

Jan. 25, 1938.

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2,106,321

SAW GUARD

Filed Feb. 16, 1937

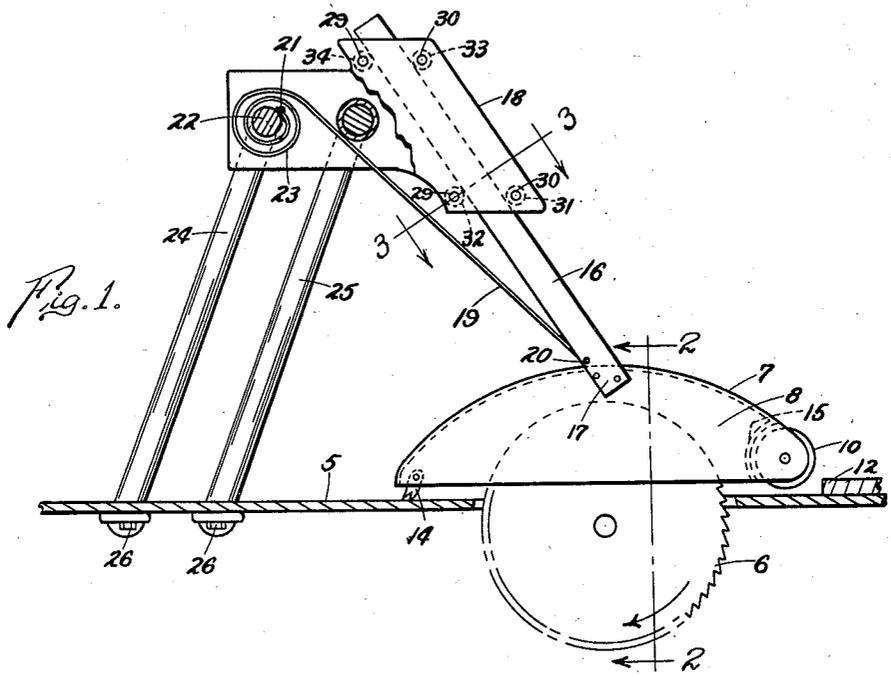


Fig. 1.

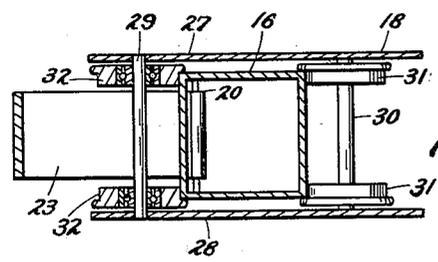


Fig. 3.

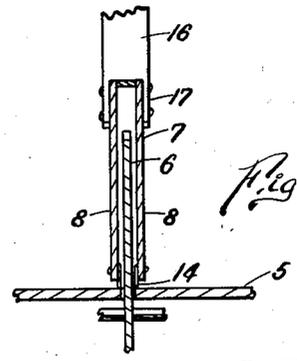


Fig. 2.

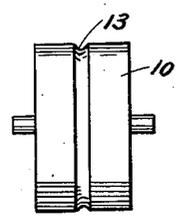


Fig. 4.

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2,106,321

## SAW GUARD

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Application February 16, 1937, Serial No. 125,982

7 Claims. (Cl. 143—159)

This invention relates to a guard for circular saws.

An object of the invention is to provide a saw guard wherein safety, convenience, and ease of operation have been materially enhanced by reason of the inclusion of certain structural improvements which form the basis of the present invention.

Another object of the invention is to provide an improved form of saw guard which is simple and inexpensive to manufacture.

These and other objects are attained by the means described herein and disclosed in the accompanying drawing, in which:

Fig. 1 is an elevational view, partly in cross-section, showing the device of the invention.

Fig. 2 is a cross-sectional view taken on line 2—2 of Fig. 1.

Fig. 3 is a cross-sectional fragmental view taken on line 3—3 of Fig. 1.

Fig. 4 is a detail view of a saw-plane indicating roller guide which forms part of the invention.

In the drawing, 5 indicates the saw table through which extends the circular saw 6. The guard structure for the saw comprises, generally, an arcuate hood 7 having solid sides 8 and a top for precluding the escape of saw-dust therefrom. At the forward end of the hood is the roller 10 adapted to engage the work 12 to be advanced to the saw, said roller being freely rotatable so as to climb onto the work or board to be sawed, and thereby to elevate the hood 7. The roller is advantageously provided with a circumferential mark or groove 13 so located thereon as to indicate the plane of the saw. This enables the operator to know where the saw cut will occur in the work piece 12. A baffle 15 in the hood protects the bearings of the roller from saw-dust.

