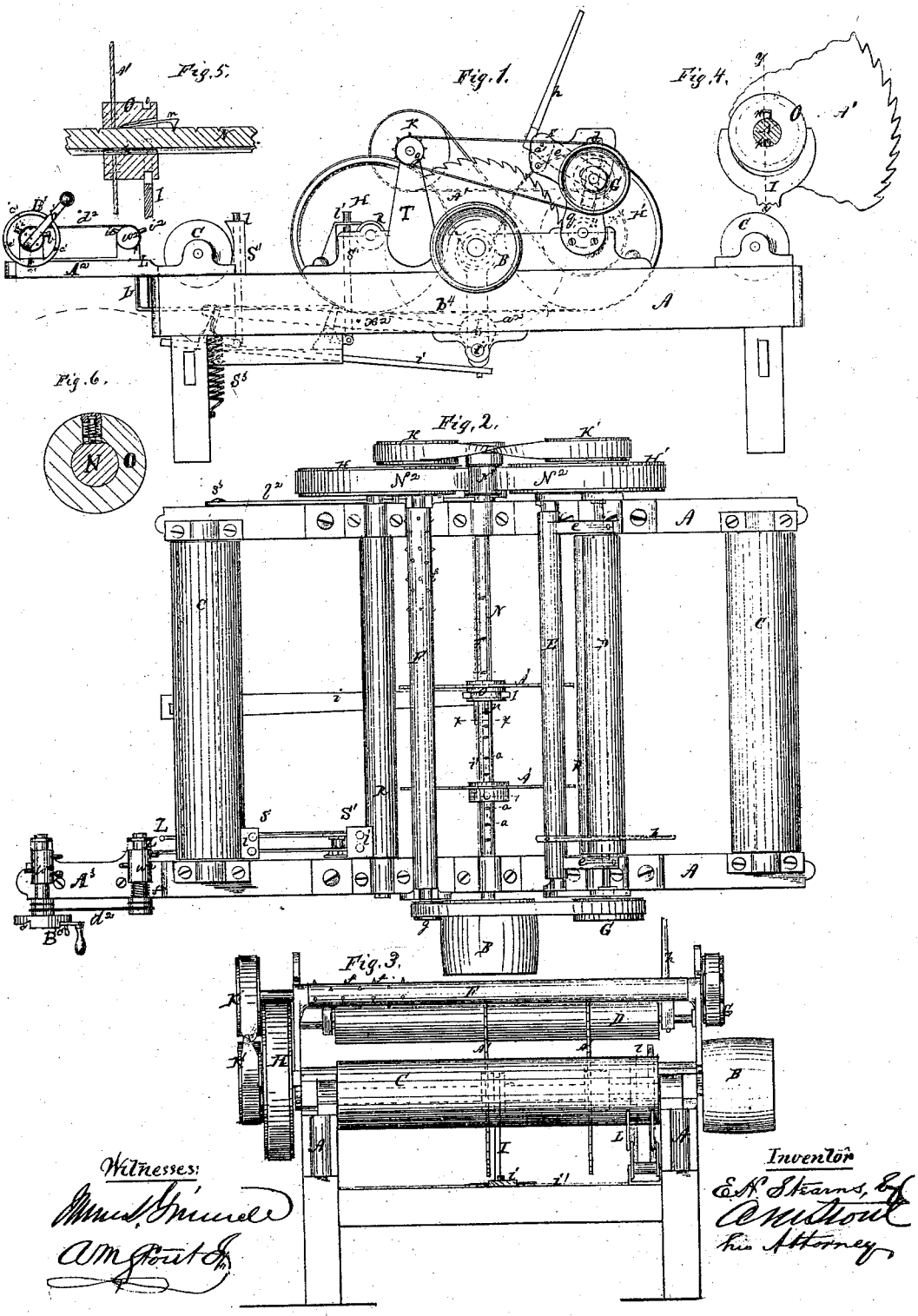
E. H. Stearns,

Edging Mach.

No. 111,093. Patented Jan. 17, 1871.



Witnesses:

Inventor

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UNITED STATES PATENT OFFICE.

EDWARD H. STEARNS, OF ERIE, PENNSYLVANIA.

IMPROVEMENT IN EDGING-MACHINES.

Specification forming part of Letters Patent No. **111,093**, dated January 17, 1871.

I, EDWARD H. STEARNS, of Erie, in the county of Erie and State of Pennsylvania, have invented certain Improvements in Edging-Machines, of which the following is a specification:

Nature and Objects of the Invention.

