A. GISCH.

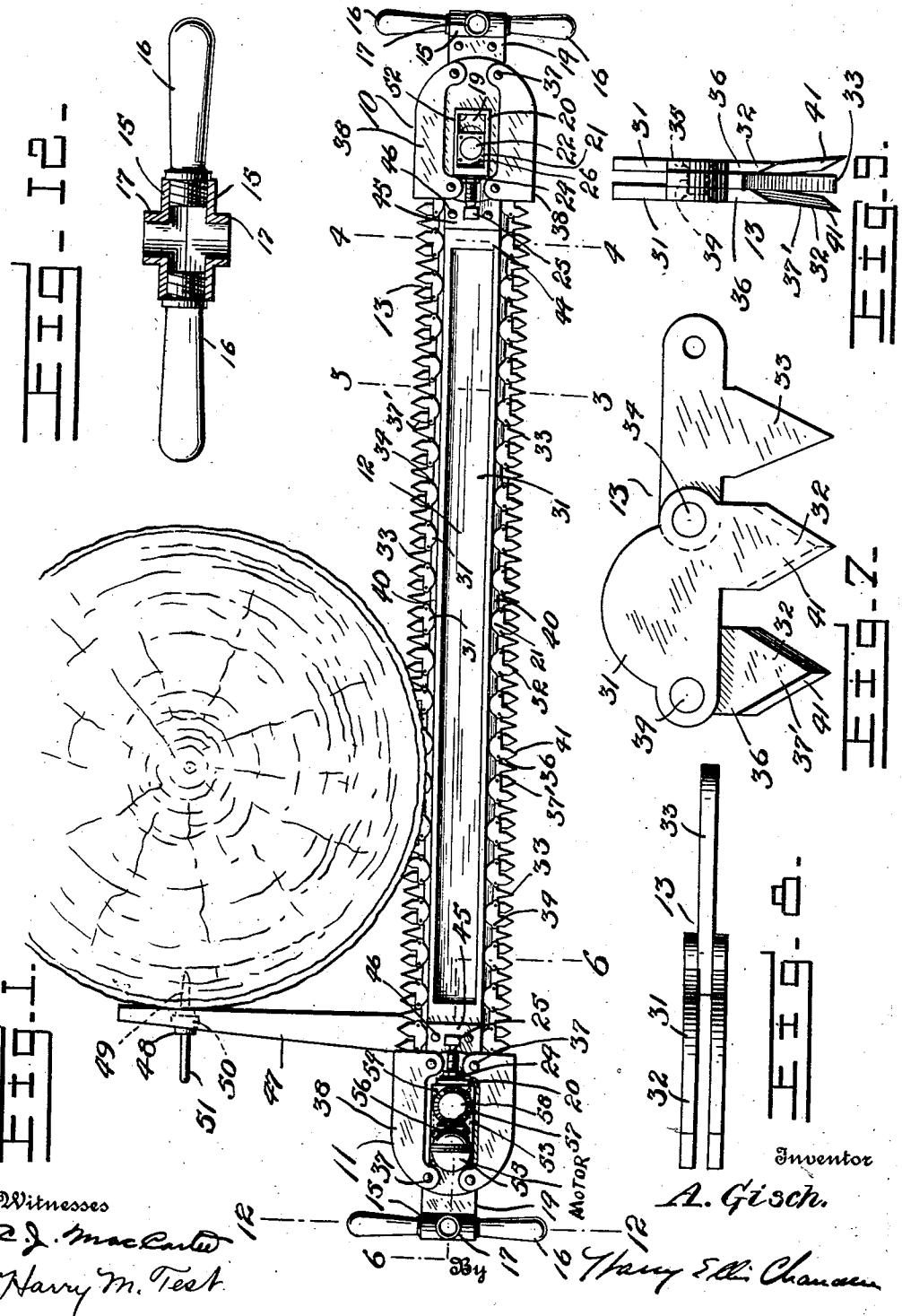
MOTOR OPERATED SAW.

APPLICATION FILED OCT. 12, 1911.

1,239,384.

Patented Sept. 4, 1917.

4 SHEETS—SHEET 1.



Witnesses

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4 SHEETS—SHEET 2.