At the rear end of the hood, there is pivoted one or more clutch pieces 14 having teeth as shown, which prevent withdrawal of the work after having been subjected to the saw. It should be noted that any attempt to withdraw a board which has once passed below the clutch, will result in application of a force upwardly and obliquely toward the hood support bar 16, substantially at right angles thereto. The bar, therefore, does not move longitudinally, but is locked against such movement when the force of the clutch against the work is directed at right angles to the bar, as occurs when removal of clutched work is attempted.

The hood support bar 16 is oblique, or inclined relative to the saw table. This bar is rigidly fixed

to the hood as at 17, so that the hood may not rock when the work is advanced to or moved past the saw. This stability of the hood is important, and constitutes a safety feature of the structure. The hood support bar is suitably guided longitudinally in the bar guide 18, and the weight of the hood and its supporting bar is counter-balanced by means of a spring 19. The coiled ribbon type of spring shown is preferable, due to its flexibility and ease of assembly and adjustment. The lower end of the spring is detachably fixed to the bar or the hood at the hooked end 20, whereas the upper end is fixed at 21 upon a stationary part of the bar guide. As shown, the connection is made at 21 upon a transverse spacer bar 22 of the guide. To adjust the lifting force of the spring 19, it is necessary only to detach the spring at 20 and increase or decrease the number of convolutions 23 about the member 22.

The supports at 24 and 25 are fixed to the bar guide at their upper ends, and to the saw table or other suitable support at the lower ends thereof. In the embodiment shown, the screws or bolts 26 serve to mount the flattened lower ends of the supports to the under face of the saw table. The means and location of the mounting, however, are optional.

With the counter-balancing of the saw guard, it is necessary to provide an easy operating and a fool-proof guide means for the inclined bar 16. Accordingly, the guide means is made up of a pair of side plates 27 and 28 spaced apart in any suitable manner, such as by means of pairs of spacer rods 29 and 30. These rods furnish axles for pairs of flanged wheels 31, 32, 33, and 34. These wheels are of the anti-friction type employing ball or roller bearings. The flanges of the wheels are adjacent to the plates, so that the tires thereof provide a rolling surface for the four corners of the channel which forms the guide bar. This construction results in a substantially frictionless guide for the hood support bar.

The operation of the device is as follows. Upon advancing the work-piece 12 toward the saw, the saw-plane indicating roller 10 is contacted, climbing onto the work-piece, whatever may be the thickness thereof, for elevating the hood 8 in a horizontal plane. The elevation of the hood is accompanied by a rearward shifting due to the inclination of the hood support bar 16 which rides upon the anti-friction rollers as shown in Fig. 3, and explained in a previous paragraph. Elevation of the hood and its support bar is aided by the counter-balance spring 19, so that the work may be advanced to the

saw as if there were no saw-guard present, that is, the weight of the guard is practically negligible and therefore does not interfere with advancement of the work-piece. Advancement of the work-piece to a point beyond the clutch 14 results in a clutching action which precludes withdrawal of the work-piece, thereby avoiding accidents due to possible twisting and straining of the saw disc. The marking or groove 13 of the roller indicates to the operator the location at which the blade will sever the work-piece. Because of the light-weight tubular formation of the hood support bar, a comparatively light spring 19 may be employed. Should a greater or lesser force be desired on the spring, it is necessary only to increase or decrease the number of convolutions at 23, by detaching the spring end at 20 and thereafter winding or unwinding the remaining portion of the spring relative to the member 22.

It will be noted that the guard includes very little superstructure, and for that reason it has the advantage of occupying a minimum of space and head room above the saw table. The device is entirely automatic, and requires no clamps, thumb screws, or other adjusting means to be cared for by the operator. The provision of solid sides on the hood 8 prevents undesirable and dangerous release of saw-dust laterally of the saw. In addition to lengthening the support bar 16, in order to accommodate work of varying degrees of thickness, it is to be understood that other modifications may be made, within the scope of the appended claims without departing from the spirit of the invention.

