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E. F. CANNON.
TREE FELLING SAW.
APPLICATION FILED MAY 21, 1908.

Patented Oct. 18, 1910.

2 SHEETS—SHEET 1.

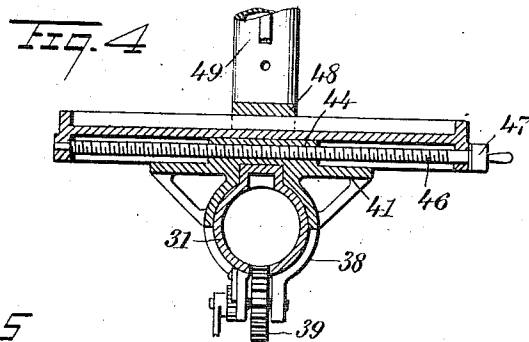
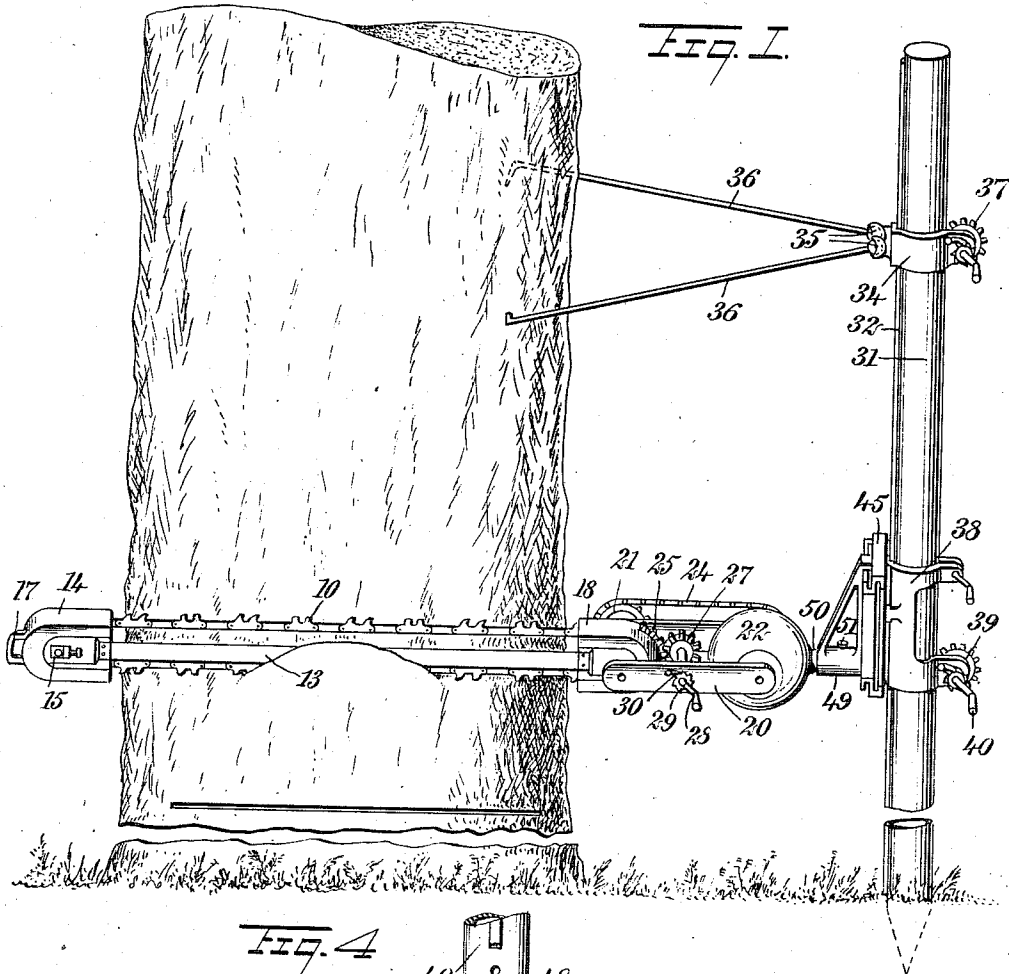
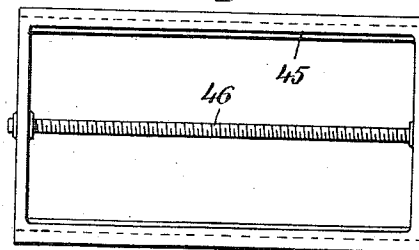


