No. 733,063. PATENTED JULY 7, 1903.

C. D. MARSH.

SAWING MACHINE.

APPLICATION FILED FEB. 3, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

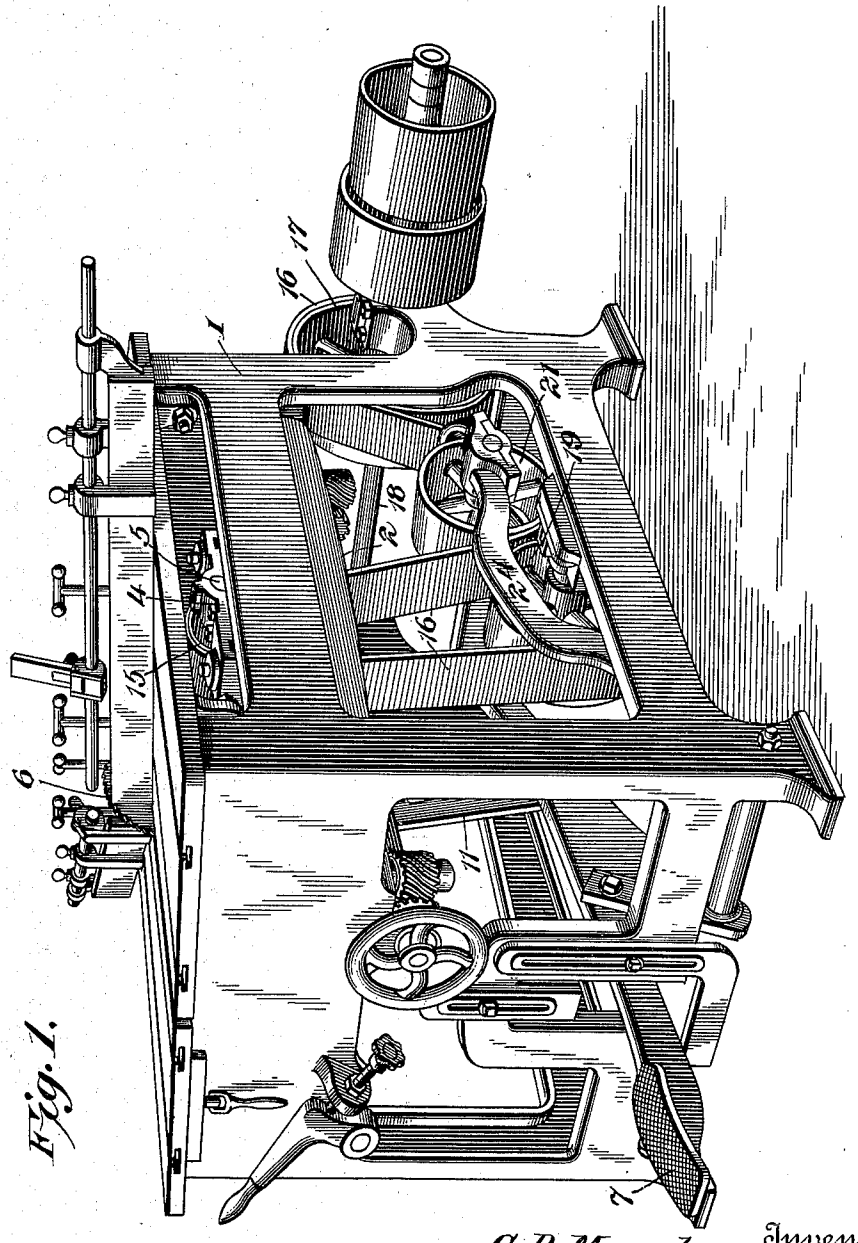


Fig. 1.

