

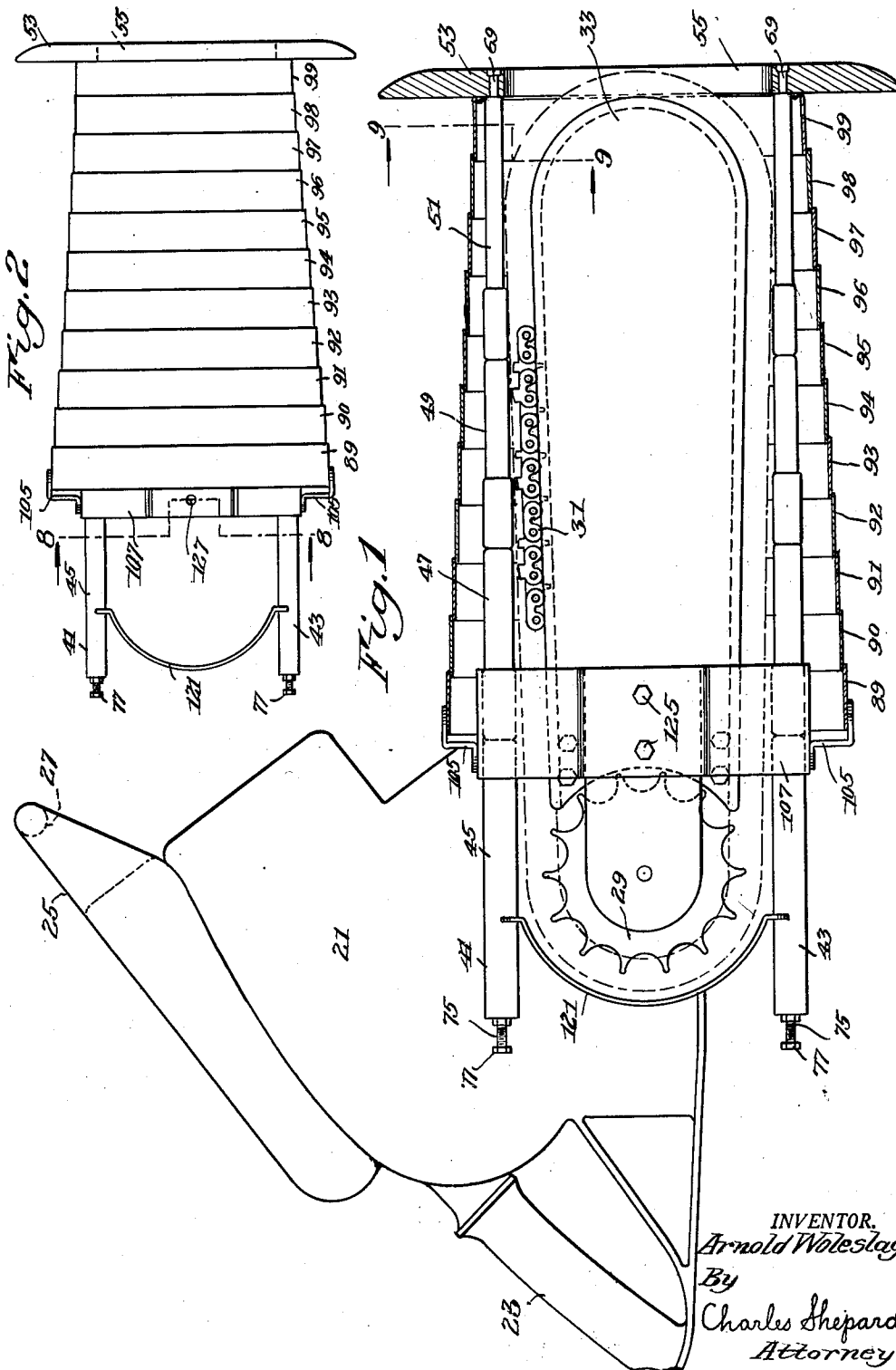
May 19, 1953

A. WOLESKAGLE
CHAIN SAW GUARD

2,638,944

Filed Feb. 7, 1951

3 Sheets-Sheet 1



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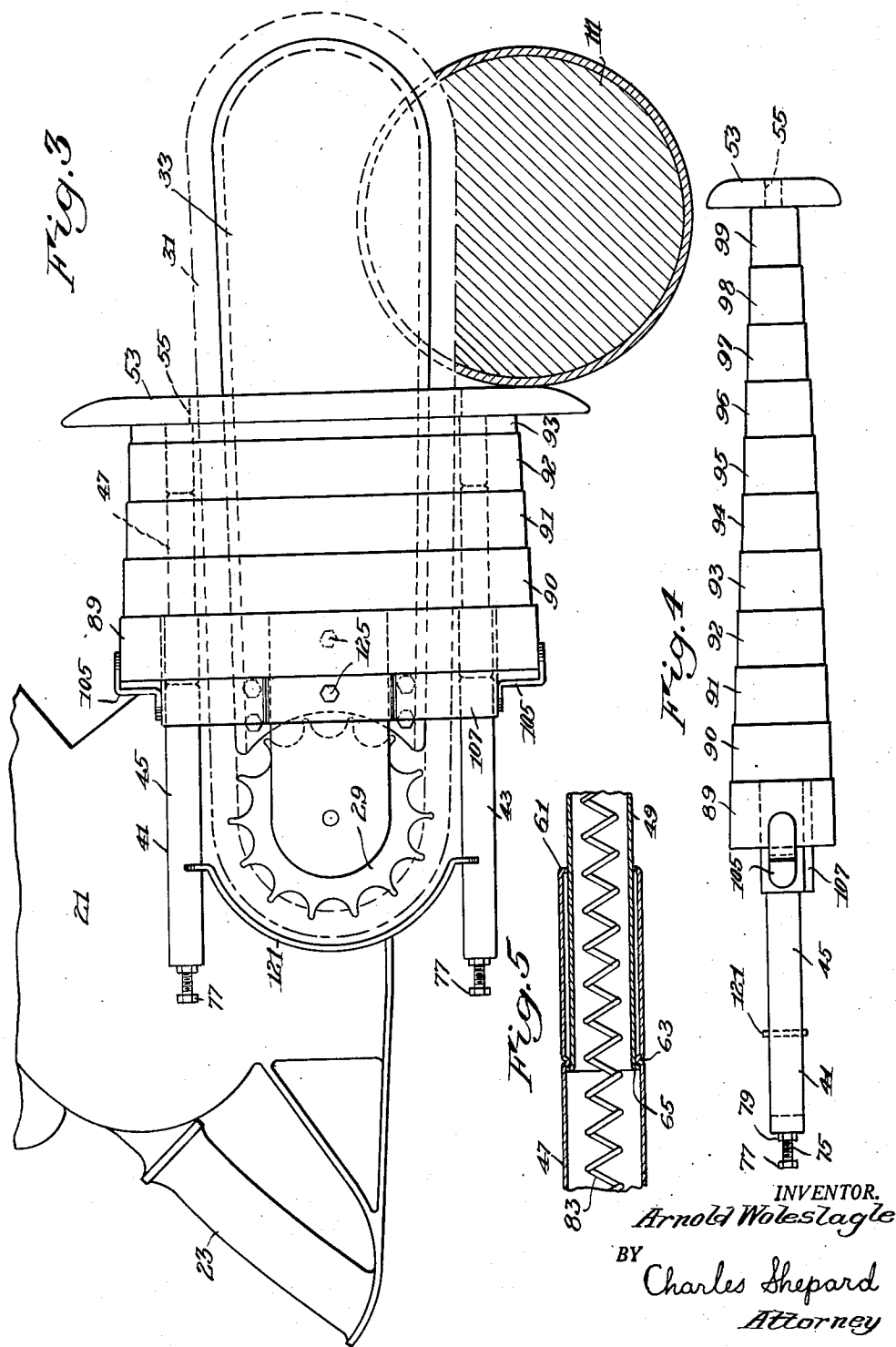
