No. 616,163. Patented Dec. 20, 1898.

F. THOMPSON.

PORTABLE SAWMILL.

(Application filed June 19, 1897.)

(No Model.) 3 Sheets—Sheet 1.

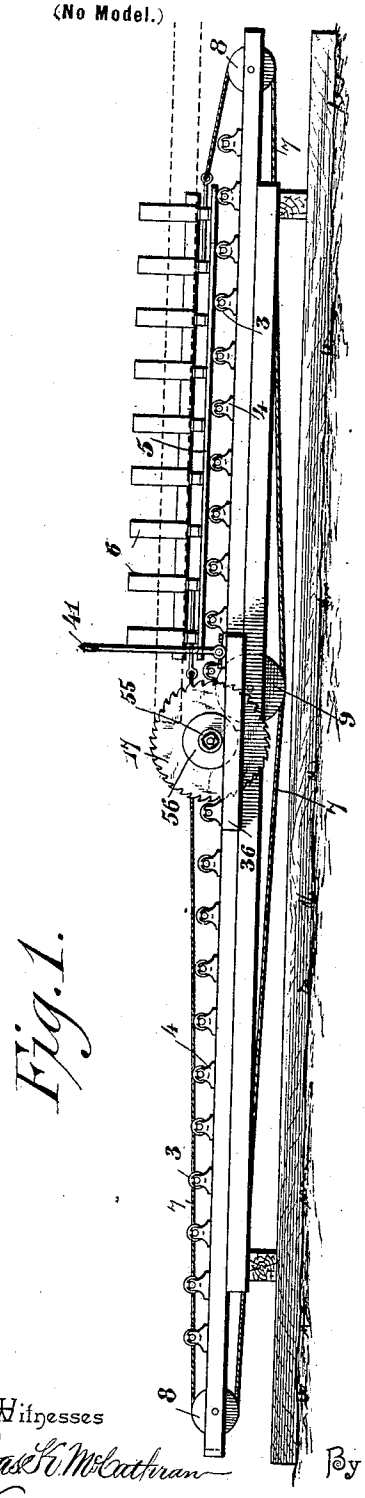


Fig. 1.

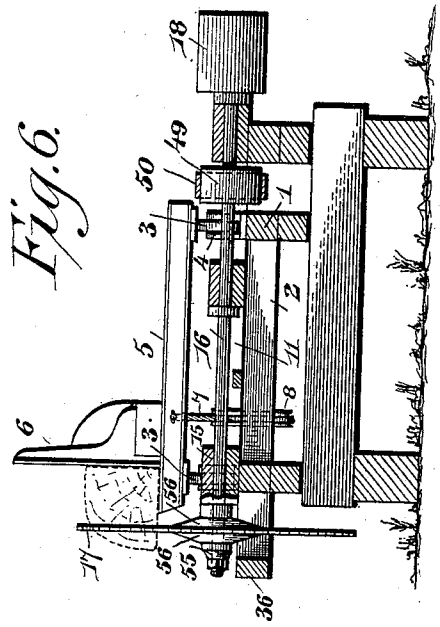


Fig. 6.

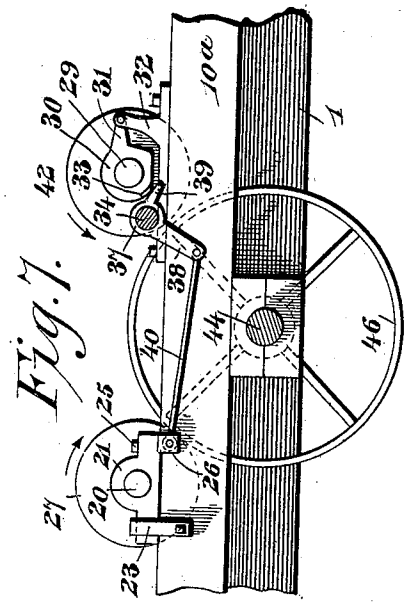


Fig. 7.

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Fig. 2.

