(No Model.) 2 Sheets—Sheet 1.

J. H. PALM.

CIRCULAR SAWING MACHINE.

No. 345,070. Patented July 6, 1886.

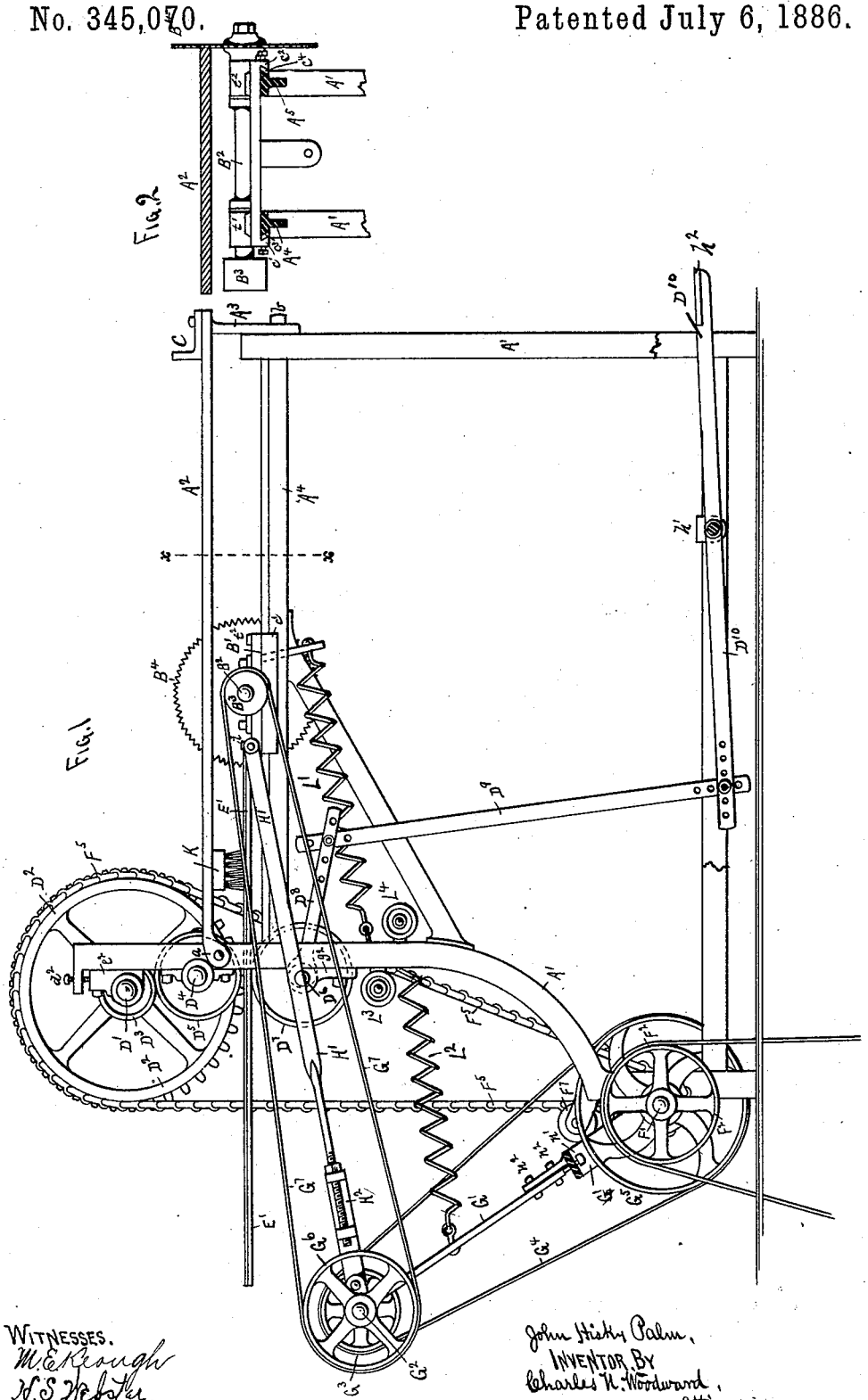

Fig. 2

Fig. 1

WITNESSES.
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(No Model.) 2 Sheets—Sheet 2.

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CIRCULAR SAWING MACHINE.