The first part of my invention relates to the construction and operation of the devices which I employ to move the saw to the right or the left on the arbor and set and fasten it where desired for the purpose of sawing planks into any widths required, and to do this with quickness, accuracy, and facility, these devices being a spring-latch seated on the sleeve, carrying the movable saw upon the arbor, in combination with corresponding notches in the arbor itself, whereby a saw may be stopped and held wherever there is a notch, and the stiffness of the spring is so regulated that it will yield to a certain amount of lateral pressure upon the sleeve, and the latch will let go its hold and the saw be left free to move to the next notch either way.

The second part of my invention relates to the peculiar operation of guides for use in sawing, with circular saw, planks into various widths, in such a manner as to be easily operated by simple handles, and not be liable to be disturbed in their action by sawdust, bark, or other trash.

The third part of invention relates to a returning-roller mounted above the saw and the feed-rollers, and revolving in an opposite direction, by which the portion of a plank which it is desired shall be a second time fed to the saw may be easily and safely passed to the front of the machine without danger of coming in contact with them.

The fourth part of my invention relates to the mounting and operation of a yielding feed-roller, the office of which is to hold, by its own weight, the planks down upon the feed-rollers while it is being fed to the saw, and at the same time by its revolving motion to aid these rollers to feed the planks to the saws, and its operation is such that it acts as efficiently with thick planks as with thin ones.

Description of Accompanying Drawing.

Figure 1 represents a side elevation of my machine, while Fig. 2 represents a top view of the same. Fig. 3 shows an end view taken from the front. Fig. 4 shows a cross-sectional view of the yoke by which the saw may be moved laterally on the saw-arbor, and of the saw-arbor itself. Fig. 5 shows a longitudinal vertical sectional view of the sleeve and arbor, taken through the lines *y y*, Fig. 4, showing also a side view of the spring-latch and notches in the arbor. Fig. 6 shows a cross-sectional view of the sleeve and arbor, exposing to view the latch, spiral spring, and screw-cap.

General Description.

The side pieces A A should be supported by a sufficient number of legs, and should be framed together by two or more cross-pieces, and thus constitute a frame for the operative parts of the machine.

The feed-rollers R E are revolved upon their journal-boxes, seated upon the frame, one or more in front and a like number in the rear of the saws, by the band passing over the pulleys H and H′ and under the small pulley N′ on the end of the arbor N, as shown, and another band, crossed, passing over the pulleys K K, communicates revolving motion to the return-roller F, but in an opposite direction to that of the feed-rollers.

The purpose of the return-roller F is to facilitate the passage of a plank back to the front end of the machine, in order that it may be again fed to the saws, in order to cut off other strips and scantlings from the same.

A portion of the length of the roller is provided with short spurs or spikes over its surface, to prevent the plank from slipping when placed upon it to be carried back to the front.

The feed-rollers being placed above and nearly over the saws, as shown, the end of the plank is placed upon it from the rear of the machine. It then carries the plank forward until the weight of the forward end becomes greater than the rear end, when it tilts downward and is delivered in the front with perfect safety.

The old method of returning the planks upon top of the pressure roller or rollers was exceedingly dangerous because of the constant liability of bringing them into contact with the saws, which would throw them forward with almost irresistible force, and prove very

destructive. Again, to stop and reverse the feed-rollers to carry the planks forward would involve a great loss of time. Again, to use two return-rollers above the saws, besides involving the construction and mounting of two rollers instead of one, would prove inconvenient and unsatisfactory in practice. But in the use of my single roller, turned by a band over a pulley on one of the feed-rollers, or upon the arbor itself, one plank can be returned with safety and convenience while another is being fed to the saw. This roller, by means of the small pulley on the end of it and a band over that pulley and the pulley G, revolves the auxiliary yielding feed-rollers P in the same direction—namely, toward the front of the machine. This last-named roller, by its weight alone, presses the planks down upon the feed-rollers and prevents their slipping upon the same, and thus secures their steady forward movement, and at the same time aids the feed-rollers to draw them through the machine. It adjusts itself to any thickness of the planks by means of the curved guides and hinged guides shown in the drawing.

In the saw-arbor N is cut a series of V-shaped notches, *a a a*, at intervals of from one to two inches, for the use of the spring-latches, hereinafter described, and the saws A′ A′ are made fast to the sleeves O O, which are nicely fitted to the arbor, so as to move evenly along on the same.

Suitable grooves are cut in the arbor along its entire length, as shown at *p*, Fig. 5, and by means of keys driven into them the sleeves are prevented from turning upon the arbor; but they may be moved laterally upon the arbor until they reach the notches, which the V-form latches will enter by the force of their springs.

Two different forms of springs are used by me to operate differently-formed latches, though the entering-points of the latches have the same V form to suit the V-shaped notches in the shaft N.

In Fig. 6 is shown the spiral spring seated against the screw-cap at one end, while it is pressed at the other by a collar upon the catch itself.