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Witnesses
Howard D. Orr.
T. J. Riley

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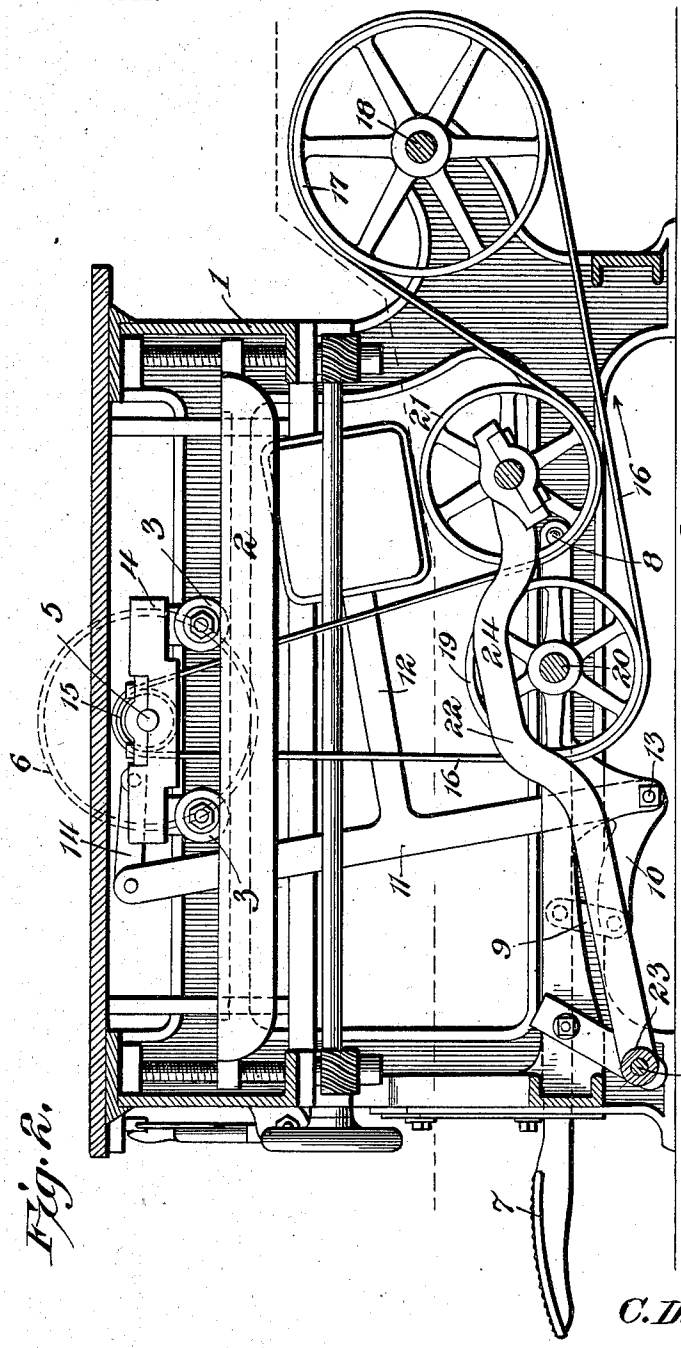


Fig. 2.

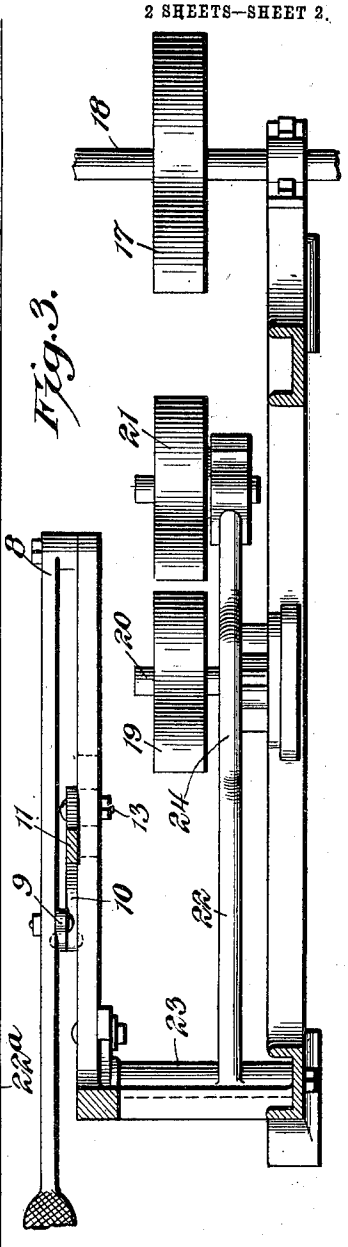


Fig. 3.

