

(No Model.)

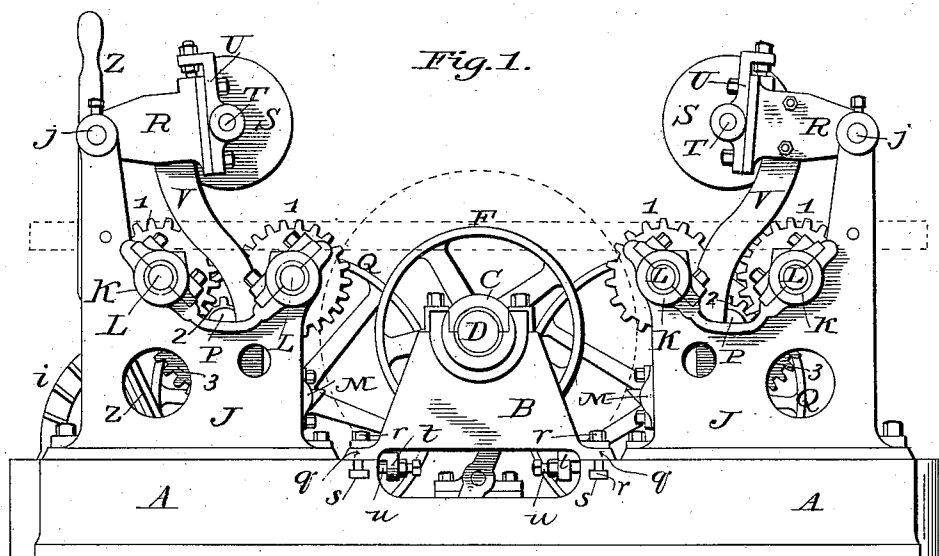
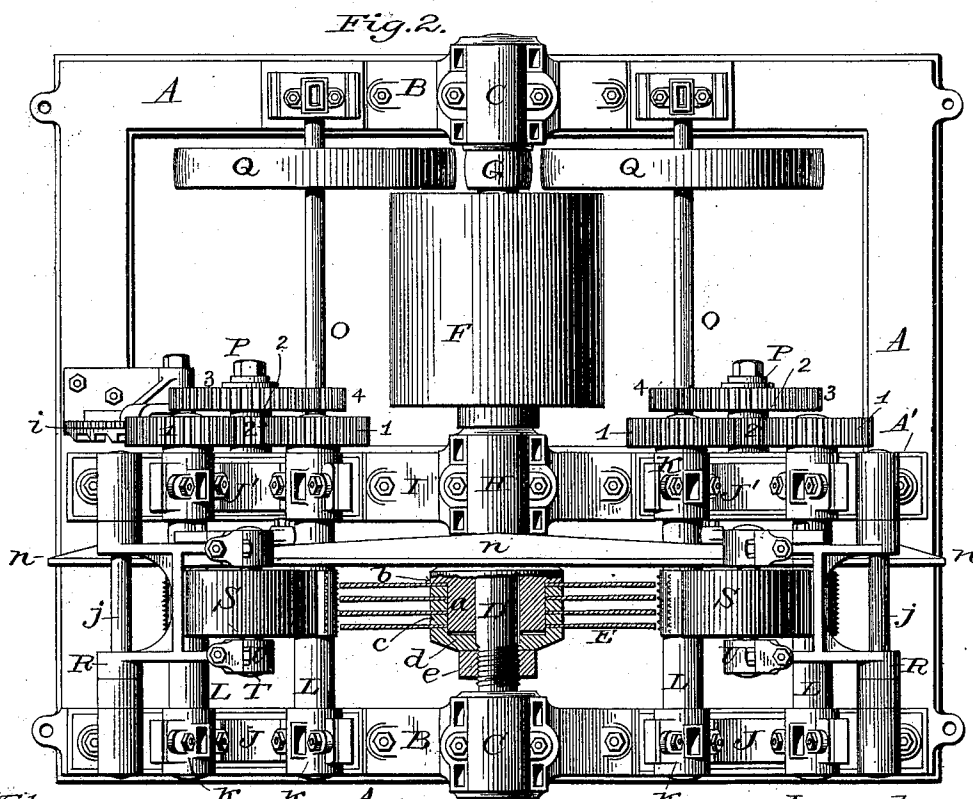
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G. M. HINKLEY.

