

(No Model.)

2 Sheets—Sheet 1.

D. HAZARD.
ATTACHMENT FOR GANG SAW MILLS.

No. 462,797.

Patented Nov. 10, 1891.

FIG. 1-

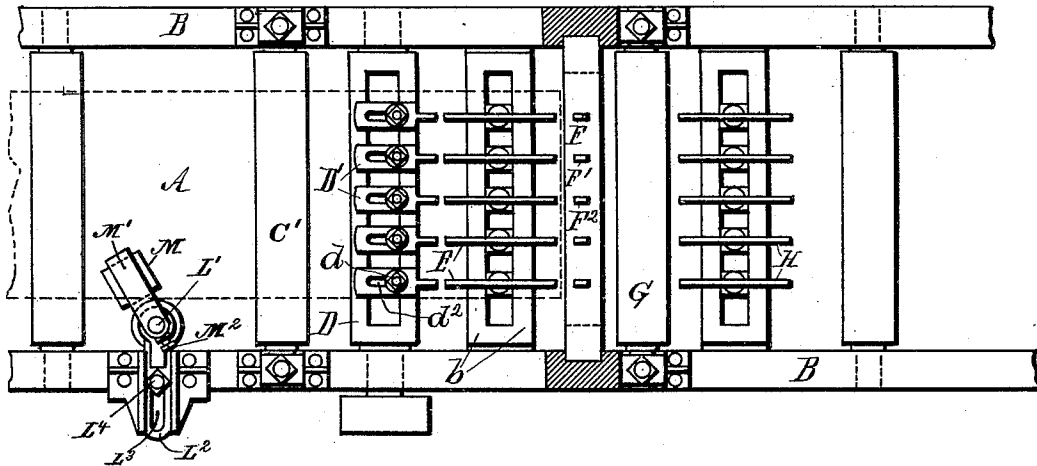
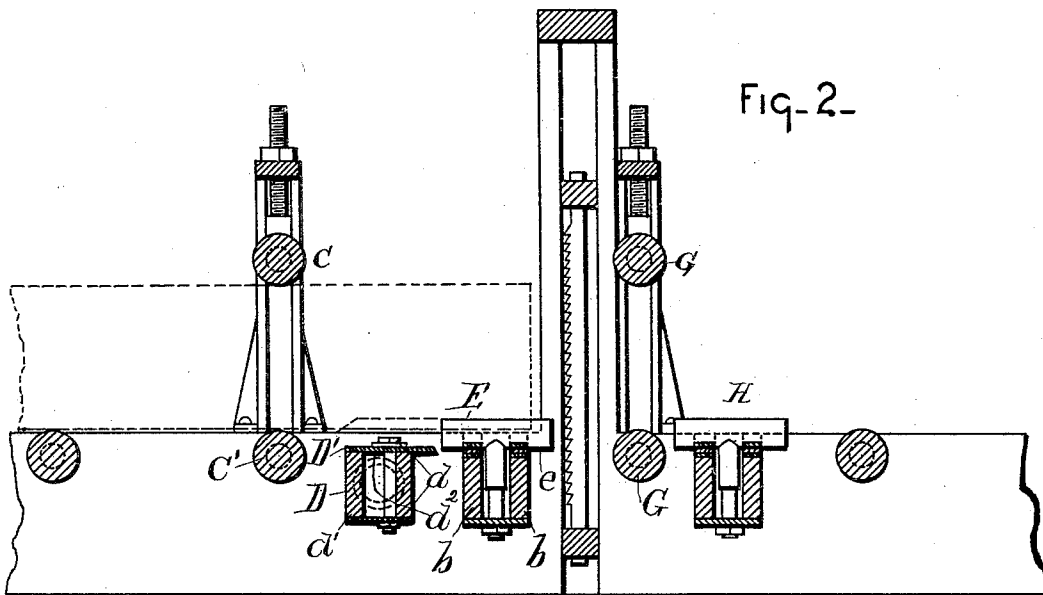