Fig. 5



WITNESSES
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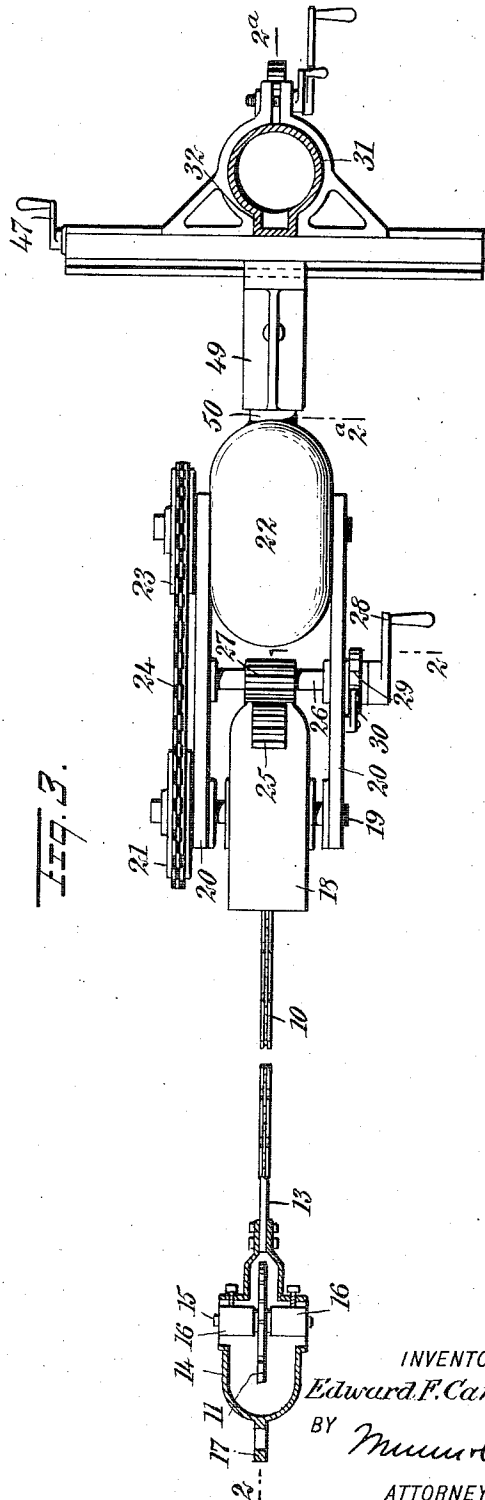
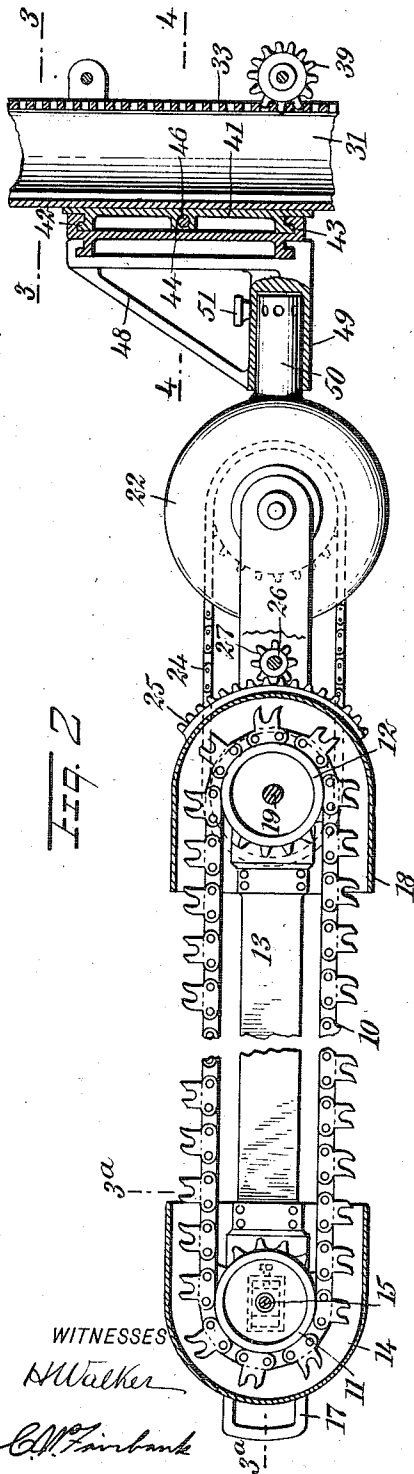
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UNITED STATES PATENT OFFICE.

