Oct. 13, 1925. 1,557,238

R. F. BOERNER

MOTOR DRIVEN CHAIN SAW

Filed Nov. 22, 1924

Fig. 1.

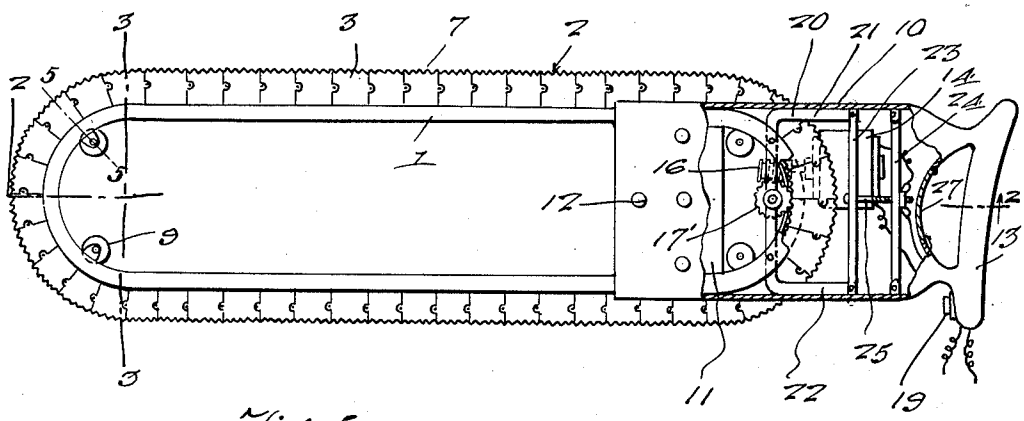


Fig. 5.

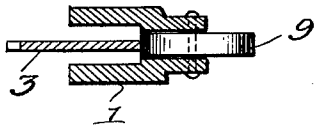


Fig. 2.

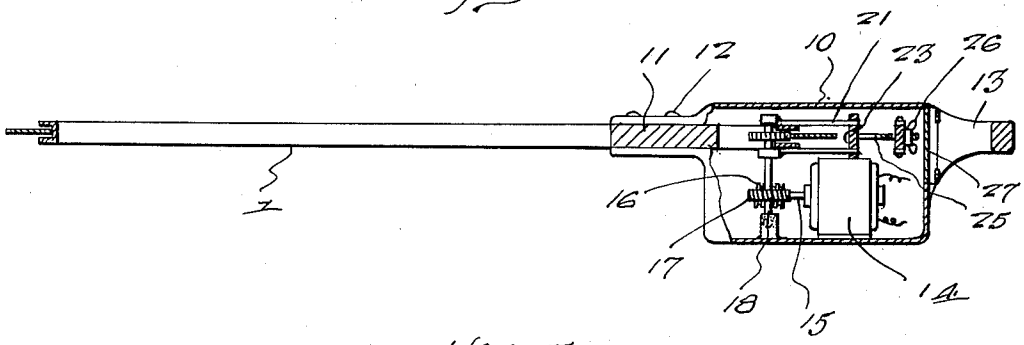


Fig. 3.

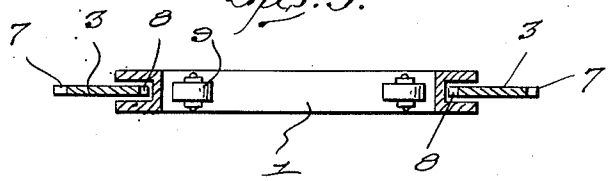
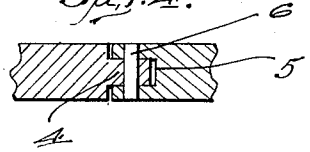


Fig. 4.



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UNITED STATES PATENT OFFICE.

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MOTOR-DRIVEN CHAIN SAW.

Application filed November 22, 1924. Serial No. 751,633.

To all whom it may concern:

Be it known that I, RICHARD F. BOERNER, a citizen of the United States, residing at Tuolumne, in the county of Tuolumne and State of California, have invented certain new and useful Improvements in a Motor-Driven Chain Saw, of which the following is a specification.

This invention relates to improvements in wood working implements and has reference more particularly to a motor driven chain saw.

One of the important objects of the present invention is to provide a device of the above mentioned character, wherein means is associated therewith for taking up the slack in the chain saw.

A further object is to provide a motor driven chain saw of the above mentioned character, wherein the same is of such construction as to permit the several sections comprising the chain to be readily and easily replaced when the same have become worn and of no further use.

A still further object of the invention is to provide a motor driven chain saw of the above mentioned character, which is simple in construction, inexpensive, strong and durable and furthermore adapted for the purposes for which it is designated.

Other objects and advantages of this invention will become apparent during the course of the following description.

In the accompanying drawing forming a part of this specification and in which like numerals designate like parts throughout the same:

Figure 1 is a side elevation of the device embodying my invention with parts broken away.

