

J. H. LONGSTREET.
PORTABLE SAWING MACHINE.
APPLICATION FILED JUNE 20, 1908.

955,975.

Patented Apr. 26, 1910.

3 SHEETS—SHEET 1.

Fig. 1.

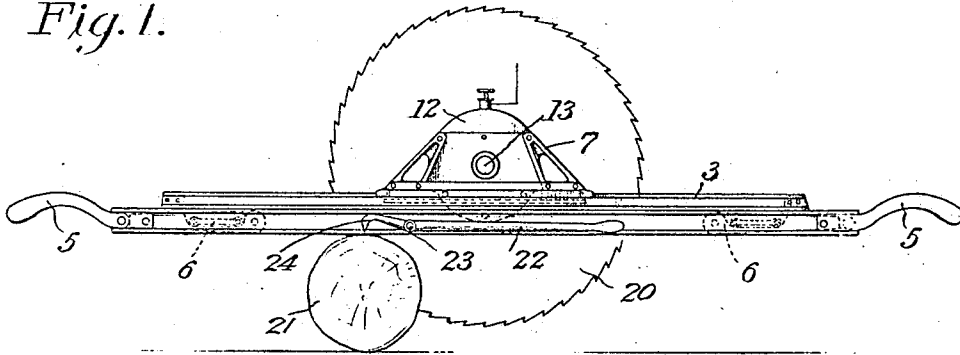


Fig. 2.

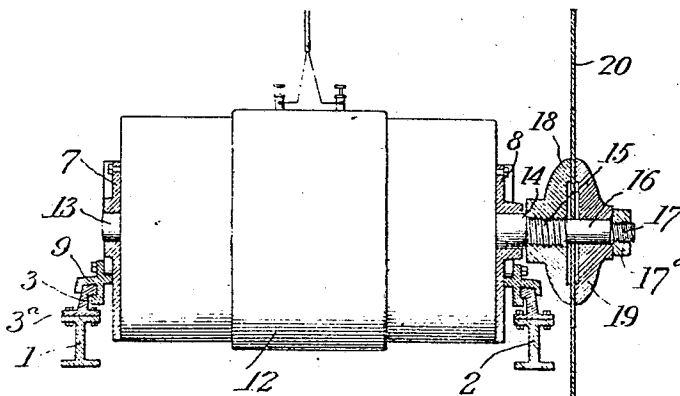
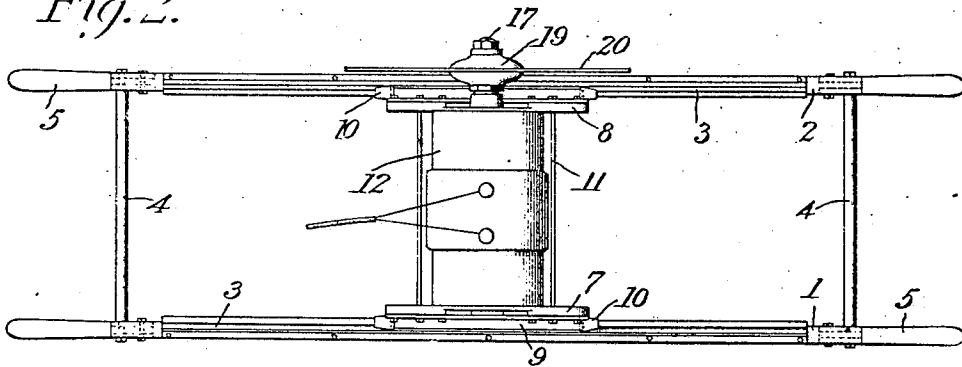
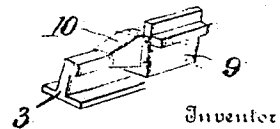


Fig. 3.

Fig. 10.



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3 SHEETS—SHEET 2.

Fig. 4.