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Fig. 4

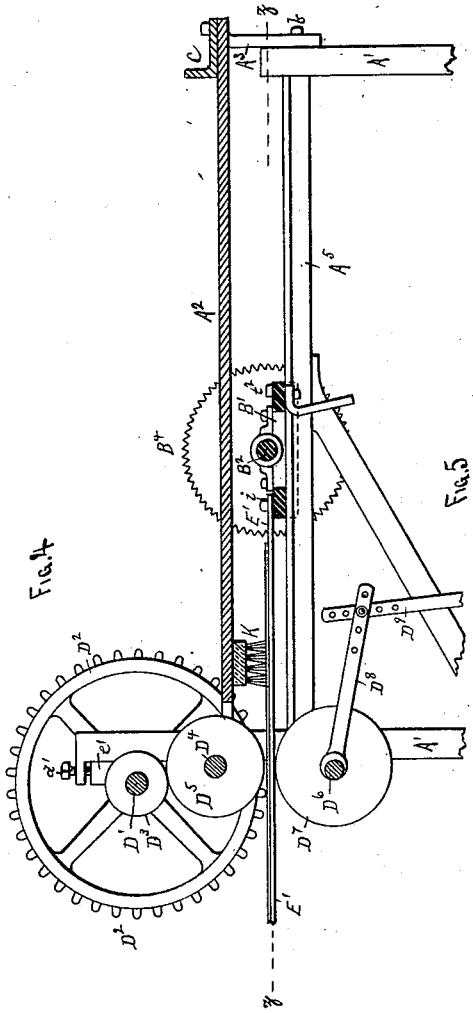


Fig. 5

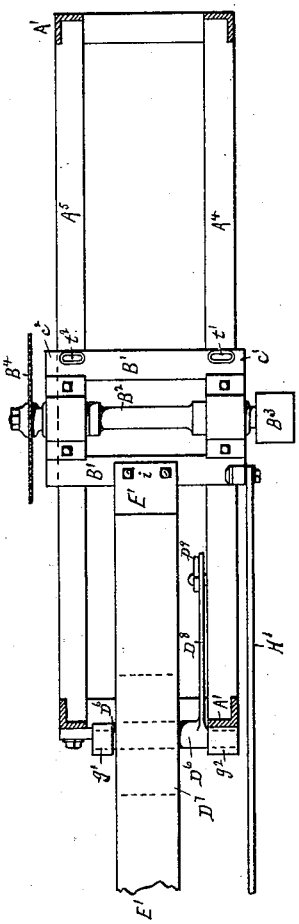
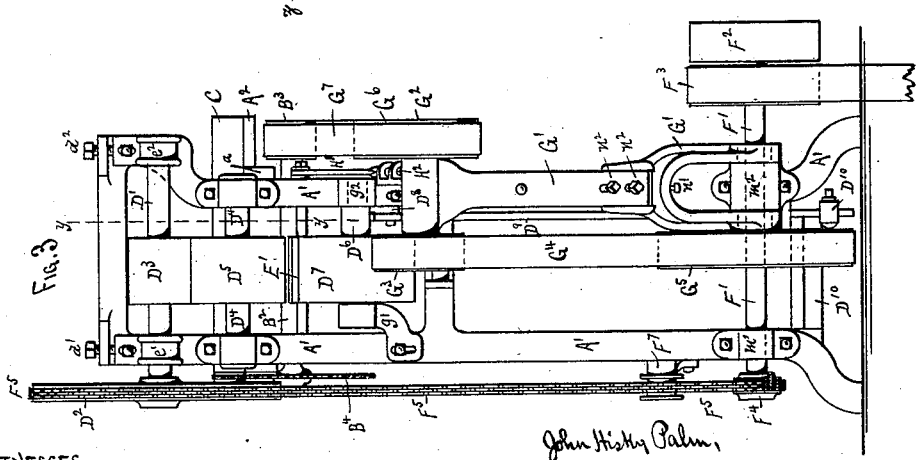


Fig. 3



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UNITED STATES PATENT OFFICE.

JOHN HISKEY PALM, OF MINNEAPOLIS, MINNESOTA.

CIRCULAR SAWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 345,070, dated July 6, 1886.