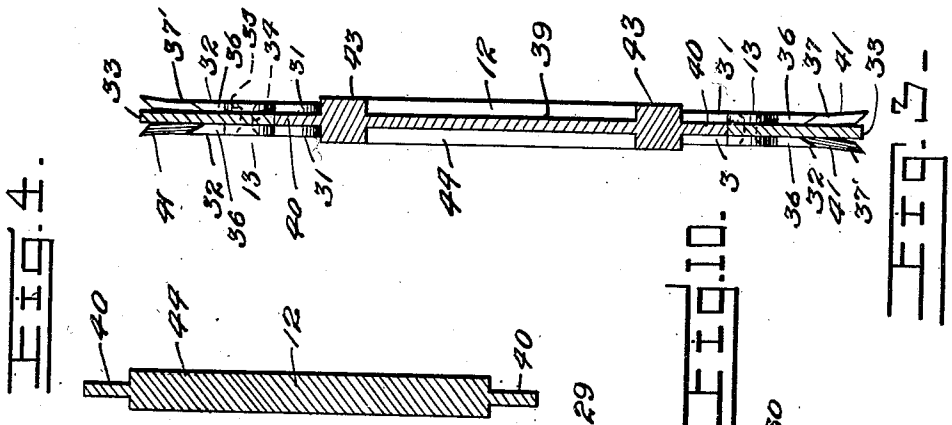


Fig. 4.

Fig. 10.

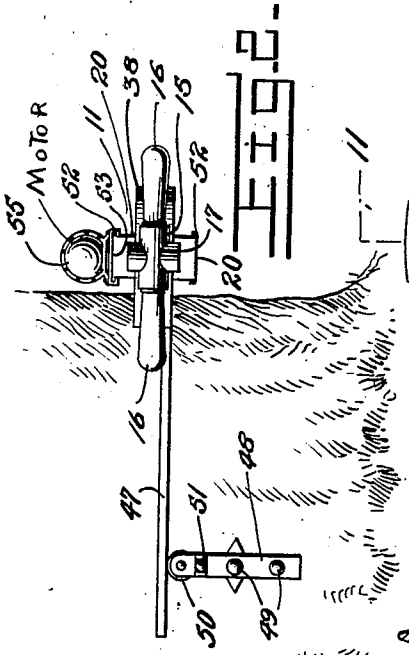
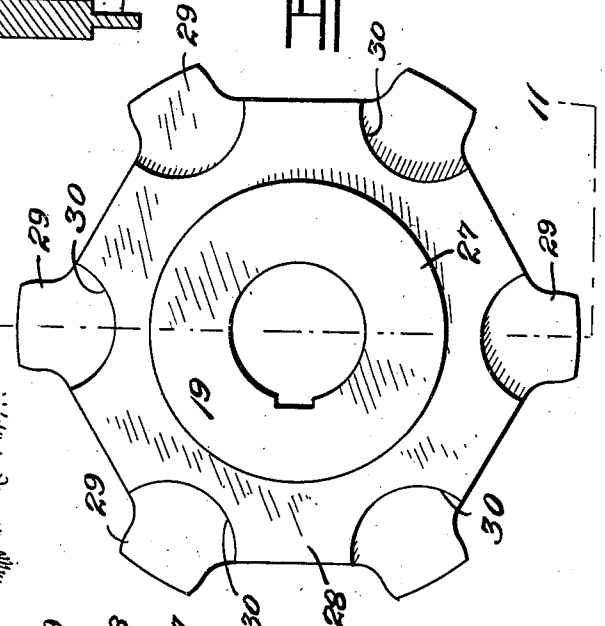


Fig. 2.



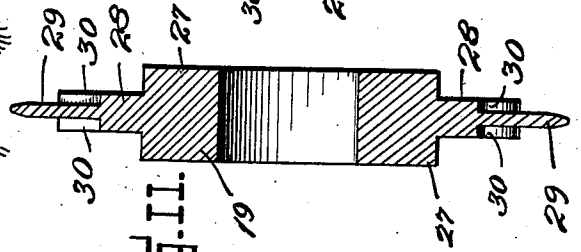


Fig. 11.

Witnesses

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4 SHEETS—SHEET 3.

