

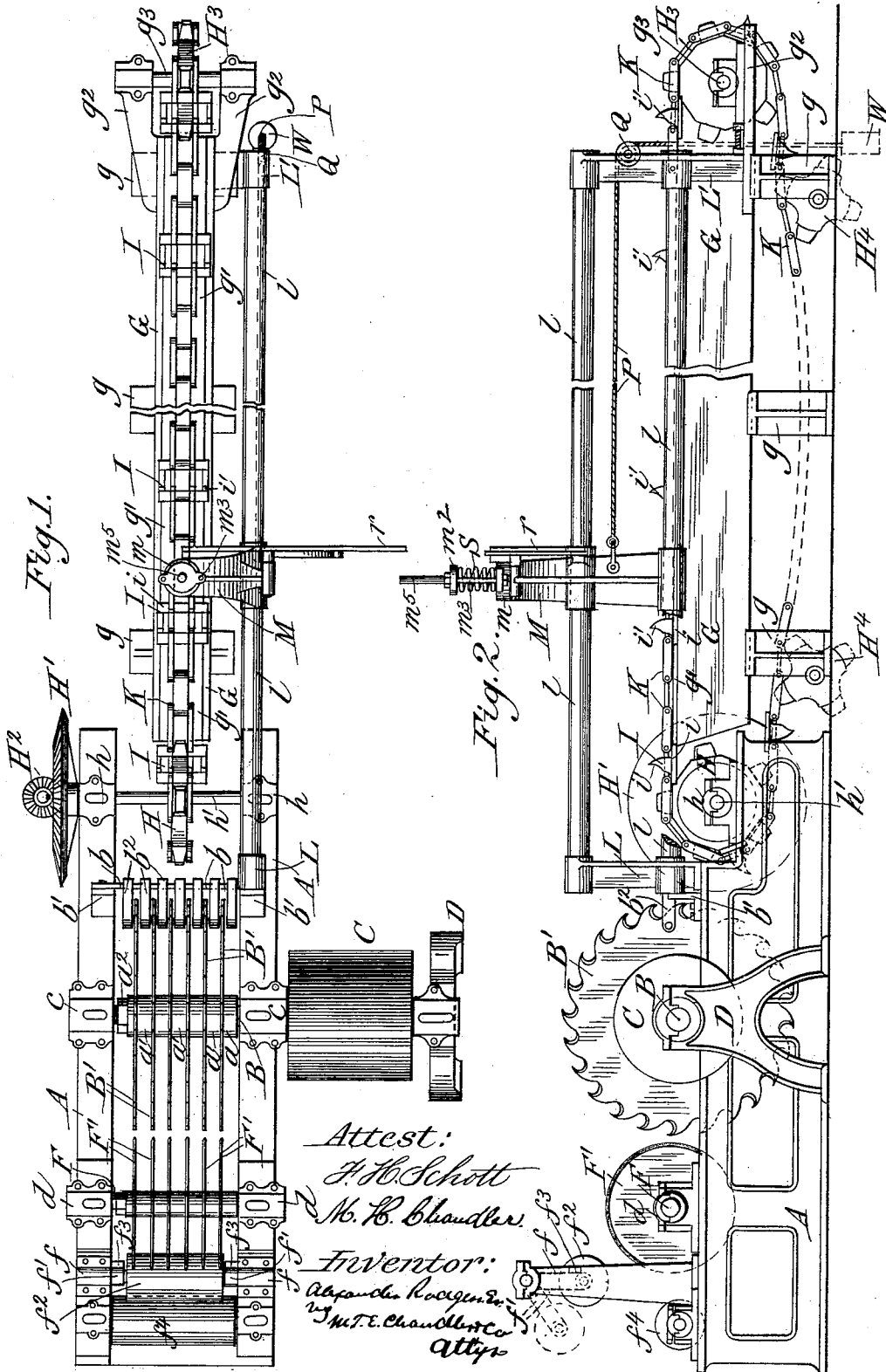
(No Model.)