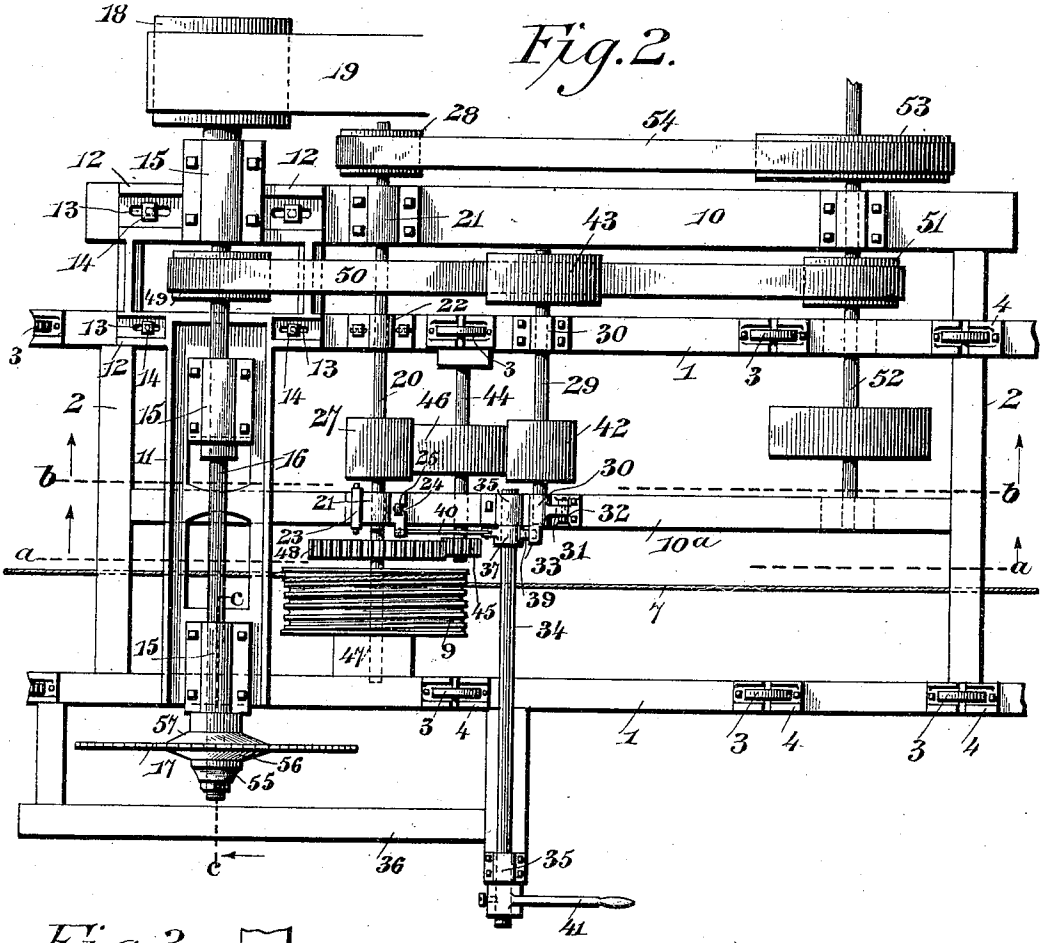
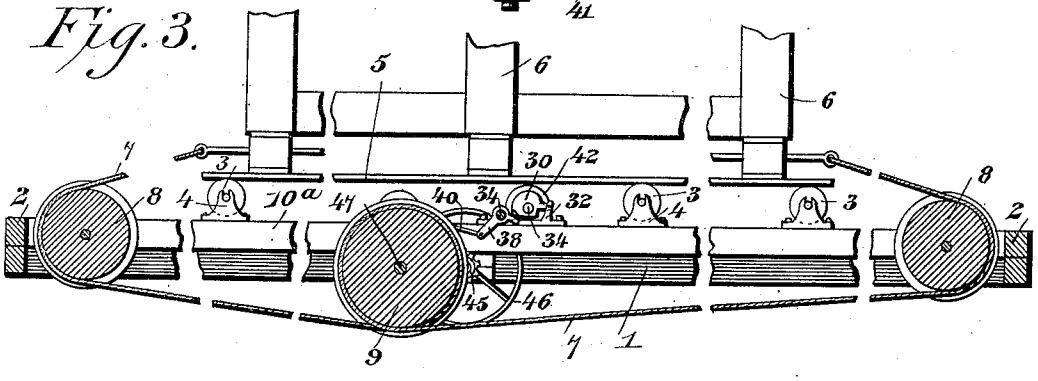


Fig. 3.