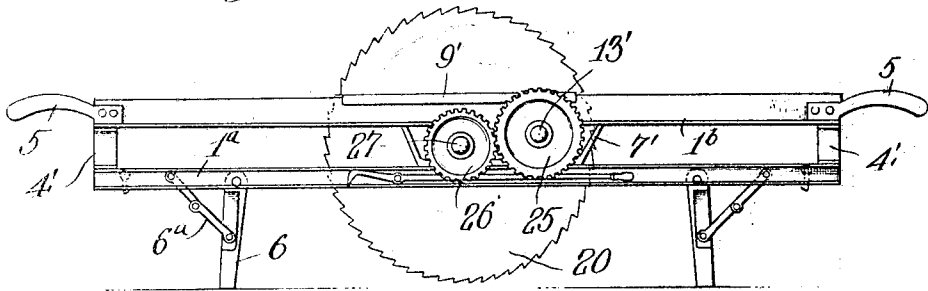


Fig. 5.

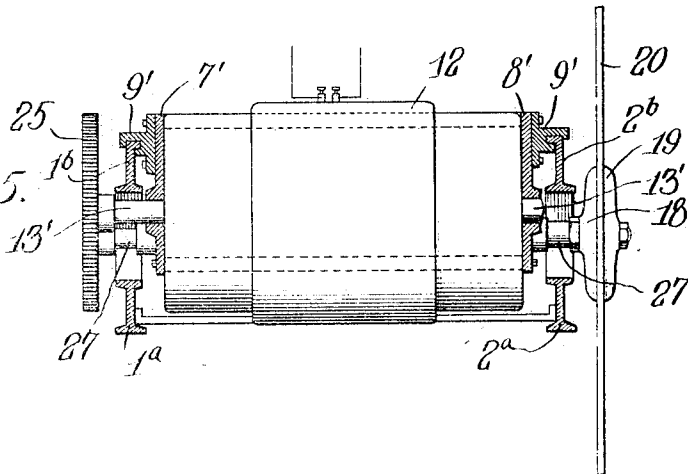
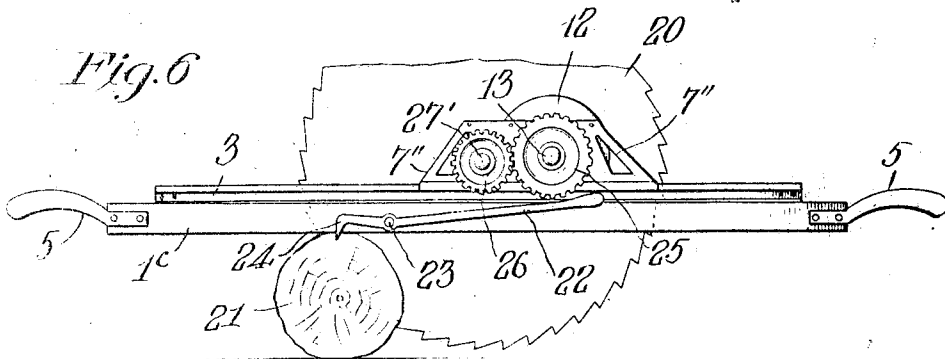


Fig. 6.



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3 SHEETS—SHEET 3.

Fig. 7.

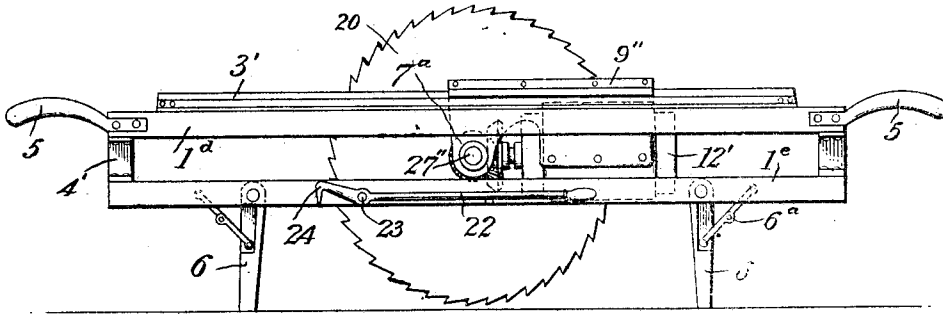


Fig. 8.

