

J. M. STOWELL.
Sawing-Machines.

No. 142,294.

Patented August 26, 1873.

Fig. 1.

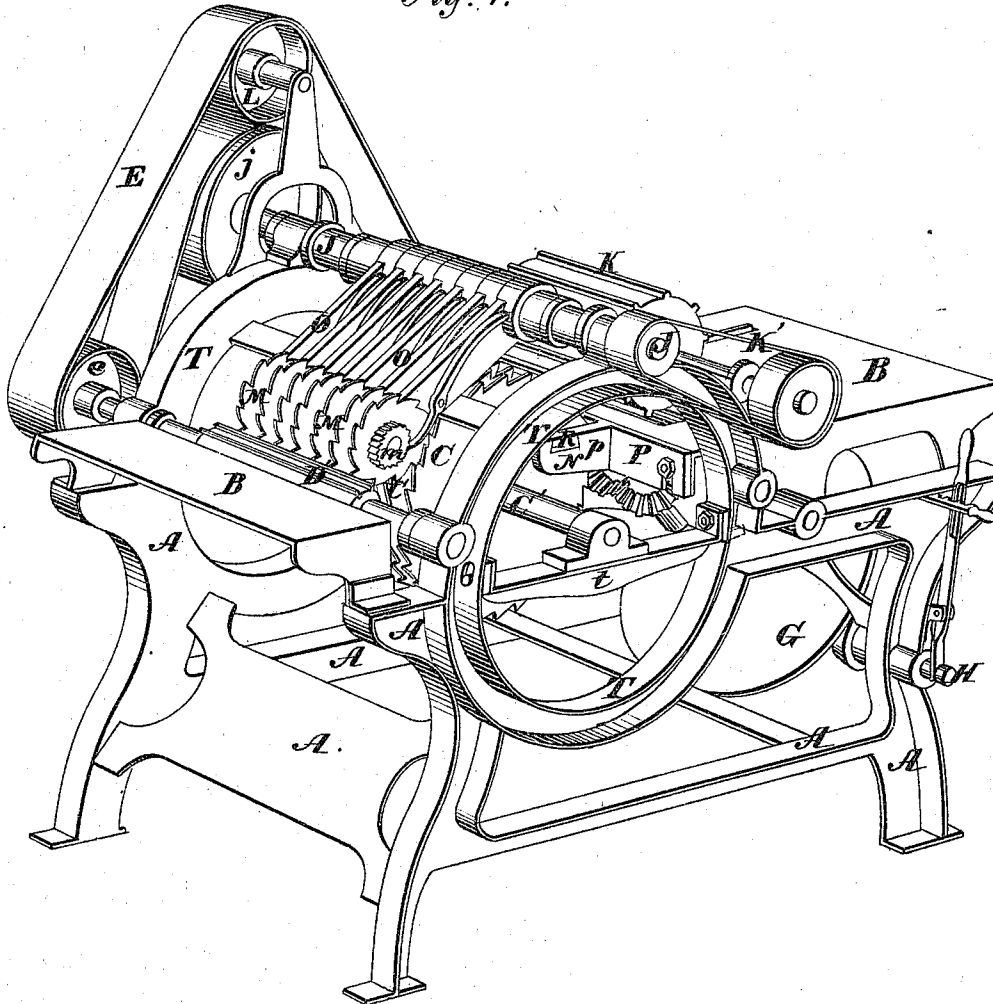


Fig. 4.

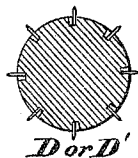
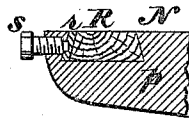


Fig. 5.



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Fig. 2.