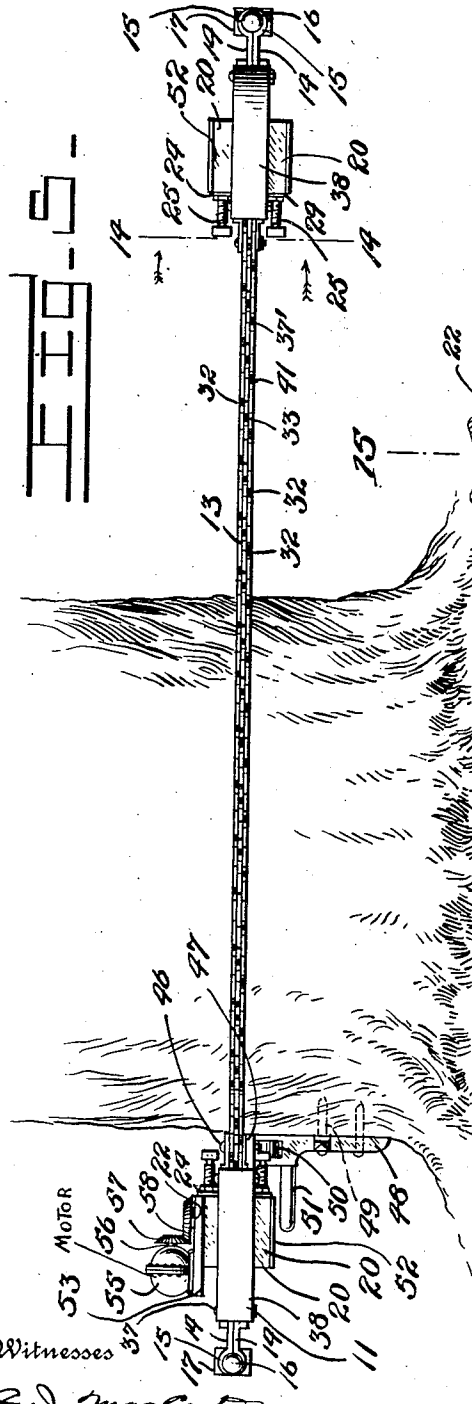

FIG. 5.

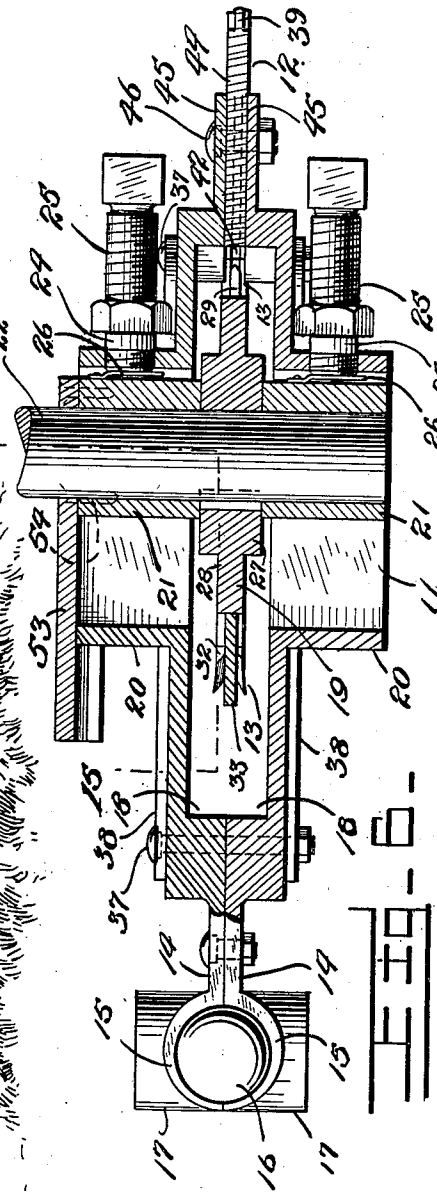

FIG. 6.

Witnesses

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4 SHEETS—SHEET 4.

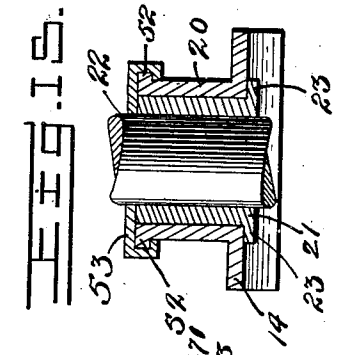

FIG. 15.

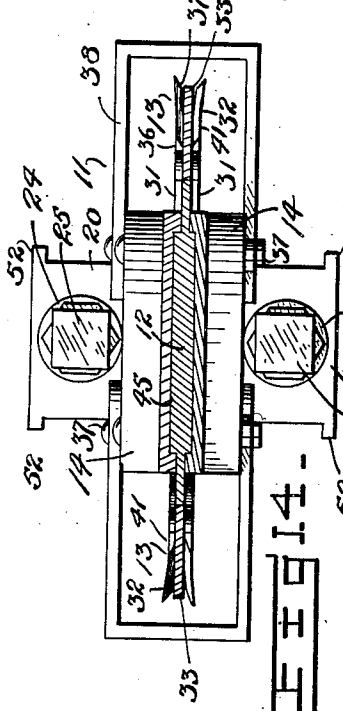

FIG. 14.