Application filed October 27, 1885. Serial No. 181,110. (No model.)

To all whom it may concern:

Be it known that I, JOHN HISKEY PALM, a citizen of the United States, and a resident of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Sawing-Machines, of which the following is a specification.

This invention relates to that class of sawing-machines in which the table and frame are stationary and the saw adapted to be moved through the lumber; and it consists in the construction, combination, and arrangement of parts, as hereinafter shown and described, and then specifically defined by the claims.

In the drawings, Figure 1 is a side elevation of the saw-frame complete. Fig. 2 is a cross-section on the line *x x* of Fig. 1. Fig. 3 is a rear elevation of the saw-frame complete. Fig. 4 is a sectional elevation of the upper part of the machine on the line *y y* of Fig. 3. Fig. 5 is a plan view in section on the line *z z* of Fig. 4.

A′ represents the main frame, to the upper side of which the saw-table A^2 is hinged by one end at *a*, while the other end is adjustably connected to the frame A′ by a bracket, A^3, and set-screw *b*, so that the inclination of the table may be adjusted as required.

C represents a rest attached across the table A′, against which the lumber is supported while being cut.

Beneath the table A^2 the frame A′ is formed with two parallel and horizontal members, A^4 A^5, on which a saw-mandrel frame, B′, is adapted to slide. The outer upper edges of the members A^4 A^5 are formed undercut, and the outer lower edges of the frame B′ provided with correspondingly "undercut" lips or ribs c' c^2, embracing the edges of the members A^4 and A^5, so that while frame B′ is free to slide back and forth along said members A^4 A^5 it will not be lifted up therefrom. The ribs c' c^2 will be provided with adjustable "gibs" c^3 c^4, adapted to fit in beneath the undercut edges of the members A^4 and A^5, to take up any wear of the members A^4 A^5 or frame B′, and thus keep the parts in true running order.

B^2 represents the saw-mandrel, journaled across the frame B′, and having a driving-pulley, B^3, on one end and the saw B^4 on the other end, the latter adapted to project up above one edge of the table A^2, as shown.

Journaled across the upper end of the frame A′, opposite to the rest C and above the table A^2, is a shaft, D′, carrying a chain or sprocket wheel, D^2, on one end outside the frame A′, and with a friction drum or pulley, D^3, between the sides of the frame, as shown. Beneath this drum D^3, on a shaft, D^4, is another friction-drum, D^5, the two friction-drums running in contact, and the upper drum, D^3, adapted to be adjusted higher or lower to regulate the friction by set-screws d' d^2, acting upon the adjustable bearings e' e^2, by which the ends of the shaft D′ are journaled to the frame A′.

D^6 is a third shaft, journaled by its ends in adjustable bearings g' g^2 on the frame A′, and carrying a third friction-drum, D^7. The ends of the shaft D^6, which are inserted into the bearings g' g^2, are eccentric to the main part of the shaft D^6, so that when the shaft is revolved a partial revolution the drum D^7 will be raised and lowered to a limited extent. The shaft D^6 is loose in the drum D^7, and is provided with a lever-arm, D^8, connected at its outer end by a rod, D^9, to one end of a treadle, D^{10}, the latter being pivoted at h' to the lower part of the frame A′, and projecting out in front of the frame, and provided with a foot-board, h^2, convenient to the foot of the operator. By pressing down upon the foot lever or treadle D^{10} the arm D^8 will be moved upward and revolve the shaft D^6, and by its eccentric connection in the bearings g' g^2 this action will move the drum D^7 upward.

E′ is a flat plate connected at one end, *i*, to the saw-mandrel frame B′, and extending backward and lying loosely across the drum D^7 and beneath the drum D^5. The plate E′ is not in contact with the roller D^5 (which, as before stated, is constantly revolving) when the foot-board end h^2 of the treadle D^{10} is elevated and the arm D^8 depressed; but when the roller D^6 is elevated, as before stated, by the action of the treadle and eccentric-shaft D^6, the plate E′ is pressed up against the roller D^5, and is thereby set in motion, and the saw-frame B′ moved along the members A^4 A^5.