Figure 2 is a longitudinal sectional view taken approximately on line 2—2 of Figure 1.

Figure 3 is a sectional view taken approximately on line 3—3 of Figure 1.

Figure 4 is a fragmentary detail sectional view showing the manner in which the sections of the chain saw are connected together, and

Figure 5 is a detail section on an enlarged scale taken substantially on the line 5—5 of Figure 1.

In the drawing, wherein for the purpose of illustration is shown the preferred embodiment of my invention, the numeral 1 designates the channel-shaped frame, the same being substantially rectangular in design, the ends being slightly rounded as is clearly illustrated in Figure 1. Supported in the channel shaped frame 1 and adapted to travel therein is the chain saw designated generally by the numeral 2. The same comprises a plurality of inter-connected sections 3, each of which is provided with a tongue 4 for engagement with a groove or slot 5 provided in the adjacent edge of the adjacent section, a pin 6 extending through the tongue and groove of each of the sections as is more clearly illustrated in Figure 4. This construction permits the several sections to be readily disassembled when it becomes necessary to replace a broken section with a new one

Each of the sections is provided in its outer edge with the saw teeth 7 while the inner edge of each of the sections has the gear teeth 8 formed therein. The purpose of this construction will hereinafter be more fully described. Guide rollers such as are shown at 9 are mounted at the respective ends of the channeled frame for cooperation with the inner edge of the chain saw, it being understood of course that the frame is provided with suitable openings through which portions of the guide rollers extend for cooperation with the chain saw disposed within the frame.

A hollow casing 10 is secured to the rear end of the frame by means of the blocks 11, the fastening means 12 for securing the forward end of the casing to the blocks which is disposed between the upper and lower portions of the frame is clearly illustrated in Figures 1 and 2. A handle 13 is associated with the rear portion of the hollow casing 10.

Mounted in the hollow casing 10 is an electric motor 14 of any well known construction, the drive shaft thereof being illustrated at 15. A worm 16 is provided on the outer end of the drive shaft and cooperates with the pinion 17 carried by the driven shaft 18 which extends transversely in the casing and is journaled at its respective ends in suitable bearings. The motor is adapted to be controlled by suitable push buttons 19 arranged in the lower portion of the handle 13 as is clearly illustrated in Figure 1.

A pair of yoke members 20 are adapted for slidable movement within the hollow casing 10 and support at their forward

portions one end of the driven shaft 18. The other end of the shaft 18 is journaled in a suitable ball bearing on the side of the casing 10, as clearly shown in Figure 2. The upper and lower horizontal arms 21 and 22 respectively of the yoke members 20 are connected at their rear ends by the bar 23. A cross member 24 is secured at its respective ends to the top and bottom of the casing 10 rearwardly of the rear end of the yoke members.

An adjusting screw or bolt 25 is carried by the bar 23 and the threaded end thereof extends through a suitable opening provided in the cross member 24. A thumb nut 26 is associated with the threaded end of the adjusting bolt 25. This construction permits the yokes 20 to be moved longitudinally within the hollow casing 10 whereby the pinions 17' carried by the driven shaft 18 and which extends through a suitable opening provided in the rear end of the frame so that the pinion engages the gear teeth 8 of the chain saw 2 may take up the slack in the saw chain.

Access to the adjusting means is had by providing an opening in the rear end of the casing, the same being normally closed by the closure 27.

The provision of a motor driven chain saw of the above mentioned character, will save considerable time and labor in its use and furthermore the parts are so arranged as to permit ready access thereto. A device of the above mentioned character, may not only be used by carpenters but may also be used in connection with the sawing of logs and may still further be used in butchering.

While I have shown the preferred embodiment of my invention, it is to be understood that various changes in the size, shape and arrangement of parts may be resorted to without departing from the spirit of the invention and the scope of the appended claim.

Having thus described the invention, what I claim is:—

A device of the class described comprising a channel-shaped frame, a chain saw adapted to travel therein, said chain saw including a plurality of inter-connected sections, saw teeth on the outer edge of the sections, gear teeth on the inner edges of the sections, a casing supported on one end of the frame, a drive shaft supported in the casing, a driven shaft supported in the casing a cog wheel on said shaft adapted for engagement with the gear teeth on the inner edges of the sections of the chain, gearing between the drive and driven shafts, a slidable yoke for supporting the driven shaft, a ball terminal on one end of the driven shaft, a socket in the casing for receiving the ball terminal of the driven shaft, a stationary cross member mounted in the casing rearwardly of said yoke, a bar secured to the rear free edges of the yoke member, an adjusting bolt carried by the bar and having the threaded end thereof extended through the stationary cross member and a thumb nut on the threaded end of the bolt whereby the bar may be drawn toward the cross member for tensioning the chain saw.

In testimony whereof I affix my signature.

RICHARD F. BOERNER.