No. 672,498.

Patented Apr. 23, 1901.

A. TOTHILL.

SAWING MACHINE.

(Application filed Dec. 19, 1900.)

(No Model.)

2 Sheets—Sheet 1.

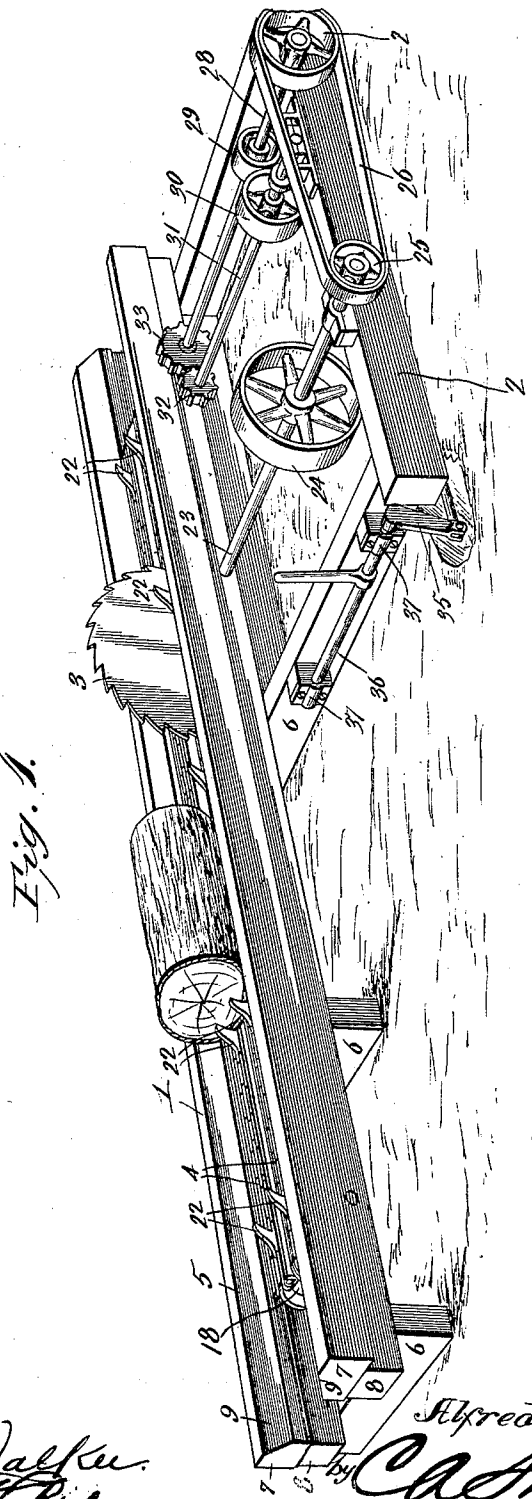


Fig. 1.

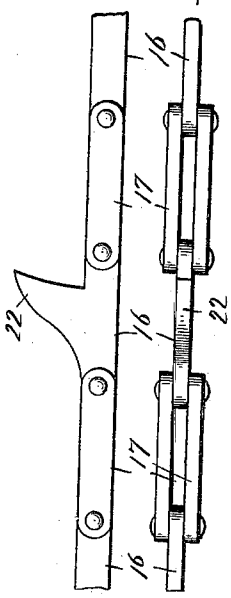


Fig. 7.

Fig. 8.

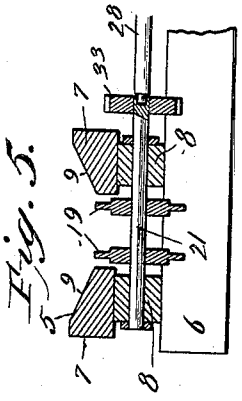


Fig. 5.

Witnesses

C. H. Walker.

T. P. Riley

Alfred Tothill, Inventor.

by C. A. Snow & Co.

Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 672,498.

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2 Sheets—Sheet 2.