Journaled in bearings m' m^2, across the lower part of the frame A′, beneath the shafts D′ D^4

D^6, is the main driving-shaft F′, having the loose and tight driving-pulleys F^2 F^3 on one end, and a sprocket-pinion, F^4, on the other end, the latter adapted to carry an endless chain, F^5, by which the motion of the shaft F′ is communicated to the sprocket-wheel D^2, and thence to the drums D^3 and D^5. The bearing m^2 is provided with collars, (concentric to the shaft F, and projecting from its ends,) on which a yoke-frame, G′, is mounted, as shown, the latter having journaled in its upper end a shaft, G^2, carrying a pulley, G^3, on one end, connected by a belt, G^4, to a pulley, G^5, on the shaft F′, and carrying a pulley, G^6, on its other end, connected by a belt, G^7, to the saw-driving pulley B^3. By this arrangement the motion of the main shaft F′ is communicated to the shafts D′ D^4, and also to the saw-mandrel B^2. The upper end of the yoke-frame G′ is connected to the saw-mandrel frame B′ by a rod, H′, the latter adjustable by a screw-connection, H^2, so that the tension of the belt G^7 may be maintained at all times, and increased or decreased, as desired.

The upper surface of the plate E′ will be faced with rubber, leather, or other similar suitable substance, so that the roller D^5 will not slip upon it. On the under side of the table A^2 a brush, K, is secured and adapted to rest in contact with the plate E′, to brush therefrom any adhering sawdust or other foreign matter and prevent its passing beneath the drum D^5.

L′ is a spring connecting the main frame A′ and the saw-frame B′, so that the latter will be returned to its normal position when the treadle D^{10} is released; and L^2 represents a similar spring connecting the free end of the yoke-frame G′ with the main frame A′, to assist in drawing the yoke-frame forward when the saw is in operation, to prevent all the strain coming upon the belt and tension-rod H′. One end of each of these springs will be adjustable by a windlass or drum, L^3 and L^4, respectively, to regulate their power.

The yoke-frame G′ is formed in two parts adjustable endwise by a set-screw, *n*, and held by bolts n^2, so that the yoke-frame may be lengthened or shortened to regulate the tension of the belt G^4. As before stated, the yoke-frame is mounted by its lower end on collars on the bearing m^2, and concentric to the shaft F′, whereby the yoke-frame moves about the shaft F′ as a center, while at the same time it is not in contact with the shaft; hence the friction of the constantly-revolving shaft is not borne in any manner by the yoke-frame.

An adjustable tightener, F^7, will be attached to the frame A′ at any suitable point, to run in contact with the endless chain F^5 and regulate its tension.

The frame B′ will be provided with oil-cavities t' t^2, by which the lower surface of the frame B′ and the upper surfaces of the members A^4 A^5 may be lubricated.

Having thus described my invention, what I claim as new is—

1. In a sawing-machine, the combination of a main frame, A′, having an adjustable table, A^2, frame B′, carrying saw-mandrel B^2 and saw B^3, and provided with horizontal plate E′, constantly-revolving friction-rollers D^3 D^5 above said plate, eccentrically-mounted friction-roller D^7 beneath said plate, and adapted to be elevated and depressed by foot-treadle D^{10}, main driving-shaft F′, carrying pulley G^5, and sprocket-pinion F^4, yoke frame G′, mounted concentrically by its lower end to said shaft F′, and carrying shaft G^2 and pulleys G^3 G^6 upon its upper end, belt G^7, connecting said pulley G^6 to said saw-mandrel B^2, adjustable tension-rod H′ H^2, connecting said yoke-frame and said saw-mandrel frame, and an endless chain, F^5, communicating motion from said shaft F′ to said friction-drums D^3 D^5, substantially as set forth.

2. In a sawing-machine, the combination of a main frame, A′, adjustable table A^2, frame B′, carrying a saw-mandrel and saw, horizontal plate E′, connected by one end to said frame B′, and resting across eccentrically-mounted drum D^7, constantly-revolving drums D^3 D^5 above said horizontal plate, means for elevating said drum D^7, to cause said plate E′ to be brought into contact with said constantly-revolving drum D^5, whereby said saw-frame B′ is moved along beneath said table A^2, and a fixed brush, K, in contact with the upper surface of said plate E′, substantially as set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOHN HISKEY PALM.

Witnesses:
FREDK. B. LATHROP,
W. F. ADAMSON.