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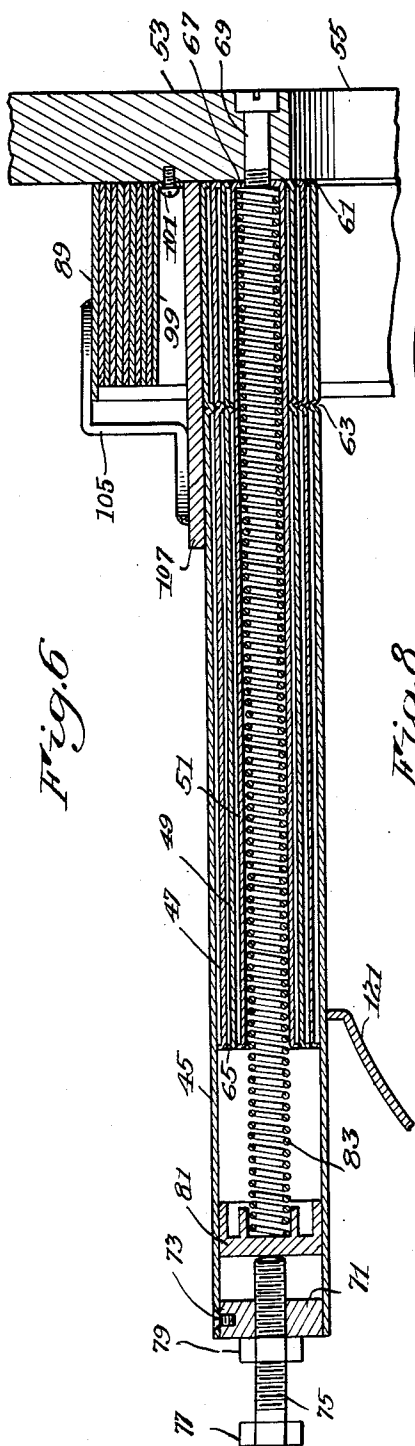
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UNITED STATES PATENT OFFICE