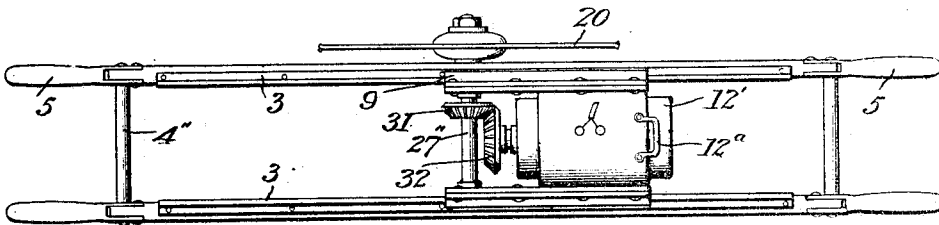
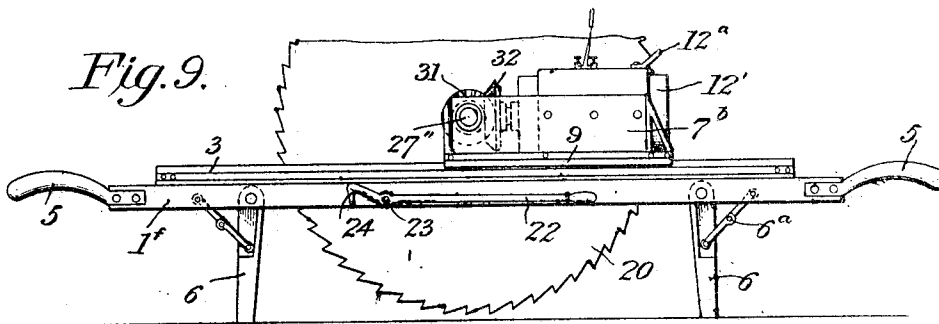


Fig. 9.



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UNITED STATES PATENT OFFICE.

JOHN H. LONGSTREET, OF GERMANTOWN, PENNSYLVANIA.

PORTABLE SAWING-MACHINE.

955,975.

Specification of Letters Patent. Patented Apr. 26, 1910.

Application filed June 20, 1908. Serial No. 433,497.

To all whom it may concern:

Be it known that I, JOHN H. LONGSTREET, citizen of the United States, residing at Germantown, in the county of Philadelphia and State of Pennsylvania, have invented new and useful Improvements in Portable Sawing-Machines, of which the following is a specification.

My invention relates to portable sawing machines, and more particularly to electrically driven devices of this character especially designed for use in cutting various kinds of timber in large building operations and in cutting up logs in the forest.

One object of the invention is to provide a sawing machine which may be readily lifted about, or carried from place to place by two men; and which, at the same time shall have the rigidity required by a practical machine.

A further object of the invention is to provide means for insuring the accurate and steady running of the saw, and the proper guiding of the same.

With the above and other objects in view, my invention consists in the construction and combination of parts hereinafter described, and illustrated in the accompanying drawings, in which:—

Figure 1 is a side elevation of one form of my improved portable sawing machine, complete, showing the same in position on a log to be cut. Fig. 2 is a plan view thereof. Fig. 3 is a sectional elevation of the carriage and associated parts on an enlarged scale. Fig. 4 is a view similar to Fig. 1, but showing a modified form of machine. Fig. 5 is a sectional elevation on an enlarged scale, of parts of the machine shown in Fig. 4. Fig. 6 is a view similar to Fig. 1, but showing a further modification. Fig. 7 is a similar view showing a still further modification of the invention. Fig. 8 is a plan view of the same. Fig. 9 is a view similar to Fig. 1, but illustrating still another embodiment of my invention. Fig. 10 is a detail perspective view illustrating the track cleaner hereinafter described.

It has heretofore been proposed to construct portable electrically driven sawing machines for use in the forest, but such prior machines have proved more or less unsatisfactory for one reason or another. I have found that one of their chief faults is lack of stability, and unsteadiness of running of

the saw, such defect being caused either by only a single guiding member for the carriage being employed, or by making the construction of the supporting members too flimsy, or by elevating the center of gravity of the moving parts to an undue extent above the supporting structure. To remedy these defects I provide a rectangular supporting frame or bed, which, as shown in Figs. 1 to 3, comprises the spaced, parallel side members 1, 2, and the connecting members or cross-braces 4. The members 1 and 2 may consist of I-beams as shown, or of wooden beams, or other material. Mounted upon each such side-member is a track rail, 3, which is preferably of the shape shown, having an undercut head, with which a part of the carriage engages.