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Fig. 4.

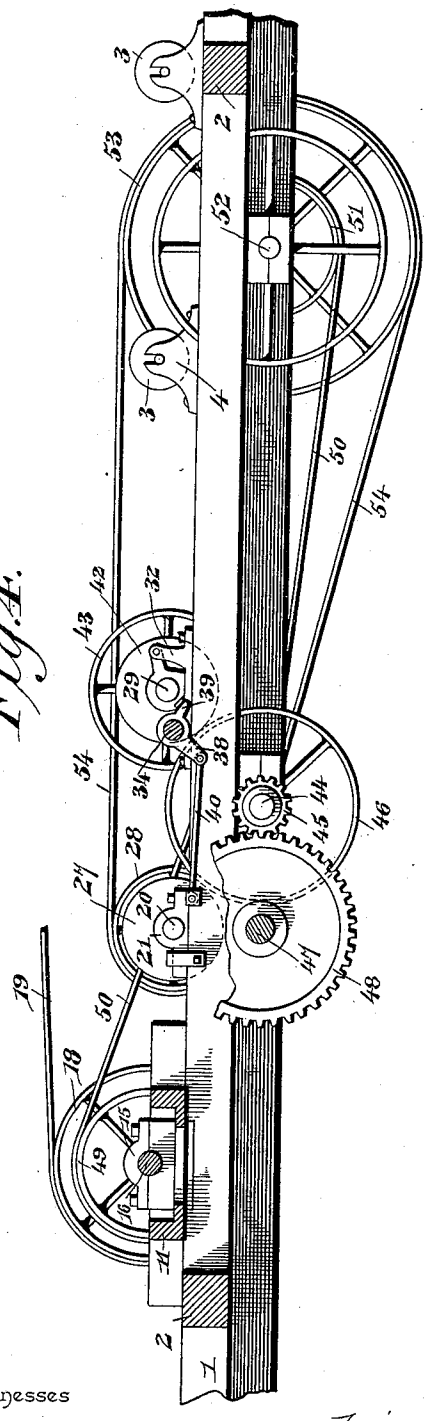
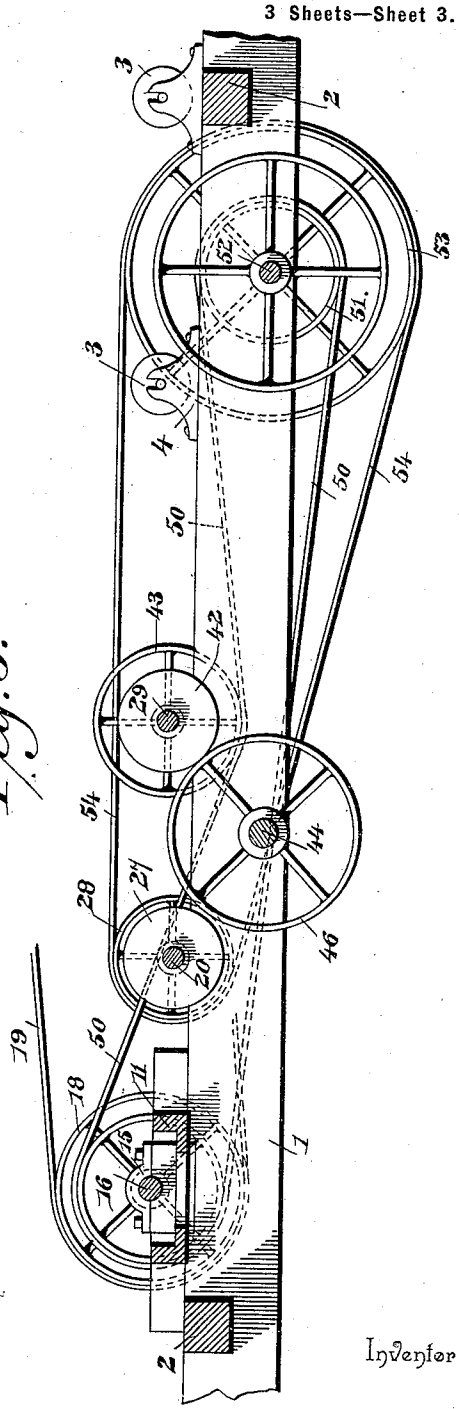


Fig. 5.