2,638,944

CHAIN SAW GUARD

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Application February 7, 1951, Serial No. 209,716

10 Claims. (Cl. 143—32)

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This invention relates to a guard for power driven saws of the kind commonly known as chain saws.

An object of the invention is the provision of a generally improved and more satisfactory guard for saws of this kind.

Another object is the provision of a practicable chain saw guard sufficiently light and compact so as not to interfere substantially with the proper use of the saw, while at the same time giving adequate protection against injury to the operator.

Still another object is the provision of a chain saw guard so designed and constructed as to be practical for use when the saw is taken aloft, up a tree or pole.

A further object is the provision of a chain saw guard so designed and constructed that it may be applied to certain types of existing chain saws, as well as to those hereafter built, and may be readily removed from the saw when desired.

These and other desirable objects may be attained in the manner disclosed as an illustrative embodiment of the invention in the following description and in the accompanying drawings forming a part hereof, in which:

Fig. 1 is a view partly in side elevation and partly in vertical section taken longitudinally through a saw guard in accordance with a preferred embodiment of the present invention, as applied to a chain saw of conventional construction, the guard being fully extended to its normal position protecting the full length of the saw;

Fig. 2 is a side elevation of the guard removed from the saw;

Fig. 3 is a side view somewhat similar to Figs. 1 and 2, but with the saw being used to saw through a piece of wood, and with the guard partially collapsed to permit such sawing;

Fig. 4 is a top plan view of the saw guard removed from the saw and in fully extended position;

Fig. 5 is a longitudinal section taken centrally through the joint between two of the sections of a guiding or supporting tube of the saw guard;

Fig. 6 is a fragmentary section taken longitudinally through the upper part of the saw guard showing the upper guiding or supporting tube and the upper part of the casing or guard members in collapsed position;

Fig. 7 is a front face view of the bucking bar at the forward end of the guard;

Fig. 8 is a transverse section taken approximately on the line 8—8 of Fig. 2; and

Fig. 9 is a transverse section taken approximately on the line 9—9 of Fig. 1.

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The same reference numerals throughout the several views indicate the same parts.

Chain saws are well known, and are made by a number of different manufacturers, in various sizes and forms, some being driven by internal combustion engines and some being driven by electric motors. In the specific embodiment here shown as an example, the saw guard of the present invention is applied to one known form of chain saw, but it will be understood that by varying the details of the parts of the present saw guard which directly contact with the stationary frame parts of the saw, the saw guard of the present invention may be adapted to various other kinds, styles and sizes of saws.

Referring first to Fig. 1 of the drawings, there is shown somewhat diagrammatically certain parts of a known commercial form of chain saw including a housing 21 containing the driving motor, a rear hand grip or handle 23, and a bracket 25 to which is secured a cross bar 27 forming an upper handle for supporting the machine. The motor within the casing 21 drives a sprocket 29 over which runs a chain 31 having saw teeth formed thereon in known manner, the chain running over a fixed plate-like guide the forward end of which is shaped approximately as a semi-circle, as shown.

All of this is well known, and the details thereof may take various forms, as above indicated. To this conventional structure, the guard of the present invention is added. This guard includes a bucking bar for contact with the work to be cut, suitable guides or supports for guiding the bucking bar in its retracting and advancing movements, and a guard casing associated with the bucking bar and guides for guarding the saw chain against accidental lateral contact with other objects.