Carrying handles 5, are secured to each end of the frame, and folding legs, 6, provided with hinged braces, 6*, may, if desired, be pivoted to the frame near each end as shown, for the purpose of supporting the same when not resting on the logs being sawed.

A movable carriage is adapted to slide on the rails 3, and such carriage comprises spaced members 7, 8, united by tie rods 11. Each of the members 7, 8, is provided with a rail-engaging portion 9, (see Fig. 3) and may also be furnished with a track cleaning device 10, as illustrated in Fig. 10. This device, as shown, comprises plates or blades of sheet metal, secured to the portion 9 of the members 7, 8, and extending downwardly into contact with the rail. As the carriage is moved, therefore, it will readily be seen that this cleaner will free the rail of any accumulations that may have collected, and prevent them from clogging the carriage.

Supported by the carriage, and extending transversely between the track rails is an electric or other suitable motor, 12. It will be observed that the frame of the motor is mounted directly between and secured to the members 7 and 8 of the carriage, and is so disposed that a considerable part of it depends between the tracks, and runs very close to the object being cut. This is an important feature of my invention, since such an arrangement results in great stability, and steadiness of operation, owing to the fact that the axis of the saw is brought to the lowest practical position and the cen-

ter of gravity of the motor is very near the point of support.

13 represents the motor shaft, and on its extended end, outside of the frame but running close to it, is mounted the vertical saw 20, in a manner now to be described. By reference to Fig. 3 it will be seen that the shaft 13 is provided with a shoulder 14, beyond which extends a screw threaded portion 15, and a smooth portion 16, terminating in another screw threaded portion 17. A combined nut and clamping member 18 is fitted onto the screw threaded portion 15 so as to abut the shoulder 14. The saw 20, is then placed in position against the member 18, and a second clamping member 19 is then slipped over the shaft so as to bear against the saw. A nut 17^a is then screwed into place on the end of the shaft, and serves to maintain the parts in position. The purpose of this construction is to allow the inner clamping member to be readily removed from the shaft when it is desired to separate the motor parts for inspection or repair.

The log or timber being operated upon is represented at 21, and if desired, a grapple hook 22, pivoted to the frame as at 23, may be provided, and formed with a head 24, adapted to engage the log. The frame is laid across the log as shown, and the carriage moved along by hand so as to feed the saw, as required. While the direct connected saw shown in Figs. 1 to 3 is very satisfactory, and will probably be preferred in general, it may, in some cases, be found desirable to employ gearing. In Figs. 4 to 9, therefore, I have illustrated various forms of machines in which gearing is interposed between the motor and saw. In order to show the relation which these figures bear to Figs. 1 to 3, I have, so far as possible, employed the same reference numerals to designate corresponding or similar parts, and have distinguished between them by means of exponents.

In Figs. 4 and 5 I have shown a construction in which the saw 20 is mounted on a shaft 27, journaled in the members 8^a, 7^a, which support the motor. A pinion 26, secured to this shaft, meshes with a pinion 25, secured to the motor shaft 13^a, and the clamping member 18 is screwed on to the other end of the shaft 27 in the same manner as shown in Fig. 3. The frame or bed of the machine is, in this instance, composed of pairs of spaced members, 1^a, 1^b, and 2^a, 2^b, between which the shaft 27, carrying the vertical saw outside of the frame, extends. These members are suitably braced by means of cross-bars 4^a and the carriage is provided with track engaging members 9^a, which slide directly on the edge of rails 1^b and 2^b formed to receive them. It will be noted particularly that in this construction, both the

motor and saw shafts lie between the bed members, and the latter shaft wholly below the point of support for the carriage, thereby insuring the greatest possible stability.

In the arrangement illustrated in Fig. 6, the two shafts 13 and 27^a are also arranged side by side, as in Fig. 4, but in substantially a horizontal plane. Elongated side members, 7^a, for the carriage are provided, in which the two shafts are journaled. Otherwise, the construction is substantially the same as that of Fig. 1, except that the side members of the frame 1^a are shown as constructed of wood, instead of I-beams.

In Figs. 7, 8, and 9, I have shown the motor 12^a, as arranged longitudinally of the rails 3, instead of transversely, as illustrated in the other figures. This permits the side members, 1^a, 1^b, 1^c, of the frame to be placed closer together, and connected by shorter brace rods 4^a.