What is claimed is:

1. In a saw guard, the combination of a hood having a closed top and solid sides, a forward end, and a substantially horizontal lower edge, a work engaging roller at the forward end of the hood and marked along its periphery to indicate the plane of a saw guarded by the hood, an obliquely inclined hood support bar and means fixing the hood rigidly to the bar, a support bar guide including rollers providing a way in which the hood support bar reciprocates as the work is fed beneath the hood, means for mounting the support bar guide in an elevated position, and a ribbon type spring having one end movable with the hood and the support bar, and an opposite end wound in convolutions about a portion of the mounting means, and fixed thereto, for lifting and substantially counter-balancing the weight of the hood and the support bar therefor.

2. In a saw guard, the combination of a bar support means and a mounting therefor to dispose the bar support means at an elevation above a saw table, an obliquely inclined way provided on the bar support means, an obliquely inclined reciprocable support bar received in said way, a hollow saw hood having a lower edge, means fixing the hood at a constant angularity to the support bar to preclude relative rocking movement thereof, and maintaining the lower edge of the hood always substantially horizontal, a leaf spring having one end thereof fixed relative to the bar support means and arranged in a series of convolutions at said one end, and means detachably mounting the opposite end of the spring to the support bar, whereby upon detachment of said opposite spring end the lifting force of the spring may be varied by increasing or decreasing the number of convolutions at said one end.

3. In a saw guard, the combination of a bar support means and a mounting therefor to dis-

pose the bar support means at an elevation above a saw table, an obliquely inclined way provided on the bar support means, an obliquely inclined reciprocable support bar received in said way, a hollow saw hood having a lower edge, means fixing substantially the middle portion of the hood at a constant angularity to the support bar to preclude relative rocking movement thereof, and maintaining the lower edge of the hood always substantially horizontal, and a clutching means on the hood located near its rear end and therefore at a substantial distance from the oblique support bar, to transmit a binding force substantially at right angles to the support bar rather than longitudinally thereof upon attempted withdrawal of a work piece held by the clutching means.

4. In a device of the class described, the combination of a saw hood and a rectangular hood support bar mounted thereon, a hood support bar guide comprising a pair of obliquely directed spaced plates, flanged wheels arranged in pairs on a common axle and rotatably mounted in spaced relationship between said plates with the flanges of each pair of wheels located adjacent to the opposed plates, the pairs of wheels being staggered and arranged to provide an oblique way for guiding the hood support bar, said wheels including tires adjacent to the flanges thereof upon which the support bar rides with its four corners in contact upon the tires as it reciprocates obliquely, and means for yieldably relieving the support bar and hood of a major portion of their combined weight.

5. In a device of the class described, the combination of a saw hood and a rectangular hood support bar mounted thereon, a hood support bar guide comprising a pair of obliquely directed spaced plates, pairs of flanged wheels rotatably mounted between said plates with the flanges of each pair of wheels located adjacent to the opposed plates, said wheels including tires adjacent to the flanges thereof upon which the four corner portions of the rectangular hood support bar ride as the bar reciprocates within the limits of the wheel flanges, and a leaf spring having opposite ends mounted upon the support bar and the support bar guide, with a series of convolutions near one of said ends, the spring extending in substantially the direction of reciprocation of the support bar, to constantly lift said bar and urge it toward the guide.

6. In a saw guard, the combination of a hood having a closed top and solid sides, a forward end, and a substantially horizontal lower edge, a work engaging roller at the forward end of the hood, an obliquely inclined hood support bar and means fixing the hood rigidly to the bar, a support bar guide including rollers providing a way in which the hood support bar reciprocates as the work is fed beneath the hood, means for mounting the support bar guide in an elevated position, and a ribbon type spring having one end movable with the hood and the support bar, and an opposite end wound in convolutions about a portion of the mounting means, and fixed thereto, for lifting and substantially counter-balancing the weight of the hood and the support bar therefor.

7. In a saw guard, the combination of a hood having a top and sides, a forward end, and a substantially horizontal lower edge, a work engaging member at the forward end of the hood and marked to indicate the plane of a saw guarded by the hood, an obliquely inclined hood

support bar and means fixing the hood rigidly to the bar, a support bar guide including rollers providing a way in which the hood support bar reciprocates as the work is fed beneath the hood, means for mounting the support bar guide in an elevated position, and a ribbon type spring having one end movable with the hood and the sup-

port bar, and an opposite end wound in convolutions about a portion of the mounting means, and fixed thereto, for lifting and substantially counter-balancing the weight of the hood and the support bar therefor.

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