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UNITED STATES PATENT OFFICE.

CALVIN D. MARSH, OF WILLIAMSPORT, PENNSYLVANIA, ASSIGNOR TO HERMANCE MACHINE COMPANY, OF WILLIAMSPORT, PENNSYLVANIA.

SAWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 733,063, dated July 7, 1903.

Application filed February 3, 1903. Serial No. 141,665. (No model.)

To all whom it may concern:

Be it known that I, CALVIN D. MARSH, a citizen of the United States, residing at Williamsport, in the county of Lycoming and State of Pennsylvania, have invented a new and useful Sawing-Machine, of which the following is a specification.

The invention relates to improvements in sawing-machines.

Heretofore treadle-operated sawing-machines have been provided with a pivoted tightener-frame carrying two pulleys, one resting on the tight side of the belt and the other on the loose side of the same, and it has been found by experience that while sawing large material or hard wood the belt slips, and the saw stops when the latter is thrown quickly by a rapid movement of the treadle into a piece of hard wood or heavy material, thereby occasioning loss of power and loss of time. It has also been found impossible to employ large pulleys in this form of sawing-machine, owing to the extremely limited space on the tightener-frame and the limited movement of the same.

The object of the present invention is to improve the construction of this class of sawing-machines and to provide a simple and comparatively inexpensive construction in which large pulleys may be employed and in which the tightener-frame will operate only on the loose flight or side of the belt, a rigidly-mounted pulley being arranged on the frame to receive the draft side of the belt, whereby the saw is driven at all times with the full power of the machine and is effectually prevented from stopping when thrown quickly into a large piece of hard wood, thereby preventing loss of power and enabling large material and hard wood to be sawed with the same facility as light material.

A further object of the invention is to obviate the necessity of transferring work from a saw of this character to another kind of saw when hard wood or heavy material is used, and thereby enable a treadle-operated saw to be advantageously employed for all purposes for which a circular saw may be used.

With these and other objects in view the invention consists in the novel construction and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the claim hereto appended, it being understood that changes in the form, proportion, and minor details of construction within the scope of the claim may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a perspective view of a sawing-machine constructed in accordance with this invention. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is a horizontal view of a portion of the machine, illustrating the arrangement of the pulleys and the manner of mounting the same.

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

1 designates the main frame of the sawing-machine, which is provided at the top of the frame with a bench or table of the ordinary construction for supporting the work, and as the particular construction of the main frame and the means for clamping and holding the work do not constitute a part of the present invention a detail description of the same is deemed unnecessary. The frame is provided with a suitable track 2 for the reception of wheels 3 of a reciprocating carriage 4, provided with suitable bearings for the reception of the saw-arbor 5 of the machine. The saw-arbor carries a circular saw 6, which is advanced into the work by a foot-treadle 7, pivoted at its rear end 8 and connected between its ends by a link 9 with an arm 10 of a weighted oscillatory frame 11. The oscillatory frame 11, which is provided with a weighted arm 12, is pivoted at the bottom at 13 and is connected at the top with the carriage 4 by means of a link 14. The wheels of the reciprocating carriage are designed to be provided with ball-bearings, and the carriage is thrown forward when the treadle is depressed. Instead of employing the specific form of connecting devices shown in the accompanying drawings any other suitable means may be provided for transmitting motion from the treadle to the reciprocating carriage to move the latter forward. The weight of the piv-

