

(No Model.)

2 Sheets—Sheet 1.

W. S. WHITMAN.
REVERSING MECHANISM.

No. 431,636.

Patented July 8, 1890.

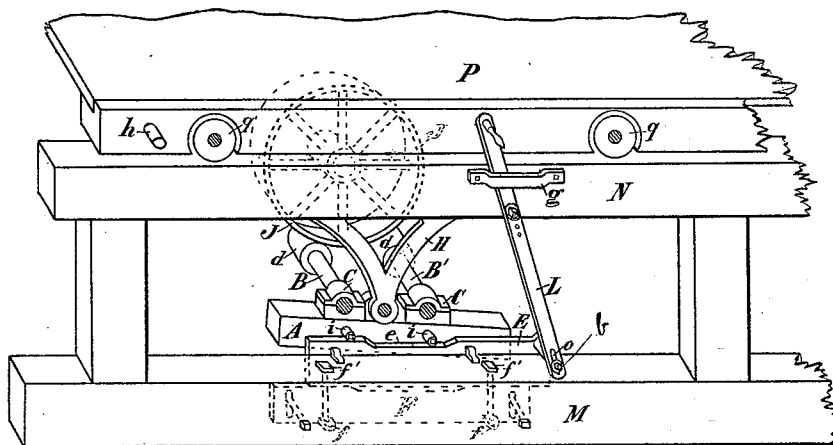


Fig. 1

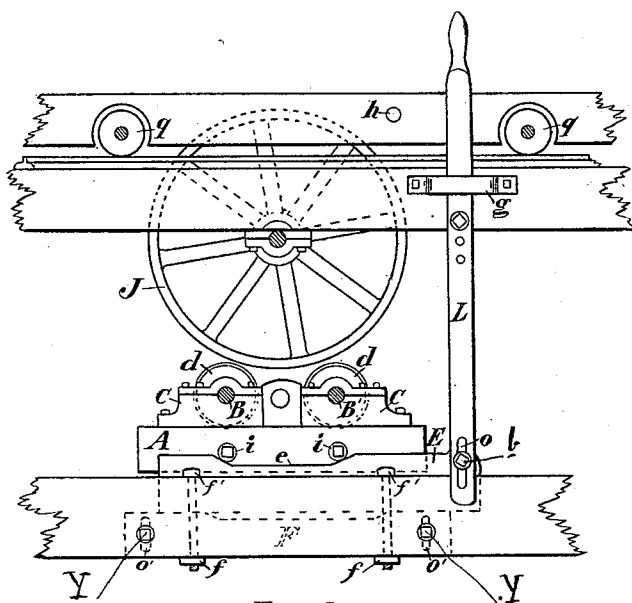


Fig. 2

Fig. 3

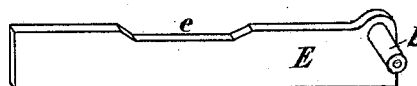
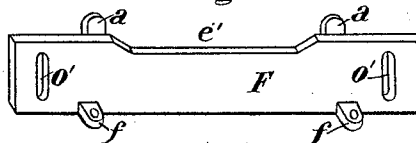


Fig. 4



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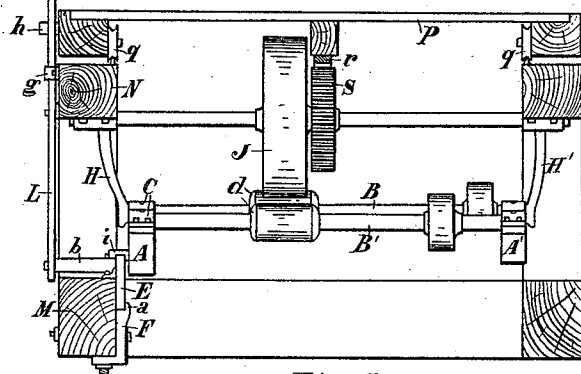