FIG. 2-



WITNESSES

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FIG-3-

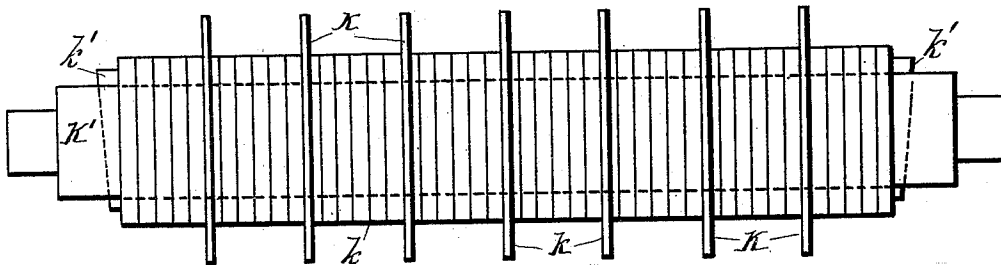


FIG-4-

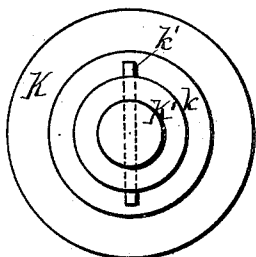


FIG-7-



FIG-6-

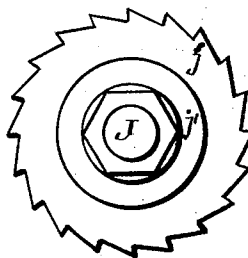
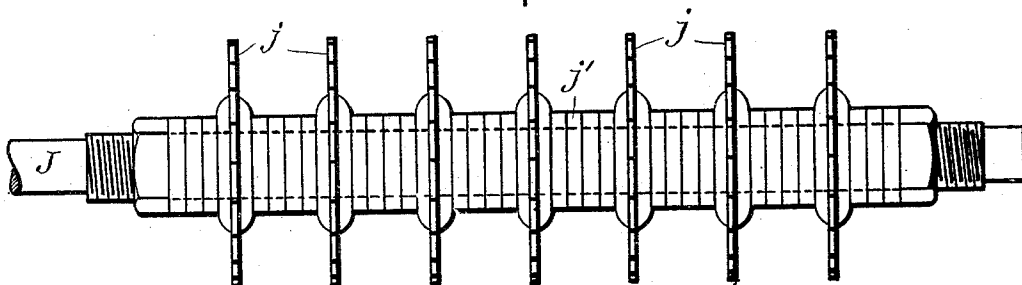


FIG-5-



WITNESSES

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UNITED STATES PATENT OFFICE.

DEXTER HAZARD, OF MARQUETTE, MICHIGAN, ASSIGNOR OF ONE-HALF TO
FREDERICK O. CLARK, OF SAME PLACE.

ATTACHMENT FOR GANG-SAW MILLS.

SPECIFICATION forming part of Letters Patent No. 462,797, dated November 10, 1891.

Application filed November 24, 1890. Serial No. 372,511. (No model.)

To all whom it may concern:

Be it known that I, DEXTER HAZARD, a subject of the Queen of Great Britain, residing at Marquette, county of Marquette, State of Michigan, have invented a certain new and useful Improvement in Attachments for Gang-Saw Mills; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention has for its object the production of suitable mechanism for use in connection with gang-saws whereby the following objects may be accomplished: first, the prevention of the splintering or splitting off of the under side of the log as the saws come down on the first cut; second, the prevention of any sidewise or lateral movement of the log as it is passing through the saws; third, the reduction in the gage of the saw, whereby much of the waste in sawdust now due to the thickness of the saws may be saved. I accomplish these objects by a combination of devices and appliances hereinafter described and claimed.

In the drawings, Figure 1 is a plan view of an apparatus embodying my invention. Fig. 2 is a vertical section through the same. Fig. 3 shows a variation in the form of the guides. Fig. 4 is an end elevation of the guide-shaft. Fig. 5 illustrates the use of saws instead of knives. Fig. 6 is an end elevation of the same. Fig. 7 is a detail of the spacing-washer.

In carrying out the invention, A represents the log or piece of timber to be cut.

B represents the frame-work which supports the mechanism.

C C' are feed-rollers, by means of which the log is fed to the saws, these rollers deriving their motion in any suitable way and one or both of them being in yielding bearings, whereby the log may be tightly clamped between the rollers.

D is the cylinder or frame journaled in the main frame-work and deriving its motion in

any suitable manner. Upon this cylinder is a series of grooving-knives D', shaped substantially as shown in Fig. 1, each one being held to the frame D by bolts d, the heads of which are engaged under the flanges d' of the frame. The bolts are passed through a longitudinal slot in the cylinder or frame and through slots d² in the knives, and by thus securing the knives to the cylinder they may be adjusted along the cylinder to vary the distance between the knives, or the knives may be thrown up or down, so as to make a greater or less depth of cut.

E are guide-plates for supporting and guiding the grooved portion of the work or timber. These guide-plates are in alignment with the knives and are provided with a downward-extending projection or tail in the form of a bolt. This tail extends down beneath the cross-pieces b of the main frame and is secured beneath by nuts. As will be seen, the guides are of a peculiar shape and rest upon these cross-pieces b, there being a downwardly-extending flange e on each side of the cross-pieces. By this means the nuts can be loosened, and suitable linings, strips, or bushings may be placed beneath the guide to raise it, as shown in Fig. 2. The nuts can then be tightened and the guide held firmly in its place.

F F' F², &c., are the saws, arranged in a gang to reciprocate vertically, they being of an ordinary type and deriving their action in any suitable manner. These saws are, however, in direct alignment with the knives and guides and are a distance of only a half-inch (more or less) from the ends of the guides. The saws operate to sever the work or timber into sections having parallel sides, as usual in gang-saw mills. Beyond the gang-saws is another set of feed-rollers G, and, if desired, adjacent to these rollers may be provided another set of work-guide plates H, similar to the first set, although this latter set of guides may or may not be used, as desired.

