

UNITED STATES PATENT OFFICE.

THOMAS REEVE, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN BELT-SHIFTING MECHANISMS FOR PLANERS AND LATHES.

Specification forming part of Letters Patent No. 142,814, dated September 16, 1873; application filed May 7, 1873.

To all whom it may concern:

Be it known that I, THOMAS REEVE, of the city of Brooklyn, in the county of Kings and State of New York, have invented certain Improvements in Stops for Self-Feeding Machinists' Lathe, Planing, and Boring Machines, of which the following is a specification:

This invention relates to the combination of a spring or weight connected with and causing motion to the belt-shifter, stop-lever, or other mechanism for stopping and starting the self-feeding lathe, drilling, planing, or other machine, to which it is applied, with an adjustable latch or detaining device for retaining said spring or weight until disengaged by the tool-slide or part, or connected with the feeding mechanism of such machine. By this means such machine is made capable of stopping automatically at any or every termination or change of its feed, or of the tool, or work, or position of the same, and does not, consequently, require the usual watch, for such termination, of the attendant, so that the attendant can perform other work safely besides attending the one machine, and may, in many cases, perform double the quantity of work, and so that the frequent breakage of the feeding-gear, by allowing the feed to continue beyond the extent of the stroke of the slide of the machine, may be entirely prevented.

In the annexed drawings, Figure 1 represents a front elevation of my improvements applied to a planing-machine. Fig. 2 is a detached edge view of the same.

A represents the sliding bed of a planing-machine. B is a piece of work secured and operated upon. C represents the tool cutting the face D of the work. E is the tool-slide; F, the feeding-screw of the machine. On the upper part of the slide E is a hub or guide, G, in which a rod, H, is held and secured by means of a set-screw, I. J represents a detaining-latch, which has a stud, L, and works on the fulcrum-pin K, secured to a vertical case, O, and said case is bolted to the side piece of the machine by means of screws or bolts O' passing through a vertical slot, P, in the same, as shown in Fig. 1. In the said case O is fitted a spring bolt or slide, M, which is pressed downward by a spring, N. The rod H has a

right-angular projection, H', on its end toward said detaining-latch J, which is made to come in contact with either side of the stud L to enable the same to act on said stud in either direction of the feed of the machine. Q represents the countershaft of the machine. It has the usual pulleys, Q' Q' Q', for driving the same, and has the loose pulley R for stopping and the tight pulley R' for giving motion to said countershaft. S represents the belt-shifter rod; S' S', its guides; and T, its lever, which latter is attached at T' with it. On one of the guides S', or any suitable separate support or standard, is attached a three-armed lever, U. Its one arm, U', has the weight or spring P' attached to it. Its secondary arm V has a flat connecting-rod, W, pivoted to it, and the rod W has a small notch, W', on its opposite end, to pass over a small stud, T'', on the lever T, by means of which the arm V can move the lever T. The third arm, X, of said lever U projects downward, and it has an ear or guide-loop, X', in which a rod rod, Y, is secured by means of a set-screw, X'', so that said rod may be adjusted to project more or less from the fulcrum of the lever U. To the end of the rod W is suspended a small rod, Z, for convenience of the attendant in reaching the rod W whenever he desires to engage or disengage the same from the stud T''. Now, in the upper end of the spring-slide M is secured a handle-shaped stud, 1, for the purpose of holding up said slide upon the top of the latch J, and also for stopping the rod Y, and thus supporting and stopping the weight P'. The rod Z has an eye, 2, on its lower end, which can be placed over a stud, 3, on the lower end of the shifter-lever T, by means of which the rod W is elevated and disengaged from the stud T'' to allow the attendant to use the shifter-lever in the ordinary way, and shift the belt from the tight to the loose pulley.

From the foregoing, it will be seen that if a piece of work, B, is to be planed, and the attendant desires to plane the face D and have his tool to feed in the direction of the arrow shown, he desires to stop the machine at the termination of the face D, or at the shoulder D', and adjusts the rod H to come in contact with the stud L, disengaging the

latch J from the stud I simultaneously with the tool reaching the shoulder D', thereby allowing the rod Y to pass by the stud I, and the weight P to move, and, by means of the rod W and lever T and rod S, to shift the belt from the tight to the loose pulley to stop the machine.

Instead of the above-described means for operating the belt-shifter from the tool-slide of the machine other means may be applied: The weight P' may be substituted by a spring, or the weight P' may be held or detained in a raised position by a hook, and it may be disengaged from any part of or connected with the tool-slide, and thereby the same result may be obtained as above described; and, in either case, whether the tool or work is fed, the motion for operating the stop above described is obtained from any part of the feeding mechanism.

Whenever the attendant does not require the automatic stop, he simply disengages the

rod W from the stud T'' by raising the rod W by means of the rod Z.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination lever T, three-armed lever U, weight P', and the detaining device, consisting of the latch, spring-bolt, and stud and the tool-slide, or their equivalents, when arranged to operate as and for the purpose specified.

2. The arm X, attached to the three-armed lever U, rod Y, adjustable case O, and adjustable rod H, when arranged to operate substantially as and for the purpose specified.

In witness whereof I hereunto set my hand this 4th day of May, 1873.

THOS. REEVE.

In presence of—

A. B. THORN,
E. W. COBURN.