In the preferred form, the guides comprise a pair of telescoping tubes indicated in general at 41 and 43 respectively extending longitudinally above the top and below the bottom of the saw chain 31. The top and bottom tubes may be of substantially identical construction and a description of one will suffice for both. Each tube comprises a fixed base section 45 rigidly but detachably fastened to the motor casing 21 or other fixed part of the saw mechanism, and a plurality of other tubular sections 47, 49, and 51 of successively smaller diameter, telescopically arranged within each other and the base tube 45. The forward ends of the smallest and most forward tube sections 51 of both the top guide 41 and the bottom guide 43, are rigidly connected to the bucking bar 53, which presents a broad flat front surface

for contact with the log, limb, or other article to be cut, and which has a slot 55 of sufficient dimensions so that, when the guides 41 and 43 are telescopically collapsed, the bucking bar 53 may move rearwardly (to the left when viewed as in Fig. 1) in a direction axially of the saw, with the saw chain projecting forwardly through the slot 55.

Each of the telescoping guides 41 and 43 may have any desired number of sections. Merely as an example, three movable sections 47, 49, and 51 are here illustrated, in addition to the fixed section 45. Each section except the forward section 51 has a relatively narrow inwardly directed flange 61 (Fig. 5) at its forward end, and a second inward flange 63 a little to the rear of its forward end. Also, each section except the rear fixed section 45 has an outwardly directed flange 65 at its rear end. The periphery of the rear flange 65 of each section fits snugly but slidably within the interior diameter of the next larger tube section, and the interior edges of the flanges 61 and 63 of each section fit snugly but slidably on the exterior diameter of the next smaller section. Thus the sections may move axially and telescopically with respect to each other, the maximum limit of extension in each case being determined by engagement of the flange 65 of the smaller tube with the flange 63 of the next larger tube, as indicated in Fig. 5.

The forward end of the front guide tube section 51 is provided with a somewhat wider inwardly directed flange 67 which is apertured and threaded to receive a screw 69 which fastens the bucking bar 53 to the front end of the tube section 51.

The rear end of the rearmost or fixed tube section 45 is provided with a plug 71 held in place in any suitable manner (for example, by the radial screws 73) through which plug is threaded a long adjusting screw 75 which may be turned by an external head 77 and held by a locknut 79. The forward end of this screw 75 bears against a follower block 81 movable longitudinally in the tube 45, which block thrusts forwardly against the rear end of a long coil compression spring 83, which extends all the way through all of the tube sections and reacts at its forward end against the flange 67 at the front of the tube section 51. The two springs 83 in the two guides 41 and 43 thus constantly tend to push the bucking bar 53 forwardly to a position just in front of the extreme front end of the saw chain (as shown in Fig. 7) in which position the respective flanges 63 and 65 of the respective guide sections are in contact with each other. But force exerted rearwardly against the bucking bar 53 (as for example when the saw is thrust forwardly against a tree limb or other object) will telescope the guide tube sections within each other and will cause the bucking bar to move rearwardly to some such position as illustrated in Fig. 3. The degree of resistance to rearward movement of the bucking bar can be varied by adjusting the screws 75.

Surrounding the saw chain and the telescopic guides 41 and 43 in transverse enveloping relation thereto, is a telescopic guard casing having a plurality of sections movable relative to each other as the bucking bar moves forwardly or rearwardly. Any desired number of such guard sections may be used, there being eleven such sections in the form here illustrated, numbered from the largest rear section to the smallest front section, respectively, by the numerals 89 to 99, inclusive. The front section 99 is secured

to the rear face of the bucking bar 53 by means, for example, of screws 101 passing through inward flanges at the front end of the section 99, and threaded into the rear face of the bucking bar. The rear section 89 is fixed by brackets 105 to a plate 107 which extends between and is fixed to the upper and lower guides 41 and 43, as seen in Fig. 8. In longitudinal cross section (viewed as in Fig. 1) each guard casing section 89 to 99, inclusive, is slightly tapered, with its larger end rearwardly, and with the larger end of each section fitting sufficiently snugly in the smaller end of the next larger section so as to prevent complete withdrawal of each section from the next one. In transverse dimensions (viewed as in Figs. 8 and 9, for example) each section has approximately flat side walls and approximately semicircular top and bottom walls, of a size to enclose completely (in a transverse sense) the guide tubes 41 and 43 and the saw mechanism between them.

