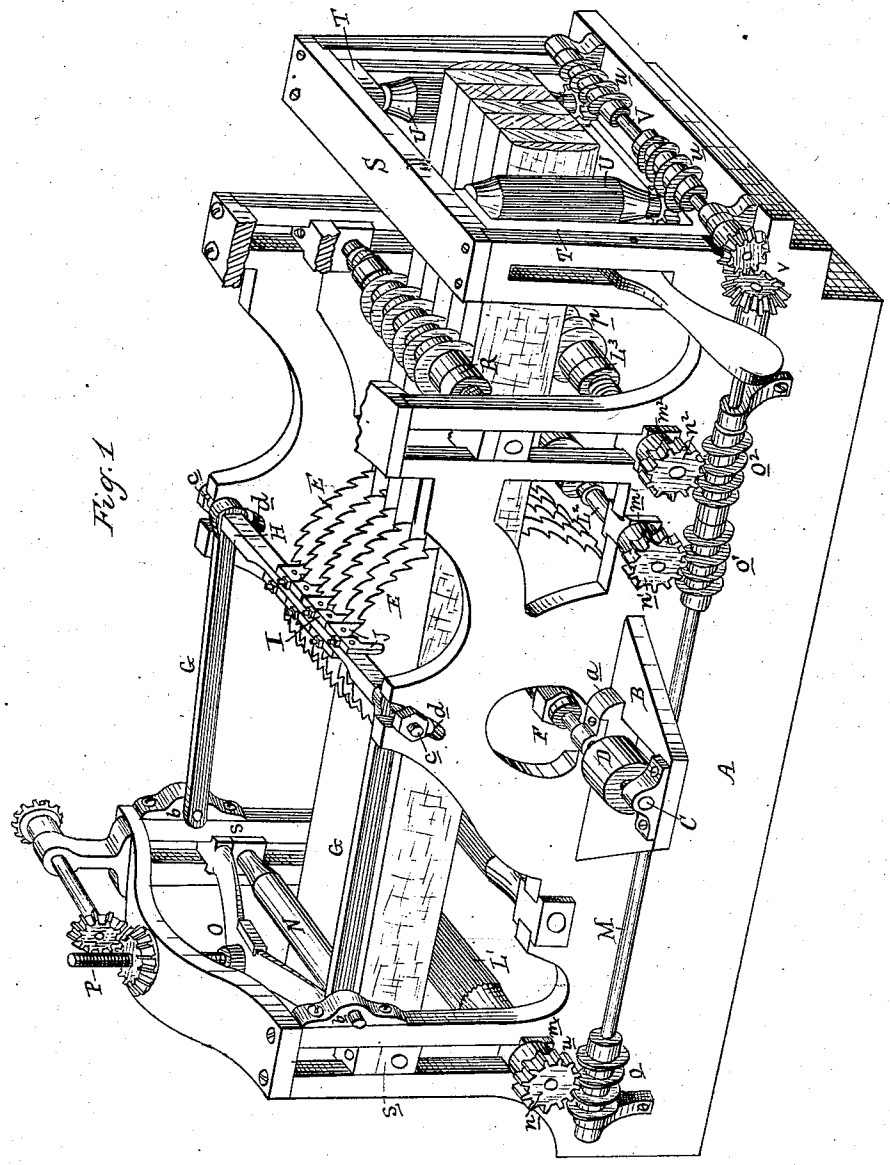
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J. G. WINTER.

GANG CIRCULAR SAW MILL.

No. 261,645. Patented July 25, 1882.

Fig. 1.



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No Model.) 2 Sheets—Sheet 2.

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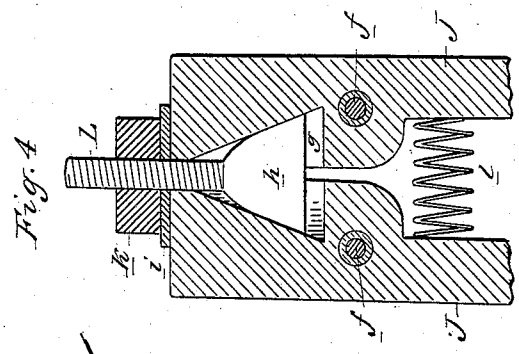