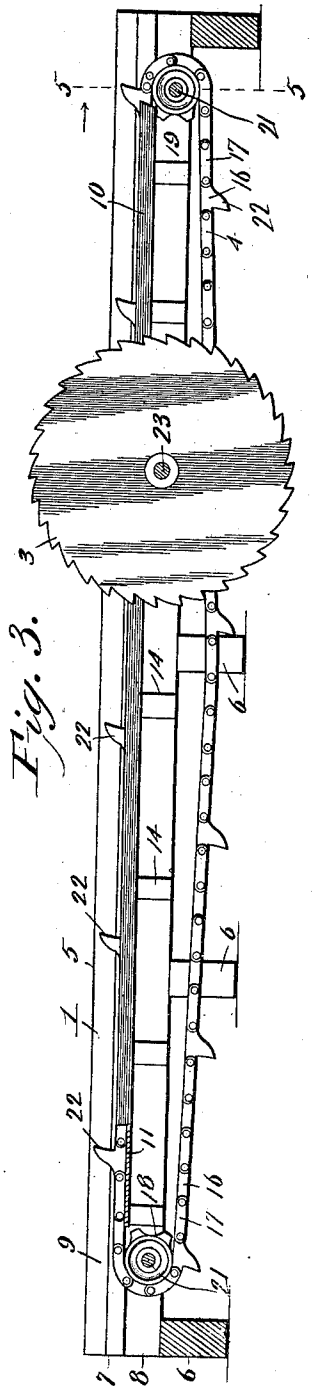


Fig. 3.

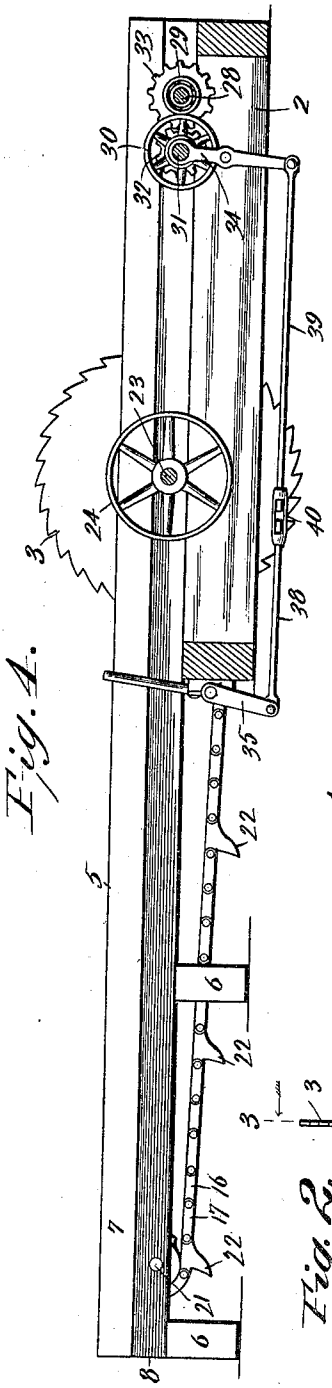


Fig. 4.

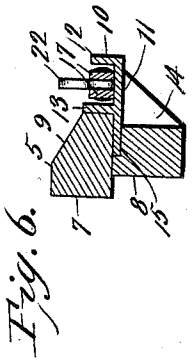


Fig. 6.

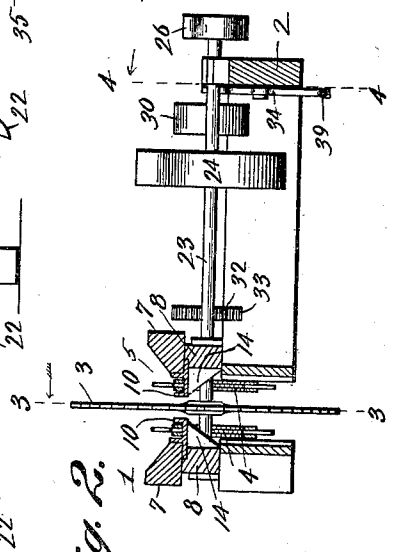


Fig. 2.