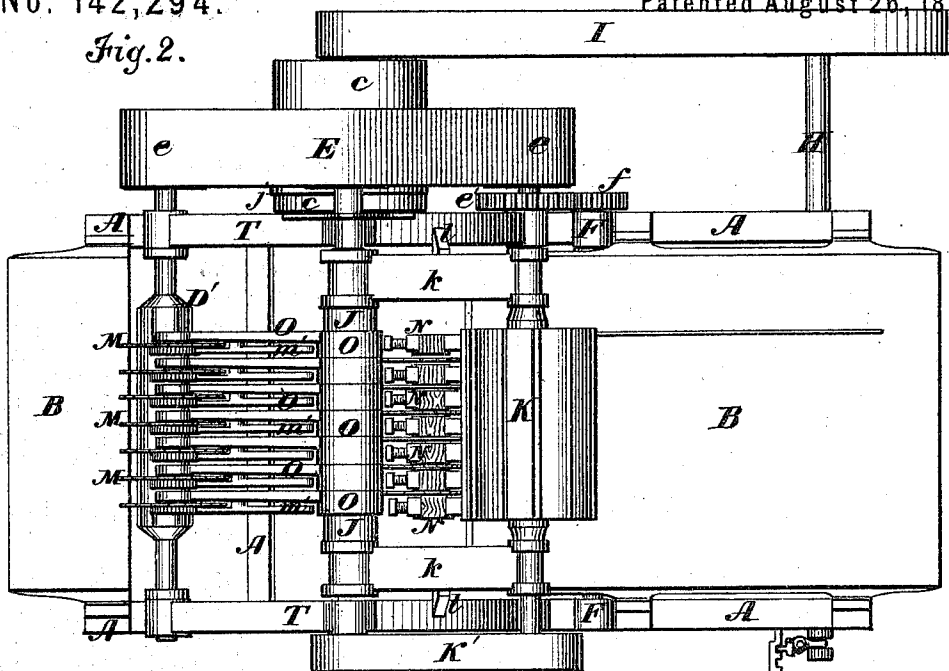
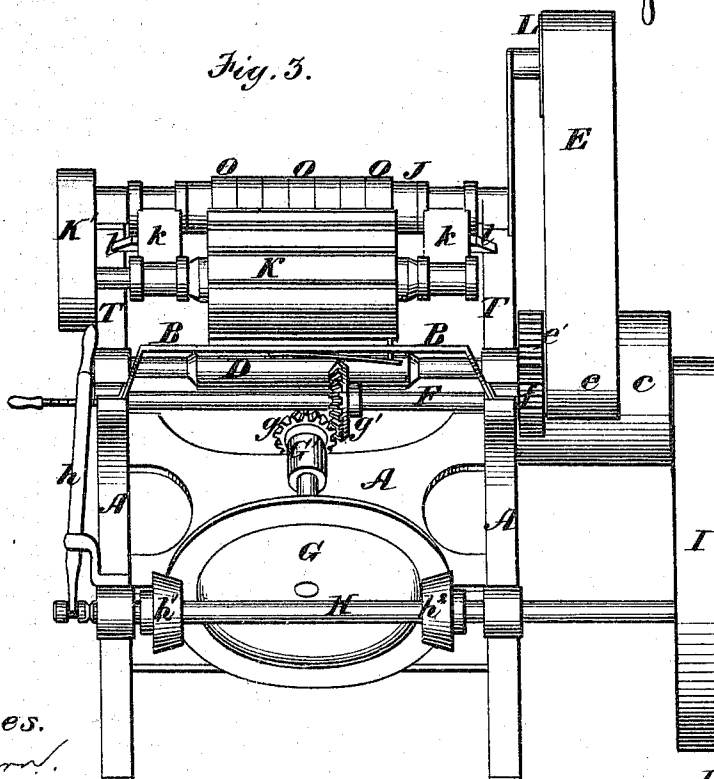


Fig. 3.



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JOHN M. STOWELL, OF MILWAUKEE, WISCONSIN.

IMPROVEMENT IN SAWING-MACHINES.

Specification forming part of Letters Patent No. 142,294, dated August 26, 1873; application filed July 17, 1873.

To all whom it may concern:

Be it known that I, JOHN M. STOWELL, of the city and county of Milwaukee and State of Wisconsin, have invented a new and useful Improvement in Sawing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings forming part of this specification, in which—

Figure 1 is a perspective view; Fig. 2, a top-plan view; Fig. 3, a front elevation of my improved machine. Fig. 4 is a cross-section of one of the lower feed-rolls, and Fig. 5 is a longitudinal vertical section of one of the guide-blocks.

Similar letters of reference in the accompanying drawings indicate the same parts.

The object of this invention is to improve the construction of gang-bolters, so as, first, to render the feed more uniform and reliable; secondly, to prevent the cutting-saws from throwing slabs or bolts forward, in consequence of their rear edges seizing said slabs or bolts either before or after they are cut off; thirdly, to compensate for the wearing away of the saw-guides; fourthly, to improve the construction and reduce the cost of the lower feed-rolls; fifthly, to improve the operation of the reversing movement. To this end the invention consists in the several means, which are hereinafter described, for accomplishing the objects referred to.

In the drawings, A is the frame of the machine, mounted upon any suitable supports, and provided with a feed table or tables, B, arranged substantially as shown. CCC is the gang of saws, mounted upon an arbor, C', and driven by power applied to a belt-pulley, c. D D' are the lower feed-rolls, connected together so as to move in the same direction by means of a belt, E, which passes over small pulleys e e on the extreme end of the lower feed-roll shafts, as shown. e', Fig. 3, is a small spur-wheel on the shaft of the feed-roll D, gearing with a similar spur-wheel, f, on a shaft, F, under the feed bed or table B. G is a large beveled friction-pulley, mounted on the lower end of an inclined shaft, G', the upper end of which gears with the shaft F by means of miter-wheels g g'. H is a transverse shaft, mounted in suitable bearings, so as to be capable of a

slight longitudinal sliding movement, and driven by means of a belt, I, from the main shaft or saw-arbor C'. h is a small hand-lever, by which the shaft H can be moved longitudinally in either direction, and locked with the small beveled friction-wheel h¹, or the similar wheel h² in gear with the large inclined wheel G, so as to rotate the latter in either direction at will by simply changing the position of the hand-lever h, and without changing the direction of rotation of the shaft H. J is a transverse shaft, mounted on the highest part of the frame over the saws, and driven by the belt E, the lower side of which passes over a pulley, j, on its end. k k are two arms, articulated at one end upon the shaft J, and at the other end furnishing bearings for the shaft or journals of the upper feed-roll K, which is made very large and heavy, longitudinally corrugated, and driven from the shaft J by means of a belt, K'. ll are stops, to prevent the upper feed-roll from sinking too low; and L is a pulley, above the pulley j, preferably supported by a vertically-adjustable frame or bearing, for the purpose of sustaining the upper side of the belt E, and furnishing means for tightening the latter.