CIRCULAR SAWING MACHINE.

No. 334,663.

Patented Jan. 19, 1886.



Witnesses:
Jas. P. Duffame
Walter S. Dodge.

Inventor:
George M. Hinkley,
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Atty.

(No Model.)

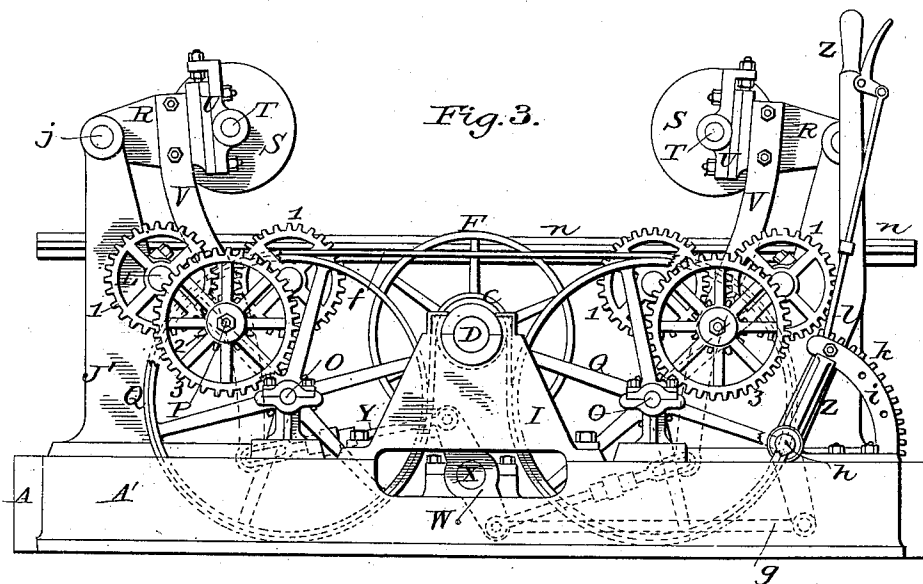
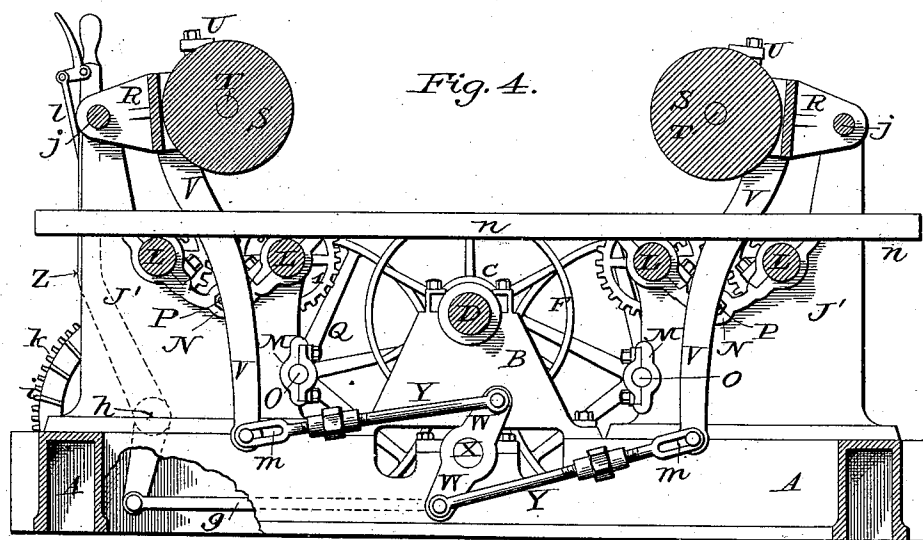
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G. M. HINKLEY.

CIRCULAR SAWING MACHINE.

No. 334,663.

Patented Jan. 19, 1886.



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(No Model.)

3 Sheets—Sheet 3.

G. M. HINKLEY.

CIRCULAR SAWING MACHINE.

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Fig. 5.