FIG. 13.

Witnesses

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UNITED STATES PATENT OFFICE.

ANTHONY GISCH, OF CARSON, LOUISIANA.

MOTOR-OPERATED SAW.

1,239,384. Specification of Letters Patent. Patented Sept. 4, 1917.

Application filed October 12, 1911. Serial No. 654,215.

To all whom it may concern:

Be it known that I, ANTHONY GISCH, a citizen of the United States, residing at Carson, in the county of Calcasieu and State of Louisiana, have invented certain new and useful Improvements in Motor-Operated Saws, of which the following is a specification.

This invention relates to improvements in saws, and has particular reference to chain saws for felling trees, and sawing up timber.

The principal object of the invention is to provide a device of this character which will be strong, and having means to prevent buckling of the chain.

Another object is to provide means for driving the chain at a high rate of speed.

Another object resides in the peculiar construction and arrangement of the chain guide.

A still further object is to provide a novel means for adjusting the tension of the saw chain, and the method of mounting the motor.

A yet further object is to so construct the device that the same may be quickly and easily taken apart, to remove the saw chain should it stick in the timber.

Another object is to provide a novel construction of handle for holding the saw and means whereby the saw may be used in a horizontal or a vertical plane.

These and other objects will be apparent from the following description and with particular reference to the accompanying drawings.

In the drawings:

Figure 1 is a plan view of the saw in operation,

Fig. 2 is an end view of the same,

Fig. 3 is a section on the line 3—3 of Fig. 1,

Fig. 4 is a section on the line 4—4 of Fig. 1,

Fig. 5 is an edge view of the saw,

Fig. 6 is an enlarged section on the line 6—6 of Fig. 1 the motor and gearing being removed,

Fig. 7 is a side elevation of a section of the saw chain.

Fig. 8 is a top plan view of the saw chain,

Fig. 9 is an end elevation of the same,

Fig. 10 is a detailed view of one of the sprocket wheels,

Fig. 11 is a section on the line 11—11 of Fig. 10,

Fig. 12 is a section on the line 12—12 of Fig. 1,

Fig. 13 is an enlarged top plan view of one end of the device, the cover plates being removed,

Fig. 14 is a section on line 14—14 of Fig. 5,

Fig. 15 is a section on the line 15—15 of Fig. 6.

Referring particularly to the drawings, the device comprises essentially, the end portions 10 and 11, the spacing and guide strip 12 and the chain saw 13.

Each of the end portions 10 and 11 comprises a pair of plates 14, provided at one end with a semi-tubular portion 15, which when placed together form a cylindrical member, which is internally threaded to receive the threaded ends of the handle grips. On opposite sides of the tubular portion is formed a threaded socket member 17, so that the grips 16 may be removed from the tubular portion and screwed into said sockets, when it is desired to operate the saw in a vertical plane, as in sawing the timber into lengths after they have been felled. The inner portion of each of the plates 14 is formed with an angular recess 18 in which is the sprocket 19 to be later described. Projecting outwardly from the face of the plates 14 is a boxing 20 in which is adapted to slide horizontally a pair of blocks 21, said blocks carrying the shaft 22, on which the sprocket runs. Each of these blocks is formed with a pair of flanges 23 which engage the inner face of the recess of the plate 14, so as to hold the blocks from lateral displacement. In one end of each of the boxings is an interiorly threaded boss 24, which is adapted to receive a tension or tightening screw bolt 25, the inner end of which bears against a leaf spring 26 secured to the adjacent face of the block 21. By means of these screws the blocks may be moved horizontally in the boxings and carry the

sprockets outwardly, away from each other, to adjust the tension of the chain saw 13 which passes over the sprockets. The springs 26 are of sufficient strength to resist the ordinary pull of the saw, but will yield should the strain on the saw be increased, as for instance, by the collection of sawdust between the sprocket and the chain, thus relieving the chain of any great strain having a tendency to stretch or break the same. Each of the sprockets 19 is formed with a hub portion 27 and a portion surrounding the same, and at slightly less thickness, as represented at 28. The sprocket is provided with the teeth 29 which are of less thickness than the portion 28, and project from the curved recesses 30 formed at the bases thereof, said recesses forming pockets to receive the lobes 31 of the teeth 32 of the saw chain. The saw chain is made up of a series of alternately arranged tooth sections 32 and raker sections 33, connected together by the rivets 34, which are countersunk as represented at 35, and as best represented in Fig. 9. Each of the tooth sections comprises a body portion 36, having the downwardly projecting tooth portion 37', beveled at its point in the same manner as the tooth of an ordinary saw.