EDWARD F. CANNON, OF PORTLAND, OREGON.

TREE-FELLING SAW.

973,258.

Specification of Letters Patent.

Patented Oct. 18, 1910.

Application filed May 21, 1908. Serial No. 434,008.

To all whom it may concern:

Be it known that I, EDWARD F. CANNON, a citizen of the United States, and a resident of Portland, in the county of Multnomah and State of Oregon, have invented a new and Improved Tree-Felling Saw, of which the following is a full, clear, and exact description.

This invention relates to certain improvements in tree-felling saws, and more particularly to means for supporting, operating and adjusting a saw of the type commonly known as "chain saws."

The object of the invention is to provide a supporting and operating means for the chain saw, such that the saw may be supported at any elevation desired above the ground, may be rotated about its longitudinal axis to saw a kerf in any desired plane and may be swung in that plane as the kerf deepens.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures, and in which—

Figure 1 is a side elevation of a mechanism constructed in accordance with my invention and mounted for felling a tree; Fig. 2 is a vertical longitudinal section, portions of the mechanism being shown in section on the lines 2—2 and 2^a—2^a of Fig. 3; Fig. 3 is a top plan view of the mechanism, portions thereof being shown in section on the lines 3—3 and 3^a—3^a of Fig. 2; Fig. 4 is a transverse section on the line 4—4 of Fig. 2; and Fig. 5 is a side elevation of the portion of the supporting mechanism employed for shifting the saw horizontally.

In the specific form of my mechanism illustrated in the accompanying drawings, I provide an endless chain saw 10, mounted on two sprocket wheels 11 and 12, the wheels being mounted adjacent to opposite ends of a spacing bar 13. The bar is of less thickness than the saw, so that it does not interfere with the free passage of the latter through the wood. At the outer end of the bar 13, I provide a casing or hood 14 adapted to inclose the outer sprocket wheel 11 and constitute bearings therefor. The shaft or axle 15 upon which the sprocket wheel is mounted, extends through bearing blocks 16, which bearing blocks are slidable longitudinally of the hood or casing, to tighten or loosen the

chain saw. At the outer or extreme end of the hood, a link or loop 17 may be provided to facilitate the handling of the saw. The hood is provided with inwardly-directed flanges rigidly secured to the end of the bar 13, and the center of the bar constitutes what is hereinafter referred to as the "longitudinal axis of the saw." Inclosing the opposite sprocket wheel 12, I provide a second hood or casing 18, rigidly secured to the end of the bar 13, and also provide bearings for the shaft 19 of the sprocket wheel. The shaft 19 extends beyond the ends of the casing 18 and is mounted in oppositely-disposed substantially parallel arms or brackets 20. Upon one end of the shaft, there is provided a second sprocket wheel 21, by the rotation of which the shaft and sprocket wheel 12 are caused to rotate and the saw is caused to operate. Any suitable means may be provided for rotating the sprocket wheel 21, but I preferably provide an electric motor 22, mounted adjacent the rear ends of the arms or brackets 20 and having upon the shaft thereof a sprocket wheel 23, over which a chain 24 extends to the sprocket wheel 21.

For swinging the saw in its own plane in order to advance it into the wood as the latter is cut, the rear portion of the hood or casing 18 is curved to present a surface concentric with the shaft 19, and upon this surface is cut or mounted a segment gear 25. Mounted in the two arms or brackets 20, is a short shaft 26 having a pinion 27 thereon in engagement with said segment gear. The shaft 26 may be rotated in any suitable manner, as, for instance, by a handle 28, and may be provided with a ratchet wheel 29 and pivoted dog 30 for holding the shaft against rotation in one direction. By turning the handle 28, the casing or hood 18 is caused to rotate about the shaft 19 as a center and the entire saw is swung in its own plane.