The operation is as follows: The log is run in between the first set of feed-rollers, and the under side is grooved by means of the

rapidly-revolving knives. The log then continues in its movement until it rides upon the work-guides, each one of the latter entering its corresponding groove, and thus holding the log against any lateral motion whatever and guiding it in a direct line to the saws. The log is then passed through the saws, is picked up by the feed-rollers beyond, and if a second set of guide-plates is provided is passed over those, and is then disposed of in the usual manner. By these means it will be seen that the heavy gage of saws, which are now necessarily employed in order that the tendency of the logs to move sidewise may be prevented, is dispensed with, and a much lighter gage of saw may be used. Consequently much of the material heretofore wasted in sawdust is saved, and by reason of the knives first grooving the under side of the log the splintering and splitting of the under surface by the saws as they come down in their first cut on the end is entirely obviated.

It is of course obvious that these attachments are applicable to any of the various forms of gang-saws now in use and can readily be attached thereto, necessitating, perhaps, some slight change in the form or position of the mechanism, and I would be understood as covering by my invention any variations due to such applications. So, also, instead of a series of knives to do the advance cutting or grooving, such as I have shown, any other cutters for grooving the under side of the log might be used—such, for instance, as a set of circular saws or the like, as shown in Fig. 5, in which J represents a suitable revolving shaft provided with a series of circular saws *j*, held the proper distance apart by the washers *j'*. This shaft with its saws, when placed in the same position as the knives, will groove the under side of the log the same as the cutter. Another variation is shown in Figs. 3 and 4. It consists in the provision of guides mounted on a cylinder and acting in the place of the fixed guide-plates, such as shown in Figs. 1 and 2. These guides K are placed on the shaft K' and held apart by washers *k*. They are held from revolution on the shaft by the keys *k'*.

Another important feature of my invention is the provision of the rollers L M, the roller L being an upright one and located the proper distance beyond the plane of the outer saw, so that when the log is run up to the saw its side may be forced against the roller L, and thus the log be run through the saws perfectly straight and both ends of the outer board from the log be the required thickness. The roller M is horizontal and set at an angle, as shown, so that as the log runs under it it is kept tightly against the roller L. The roller L is mounted on a vertical spindle L', carried by a frame L², having a longitudinal slot L³, through which passes a clamping-bolt L⁴ for the purpose of adjusting the roller

L to and from the side of the work or timber. The roller M is journaled in a frame M', supported by the spindle L' of the vertical roller, and this frame M' is engaged with the spindle through the medium of a set-screw M², whereby the frame can be adjusted to different positions in a horizontal plane and then clamped in its adjusted position by the set-screw.

What I claim is—

1. In a gang-saw mill, the combination of a gang of saws which sever the timber into sections with parallel sides, the work-guides arranged beneath and supporting and guiding the lower side of the work, and grooving-cutters located in advance of the work-guide and acting to groove the under side of the work for the reception of the work-guides, substantially as described.

2. In a gang-saw mill, the combination of a gang of saws which sever the timber into sections with parallel sides, a series of work-guides arranged, respectively, in alignment with the saws to support and guide the lower side of the work, and a series of grooving-cutters arranged in advance of the work-guides and arranged, respectively, in alignment therewith for grooving the under side of the work for the reception of the work-guides, substantially as described.

3. In a gang-saw mill, the combination of a gang of saws which sever the timber into sections with parallel sides, a pair of feed-rollers for advancing the work or timber to the saws, a series of work-guides adjustable toward and from each other and arranged, respectively, in alignment with the saws, and a rotating cylinder or frame provided with a series of grooving-cutters adjustable toward and from each other and arranged in alignment with the work-guides for grooving the under side of the work or timber to receive the work-guides, substantially as described.

4. In a gang-saw mill, the combination of a gang of saws which sever the work or timber into sections with parallel sides, a series of work-guides adjustable toward and from each other, having parallel sides and arranged, respectively, in alignment with the saws, a rotating cylinder or frame provided with a series of grooving-cutters adjustable toward and from each other for grooving the under side of the work or timber to receive the work-guides, and a pair of feed-rollers for advancing the work or timber over the cutters and guides to the saws, substantially as described.

5. In a gang-saw mill, the combination, with a gang of saws, of a frame carrying two rollers, one of which rotates in a horizontal plane against the side of the work or timber and the other in a vertical plane against the upper side of the work or timber, substantially as described.

6. In a gang-saw mill, the combination, with a gang of saws, of an adjustable frame

carrying a vertical spindle, a roller mounted on the spindle to rotate in a horizontal plane against the side of the work or timber, and a frame carried by the spindle and provided
5 with a roller which rotates in a vertical plane against the upper side of the work or timber, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

DEXTER HAZARD.

Witnesses:

M. A. REEVE,

W. H. CHAMBERLIN.