(No Model.) 2 Sheets—Sheet 1.

J. MARTIN.

SWING SAW.

No. 370,962. Patented Oct. 4, 1887.

Fig. 1.

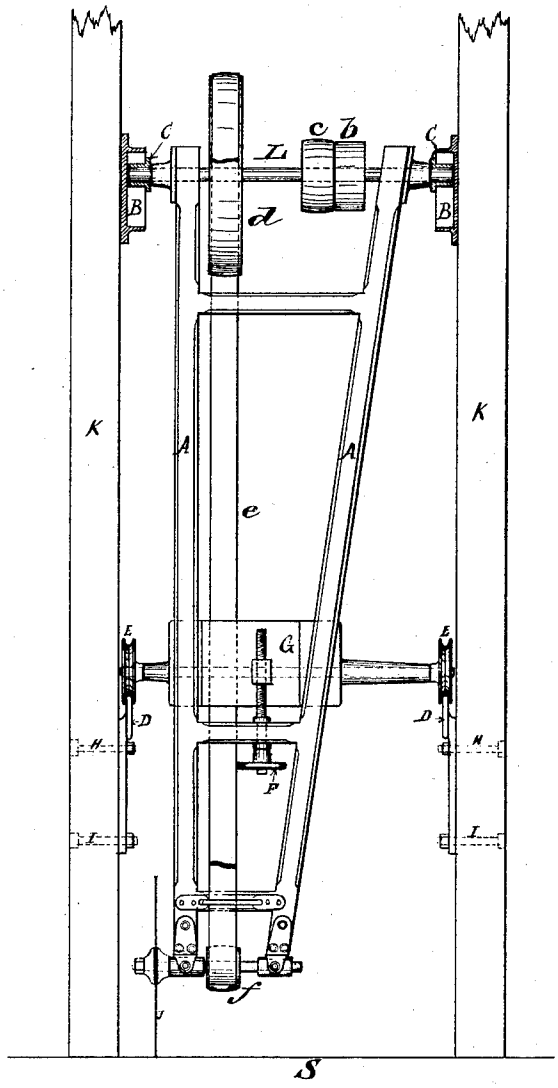
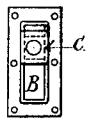


Fig. 4.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

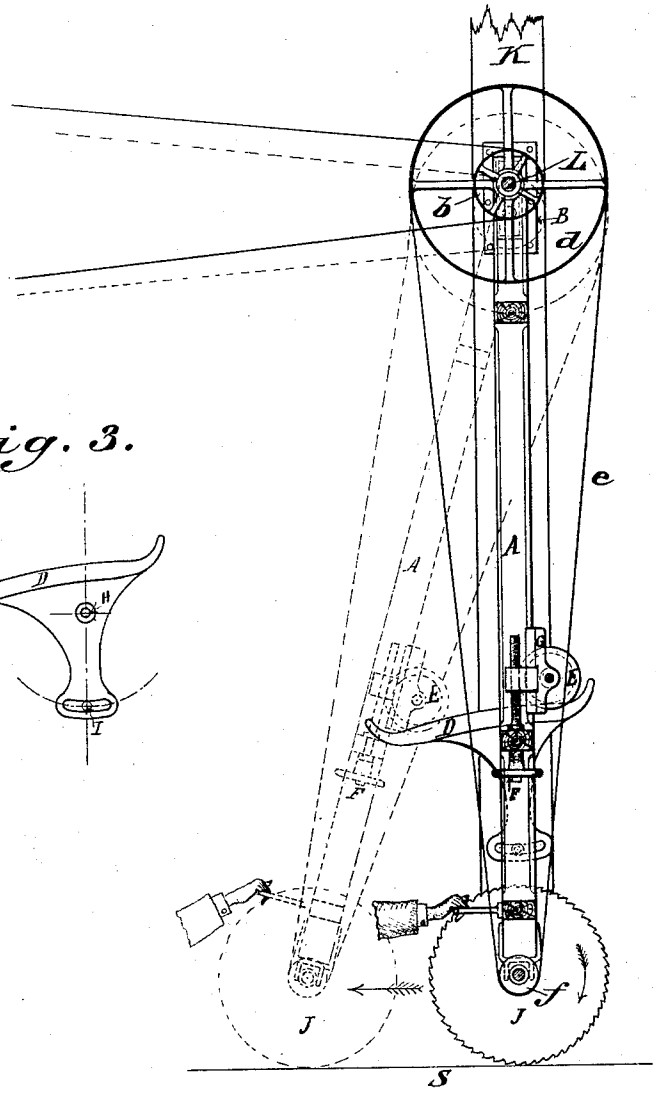


Fig. 3.

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UNITED STATES PATENT OFFICE.

JAMES MARTIN, OF BROOKLYN, NEW YORK.

SWING-SAW.

SPECIFICATION forming part of Letters Patent No. 370,962, dated October 4, 1887.

Application filed June 7, 1887. Serial No. 240,525. (No model.)

To all whom it may concern:

Be it known that I, JAMES MARTIN, of South Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Swing-Saws, of which the following is a full, clear, and exact description.

This invention consists in a swing-saw of novel construction, whereby the saw is made to cut in a straight line parallel with the table or cutting surface with facility, if desired, for changing its direction of cut to a variable angular relation, and so as to cut at different depths, if necessary, substantially as hereinafter described, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 represents a front elevation of a swing-saw machine embodying my invention; and Fig. 2 is a vertical section of the same in a plane at right angles to Fig. 1, showing by full and dotted lines the movement of the parts, whereby the circular cutter or saw proper is made to travel in a straight line parallel with the cutting surface or top of the bed on which the material to be cut is designed to rest. Fig. 3 represents side and end views, respectively, of a special construction of a guide-rail attachment on which the swinging frame of the machine rests and travels; and Fig. 4 is a face view of one of a pair of slotted or grooved guides up and down which the upper portion of the swinging frame moves.