Fig. 4

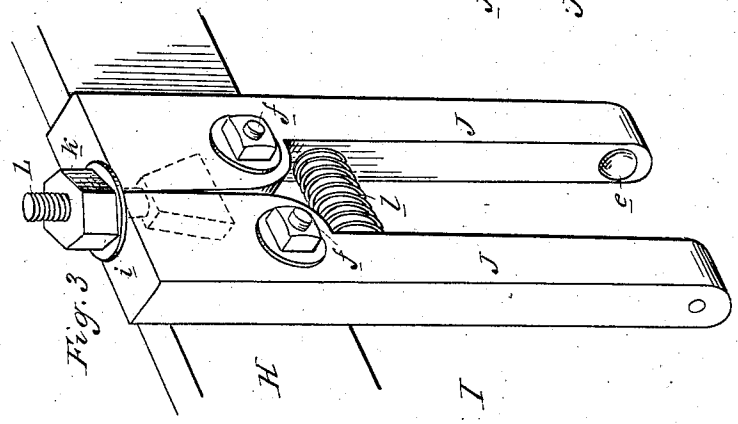


Fig. 3

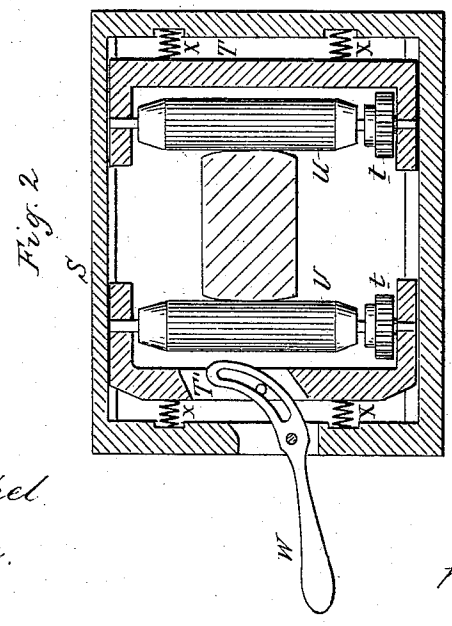


Fig. 2

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UNITED STATES PATENT OFFICE.

JOHN G. WINTER, OF DETROIT, MICHIGAN.

GANG CIRCULAR-SAW MILL.

SPECIFICATION forming part of Letters Patent No. 261,645, dated July 25, 1882.

Application filed January 26, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOHN G. WINTER, of Detroit, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Circular Gang-Saw Mills; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

The nature of my invention relates to certain new and useful improvements in the construction of gang circular-saw mills; and the invention consists, first, in the peculiar combination of devices by means of which the feed and spreader rollers and the retaining device are actuated through the medium of a shaft and counter-shaft; secondly, in the peculiar construction and operation of the retaining device; thirdly, in the peculiar construction of the saw-arbor and its combination with the driving-shaft; fourthly, in the peculiar construction of the saw-guides and their location with reference to the saws; and, fifthly, in the combinations of the various parts, as more fully hereinafter described.

Figure 1 is a perspective view of my improved circular gang mill. Fig. 2 is an end elevation, in section, showing the retaining device. Fig. 3 is a detached and enlarged perspective, showing the peculiar construction and operation of my improved saw-guide. Fig. 4 is a section showing the interior construction of the saw-guide.

In the accompanying drawings, which form a part of this specification, A represents the frame, which carries the operating parts. On each side of this frame, and opposite each other, are the projections or ledges B, upon which are secured the boxes *a a*, in which run the short shafts C, one on each side the frame and in the same axial line, and each provided with a pulley, D.

E is a series of circular saws, secured upon an arbor in the usual manner of securing such saws, at equal and variable distances apart, upon arbors. This arbor is of a proper length to fit between the inwardly-projecting ends of the two shafts C, and is removably secured to them by screw-couplings F, or by any other known mechanical means. Thus it will be seen that the saw shaft or arbor is composed of three parts—to wit, the two end parts, C, and the center part, which forms the saw-arbor proper, and which is adapted to be removed and replaced at will to enable the saws to be secured and properly cared for more easily than could be done were it necessary to remove the whole shaft for this purpose.