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UNITED STATES PATENT OFFICE.

FREEMAN THOMPSON, OF DOVER, NEW HAMPSHIRE.

PORTABLE SAWMILL.

SPECIFICATION forming part of Letters Patent No. 616,163, dated December 20, 1898.

Application filed June 19, 1897. Serial No. 641,478. (No model.)

To all whom it may concern:

Be it known that I, FREEMAN THOMPSON, a citizen of the United States, residing at Dover, in the county of Strafford and State of New Hampshire, have invented a new and useful Portable Sawmill, of which the following is a specification.

My invention relates to improvements in portable sawmills; and the object is to improve the construction of mills of this class with a view to securing a compact disposition of the working elements and insure true parallel relation at all times of the saw to the carriage, so as to cut the lumber square.

A further object is to provide an improved feed mechanism consisting of a few simple parts readily accessible to the operator for reversal of the carriage.

With these objects in view the invention consists of the several details of construction, combination, and arrangement of parts, as will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings, Figure 1 is a side elevation of a portable sawmill made in accordance with my invention. Fig. 2 is a plan view of a portion thereof, showing the arrangement of the saw-arbor and the feed mechanism. Fig. 3 is a broken side elevation of the carriage and the supporting-frame, the pulleys around which the carriage-cable passes being in section. Fig. 4 is a vertical longitudinal section on the line *a a* of Fig. 2. Fig. 5 is a similar view on the line *b b* of Fig. 2. Fig. 6 is a vertical transverse section on the line *c c* of Fig. 2. Fig. 7 is a detail showing in part the means for reversing the movement of the carriage.

Similar reference-numerals indicate similar parts in the several figures.

The main supporting-frame of the mill consists of two spaced parallel timbers or plates, (indicated by 1,) which plates are suitably connected and braced by cross-ties 2. On the plates 1 a series of rollers 3 are supported in brackets 4, the latter being firmly secured to the plates 1, and these rollers serve to support the carriage 5, which is adapted to travel to and fro thereon from end to end of the frame in the usual manner. The carriage is provided with the usual knees 6 to properly support the log. The set-works may be of any ordinary or usual construction and form no part of my present invention. The carriage-cable is indicated by 7, and the end pulleys of the frame, over which the cable travels, are indicated by 8.

9 is a grooved pulley journaled substantially midway the length of the frame, and the cable is given one or two turns around this pulley, and the rotation of the pulley serves to impart the proper movement to the carriage.

In order to afford a suitable support for some of the bearings of the several shafts that are necessary in the mill, I provide an additional plate 10 at the middle portion of the frame, which plate extends parallel with the plates 1 on the rear side of the frame and is suitably connected to it by cross-ties, which may be arranged whenever necessary.

10^a indicates another short plate or timber arranged between the plates 1 and is provided for the same purpose as the plate 10.

11 indicates a cast-iron frame which extends entirely across the frame and is provided at its rear end with lateral extensions 12. These extensions are provided with elongated openings 13, through which bolts 14 pass into the frame timbers in order to secure the cast-iron frame securely in position, but at the same time to permit of a certain amount of adjustment in order that the saw may be arranged in true parallel relation to the carriage. The cast-iron frame 11 is provided with three boxes, (indicated by 15,) in which the saw-arbor 16 is journaled. As these boxes are integral with the frame, they will always be in alinement with each other, and consequently much time will be saved which is usually lost in properly adjusting the boxes for the arbor on mills at present in use. The arbor carries the saw 17 at one end and at the opposite end the main driving-pulley 18, from which a belt leads to an engine. (Not shown.)

