt-shifting rod, revolves and causes its shaft G and the hand-wheel I also to revolve. Said shaft, being loosely journaled, is free to turn in either direction. Whenever the operative wishes to stop or reverse the machine before the regular stops come into operation, he has only to take hold of the hand-wheel I and turn it in the opposite direction to that in which it is revolving. This of course causes the shifting-rod J, which is in engagement with the pinion H, to move, thus shifting the belts in the way desired. He can by turning this wheel start, stop, or reverse the machine at any time or point of its travel. As will be seen, the operative, standing at the end of the table, is thus enabled to control the motion of

the machine at all times and without moving away from his work.

The construction shown in the drawings, in which the shaft G is formed in sleeve shape and journaled on the main feed-shaft F, is a convenient one in this class of machines; but of course the shaft G may be journaled in any convenient way and may be entirely independent of the feed-shaft.

It is not, of course, essential that the wheel H should directly engage the rack *j*. Any convenient intermediate gearing can intervene between them; but the construction shown is, I believe, the best.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a planing-machine having a traveling tool-carrying carriage, the combination, with a belt-shifter, of a shifting-rod, as J, having a rack formed or secured thereon of a length slightly greater than the maximum travel of the table, a shaft, as G, journaled on the carriage, a hand-wheel, as I, secured to said shaft, and a pinion H, also secured to said shaft and in engagement with the rack on the shifting-rod, all substantially as and for the purpose specified.

2. In a planing-machine having a traveling tool-carrying carriage, the combination, with a belt-shifter, of a shifting-rod, as J, having a rack formed or secured thereon, a feed-shaft, as F, journaled on the carriage and running transversely to the bed of the planer, a sleeve-shaft, as G, supported on shaft F, so as to turn freely thereon, a hand-wheel, as I, secured to the sleeve, and a pinion H, also secured to the sleeve and in engagement with the rack on the shifting-rod.

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