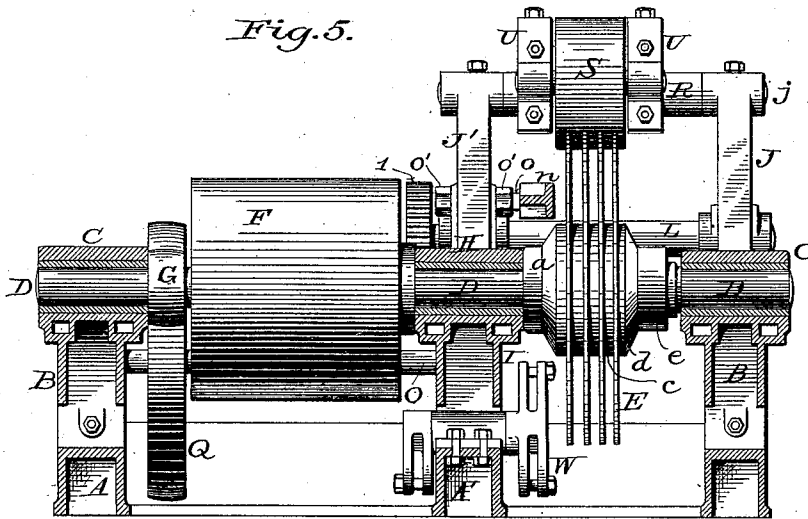


Fig. 6.

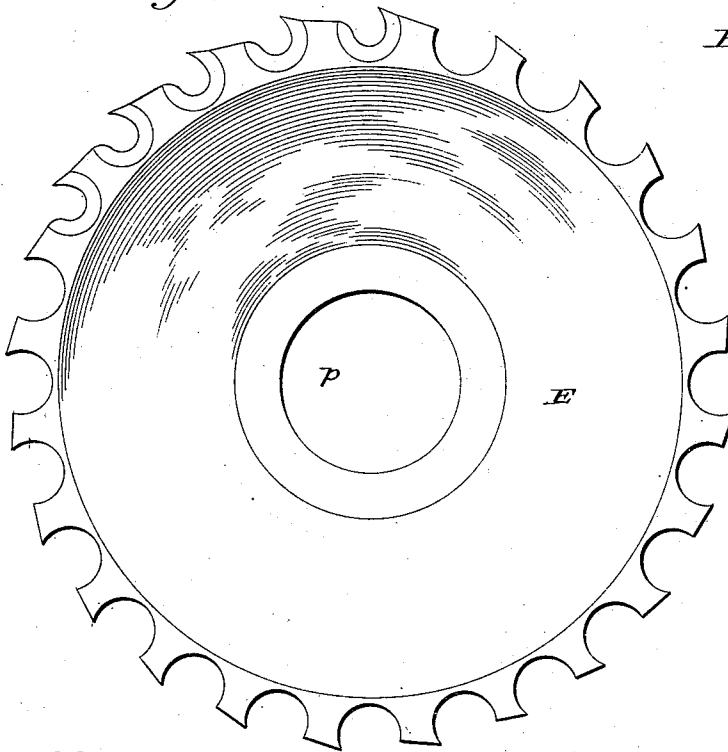
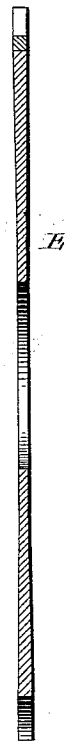


Fig. 7.



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UNITED STATES PATENT OFFICE.

GEORGE M. HINKLEY, OF MILWAUKEE, WISCONSIN, ASSIGNOR OF ONE-HALF TO EDWARD P. ALLIS & CO., OF SAME PLACE.

CIRCULAR SAWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 334,663, dated January 19, 1886.

Application filed July 13, 1885. Serial No. 171,485. (No model.)

To all whom it may concern:

Be it known that I, GEORGE M. HINKLEY, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Circular Sawing Machines, of which the following is a specification.

This invention relates to gang-saw mills; and it consists in various features hereinafter fully set forth.

In the drawings, Figure 1 is a side elevation of my improved machine; Fig. 2, a top plan view, partly in section; Fig. 3, a rear side elevation; Fig. 4, a cross-section on the line of cut; Fig. 5, a cross-section parallel with the saw-arbor; Figs. 6 and 7, views of one of the saws.