Fig. 5

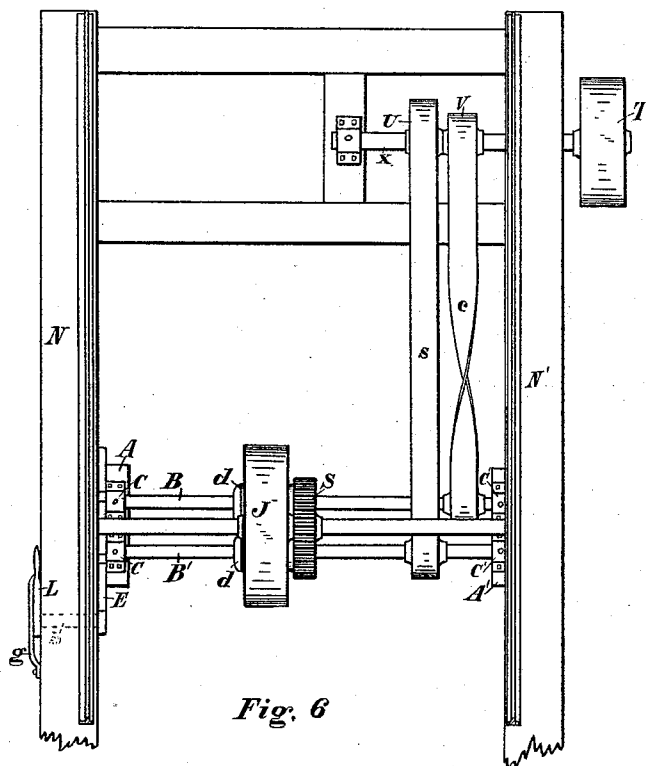


Fig. 6

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UNITED STATES PATENT OFFICE.

WILLIAM S. WHITMAN, OF BANGOR, MAINE.

REVERSING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 431,636, dated July 8, 1890.

Application filed January 9, 1889. Serial No. 295,863. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. WHITMAN, a citizen of the United States, residing at Bangor, in the county of Penobscot and State of Maine, have invented a new and useful Reversing Mechanism for Reciprocating Carriages; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improved reversing mechanism for stopping, starting, holding, and reversing reciprocating carriages.

It is applicable for carriages run by friction, gear-wheels, or rack-and-pinion movement; and it consists of a sliding mechanism operated by a single lever, which either automatically or independently brings the feed or reversing gear into action to operate the reciprocating carriage, either stopping, starting, holding, or reversing the said carriage at the will of the operator.

The object of my invention is to provide a simple and efficient reversing mechanism that can be applied to and operate the feed and reversing gear of any reciprocating carriage, and either automatically or independently stop, start, hold, or reverse the said carriage at any point.

Throughout the description reference is made to the accompanying drawings, in which—

Figure 1 is an isometric view of part of the frame-work and carriage of an edging-machine, showing the feed and reversing gear with my improved reversing mechanism attached. Fig. 2 is a side elevation of my improved reversing mechanism attached to part of the machine-frame shown in Fig. 1, showing the operating-gear and reversing mechanism in a different position. Fig. 3 is an isometric view of the sliding plate used in my device. Fig. 4 is an isometric view of the adjustable bed-plate of my device. Fig. 5 is an end view of a machine provided with my reversing mechanism. Fig. 6 is a plan view of part of a machine, showing my device attached.

Similar letters of reference refer to correspondingly like parts throughout the different figures.

In the drawings, M refers to the lower timber of an edging-machine frame; N, the upper part, upon which the carriage travels, and P, the reciprocating carriage.

J represents the face-wheel or drum, which operates the carriage P by means of a rack r , attached to the said carriage, and a pinion S, situated upon the face-wheel shaft and meshing in the said rack.