For supporting the saw at the desired elevation and permitting of all of the desired adjustments, I provide a post 31 with means for connecting the mechanism above described thereto. The post is preferably in the form of a pointed hollow tube having a key or ridge 32 extending longitudinally thereof along one side and having a series of teeth 33 cut into it along the opposite side. At the upper end of the post I provide means for holding the latter substan-

tially rigid, said means preferably connecting the post to the tree to be cut. As shown, this mechanism includes a collar 34, encircling the post and having two sockets 35 for
 5 receiving the ends of braces or rods 36. The ends of the rods 36 are pointed and adapted to be driven into the tree, and the sockets 35 are of such form as to permit of the universal adjustment of the rods. The collar carries a small pinion 37, intermeshing with
 10 the teeth 33 in the side of the post, so that by rotating the pinion the elevation of the collar may be varied at will.

Below the supporting means for the post, I provide a collar 38, having a groove therein to receive the key or ridge 32, to prevent the collar from rotating, and having outwardly-extending arms supporting a pinion 39 intermeshing with the teeth in the side of the post, so that the elevation of the collar may be varied. The pinion may be rotated in any suitable manner, as, for instance, by a crank 40, and a ratchet wheel and dog may be provided for normally preventing the rotation of the pinion in one direction. The collar carries a frame 41 presenting upper and lower guides 42 and 43 at right angles to the general direction of the length of the post and substantially parallel. Intermediate the two guides is a projection or bracket 44, having a threaded aperture therethrough substantially parallel with the guides. Mounted on the guides 42 and 43 is a frame 45, movable longitudinally of said guides and carrying a threaded rod or bar 46, adapted for engagement within the threaded aperture in the projection or bracket 44. The frame 45 is considerably longer than the guides 42 and 43, and the threaded rod 46 is held from longitudinal movement in respect thereto. The rod 46 is provided with a handle 47 at one end thereof for rotating the same, and this rotation causes a longitudinal movement in a horizontal direction of the hollow frame 45 in respect to the frame 41. The frame 45 carries a bracket 48 provided with a sleeve 49 forming a socket. The sleeve extends at substantially right angles to the plane of movement of the frame, and within this socket or collar extends a stud or pivot 50 rigidly secured to the arms or brackets 20 and the casing of the electric motor. Adjacent to the inner end of the stud or pivot, there are preferably provided
 55 a plurality of apertures into any one of

which a pin 51 carried by the socket may extend.

By means of the mechanism above described, the saw may be held in any desired position and swung in any desired plane. The elevation of the saw may be varied by rotating the handle 40 and pinion 39, to raise the collar 38 in respect to the post. The rotation of the handle 47 shifts the entire saw and its operating mechanism horizontally to bring it to the proper position in respect to the tree. The rotation of the stud 50 in the socket 49 tilts or varies the plane of the saw about its longitudinal axis and the saw may be swung in its own plane by turning the handle 28.

In use in felling trees, the saw and its operating mechanism is mounted substantially as shown in Fig. 1, and the saw driven by the electric motor from any suitable source or driven by rotating the sprocket wheel 21 in any other suitable manner. The saw may be used for cutting directly through the tree trunk, or may be used to cut a series of kerfs at an angle to each other to remove a triangular section similar to that removed in chopping down a tree.

The saw may be used for various other purposes than for felling trees, and the particular operating and adjusting mechanism will be found useful, but in the specific form illustrated, it is especially designed for use in felling trees.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

In combination, a frame, a sprocket wheel mounted therein, a chain saw extending over said sprocket wheel, a hood inclosing said sprocket wheel and the portion of the chain extending thereover, means carried by said hood for supporting the outer end of said chain, and means in engagement with said hood for swinging the saw in the plane of the saw, said means including a segment gear on said hood and a pinion mounted in said frame.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWARD F. CANNON.

Witnesses:

JOHN K. BRACHVOGEL,
 JOHN P. DAVIS.