My invention consists in a novel construction of the machine, whereby the mounting and removal of the saws is facilitated and the construction simplified and cheapened; in a novel construction of the saws, whereby they are especially adapted for use in this particular construction, and in means for simultaneously adjusting both the press-rolls, all as hereinafter set forth.

A indicates the bed or frame of the machine, which, as shown in Fig. 3, is rectangular in form and provided with the cross-sill or frame A'. The frame A has at its front and rear sides plumber-blocks B, bolted or otherwise secured to the cross-sill A', as shown in Fig. 2.

The shaft D has a collar, *a*, shrunk or otherwise firmly secured thereon, which collar is provided with a shoulder, *b*, against which the first saw is placed. After the first saw is placed upon the collar *a*, a ring, C, is placed thereon. Then another saw is put in position, and this is repeated until the desired number of saws is secured. A recessed cap, *d*, is then placed on the end of the saw-arbor D, the opening in the cap being large enough to receive or encircle collar *a*, while the exterior diameter equals that of the collar *c*. The cap *d* is provided with an opening to fit the end of the arbor D, and a jam-nut is placed behind the cap to hold it securely in place.

J J' indicate uprights, also secured upon

the bed-frame A and cross-sill A' at both sides of the central plumber-block, B, the upright J being provided with boxes K for the lower feed-roll shafts, L, while the uprights J' have two additional bearings, M and N, for shafts O and P. The feed-roll shafts L extend across the machine from uprights J to J', are provided at their upper ends with gears 1, and are toothed between the boxes or uprights, as shown in Fig. 2, to feed the material forward. These gears 1 mesh with a smaller gear, 2, on an arm or shaft, P, secured to the upright J', as shown in Fig. 2, the said shaft P being provided with a larger gear, 3, which receives motion from a gear, 4, on the shaft O. The shafts O are provided with band-wheels Q, to which motion is transmitted by a belt, *f*, from belt-pulley G on the saw-shaft D.

The arrangement of the feed-rolls and gearing is duplicated on each side of the saw-arbor, as shown.

At the upper ends of the uprights J J', and journaled upon a shaft, *j*, mounted therein, are pivoted or swinging arms or yokes R, each provided with a press-roll, S, mounted on a shaft, T, carried by adjustable boxes U in the yokes, as shown in Figs. 1, 2, and 3.

Attached to each of the yokes R is a long depending curved arm, V, connected by means of connecting-rod or pitman Y to the rocking cross-block W, mounted on the shaft X. One arm of the rocking cross-block W extends above and the other below the shaft X, and the arm V of one yoke is connected with the upper arm of cross-block W, while the other arm V is connected to the lower arm. Connected to the lower arm of the rocking cross-head W by means of pitman *g* is the hand-lever Z, pivoted to the framing A, as at *h*, and adapted to be moved over a quadrant, *i*, as shown in Figs. 1, 2, and 3.

It will be seen that by rocking the lever Z upon its pivot *h* the shaft Y and cross-head W will be caused to rock in the same direction, and thus, through the pitman cause the yokes R to swing upon their pivots *j* and raise and lower the press-rolls to or from the material.

The quadrant *i* is provided with notches or

recesses *k*, to receive a locking dog or pin, *l*, carried by the lever *Z*, as shown in Figs 1, 3, and 4.

The pitmen *Y*, at the point where they are connected to the arms *V*, are provided with slots *m*, so that when the rolls are adjusted and the material fed through they are allowed a limited play to compensate for any inequalities in the lumber.

In order to guide the material to the saws, I provide the guide-bar *n*, which extends from one side of the machine to the other, said guide being adjusted in a plane parallel to the saws by screws *o*, rigidly attached to the guide, and passing through the upright *J'*, where they are held in place by nuts *o'*, as shown in Figs. 2 and 5.

The rear ends of the shafts *O* are carried in boxes secured to the rear side of the frame, as shown in Fig. 2.

The plumber-block *B* at the front side of the machine, supporting the saw-arbor, is provided with lateral feet *g*, through which the inverted *T*-bolts *r* pass. The frame *A*, as shown in Fig. 1, is provided with a socket, *s*, of *T* form, into which the bolts *r* fit, said socket *s* extending in a line parallel with the saw-shaft.