2 Sheets—Sheet 1.

A. RODGERS, Sr.
SAWING MACHINE.

No. 482,319.

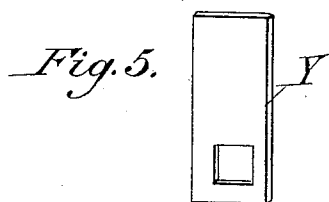
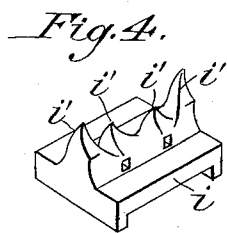
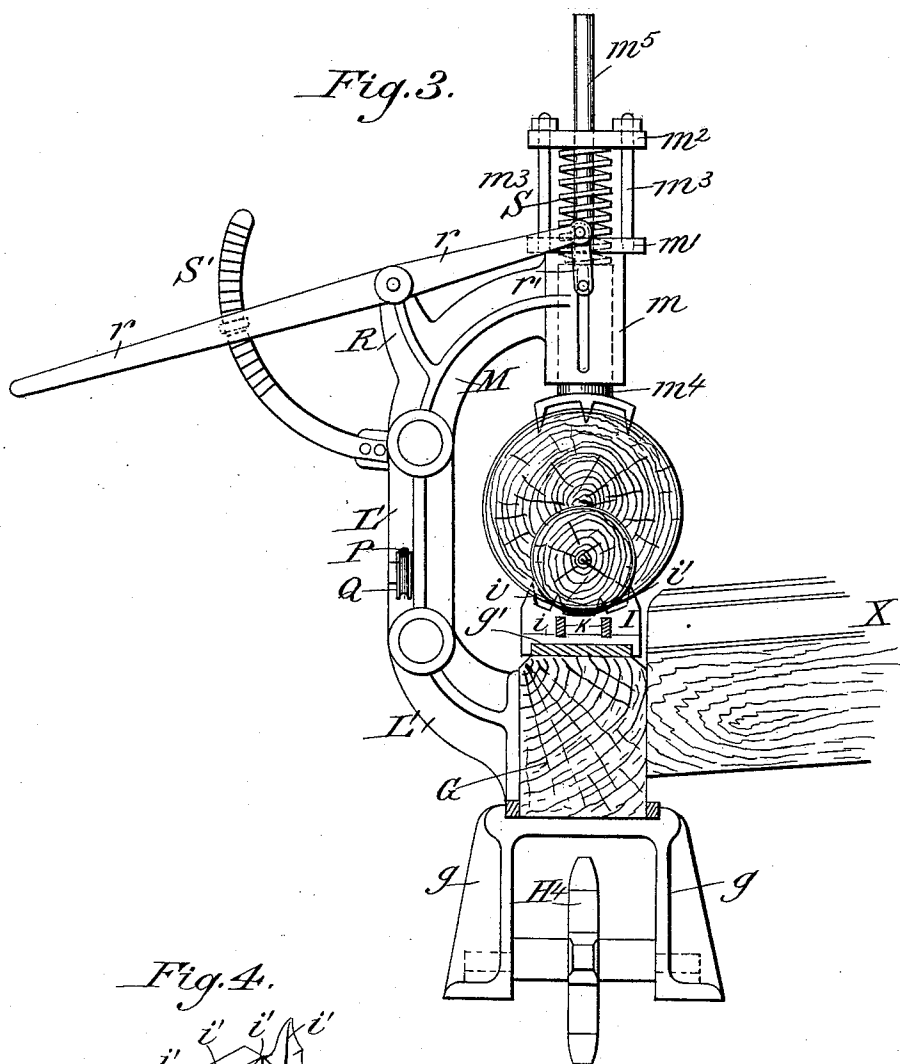
Patented Sept. 6, 1892.



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SAWING MACHINE.

No. 482,319.

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Attest:

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Inventor

Alexander Rodgers Sr.
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Attys

UNITED STATES PATENT OFFICE.

ALEXANDER RODGERS, SR., OF MUSKEGON, MICHIGAN, ASSIGNOR TO THE
RODGERS IRON MANUFACTURING COMPANY, OF SAME PLACE.

SAWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 482,319, dated September 6, 1892.

Application filed March 28, 1892. Serial No. 426,806. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER RODGERS, Sr., a citizen of the United States, residing at Muskegon, in the county of Muskegon and State of Michigan, have invented certain new and useful Improvements in Sawing-Machines, of which the following is a full, clear, and exact description, such as will enable those skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

The invention relates to improvements in that class of sawing-machines which are adapted to reduce logs to boards, in which gang circular saws are used, and in which the logs are fed to the saws by a suitable dogging mechanism.

The special object of this invention is an improved construction of the feed mechanism, whereby the logs when placed upon the main feeding mechanism will be firmly held thereon and not liable to accidental displacement, so that they will be fed to the saws in a positive and correct alignment. In this way injury to the saws by improper feeding is avoided, and as the logs are fed in a straight line the lumber will in consequence be free from warps and other defects, which result from improper feeding. In carrying out these improvements a frame is constructed of metal, upon which the operative parts of the sawing-machine proper are mounted. These consist, essentially, of a suitable driving shaft or arbor revolving in bearings attached to the opposite sides of the frame, said shaft or arbor carrying the adjustable circular saws, and of a shaft mounted in a similar manner immediately back of the arbor, carrying adjustable disks or knives, which are so adjusted that each one of them will be immediately back of a saw. It also consists of a beam supported longitudinally of the machine, extending from the front of the sawing-machine proper and having ways upon its upper surface upon which an endless sprocket-chain driven by suitable sprocket-wheels moves and carries bunks or dogs, and also of an auxiliary dogging device consisting of guides supported at the side of the beam parallel to the ways on the same, which carry a framework which

supports directly over the upper face of the beam a spring-operated dog and which frame is adapted to move on the guides with the sprocket-chain.

The invention further consists of the novel combination and arrangement of parts, as will be more fully hereinafter described, pointed out in the appended claims, and illustrated in the accompanying drawings.

In the accompanying drawings, in which similar letters of reference designate corresponding parts, Figure 1 is a plan view of a sawing-machine embodying the invention, being broken away in part. Fig. 2 is a side elevation of the same. Fig. 3 is a cross-section showing the guides and frame of the auxiliary dogging device and its adjunctive parts. Fig. 4 is a detail perspective view showing one of the dogs or bunks carried by the sprocket-chain. Fig. 5 is a similar view of one of the knives to be substituted for the disks.

In the several figures of the drawings, A represents the frame of the sawing-machine proper, consisting, essentially, of two side pieces placed at suitable distance from each other and firmly united by cross-bars bolted to the side pieces. This frame carries in suitable journal-boxes *c c* the arbor B, which crosses the frame and is provided at one end with a pulley C, upon which the belt runs and through which power is communicated to the saws, and it is supported outside of the pulley by the bracket D. The construction of the journal-boxes carrying the arbor is such that the latter can be easily removed.

B' B' designate the saws carried by the arbor, which are carried thereon and secured by first placing the collar *a* in position and securing it in place; or this collar may be made integral with the arbor, then alternately placing a saw and a splined collar *a'* in position until the desired number of saws have been mounted, and then by means of the nut *a²* the saws and their intervening collars are bound together and secured upon the arbor.

In front of the saws the bar *b* is secured, having its ends bolted to the brackets *b' b'*, fastened to the side frames, and it carries the adjustable guides *b² b²*, which extend between the saw-blades, serving to steady them in their proper relative positions and to run true.

Immediately back of the saw-arbor and parallel with it the shaft F is mounted, with its ends journaled in the journal-boxes *d d*. On this shaft the disks F' F' are mounted and secured in a manner similar to that in which the saws are mounted and secured on their arbor. There is the same number of disks as there are saws, and they are so adjusted and secured that each disk will revolve in the same plane as the saw immediately in front of it. These disks may be replaced by the knives Y Y, (shown in Fig. 5,) which will answer the same purpose. The disks are, however, to be preferred.