The springs 83, normally extending the guide tubes to their forward positions, will likewise extend the guard casing sections 89 to 99 to their guarding or protecting positions shown in Figs. 1, 2, and 4, wherein the forward part of the chain saw is completely enclosed and any lateral movement of the saw toward an object will simply result in engagement of the object with the exterior of one or another of the casing sections 89 to 99, without causing any cutting of or other damage to such object. But if it is desired purposely to cut some object, such as the log or limb indicated diagrammatically at 111 in Fig. 3, then the saw, instead of being moved laterally into engagement with the log 111, is moved longitudinally into engagement with it. The longitudinal thrust will cause rearward pressure of the log against the front face of the bucking bar 53, which will telescopically collapse the guide tube sections 47-51 and the protecting casing sections 89-99 to a sufficient extent so that a sufficient part of the chain saw projects beyond the front face of the bucking bar, to effect the desired cut. This is well illustrated in Fig. 3, and the collapsed position of the parts is shown in greater detail in Fig. 6. As soon as the cut is completed and the saw is lifted so that the bucking bar 53 is no longer in contact with the object 111, the springs 83 automatically and immediately restore the guide parts and protecting casing parts to their forward positions, fully protecting the saw from accidental contact with any other object.

An arcuate guard plate 121 (Figs. 1-3) extends around the rear side of the sprocket 29 and protects this part of the mechanism against accidental contact, the top and bottom ends of the plate 121 being fixed to the tubes 41 and 43.

As already mentioned, the guard parts of the present invention may be secured to the conventional saw mechanism in any desired manner. Merely as an example, the parts of the present guard mechanism may be supported largely or entirely from the plate 107 (Fig. 8) which, as above stated, is in turn fixed to the tubes 41 and 43 and fixed, through the brackets 105, to the casing section 89. This plate 107, in turn, may be secured to any fixed parts of the conventional saw mechanism by means of bolts or screws 125 (Fig. 1) passing through holes 127 (Fig. 8) in the plate 107 and into suitable fixed parts of the saw mechanism.

It is seen from the foregoing disclosure that the above mentioned objects of the invention are

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well fulfilled. It is to be understood that the foregoing disclosure is given by way of illustrative example only, rather than by way of limitation, and that without departing from the invention, the details may be varied within the scope of the appended claims.

What is claimed is:

1. A chain saw guard comprising a pair of guide members extending approximately parallel to each other, each comprising a plurality of telescoping sections and adapted to receive an elongated chain saw between them, a front plate mounted on one end of said guide members and having an opening through which a chain saw may pass when said guide members are telescopically collapsed, and a guard structure associated with said guide members and front plate for protecting a chain saw against lateral contact with an external object.

2. A structure as defined in claim 1, in which said guard structure transversely embraces said guide members and a saw between said guide members.

3. A structure as defined in claim 1, in which said guard structure includes a plurality of tubular wall sections telescopically arranged with respect to each other and embracing said guide members.

4. A structure as defined in claim 1, in which spring means is provided to urge said guide members and guard structure to maximum length.

5. A guard for chain saws of the type including a fixed part and a toothed chain extending longitudinally in upper and lower reaches forwardly from the general vicinity of said fixed part, said guard comprising a bucking bar extending generally transverse to the longitudinal directions of said upper and lower reaches of said chain, means for supporting said bucking bar from said fixed part for movement relative thereto in said longitudinal directions and for holding said bucking bar against substantial movement transverse to said longitudinal directions, and collapsible and extensible guard means supported from and extending between said fixed part and said bucking bar for protecting that part of the chain

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which is between said fixed part and said bucking bar from lateral contact with other objects, the bucking bar being directly connected to the fixed part independently of the guard means.

6. A structure as defined in claim 5, further including resilient means normally tending to move said bucking bar forwardly toward the forward end of said chain.

7. A structure as defined in claim 5, in which said bucking bar is connected to the fixed part by a plurality of tubular guide sections independently of the guard means and telescopically arranged with respect to each other and extending from said fixed part to said bucking bar.

8. A structure as defined in claim 5, in which said means for supporting said bucking bar includes two groups of tubular guide sections, the sections in each group being telescopically arranged with respect to each other and extending from said fixed part to said bucking bar, the guide sections of one group being arranged on the outer side of one reach of said chain and the guide sections of the other group being arranged on the outer side of the other reach of said chain.

9. A structure as defined in claim 8, further including a coil compression spring extending through the sections of each group and tending to move said bucking bar forwardly with respect to said fixed part.

10. A structure as defined in claim 5, in which said guard means includes a plurality of ring-like members of non-circular cross section arranged in telescopic relation to each other and extending substantially from said fixed part to said bucking bar in embracing relation to the portion of said chain located between said fixed part and said bucking bar.

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