oted oscillatory frame 11 moves the carriage rearward when pressure is removed from the treadle. The saw-arbor carries a pulley 15 for the reception of a belt 16, which connects the saw-arbor with a drive-pulley 17 of a drive or countershaft 18, journaled in suitable bearings at the back of the machine and adapted to be belted from above or below, as will be readily apparent. The belt 16 travels in the direction of the arrow in Fig. 2 of the drawings and extends downward from the pulley 15 of the saw-arbor to an idler or guide pulley 19, which is mounted on a fixed portion of the frame 1 of the machine by means of a stub-shaft 20 or any other suitable means. By this arrangement of the fixedly-mounted pulley 19 the draft side or flight of the belt is maintained tight at all times and is not affected by any vibration of the pivoted tightener, which is provided with a pulley 21 for engaging the loose side of the belt to take up the slack and maintain the same at a proper tension. The draft side or flight of the belt extends rearward from the pulley 19 to the drive-pulley, and the belt, which then passes around the drive-pulley upward from the under side of the same, extends forward beneath the pulley 21 of the tightener and then upward to the saw-arbor pulley. The tightener is provided with a frame 22, pivoted at its front end to the frame by means of a rod or shaft 22^a and provided with a suitable sleeve 23 for the reception of the pivot 22^a. The pivoted frame 22 of the tightener is provided between its ends with an upward bend forming an arched portion 24, which clears the shaft 20, upon which the pulley 19 is mounted. The tightener engages the loose side of the belt, as clearly shown in Fig. 2, and the draft side of the belt passes over a rigidly-mounted pulley. The oscillation of the tightener incident to the reciprocation of the carriage does not affect the tension of the drive side or flight of the belt, and the latter is effectually prevented from slipping when the saw is thrown quickly forward into a piece of hard wood or heavy material, and loss of power and time is also prevented, and it is unnecessary in sawing hard wood or heavy material to move the saw backward at intervals before completing the cut, as is necessary with those saws operated by a treadle and provided with a tension device or tightener carrying pulleys for both the drive and loose sides of the belt. The effect is also increased, as the arrangement illustrated in the accompanying drawings permits large pulleys to be employed without limiting the movement of the carriage.

It will be seen that by arranging the pulleys and the belt as herein shown and described a treadle-operated sawing-machine of the character described is adapted to operate on light and heavy material with the same facility and without liability of loss of time and power by reason of the belt slipping on the pulleys when the saw is thrown quickly into a hard piece of wood or material. Furthermore, it will be clear as the pulley 19 is mounted on a fixed portion of the frame of the machine, and the tightener engages only the loose side of the belt that it is impossible for the drive side of the belt to accidentally slacken and slip when the tension device is thrown upward quickly by reason of the forward movement of the reciprocating carriage.

What I claim is—

In a machine of the class described, the combination of a main frame provided with a horizontal track, a horizontal reciprocating carriage provided with wheels arranged on the track, a foot-treadle, a weighted oscillatory frame pivotally mounted on the main frame and connected at its top with the carriage and at its bottom with the treadle, a saw-arbor mounted on the carriage and provided with a pulley, a drive-pulley mounted on the main frame at the back thereof, a shaft fixed to the main frame at one side thereof, a guide-pulley mounted on the said shaft, a tightener-frame pivoted at its front end to the main frame and arched between its ends to clear the shaft and provided at its rear end with a pulley located between the guide-pulley and the drive-pulley, and a belt arranged on and extending between the saw-arbor pulley and the drive-pulley and having its drive side or flight arranged on the guide-pulley of the main frame, whereby the said drive side or flight is maintained under a constant tension and is prevented from slipping when the carriage is thrown quickly forward, the loose side or flight of the belt being engaged by the pulley of the pivoted tightener-frame, 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.

CALVIN D. MARSH.

Witnesses:
J. T. FREDERICKS,
HARRY PARSONS.