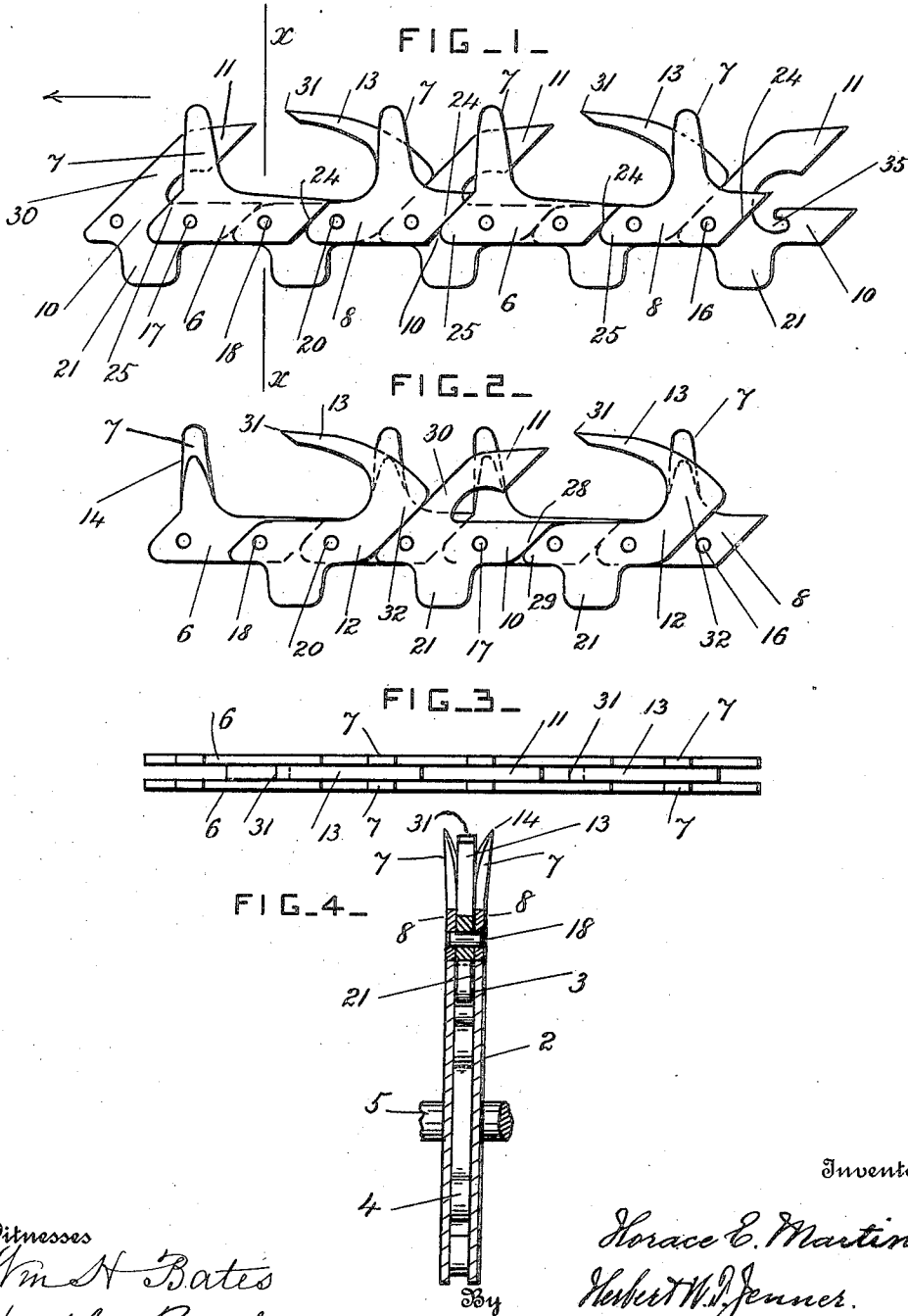


H. E. MARTIN.
CHAIN SAW.
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Patented Aug. 18, 1914.



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CHAIN SAW.

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To all whom it may concern:

Be it known that I, HORACE E. MARTIN, a citizen of the United States, residing at Athens, in the county of Clarke and State of Georgia, have invented certain new and useful Improvements in Chain Saws; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to chain saws, and more particularly to chain saws specially adapted to cut down growing trees; and it consists in the novel construction and combination of the saw teeth and links as hereinafter fully described and claimed.

In the drawings, Figure 1 is a side view of a portion of a chain saw constructed according to this invention. Fig. 2 is a similar side view with one row of side links and cutting teeth removed. Fig. 3 is a plan view of a portion of the chain saw. Fig. 4 is a cross-section, taken on the line $x-x$ in Fig. 1, and showing also the supporting frame.

In carrying out this invention a supporting frame or bar 2 of any approved construction is provided, and 3 is a longitudinal channel in the frame. Similar sprocket wheels 4 are provided at the opposite ends of the frame and have shafts 5 which are mounted in the frame. The chain saw runs over these sprocket wheels, and one of the shafts is the driving shaft by means of which the saw is actuated. The frame is also provided with a tension device at one end, of any approved construction, for keeping the chain saw taut.