Witnesses

W. W. Walker

H. F. Miles

Alfred Tothill, Inventor.

by C. A. Snow & Co.

Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ALFRED TOTHILL, OF OLEAN, NEW YORK.

SAWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 672,498, dated April 23, 1901.

Application filed December 19, 1900. Serial No. 40,439. (No model.)

To all whom it may concern:

Be it known that I, ALFRED TOTHILL, a citizen of the United States, residing at Olean, in the county of Cattaraugus and State of New York, have invented a new and useful Sawing-Machine, of which the following is a specification.

The invention relates to improvements in sawing-machines.

The object of the present invention is to improve the construction of sawing-machines and to provide a simple and comparatively inexpensive one adapted for cutting up logs of short lengths and designed more especially for enabling knotted and crooked logs, which are usually left in a forest to rot owing to the difficulty of splitting them with an ax, to be readily cut into cord-wood.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a perspective view of a sawing-machine constructed in accordance with this invention. Fig. 2 is a transverse sectional view. Fig. 3 is a longitudinal sectional view on the line 3 3 of Fig. 2. Fig. 4 is a similar view on the line 4 4 of Fig. 2. Fig. 5 is a transverse sectional view of the log-trough, taken on the line 5 5 of Fig. 3. Fig. 6 is an enlarged detail sectional view illustrating the construction of the guides for the upper flights of the endless chains. Figs. 7 and 8 are detail views illustrating the construction of the endless chains.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates the frame of the machine, which frame is provided with an approximately rectangular portion 2 for supporting the gearing for operating a saw 3 and a pair of endless chains 4, which are adapted to carry a log to the saw. The frame of the machine is provided with a longitudinal log-trough 5, having inwardly-inclined inner faces and conforming generally to the configuration of the log and adapted to guide the same to the saw and form a firm support for the log. The trough is composed of two sides spaced apart and connected by transverse cross-pieces 6, and each side is provided with an upper longitudinal bar or beam 7 and a lower longitudinal supporting-sill 8, which rest upon the cross-pieces 6, as clearly illustrated in Fig. 1 of the accompanying drawings. The longitudinal bars 7 of the trough are provided with inclined inner faces 9 to form the said inclined faces of the trough, and the said upper longitudinal bars project inward beyond the inner faces of the lower sills 8 and have secured to them a pair of longitudinal guides 10 for the upper flights of the endless chains 4. The longitudinal guides, which are spaced apart to receive the saw, consist each of a horizontal bottom 11 and vertical longitudinal flanges or walls 12 and 13, and each guide, which is supported at intervals by brackets or braces 14, is provided with a longitudinal flange 15, disposed horizontally and extending outward from the outer wall of the guide. The horizontal flange 15, which is arranged in the same plane as the bottom of the guide, is interposed between the lower face of the adjacent upper longitudinal bar 9 and the contiguous sill, which is recessed to receive it. By this construction the longitudinal guides are firmly supported within the trough or way which receives the logs.

The sprocket-chains, which have their upper flights arranged in the longitudinal guides 10, are parallel with each other and are composed of links 16 and 17. The links 17, which are disposed in pairs, are pivoted to the ends of the single links 16 and form spaces or openings for the teeth of sprocket-wheels 18 and 19, which receive the chains. The sprocket-wheels 18 and 19, which are arranged in pairs at the front and rear ends of the trough 5, are mounted upon shafts 20 and 21, journaled in suitable bearings of the frame. The chains are provided at intervals with projecting dogs 22, disposed in pairs, as clearly illustrated in Fig. 1 of the accompanying drawings, and adapted to engage the end of a log at opposite sides of the center of the bottom, whereby the said log is firmly held and is positively carried to the saw 3. These dogs are arranged at intervals of about five feet, as the logs to be cut are about four feet, and they do not have to be driven into the logs, and the latter are not clamped in position and do not require the handling

which must necessarily result when they are clamped.