In Fig. 7 the frame comprises pairs of spaced members 1^a, 1^b, as in Fig. 4, between which the saw shaft 27^a extends. The carriage comprises specially shaped members 7^a having depending portions adapted to support the saw shaft, and having the track engaging portions 9^a, at the extreme upper edge thereof. This construction permits the motor to swing down entirely between and below the rails, thus allowing it to run very close to the object being cut and bringing its center of gravity below the point of support, hence imparting great stability to the machine. The saw shaft carries a bevel gear 31, which engages a similar gear 32, secured to the adjacent end of the motor shaft. A handle 12^a, may be secured to the motor, and serves as a means for moving the vertical saw back and forth across the log being cut. A similar handle may be fastened on the motors of the other forms of the machine.

The construction illustrated in Fig. 9, is quite similar to that shown in Fig. 7, the only difference being that single beams, 1^a, are employed for the frame, and that therefore the carriage members, 7^a are of different shape. As shown, the members are rectangular, and have the rail engaging portion 9 secured to their lower edge. Even in this arrangement, however, the motor may be so placed that it lies partly below the plane of the rails, thus allowing the body of the motor to run very close to the object being cut, thereby bringing the shaft and axis of the vertical saw to the lowest practical position.

What I claim is:—

1. In combination, a portable frame comprising a pair of spaced, parallel side members, end members connecting said side members, track rails secured to said side members, a carriage between said side members movably mounted on said track rails and comprising spaced members one of which 13

members is adapted to engage each of said rails, a motor directly supported by the carriage between said spaced members thereof, and a vertically disposed circular saw also mounted on said carriage outside of the frame, and operatively connected with said motor.

2. In combination, a portable frame comprising a pair of spaced, parallel side members, end members connecting said side members, track rails secured to said side members, a carriage between said side members movably mounted on said track rails and comprising spaced members extending below the rails one of which members is adapted to engage each of said rails, a vertical circular saw mounted on said carriage, and a motor supported by said carriage between said spaced members in such a manner as to lie partly below the plane of said track rails, and operatively connected with said saw.

3. In combination, a portable frame comprising a pair of spaced, parallel tracks, a carriage movable on said tracks and extending below the same, a vertical saw mounted on said carriage, and a motor operatively connected with said saw and supported on said carriage partially below the plane of said tracks.

4. In combination, a portable frame comprising a pair of parallel side members, spaced apart and suitably braced, track rails secured to said side members, a carriage movable on said rails and extending below the same, said carriage comprising a pair of spaced members each of which is adapted to engage one of said rails, a shaft journaled in bearings in said spaced members and extending transversely of said track rails, a vertical saw mounted on said shaft outside the frame, and a motor supported by said carriage between said spaced members and partly below the rails, and operatively connected with said saw shaft.

5. A sawing machine comprising a portable frame adapted to be laid transversely across a stick of timber to be sawed, carrying

handles at each end of said frame, folding legs pivoted to said frame for supporting the machine when not in use, a carriage movable along said frame, a motor supported upon said carriage and extending downwardly between the sides of said frame, nearly to the under side thereof, a direct motor driven vertical saw mounted on said carriage outside said frame, and a grapple hook pivoted to the side of said frame, and provided with a head adapted to engage the timber to be sawed.

6. In combination, a portable frame comprising a pair of spaced, parallel side members, end members connecting said side members, track rails secured to said side members, a carriage movably mounted on said track rails and comprising spaced members one of which is adapted to engage each of said rails, a motor directly supported by said carriage between the spaced members thereof, and a vertical circular saw mounted on the motor shaft, and lying outside the frame and in a plane at right angles to a plane coincident with the two track rails.

7. In combination, a portable frame comprising a pair of spaced, parallel side members, end members connecting said side members, track rails secured to said side members, a carriage movably mounted on said track rails between the side members of the portable frame and comprising spaced members one of which is adapted to engage each of said rails, a motor supported by said carriage between its spaced members in such position that it lies partly below the plane of said track rails, and a vertical circular saw mounted on the shaft of said motor, outside of the portable frame and close to one side thereof.

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

JOHN H. LONGSTREET.

Witnesses:

W. H. KOLLER,

GEORGE S. DELLINGER.