The face-wheel J is operated or run either way by means of friction-rolls $d d$, mounted upon the shafts B B', revolving in opposite directions by being connected in any usual way to a power medium, the principal means being by belts S and C (shown in Fig. 6 of the drawings) upon pulleys, also fastened to these shafts, passing over opposite pulleys U and V, located upon a shaft X, carrying a wheel T or other means for connection to a power medium. One of these belts c is crossed, while the other runs straight to obtain the desired reverse motion.

The shafts B B' are hung or suspended a proper distance from the face wheel J by having their journal-boxes C C fastened to journal-bars A and A', which are pivoted between the said journals to brackets H and H', rigidly secured to the frame of the machine. As both ends of the shafts B B' are hung in the same way, it can be easily understood that when one end of the journal-bar A is raised the friction-roll d upon that side must necessarily bear against the face wheel J and revolve the latter, which in turn operates the carriage P. Now, if this friction-roll is withdrawn from the face wheel J, and the opposite roll, revolving in the opposite direction, is pressed against the said face wheel, the latter will be turned in the opposite direction from its former course, and consequently reverse the motion of the carriage P, and it is to operate and effect these changes, either independently or by the carriage itself, that I have invented my device, which consists in the journal-bar A having attached thereto two pins or rolls $i i$, either directly under the shafts B B' or near the ends of the journal-bar.

Directly under the pins or rolls $i i$, and bolted to the main frame of the machine, is an adjustable bed-piece F, which is preferably constructed of cast-iron, cast to shape,

and consists of a rectangular plate of sufficient thickness, provided with two or more studs *ff* projecting from its lower edge at right angles to one side thereof. Transverse slots *o' o'* are cut through the plate *F* near each end, and upwardly-extending guides *aa* project above the upper edge of this plate from the side opposite the one to which the studs are attached. The upper and lower edges of the bed-piece *F* are cast parallel, and the center of the upper edge for a short distance has a depression *e'* for the purpose of reducing the length of bearing, also friction; of a sliding plate, to be hereinafter mentioned, that rests and slides thereon.

The bed-piece *F* is adjustably fastened to the machine-frame by means of bolts *Y Y*, passing transversely through the timber *M* and slots *o' o'* in the bed-piece. The studs *ff* pass under the timber or in gains cut therein; and, further, bolts *f' f'*, having their ends threaded, are inserted vertically through the timber *M* and into threaded holes in the studs *f f*. Check-nuts, if desired, can be turned upon the projecting ends of the vertical bolts *f' f'* to furnish further stability and rigidity. It can now be understood that by loosening the side bolts that pass through the slots *o' o'* in the bed-piece and turning the heads of the vertical bolts *f' f'* to the right or left either or both ends of the bed-piece *F* can be very finely adjusted, and by tightening the side bolts the bed-piece is rigidly and very firmly held in adjustment against the timber *M* and cannot be jarred out of position.

Situated above and resting upon the upper edge of the bed-piece *F* and adapted to slide thereon is the sliding plate *E*, held between the upwardly-projecting guides *aa* on one side and the timber *M* on the other. This sliding plate *E* is also constructed of metal and is about the size and proportion of the bed-piece *F* just described. The sliding plate *E* is formed with its upper and lower edges parallel, and at the center of the former, for a distance of about one-third of its length, is cut an opening or depression *e*, also parallel with the edges of the plate, and the ends of this depression are sloped gradually upward at obtuse angles, forming inclines. A boss *b* protrudes at right angles from one of the upper corners of the sliding plate *E*, and extends above and over the top of the timber *M* of the machine-frame a sufficient distance to allow it to be attached to a lever *L*, which is pivoted above to the upper part *N* of the frame and extends a short distance above the latter. This lever *L* forms the means wherein the sliding plate *E* is operated, and a slot *o* is cut through its lower end, wherein it is connected to the boss *b* of the sliding plate, to provide for adjustment. A guide *g* is bolted over the lever *L* above its pivotal connection with the upper part *N* of the machine-frame, which serves to prevent the said lever from being thrown too far either way.