The saw, which is of circular form, is mounted on a shaft or arbor 23, upon which is keyed or otherwise secured a drive-pulley 24, which may be driven by any suitable motor. The shaft or arbor 23 is provided at its front end with a small pulley 25 and is connected by a belt 26 with a larger pulley 27 of a shaft 28, arranged parallel with the saw-arbor. The shaft 28 is connected by frictional gears 29 and 30 with a counter-shaft 31, which is connected by spur-gearing with the shaft 21, that carries the sprocket-wheels 19 for the endless chains. The frictional gears 29 and 30 are preferably provided with broad flat bearing-faces, and the shaft 31 is capable of a limited lateral movement to carry the wheel 30 into and out of engagement with the wheel 29 to start and stop the endless chains, whereby the sawing-machine may be thrown into and out of operation without starting or stopping the power for driving the saw-arbor. The speed of the saw-arbor is reduced by the belt-gearing which connects the saw-arbor with the shaft 28, and the frictional gear and the spur-gear further reduce the speed, as the wheel 29 is smaller than the wheel 30 and the spur-pinion 32 is smaller than the gear-wheel 33. The pinion 32 is mounted on the shaft 31, and the gear-wheel 33 is connected with the shaft 21.

The laterally-movable shaft 31 may be mounted in any suitable manner, and it is connected with the upper arm of an upright lever 34, fulcrumed between its ends on the frame of the machine and having its lower end connected with an arm 35 of a rock-shaft 36. The rock-shaft 36, which is journaled in suitable bearings 37 of the saw-frame, is provided with an upwardly-extending handle located between the ends of the rock-shaft and adapted to be readily grasped by the operator. The arm 35, which is arranged at the front end of the rock-shaft, extends downward and is connected with the said lever 34 by rods 38 and 39, which are adjustably secured together at their adjacent ends by a turn-buckle 40, whereby the length of the connection may be varied. When the handle of the rock-shaft is oscillated, the shaft 31 will be moved laterally and the wheel 30 will be carried into and out of engagement with the wheel 29.

The circular saw is adapted for making regular cuts, and pieces of any desired size may be cut from a log. The logs may be rapidly placed in the trough 5, and the operation of sawing short logs into cord-wood is quickly effected. The sawing-machine will be found especially advantageous for cutting into cord-wood crooked and knotty logs, which when logs are cut for the manufacture of wood-pulp, wood-alcohol, and the like are usually left on the ground, for the reason that they can be split with an ax only with great difficulty, and it will be apparent that the machine will enable much material to be saved and utilized which would otherwise be wasted.

It will be seen that the trough and the endless chains form an efficient conveyer for feeding the logs to the saw and that logs of greatly-varying diameter can be rapidly placed in the trough and will be rapidly sawed. It will also be apparent that the way formed by the inclined inner faces of the log-trough conforms to the general configuration of a log and that the latter is firmly supported and guided to the saw without clamping or fastening the log and without the use of dogging mechanism.

What I claim is—

1. In a sawing-machine, the combination of a frame provided with a trough, a saw arranged between the sides of the trough and located in the path of the logs, the longitudinal guides located at opposite sides of the saw and provided with longitudinal flanges, and a pair of endless chains having their upper flights arranged within the guides and located at opposite sides of the saw and held against lateral movement by the flanges of the guides, substantially as described.

2. In a sawing-machine, the combination of a frame provided with a trough composed of two sides spaced apart, a saw arranged in the space between the sides of the trough, the longitudinal guides mounted on the sides of the trough and provided with longitudinal flanges and having brackets or braces arranged at intervals, and the endless chains having upper flights arranged within the longitudinal guides, substantially as described.

3. In a sawing-machine, the combination of a frame provided with a trough composed of sides spaced apart, each side being provided with upper and lower longitudinal bars, a saw arranged between the sides of the trough, the longitudinal guides located at opposite sides of the saw and provided with depending brackets to fit against the lower longitudinal bars and having longitudinal flanges interposed between the said bars, and endless chains located at opposite sides of the saw and having upper flights arranged within the said guides, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ALFRED TOTHILL.

Witnesses:
J. R. JEWELL,
PETER JNO. MESSU.