20 indicates a shaft journaled in bearings 21 on the plates 10, 1, and 10^a. The bearings on the plates 10^a and 1 are adapted to have slight movement on the plates, and in order to accomplish this the bearing on the plate 1 is provided with elongated openings 22, through which the bolts pass which secure it to the plate, and the securing-nuts on the bolts will be so adjusted as to prevent any vertical

movement of the bearings, but at the same time permit it to have a slight sliding movement on the plate 1. One end of the bearing 21 on the plate 10^a is held against vertical movement by a strap 23, which straddles the plate 10^a and is bolted to it. The other end of this bearing is provided with an elongated opening 24, through which the bolt 25 passes into the plate 10^a, and this end of the bearing is provided with a lateral and downwardly-extending lug 26. The strap 23 and the securing-nut on the bolt 25 will also be so adjusted as to hold the bearing against vertical movement, but permit it to have a slight sliding movement upon the plate 10^a. The shaft 20 carries a friction-pulley 27, and at its outer end a belt-pulley 28. 29 indicates another shaft which is journaled in bearings 30, supported on the plates 1 and 10^a. The bearing on the plate 10^a is provided with a short arm 31, which is pivoted in a bracket 32, bolted on the plate 10^a. This bearing is also provided with an outwardly-projecting lug, (indicated by 33.)

34 indicates a shaft journaled in bearings 35, secured to the plate 10^a and to an open frame 36, which is built around the saw 17. The shaft is provided near its inner end with a collar 37, from which extend the two arms 38 and 39. The arm 39 is adapted to engage the outwardly-projecting lug 33 on the bearing 30, and the arm 38 is pivotally connected to one end of a rod 40, the other end of which is pivotally connected to the lug 26 on the bearing 20. The outer end of the shaft 34 is provided with a lever 41, by means of which the shaft can be turned in its bearings. The shaft 29 carries a friction-pulley 42 in alinement with the similar pulley 27 and also carries at its outer end a belt-pulley 43.

44 indicates a shaft journaled in suitable bearings secured on the plates 10^a and 1, and this shaft projects beyond the plate 10^a and carries a pinion 45. The shaft also carries a pulley 46, which is in alinement with the friction-pulleys 27 and 42 and is adapted to be engaged thereby as the operator may desire. The grooved pulley 9 is carried on a shaft 47, which is journaled in bearings on the plate 10^a and the front plate 1. This shaft 47 also carries a gear-wheel 48, which meshes with the pinion 45.

49 indicates a belt-pulley on the saw-arbor, and 50 a belt which runs over and under the pulley 49, under the pulley 43, and over and under a pulley 51, mounted on a shaft 52, which is journaled in suitable bearings on the plates 10 10^a and the rear plate 1, and this shaft also carries a belt-pulley 53 outside of the plate 10.

54 indicates a belt which runs over the pulleys 28 and 53. By this arrangement of pulleys and belting when the saw-arbor is being rotated the friction-pulleys 27 and 42 will also be rotated, but in opposite directions. By turning the shaft 34 in its bearings the operator can bring either of the friction-pulleys 27 or 42 into engagement with the pulley 46, and thereby rotate the grooved pulley 9 in whichever direction it may be necessary to properly move the carriage to and fro on the frame. It will be obvious that when the shaft 34 is turned in one direction the arm 35 will move upwardly, and thereby lift the bearing 30 and move the friction-pulley 42 out of engagement with the pulley 46, and at the same time the arm 38 will move so as to slide the bearing 21 on the plate 10^a toward the pulley 46 and bring the friction-pulley 27 into engagement with the pulley 46. By reversing the movement of the shaft 34 the bearing 21 and the pulley 27 will be pushed away from the pulley 46 and the bearing 30 will be permitted to drop into its normal position, and thereby bring the friction-pulley 42 into engagement with the pulley 46.

From the foregoing description it will be seen that a portable sawmill constructed in accordance with my invention necessitates the use of only one frame to support the carriage and the saw-arbor, and consequently it will not require as much care to level and support the frame above the ground as is necessary when separate frames are used for the saw-arbor and the carriage.