S indicates the cutting-surface or top of the table or bed, on which the timber to be cut is designed to lie or rest.

K K are uprights of a main or stationary frame, of any suitable construction, and within which the swinging frame A of the machine oscillates or swings.

L is the driving-shaft upon or around which the swinging frame A rocks, and which may be fitted with fast and loose pulleys *b c* for stopping and starting it, as desired. Motion is communicated from the shaft L by a pulley, *d*, thereon and endless belt or driver *e* to a pulley, *f*, upon the shaft of the circular saw J, which has its bearings in the lower ends of the swinging frame, while the driving-shaft L occupies a position in the upper portion of said frame, as usual in other swinging saws.

The swinging frame A, however, is peculiarly supported and operated. Thus it has a free movement up and down at its rocking center of motion by suitable guides—as, for instance, by fitting its trunnions or ends of the shaft L on or around which said frame rocks, in boxes C C, adapted to slide up and down within grooved guides B B, secured to the uprights K K of the main frame. This construction, however, does not support the swinging frame A, but simply provides for its up-and-down movement. Said frame is supported or rests and travels upon one or more, preferably a pair of, stationary guide-rails or guide-rail attachments, D, one of which is shown as secured to each upright K at a suitable distance below the rocking center of the swinging frame. These guide-rail attachments D D, upon which the swinging frame A A rests and travels—as, for instance, by wheels or grooved rollers E, connected with the swinging frame—are of such configuration on their upper or bearing surfaces as will in the swinging of the frame A A cause the saw J to travel in any desired path other than that in which it would travel were the swinging frame to rock from or about a fixed center, instead of a rising-and-falling one. Thus the upper or bearing surfaces of the guide-rails or guide-rail attachments D D are shown of such curvilinear shape in direction of their length as will conform in a reverse manner to the curvilinear swinging motion of the frame A, so that when said frame is swung forward from the position shown for it by full lines in Fig. 2 to the position shown for it by dotted lines in the same figure the saw J will travel in a straight line or path parallel with the cutting or table surface S, upon which the timber to be cut rests, or, in other words, will cut in a straight line, which is at right-angles with a line perpendicular to it passing through the rocking center of the swinging frame. In this way the saw by a single action is made to cut entirely through the stuff or full thickness thereof without turning over the wood or stuff and making a second cut, as necessary when the saw is restricted to move in a curvilinear path due to the rocking of the swinging frame from a fixed center. As, however, it sometimes may be necessary to cut in a straight or other line which is not at right-angles to a vertical line

drawn through the rocking center of motion of the swinging frame, or, in other words, has an angular relation to the surface S, I make the guide-rail attachments adjustable to vary the direction of their bearing-surfaces, as, for instance, by fitting them to turn on pivots or bolts H in the uprights K K of the main frame upon slackening holding or locking bolts I, arranged to pass through slots in the guide-rail attachments D and uprights K.

The carrying attachments or rollers E on opposite sides of the swinging frame A A are attached to a frame, G, connected with said swinging frame, but adjustable up and down it, as by a hand-screw, F, so that and by suitably adjusting or raising or lowering the guide-rail attachments D the swinging frame A and saw J may be made to travel on a higher or lower level, as desired. This will be found convenient in case of desiring to cut only partially through the stuff or timber, as from opposite sides alternately, for instance, to form tenons on the piece of wood under operation. By arranging the swinging frame A to freely rise and fall in the guides B B at top, and supporting it below by wheels or rollers arranged to run upon the guide-rail attachments D D, a perfectly steady movement is obtained for said frame and an exceedingly easy one, as there is comparatively no friction. If the table or cutting-surface be out of a horizontal plane, then still the same relations will be observed as regards the saw traveling in a path which is out of consonance with the curvilinear movement due to the swinging of the frame which carries the saw, nor is it necessary that the guides B should be in a vertical position.

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

1. In a swing-saw, the combination, with the swinging frame which carries the saw and the driving-shaft about which said frame rocks, of guides and sliding boxes adapted to provide for a free up-and-down movement of said shaft, and one or more stationary lower guide-rail attachments constructed to support the swinging frame and to direct it and its attached saw out of consonance with the curvilinear movement due to the swinging motion of said frame, substantially as specified.

2. The combination of the upper stationary guides, B, the sliding boxes C, having a free up-and-down movement, the driving-shaft L, the swinging frame A, with its attached saw J, the guide-rail attachments or devices D, and the swinging-frame carriers or wheels E, essentially as and for the purpose or purposes herein set forth.

3. The combination, with the vertically-swinging saw-carrying frame A, having a rising-and-falling center of motion about which said frame rocks, of the guide-rail attachments or devices D, made adjustable to vary their angle or level, and the swinging-frame carriers or wheels E, adapted to run or travel upon said adjustable guide-rail devices, substantially as specified.

4. The combination, with the vertically-swinging saw-carrying frame A, having a rising-and-falling center of motion about which said frame rocks, of the independent frame G, adjustable up and down the swinging frame A, the wheels, rollers, or carriers E, attached to said independent frame and serving to support the swinging frame, and the adjustable guide-rail attachments or devices D, essentially as described.

JAMES MARTIN.

Witnesses:
CHARLES H. SMITH,
JAMES RITCHIE.