Secured to the plates 14 by means of the bolts 37 are the plates 38 which cover the exposed portions of the sprockets which project beyond the edges of the plates 14. It will be noted that the bolts 37 which hold the plates 38 to the plates 14, also hold the plates 14 together.

Extending between the portions 10 and 11 is a spacing and guiding member 12, channeled as at 39 along its longitudinal middle portion on both sides, and also at its edge portions as at 40. The saw teeth members 32 have the tooth portion 41 depending from one end of the body portion, and as clearly shown in the drawings a pair of the members 32 are arranged side by side, in such manner that the tooth portion of one is in advance of the tooth portion of the other, the rivets holding these members together and also holding a raker member 33 at each end. From this it will readily be seen that the saw chain is made up of an alternately arranged series of pairs of cutter teeth and a single raker tooth. The arrangement of the rakers and cutters bring the lobes 31 in parallel arrangement so that they straddle the reduced edge portions 40 of the guide 12. The end of the guide plate 12 is curved inwardly as at 42 concentric to the path of travel of the sprocket wheel, the outer edges serving to guide the chain to the sprocket. The ends of the plate 12 are of the same thickness as the portion 43, as represented at 44, and are held in the trough-shaped portions 45 of the plates 14 by means of the bolts 46, said bolts also serving to hold the stop arm 47 thereto. This stop arm projects beyond the edge of the device, and is adapted to be engaged against the edge of a tree, so that the saw will be prevented from creeping. A support and guide 48 is attached to the tree which is being felled, said support having the spike teeth 49 which are driven into the tree, and a roller 50 mounted at its upper end on which the arm 47 is adapted to travel. A handle 51 projects outwardly and is adapted to be grasped to pull the support from the tree.

The longitudinal edges of the boxing 20 are formed with laterally extending flanges 52, which are received in the downwardly and inwardly turned edges of a plate 53, secured to one of the blocks 21 by means of the bolts 54, said plate being thus capable of longitudinal movement with the block. Secured to the plate 53, is an electric or other motor 55 on the shaft 56 of which is a gear 57 which meshes with a gear 58 mounted on the shaft 22 of the sprocket. Thus when the bolt 25 is turned to increase the tension of the saw the blocks 21 will be moved longitudinally carrying the plate and motor with it, thus insuring the meshing and alinement of the gears.

The fact that the springs 24 are of such strength that they will resist the ordinary adjustment of the saw chain, provides a cushion which will take up the shock should the pockets in the sprockets become clogged up with sawdust.

It will be noted that the member 12 serves the function of a guide, more than a track, thus holding the chain in perfect alinement, and preventing sagging, when used in a horizontal plane, and any possibility of buckling when used in a vertical plane.

Should the saw chain stick in the tree or piece of timber being sawed, the plates 14 may be removed by removing the bolts 38, when the sprockets can be readily taken out, and the chain quickly removed to disengage it from the timber.

What is claimed is:

In a timber sawing device, a pair of handle members, each consisting of a pair of plates and each of said plates having longitudinal ribs on adjacent faces, one of each of the plates being formed with a channel in its inner face, a sprocket wheel carried by each handle member, an endless chain saw traveling over said sprocket wheels, a spacing and guiding strip for the saw disposed between and connected with the handle members, said strip having relatively thin longitudinal flanges on both of its longitudinal edges throughout the entire length thereof, said flanges forming longitudinally

extending shoulders constituting guide bearings for the inner portions of the links of the saw, a thickened transverse portion at each end of the strip engaged between the ribs of the plate and a reduced portion on each longitudinal edge of the thickened portions of the spacing strip adapted to receive the ribs of the plates slidably thereon, said reduced portions being in alinement with the longitudinal flanges of the strip.

In testimony whereof I affix my signature, in the presence of two witnesses.

ANTHONY GISCH.

Witnesses:

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ANNA M. ELLISON.