In Fig. 5 is shown the other form of spring, *r*, the inner end of which is seated in the sleeve.

Now, when the sleeve is moved laterally on the arbor, the V-shaped point moves easily along the smooth surface until it comes to a notch, which it enters with a snap. These latches will resist a certain amount of lateral pressure against the sleeve, but, on account of the form of their points, will finally yield and pass out of the notches.

The stiffness of the springs should be graduated, so as to have the precise amount of resisting power required.

In order to move the shaft laterally on the shaft, the yoke I is provided, having a sleeve, which incloses and is supported by a rod extending from one side of the frame to the other, as shown in the drawing.

I wish it understood, however, that I do not confine myself to any particular form of spring for the latch.

The yoke, being fitted to the sleeve, is operated by the lever *i*, as shown, and thus the inconvenient necessity of a link-connection is dispensed with, and the saw may be moved along the entire length of the arbor and set and fastened for use at any point desired with certainty and the utmost precision.

The guide-pins *l l* are represented by dotted lines in Fig. 1, and their braces S S in Fig. 2. They are operated by means of bell-crank levers having suitable fulcrums upon the lower part of the main frame. The form of these levers and their mode of attachment to the guide-pins and to the straight handles L L are represented by dotted lines in Fig. 1. These guides are made to rise above the supporting and feed rollers by the operator simply pulling the handles L L horizontally toward himself, and lowered by pushing them in like manner from him. Each handle operates a front and rear guide, which are connected, and are in line with the machine, and as many sets of them may be used in one machine as may be useful. The great utility of these guides is manifest. The clean smooth pins *l l* afford no room for the lodgment of bark or trash of any kind, and therefore their guidance of the planks straight through the machine cannot be obstructed by the articles before mentioned; but without these guides, or in the use of strips of planks for guides, chips, bark, and other trash will be much in the way, and cause the lumber to be sawed of uneven width, and result in loss.

I have, however, invented another device, which I consider superior to the one above described, for which it may be substituted; or both may be used together in the same machine.

In edging planks that are unusually long, and under certain other circumstances, it may not be convenient for the operator to get near enough to the front of the machine to operate the device first described by the handles L L; but while using the one last described he may stand at a considerable distance in front of the roller C and operate the guide-pins of the device.

In Fig. 1, A^2 is the bed-piece of the device, bolted upon the side piece A, or it may be made as a continuation of the same piece; and upon that bed-piece is bolted the metal piece A^3, which furnishes the four standards, in the top of which the two windlasses a^2 w^2 have the bearings for their journals, upon which they turn, as shown in Fig. 2. On the drums of these windlasses is a number of rigid upright guide posts or pins, such as *i i i*, which are so arranged on the surfaces of the drums that when the forward drum is turned by the crank *b′* the rear drum will be turned also in the same direction by means of the chain d^2, and that if the forward drum is stopped in revolving at a certain point where there will be

no guide-pins above its surface, then the same will be the case with the rear drum; or if it be stopped at a point where a guide-pin will extend up from the center, or from any other point along the length of that drum, then a guide-pin shall extend up from the center; or from any point along the length of that drum, then a guide-pin shall extend up from an exactly corresponding point of the rear drum also.

By means of the spiral spring S^2 the rear windlass will constantly exert a certain amount of force to unwind the chain from the forward one, and thus the chain will always be kept in a state of tension, while the forward windlass may be set at any point desired by means of the spring-crank b', which will force itself into any of the notches c' c' c' c' in the side of the wheel B′, and prevent its being revolved until it is sprung out by a force exerted for that purpose. The result of this mechanism is that the operator, by turning the spring-crank back and forth, can bring above the top surfaces of the drums two guide-pins at any desired and equal distances from the side of the machine, one being upon each of the drums, and both in a line parallel to the side pieces A A.

It is also obvious that neither barks, chips, nor trash of any kind can interfere with the action of this device.

Claims.

I claim as my invention—

1. The combination of the saw-carrying sleeve *o*, provided with the described catches, operated by springs, and the arbor N′, with its notches, substantially as and for the purpose described.

2. The rising-and-falling guides *l* *l*, which may be raised above the feed-rollers to guide the lumber, and lowered below and out of the way of the same, as and when desired, constructed and operated substantially as and for the purpose described.

3. The windlasses w^2 w^2, the metal piece A^3, with the four bearings for the journals of the windlasses, the notched wheel B′, the spring-crank b', the spring f^2, the arrangement of the pins *i* *i* *i* *i* upon the drums of the windlasses, in combination, when each is constructed and all are arranged substantially as and for the purpose described.

4. The single return-roller F, provided with spurs, and revolving in an opposite direction to that of the feed-rollers, with the said feed-rollers R E, and the saw-arbor N and frame A, when all are constructed and arranged substantially in the manner described.

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