Back of the journal-boxes of the shaft of the disks the standards *f f* are secured to the side frames and have pivoted in their upper ends the upper ends of the swinging arms *f' f'*, between the lower ends of which the binding-roller *f²* is journaled. To limit the forward swing of the binding-roller, the stops *f³ f³* are provided. Back of the standards *f f* the roller *f⁴* is journaled.

On the side frames near their front ends, which are depressed for the purpose, the journal-boxes *h h* are secured, in which the shaft *h'*, which extends transversely of the frame, is journaled. On this shaft, midway of the side frames, the sprocket-wheel H is keyed. Power is communicated to the shaft by means of the bevel-gear H', secured on a projecting end of the shaft and meshing with a similar gear H², connected with suitable driving mechanism.

G designates a beam of suitable size and strength extending longitudinally from the front of the frame A and supported by the chains *g g*, so that its upper face is nearly flush with the tops of the adjustable guides *b² b²*. On its upper face is secured the ways *g'*. From the front end of the beam project the supports *g² g²*, between which the sprocket-wheel H³, similar to the sprocket-wheel H, is keyed on the shaft *g³*, journaled in the adjustable journal-boxes carried by the supports.

I I represent bunks or dogs adapted to travel on the ways *g'*. Each of them consists of a base-plate *i*, having flanges on its under side to engage with the ways, and has projecting from its upper face the spikes *i' i'*.

K designates an endless sprocket-chain carried by the sprocket-wheels H and H³, which passes along the upper face of the beam G toward the saws and returns beneath the beam, the slack being carried by the sprocket-wheels H⁴ H⁴, journaled between the legs of the chairs *g g*. The bunks or dogs I I are attached to the chain in any suitable manner and move on their ways with the same, the proper adjustment between the sprocket-wheels H and H³ to allow the proper register of the sprockets with the links of the chain being secured by the adjustment of the journal-boxes of the shaft of the wheel H³.

L and L' designate brackets secured, respectively, to the front end of one of the side pieces of the frame A and to the front end of

the beam G, the bracket L' being curved at its lower end, so as to bring it in alignment with the bracket L, both brackets being such a distance to the side as to allow the necessary clearance of a log passing on the ways. These brackets carry the guides *ll*, extending longitudinally of the machine and parallel with the ways. Carried by the guides *ll* is a frame M, provided with suitable bearings to register with the guides. The frame is so curved that its upper end will be directly over the ways *g'*, and has attached thereto the vertical cylinder *m*. The upper end of the cylinder is provided with an annular flange *m'*. Above the cylinder the annular plate *m²*, perforated at its center, is supported by means of the bolts *m³ m³*, passing through its edge and the annular flange *m²*. Within the cylinder the dog *m⁴* is carried, having a shank *m⁵* extending from its upper end through the plate *m²*. Between the plate and an abutting portion of the dog around the shank of the latter is the coiled spring S, the tendency of which is to force the dog downward. From a suitable place on the frame M the arm R projects and carries the lever *r*, the inner end of which is connected by the link *r'* with the dog *m⁴*, the cylinder being suitably slotted for the purpose. The object of the lever is to raise the dog against the action of the spring. In order to retain the dog in a raised position when it is desired, the segment S' is provided, to which the outer end of the lever can be attached in any suitable manner.

Attached to the front side of the frame M is a rope P, which extends to the front end of the guides and passes over the sheave Q and has attached to its free end the weight W. By means of the rope and weight the auxiliary dog will when released from a log be returned to the proper position for the next log, rendering the action to some extent automatic.

X designates a skidway of the ordinary construction, adapted to carry the logs to the feed mechanism.