In circular-saw mills it is usual to so place the saw-guides that they are under the saw, or nearly so. When in this position the guides become checked, or partially filled with sawdust, which causes the saw to heat. To obviate this difficulty I place my guides, when in operation, as nearly vertical to the axis of the saw as possible and directly over the same, as follows:

G G are two arms, pivotally secured at *b b* to the frame. To the other ends of these arms is secured the bar H, to which the guides I are secured by screws or other adjustable means, which will allow their position to be changed, with changes in the location of the saws with relation to each other. The ends of the bar H are provided with trunnions *c c*, which drop into the slotted guides *d*, which allow the position of saw-guides to be varied as saws of larger or smaller diameter are employed.

My guides I are constructed as follows: J J are two jaws cut in the form substantially as shown in Fig. 3, and the inner face, near the lower end of each jaw, is provided with the bearer *e*. Each of these jaws is secured by a bolt, *f*, to the plate H, and within the head of the jaws is a wedge-shaped recess, *g*, (shown in dotted lines in Fig. 3,) shown in Fig. 4. Within this recess is secreted the wedge-shaped head *h* of the bolt L, the shaft of which projects through a groove (one-half of which is cut in the inner face of each of the heads of the jaws) and is provided with a washer, *i*, and nut *k*. Turning this nut one way will contract the space between the free ends of the jaws, while turning it in the opposite direction will widen such space. A spring, *l*, secured between the jaws, tends to force the jaws apart whenever they are relieved from the pressure of the wedge-shaped head of the bolt. Constructed thus the saw-guide can readily be adjusted to varying thicknesses of saws.

L′, L″, and L‴ are feed-rollers, each end of each of which is suitably journaled in boxes

m, m', and m'', and one end of each of these rollers is provided with pinions n, n', and n'', which engage with worms o o' o'' upon the shaft M, and, as these pinions and worms are all of the same size, a regular and even feed is obtained by the rotation of the shaft from any convenient source of power. The rollers L'' and L''' are each provided with a series of flanges, p, which may be adjustable and of about the same thickness as that of the saws. These flanges are designed to enter the cut of the saws in the cant or by under operation, to prevent the spring of the lumber from pinching the saws.

N is a pressure-roll journaled at each end in a sliding box, s, and a yoke, O, and screw P allow of the vertical adjustability of this roll. R is another pressure-roll, journaled and adjustable like the roll N, and constructed like the roller L''', over which it is placed, and for a like purpose.

Means are required in circular gang mills to prevent the slab or outside cut on each side of the cant or log from being thrown out, to the danger of life and limb, and of breaking the mill. The means for accomplishing this I call a "retaining device." I will now describe it.

S is a frame, being a part of the frame of the mill. In sliding yoke-boxes T T' are journaled vertically the rollers U, the lower ends of which are provided with pinions t t, which engage with the right and left hand worms u u, upon the center shaft V, which receives motion by means of the bevel-pinions v from the shaft M. The yoke-box T is actuated to advance or recede by the cam or eccentric lever W, which is pivoted to the side of the frame S. As the log passes the saws, so that its end is presented between the rollers U U, the operator employs the lever W to compress the rollers against the side thereof and retain the side cuts or slabs in place.

Springs X X may be placed between the yoke-boxes and frame to allow the rollers to give to inequalities in the surface of the slabs.

What I claim as my invention is—

1. In a circular gang mill, the saw-guides supported by a swinging frame, and operating upon the saws in a position vertical, or nearly so, to the axis of the saws, said swinging frame consisting of a bar, H, and side bars, G, the bar H being provided with trunnions c c, to move in guide-slots d in the supporting-frame, and the side bars, G, pivoted to said supporting-frame, substantially as and for the purposes specified.

2. The combination, with the bar H, of the jaws J, pivoted thereto, and having inclined adjoining fans, and the wedge-bolt L h, for expanding the upper ends and contracting the lower ends of said jaws, substantially as described.

3. The combination, with the bar H, of the pivoted jaws J, having recesses g in their adjoining faces, the bolt L, having a wedge-head, h, the nut k, acting against the upper ends of the jaws, and a spring between said jaws, below their pivotal points, substantially as described.

4. In a saw-mill, the feed-rollers L' L'' L''' and the retaining-rolls U U, both the feed and the retaining rolls being provided with pinions on their ends, in combination with the connected shafts M V at right angles to each other, and provided with worms o o' o'' u u, for operating the feed and retaining rolls, substantially as described.

5. The combination, with a gang-saw mill, of the sliding frames T, the rollers U, the springs X, and the cam-lever W, substantially as and for the purpose specified.

JOHN G. WINTER.

Witnesses:
H. S. SPRAGUE,
E. SCULLY.