The sliding plate *E* is constructed of a width equal to the distance between the upper edge of the bed-piece *F* and the pins *ii* on the bar *A*, and the pins or roll *ii* are set into the bar *A* such a distance from each other that when the bar *A* is at a horizontal, as shown in Fig. 2, the said pins or rolls will rest half-way down the inclines at the ends of the depression *e* in the sliding plate. At this position neither friction-roll *d* will be in contact with the face wheel *J*; consequently the carriage *P* will be at rest and the lever *L* should be in a vertical position. For illustration, supposing the shaft *B'* is revolving in the direction to feed the carriage *P* to the saw and the shaft *B* is revolving in the opposite or reverse direction. It can be easily understood that when the upper end of the lever *L* is moved to the left, as shown in Fig. 1, the sliding plate *E* will be drawn toward the right, in which case the pin or roll *i* nearest the lever will drop down into the depression *e* and the remaining pin or roll *i* will be raised upon the higher edge of the sliding plate, throwing this end of the journal-bar *A* upward and with it the shaft *B* with its friction-roll, pressing the latter against the face wheel *J*, and consequently running the carriage *P* backward or toward the right. Now, if a pin *h* should be inserted and project from the side of the carriage *P* where shown in Fig. 1, when this pin comes in contact with the upper end of the lever *L* it will, by the momentum of the carriage, move this end of the said lever toward the right, and consequently force the sliding plate *E* to the left, changing the position of the rolls or pins *ii* by raising the one nearest the lever and dropping the remaining roll *i* into the depression *e* in the sliding plate. In this case the shaft *B'* will be raised and press the friction-pulley *d* thereon against the face wheel *J*, revolving the latter in an opposite direction and feeding the carriage *P* toward the right. Thus by inserting pins or having projections extend from different points on the side of the carriage *P* the latter can be made to reciprocate automatically between those points, or can at any time be stopped by drawing the lever *L* to a vertical position. As the upper edge of the sliding lever *E* and the surface of the depression *e* are parallel when the rolls *ii* are thrown off the inclines, they cannot of themselves slip back until the sliding plate is moved by the lever *L*, and thus either friction-roll *d* is firmly held against the face wheel until removed by a projecting pin on the carriage or by the operator.

This mechanism is not necessarily confined to machines having their carriages run by friction, as above described, for if cog-wheels were placed upon the shafts *B B'*, and the wheel *J* was also provided with cogs, they would be meshed independently in exactly the same manner, or pinion-wheels situated on the shafts *B B'* could also be meshed in and out of a rack by the same movement. Neither is this invention confined to a ma-

chine placed in a horizontal position, for the sliding plate E can be made to operate vertically when the bed-piece F is used in a machine in a vertical position by substituting a bell-crank between the operating-lever and sliding plate.

Having now fully described my invention and the particular manner in which it is used, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a machine having feed and reversing gear, the sliding mechanism for operating the same, consisting of the sliding plate E, having a depression with inclined or sloping ends, and means for attachment to a lever or other operating device, in combination with a connecting-piece having pins and the feed and reversing shafts, substantially as shown, and in the manner set forth and described.

2. In a machine of the kind described, the sliding plate E, having a depression with inclined or sloping ends, in combination with the

journal-bar A, having pins or rolls *ii*, attached for the purpose described, and the operating-lever L, and adjustable bed-piece F, substantially as shown and set forth.

3. The combination, with the feed and reversing gear of reciprocating carriages, of the mechanism for operating the same, consisting of the pivoted journal-bar A, having rolls or pins *ii*, the sliding plate E, having a depression with inclined or sloping ends, the adjustable bed-piece F, having transverse slots *o' o'* and studs *ff*, and guides *aa* projecting therefrom, for the purpose described, the operating-lever L, pivoted to the machine-frame and sliding plate, and projections attached to the reciprocating carriage for operating the lever, substantially as shown and described.

WILLIAM S. WHITMAN.

Witnesses:

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W. H. HARLOW.