Great difficulty has been heretofore experienced in using portable sawmills on account of the frame on which the carriage runs settling, this settling being caused by the weight of the logs on the carriage. Such settling of the carriage-frame would throw it out of true parallel relation to the saw, and consequently the lumber would not be cut square and much time would have to be expended in properly packing up the carriage-frame to bring it in proper position so that the saw would cut the lumber square.

In a mill built in accordance with my invention it is obvious that if the carriage-frame settles the saw-arbor will settle to a corresponding extent, and consequently the sawmill and carriage will always maintain the same relative position toward each other, and the result will be that the lumber will be perfectly uniform, and consequently much more valuable. It will not be necessary to build up any special foundation on which to support a mill built in accordance with my invention; but it can be set up on a few logs arranged transversely across it, and should it settle in any way it will not affect its uniform work. It is also obvious that a mill built in accordance with my invention will occupy much less space than where separate frames are used for the saw-arbor and the carriage and also that it will require much less material to construct it. It is also obvious that changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described the invention, what I claim is—

1. In a portable sawmill, the combination with a main frame, of a single saw-arbor frame united rigidly to the main frame to extend beneath the path of the carriage and having a series of constantly-alined bearings, a traveling carriage sustained on the main frame in an elevated position to travel directly over the saw-arbor frame, and a saw-arbor journaled in the saw-arbor frame, whereby the carriage and saw-arbor frame are both supported by the main frame and the saw-arbor is sustained at all times in parallel relation to the path of the carriage, substantially as described.

2. In a portable sawmill, the combination with a main supporting-frame, of a single metallic saw-arbor frame provided with a plurality of bearings which are disposed longitudinally of said frame and in constant alinement with each other and said metallic frame extending entirely across the main frame to lie below the path of a carriage, a saw-arbor journaled in the bearings of said frame, a traveling carriage, and means for supporting the carriage in an elevated position above the main frame and enable it to travel directly over the saw-arbor frame, whereby the carriage and saw-arbor frame are supported by a common main frame and the saw-arbor remains constantly parallel to the path of the carriage, substantially as described.

3. In a portable sawmill, the combination with a main frame and a feed mechanism, of a single saw-arbor frame fixed to the main frame to extend entirely across the same and having a series of constantly-alined bearings, means for adjustably fastening the saw-arbor frame to the main frame to secure a limited adjustment with relation to the feed mechanism, a saw-arbor journaled in said saw-arbor frame, and a traveling carriage mounted in an elevated position on the main frame to travel directly over the saw-arbor and its frame, substantially as described.

4. In a portable sawmill, the combination with a main frame, and a feed mechanism, of a single metallic frame extending entirely across the main frame and provided with a series of constantly-alined bearings and with transverse slots by which the metallic frame may be bolted to the main frame for adjustment in relation to the feed mechanism, a saw-arbor journaled in the bearings of the metallic frame, and a traveling carriage supported in an elevated position on the main frame to travel directly over the saw-arbor and its frame, substantially as described.

5. In a portable sawmill, the combination with a main supporting-frame, and a traveling carriage mounted thereon, of a shaft carrying a grooved pulley, a cable actuated by said grooved pulley and attached to the respective ends of said carriage, a driving-pulley and gearing by which said grooved pulley is operated, friction-pulleys on opposite sides of the driving-pulley, a slidable bearing for the shaft of one friction-pulley and having a projecting lug, a pivoted bearing for the shaft of the other friction-pulley and likewise having a projecting lug, an adjusting-shaft having oppositely-extending arms, one of which is adapted to engage a lug on the pivoted bearing, and a rod connecting the other arm of the adjusting-shaft with the sliding bearing, substantially as described.

6. In a portable sawmill, the combination with a supporting-frame, and a traveling carriage, of an actuating-cable attached to said carriage, a grooved pulley around which said cable is coiled, a driving-pulley and gearing by which said grooved pulley is operated, friction-pulleys on opposite sides of the driving-pulley, a pivoted bearing for the shaft of one pulley, a sliding bearing for the shaft of the other pulley, and adjusting devices operatively combined with the slidable and pivoted bearings to move one pulley into engagement with the driving-pulley and the other pulley out of engagement therewith, 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.

FREEMAN THOMPSON.

Witnesses:
MARTHA VICKERY,
A. G. WHITTEMORE.