When it is desired to remove the saw, the plumber-block *B* is moved off the end of the arbor *D*, the bolts *r* sliding in the sockets and guiding the block in its movement. Then, by removing the nut *e* and cap *d*, the saws can be dismounted without disturbing the remainder of the machine, the saw-arbor being supported at the rear end by plumber-block *B* and at its mid-length by block *I*. After the block *B* has been replaced, and in order to retain it in position, I provide it with two depending angular lugs, *t*, on its under side, provided with set screws or bolts *u*, which bear upon opposite sides of an opening or depression on the frame, as shown in Fig. 1. The lugs *t* and their bolts *u* also serve to align the bearing *C* of the block *B* with the arbor.

The saws *F*, as shown in Figs. 2, 6, and 7, are of peculiar construction—that is to say, they are of varying thickness, in order that they may cut through the wood without undue heating, and also that they may be firmly secured to the arbor.

The saws are provided with the usual eyes, *p*, and for a short distance around the eye the sides are made parallel. From this point the sides diverge equally, but slightly, until the bases of the teeth are reached, from which point the sides are parallel throughout the length of the teeth. Thus the saw has two parallel faces immediately around the eye and at the outer edge, these two parallel faces being connected by a tapering portion narrowest or thinnest at a short distance from the eyes. By constructing the saws in this manner it will be seen that a clearance is afforded for the lumber in its travels through the ma-

chine, whereby it is prevented from binding upon the saws and unduly heating them. The periphery or cutting-edge of the saw being thicker than the other portion thereof, the lumber does not come into contact with the faces of the saw.

While it is preferred to adopt the peculiar form of saw shown and described, because of the fact that they retain the same form and proportion notwithstanding repeated sharpening, it is apparent that good results may be secured by the use of a gang of circular saws having a regular taper from the eye to the periphery, and hence I do not limit my claim to the precise form of saw shown and described.

Having thus described my invention, what I claim is—

1. In a sawing-machine, the combination of a main frame, an arbor mounted therein and provided with one or more saws, a press-roll frame pivoted to a support on the main frame and provided with a rigid depending arm, a rock-shaft journaled in the main frame and provided with a radial arm, a pitman connecting the press-roll arm and the radial arm of the rock-shaft, and slotted at one end to slide upon the pitman which connects said depending arm, and a lever applied to the rock-shaft and serving to rock the same, and thus to move the press-roll.

2. In a sawing-machine, the combination of a main frame, a saw-arbor bearing saws and mounted in said frame, a press-roll frame pivoted to a support above the bed or table of the main frame, bearing a press-roll and provided with a rigid depending arm, a rock-shaft mounted in bearings in the main frame and provided with a radial arm, and a pitman connecting the arm of the press-roll frame and the radial arm of the rock-shaft, and having a sliding or loose connection with one of said parts, whereby the press-roll is permitted to automatically adapt itself to slight inequalities in the material passing beneath it.

3. The combination, substantially as described, of a supporting-frame, a saw-arbor and feed-rolls mounted therein, a press-roll carried by a swinging support above the feed-rolls, said support being provided with a depending arm, a rock-shaft journaled in the frame, a cross-head secured to said rock-shaft, and a pitman having one end slotted to receive a pin projecting from the depending arm of the press-roll and journaled at the other end to the cross-head.

4. In a sawing-machine, the combination of frame *A*, a saw-shaft, *D*, journaled upon the frame and provided with saws *E*, feed-rolls *L*, mounted in uprights *J J'* on the frame, and guide *n*, having screws *o* at each end, passing through the upright *J*, whereby the guide can be moved to and from the saws, as described.

5. In a sawing-machine, the combination of

a frame, a saw-arbor mounted therein, and
feed-rolls, a series of circular saws mounted
upon said arbor and each having a thin an-
nular portion with parallel faces immediately
5 around their eye, thence increasing in thick-
ness to the bases of the teeth or the gullets,
thence of uniform thickness to the periphery,

substantially as described, whereby clearance-
space is afforded for the lumber between the
saws.

GEORGE M. HINKLEY.

Witnesses:

WM. W. ALLIS,
C. H. DE GROAT, Jr.