The chain saw is an endless band formed of pivoted links. Side links 6 and 8 are provided and are arranged alternately in pairs, and have cutting teeth 7 projecting from them at substantially a right angle. Center links 10 and 12 are provided between the pairs of side links and are arranged alternately of each other. The center links 10 have blank teeth or gage teeth 11 which project from them, and the center links 12 have drag teeth 13. The arrow in Fig. 1 indicates the direction in which the saw is driven in cutting. The cutting teeth have cutting edges 14 at their front edges and points, and they may be made in any other approved shape besides the curved shape shown. The side links 6 and 8 which carry the cutting teeth 7 are similar to each other,

but the links 6 have their teeth 7 arranged nearer to their front ends than the links 8. The links 8 have their rear end portions pivoted by pins 16 to the front end portions of the links 10 which carry the blank teeth. The rear end portions of the links 10 are pivoted by pins 17 to the front end portions of the side links 6; and the rear end portions of the side links 6 are pivoted by pins 18 to the front end portions of the links 12 which carry the drag teeth 13. The rear end portions of the links 12 are pivoted by pins 20 to the front end portions of the links 8; and all the links are arranged throughout the endless chain in this manner. All the center links have projecting lugs 21, or other approved means for engaging positively with the sprocket wheel which drives the chain saw, and these lugs slide in the groove or channel 3 of the frame. The side links 6 and 8 have upwardly and rearwardly inclined rear end portions 24 which overlap rounded projections 25 on the front ends of the side links next behind them, and these parts 24 and 25 interlock when the chain saw is straight and prevent it from bending in one direction, but permit it to bend freely in the opposite direction so that it can pass around the sprocket wheels. The center links 10 have upwardly and rearwardly inclined rear end portions 28 which overlap rounded projections 29 on the front ends of the links 12 next behind them, and these parts or stops operate in a similar manner to the stops 24 and 25. The blank teeth or gage teeth 11 have shanks 30 which project upwardly and rearwardly from the front end portions of the links 10, and the teeth 11 extend rearwardly beyond the rear pivot pins 17 and the next pair of side teeth as shown.

The drag teeth 13 have upwardly and rearwardly inclined shanks 32 which project from the rear end portions of the links 12 and bear on the shanks 30 of the blank teeth next behind them when the chain saw is straight. The drag teeth 13 project forwardly and upwardly from their shanks toward the points of the blank teeth and terminate in sharp cutting edges 31. The points of the blank teeth and the points of the drag teeth are arranged in the wide spaces between the alternate cutting teeth.

The drag teeth are a little longer than the blank teeth or gage teeth, and the difference in length is adjusted to suit the re-

quirements of the work and the available power. The links 10 of one or more of the blank teeth have hook-shaped slots 35, having openings at the upper sides of the links close behind the shanks of the blank teeth. The pivot pins 17 of the side links 6 are slid into and out of engagement with the slots 35 to connect and disconnect any part of the chain saw, when it is removed from the sprocket wheels and frame. The overlapping shanks and other stop parts of the center links also hold the chain saw from bending in one direction when it is straight, and permit it to bend in the reverse direction so as to pass around the sprocket wheels.

The saw is inflexible in one direction when pressed against the tree or other lumber to be cut, and it is inflexible independent of the guide bar or frame over which it slides, so that the chain saw is driven with less friction, and can be driven with less power, than when the frame or guide is relied upon to keep the chain saw from bending.

What I claim is:

1. In a chain saw, the combination, with side links provided with cutting teeth arranged in pairs, of center links pivoted to the side links and provided with gage teeth and with drag teeth, one gage tooth being arranged to project rearwardly from one center link into the longitudinal space between two pairs of cutting teeth, and one drag tooth being arranged to project forwardly from the next following center link into the said space between the same two pairs of teeth.

2. In a chain saw, the combination, with side links provided with cutting teeth ar-

ranged opposite to each other in pairs, said pairs of teeth having wide and narrow spaces alternately between them, of two series of center links arranged in line with each other, one series of center links being provided with drag teeth arranged in the wide spaces between the cutting teeth, and the other series of center links being provided with gage teeth which project into the said wide spaces to a point adjacent to and in front of the cutting edges of the drag teeth.

3. In a chain saw, the combination, with side links provided with cutting teeth, of two series of center links arranged in line with each other and pivoted to the side links, one series of center links being provided with gage teeth having rearwardly inclined shanks, and the other series of center links being provided with drag teeth having rearwardly inclined lower surfaces which overlap and rest on the inclined shanks of the gage teeth when the chain saw is straight.

4. In a chain saw, the combination, with side links provided with cutting teeth, of center links pivoted to the side links, certain of the center links being provided with gage teeth, and others of the center teeth being provided with drag teeth having lower surfaces which overlap and rest on the lower portions of the gage teeth when the chain saw is straight.

In testimony whereof I have affixed my signature in the presence of two witnesses.

HORACE EMMERSON MARTIN.

Witnesses:

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