The operation of the device is as follows: The auxiliary dogging mechanism having been brought into position by the weight and the spring-actuated dog *m⁴* having been raised, a log is then rolled upon the ways in contact with the bunks carried by the sprocket-chain and placed in the proper position to be fed to the saws. The lever *r* is released to allow the spring to drive the dog *m⁴* firmly into the log. The driving mechanism is then put in motion. The dogs carried by the sprocket-chain being compelled to move in a straight line by the ways *g'*, and the auxiliary dogging mechanism being likewise compelled to move in a straight line by its guides, the log, being firmly held by these devices, will be fed to the saws in a positive and correct alignment. The saws in consequence will cut even and true kerfs. The disks back of the saws will enter the kerfs and keep the boards from

springing together and pinching the saws on their rear sides to cause friction to heat the saws and injure them. The disks also serve to sustain the boards in an upright position, so that they will not fall sidewise on the saws and be caught up by the latter in their upward movement and thrown back on the operator to injure him. The binding-roller f^2 serves to bear upon the boards and keep them down if they should have a tendency to raise.

By means of the construction described a machine will be secured that will lessen the liability of a workman being hurt, that will lessen the liability of the saws being spoiled by improper feeding and the tendency of the boards to spring together and be caught by the saws in their upward movement in the kerfs, and thereby produce friction to heat them, and which will insure a better product of lumber.

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

1. In a sawing-machine, the combination of the main feeding mechanism, the frame mounted independent of the said mechanism and movable parallel with the same, and a dog carried by the said frame, substantially as described.

2. In a sawing-machine, the combination of the ways, the endless sprocket-chain, the dogs or bunks carried by the said chain, the frame mounted to move parallel with the said chain, and the dog carried by the said frame, substantially as described.

3. In a sawing-machine, the combination of the main feeding device consisting of the main support or base, the ways mounted thereon, the sprocket-wheels journaled one at each end of the said support or base and one of them being adjustable, the chain carried by the said wheels, and the bunks or dogs carried by the said chain, with the frame mounted to move parallel with the said feeding device, and the dog carried by the frame, substantially as described.

4. In a sawing-machine, the combination of the main feeding mechanism, the movable frame mounted independent of the said mechanism, the dog carried by the said frame, and the means for retracting the said frame, substantially as described.

5. In a sawing-machine, the combination of the ways, the endless sprocket-chain, the dogs or bunks carried on the said ways by the said chain, the guides parallel with the said ways, and the auxiliary dogging device carried by the said guides, substantially as described.

6. In a sawing-machine, the combination

of the ways, the endless sprocket-chain, the dogs or bunks carried on the said ways by the said chain, the guides parallel with the ways, the frame carried by the guides, and the spring-actuated dog carried by the said frame, substantially as described.

7. In a sawing-machine, the combination of the main feeding mechanism, the guides mounted parallel with the said mechanism, the frame mounted on the said guides, the dog carried by the said frame, and the rope leading from the frame to the front of the machine, passing over a sheave and having a weight attached to its end, substantially as described.

8. In a sawing-machine, the combination of the main feeding mechanism, the guides parallel with the line of movement of the said mechanism, the frame movably mounted on the said guides, the cylinder carried by the frame, and the dog movably mounted in the said cylinder, substantially as described.

9. In a sawing-machine, the combination of the main feeding mechanism, the frame mounted independent of the said mechanism and movable parallel with the same, the cylinder carried by the frame, and the dog movably mounted in the said cylinder, substantially as described.

10. In a sawing-machine, the combination of the main feeding mechanism, the frame mounted independent of the said mechanism and movable parallel with the same, the cylinder carried by the frame, and the spring-actuated dog mounted in the said cylinder, substantially as described.

11. In a sawing-machine, the combination of the main feeding mechanism, the frame mounted independent of the said mechanism and movable parallel with the same, the cylinder carried by the frame, the perforated plate or guide mounted above the cylinder, and the spring-actuated dog mounted in the cylinder and having a shank registering with the perforation in the said guide or plate, substantially as described.

12. In a sawing-machine, the combination of the main feeding mechanism, the frame mounted independent of the said mechanism and movable parallel with the same, the cylinder carried by the frame, the spring-actuated dog mounted in the cylinder, and the lever pivoted to the frame and connected with the dog, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ALEXANDER RODGERS, SR.

Witnesses:

J. C. McLAUGHLIN,
KATIE E. DELANTY.