In connection with the parts above enumerated are the guard-saws M M and the saw-guides N N, which are hereinafter more fully described.

The first part of my invention consists in the employment of the large and heavy upper press-roll K, supported in such a manner that it will rise and fall to adapt itself to the shape and size of the lumber fed through under it. This roll is corrugated or ribbed longitudinally, as shown, so that when the ends of the slabs are presented to it the corrugations will strike upon them, lift the roll up or cause it to climb upon the slab, after which it will continue to rotate, and will help move the stuff along to the saws, thus avoiding all necessity for first raising the roll in order to let the stuff pass under it. The function of this roll is not so much to feed the stuff forward as to press it down upon the feed-roll D; but having a positive rotation of its own, it assists the lower roll in feeding.

The second part of my invention consists in the employment of the guard-saws M M,

as I will now proceed to describe. These saws, preferably one more in number than the cutting-saws and arranged behind the latter in line with the lumber passing between them, are supported upon arms *O O* articulated upon the shaft *J*, so that the saws can rise and fall freely to conform to the size and shape of the stuff. Each of these saws is screwed to a cast-iron ratchet-wheel, *m*, and placed on a short shaft or stud, which revolves freely in a suitable bearing in the free end of the corresponding arm *O*. The ratchet-wheels, and consequently the guard-saws, are prevented from backward rotation by means of spring or weighted pawls *m'*, fastened to the side of the arms *O O*. The saws, bearing upon the lumber both before and after it is cut off, operate to press it down upon the rear feed-roll *D'*, and at the same time their teeth engage with it and prevent it from being accidentally driven back toward the front end of the machine by the rear edges of the cutting-saws catching into it, or from any other cause.

The third part of my invention consists in the improved construction of the saw-guides, for the purposes hereinbefore referred to. I attach to the front end of the forward feed-table a plate, *P*, having arms *p p*, one or more in number than the cutting-saws, projecting back between and on each side of said saws, and holding wooden guide-blocks *R*, wider than the arms *p*, for the purpose of keeping the edges of the saws in the proper relative position. The pieces of wood are liable to wear away by the friction of the saws against them, and to provide for their ready adjustment I place them in a transverse groove made in the upper side of the arms *p*, the forward edge of which groove is inclined under or dovetailed, while the rear edge is nearly or quite vertical. Between the wood and the arm on said vertical side of the groove I insert a metal clamping-plate, *r*, and I clamp the wood firmly in its bed by means of a screw, *s*, which passes horizontally through the end of the arm against or into the clamping-plate. By loosening the screws I can easily remove the wooden blocks or readjust them whenever they get out of their proper relation to the saws.

The fourth feature of my invention consists in the construction of the lower feed-rolls. I am aware that rolls of wrought-iron have been constructed with grooves, into which are inserted saws with the teeth projecting outward, and fastened in position by calking or hammering the wrought-iron along the edge of the

grooves against the surface of the straight narrow saws inserted therein. On the contrary, I make my rolls of cast-iron, with longitudinal grooves cast therein wider than the saws, insert the saws or rough-edged strips of steel into the grooves, place a strip of copper or other malleable metal in the groove alongside of the saw, and calk or tamp this soft metal firmly into the groove and against the saw, so as to hold the latter securely in place. A strip of steel sharpened to an edge may be employed instead of the saws. This method of construction greatly reduces the cost without impairing the efficiency of the feed-rolls.

The fifth part of my invention—namely, the means for reversing the feed without changing the direction of rotation of the driving-wheel—has been hereinbefore fully described.

The sixth part of my invention consists in the improved construction of the frame, by which the saws can be removed without taking out the arbor. To this end each side of the frame is provided with a large circular part, *T*, across the center of which extends a beam, *t*, bolted through flanges to the frame, and supporting the arbor journal-box. Whenever it is necessary the beams, or either of them, can be removed, and the saws detached and taken out through the circular opening in the frame without removing the arbors.

Having thus described my invention, what I claim is—

1. The corrugated or ribbed press-roll *K*, combined with the table *B*, and articulated upon the shaft *J* by means of the bearing-arms *k k*, substantially as described, for the purposes specified.

2. The guard-saws *M*, capable of a movement with the feed, but not against it, substantially as and for the purpose set forth.

3. The adjustable wooden guard-blocks *R*, substantially as and for the purposes described.

4. The feed-rolls *D D*, having longitudinal peripheral grooves cast therein, in which the steel strips are inserted and held in place by a filling of soft metal, substantially as described.

5. The combination of the shaft *H*, wheels *h¹ h²*, large wheel *G*, lever *h*, miter-wheels *g g'*, shaft *F*, spur-wheels *e' f*, and feed-rolls *D D'*, connected together as described.

JOHN M. STOWELL.

Witnesses:

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