March 10, 1959 J. M. PETERSON ET AL 2,876,810

POINT OF OPERATION SAW GUARD

Filed March 4, 1958

2 Sheets-Sheet 1

Fig. 1.

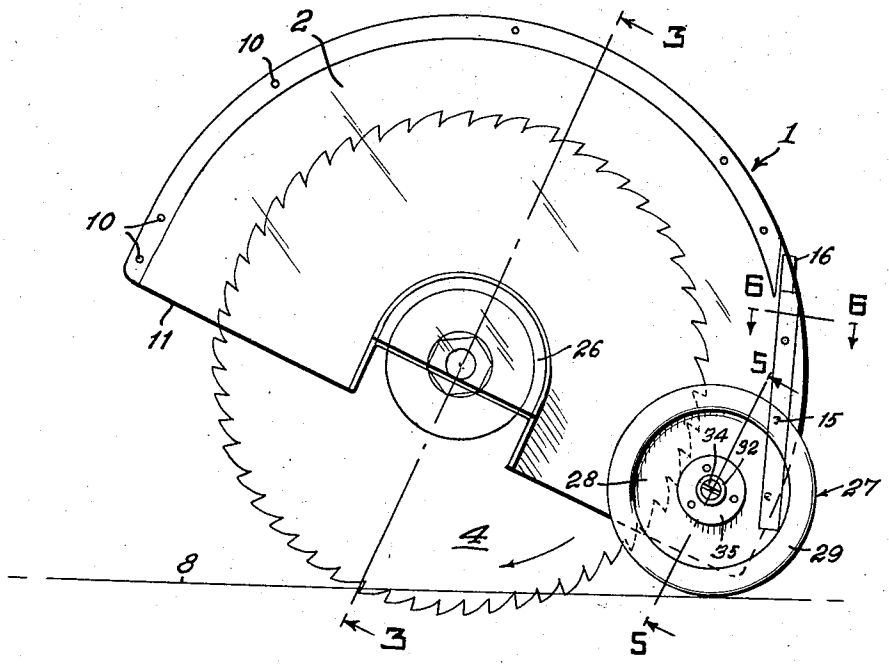
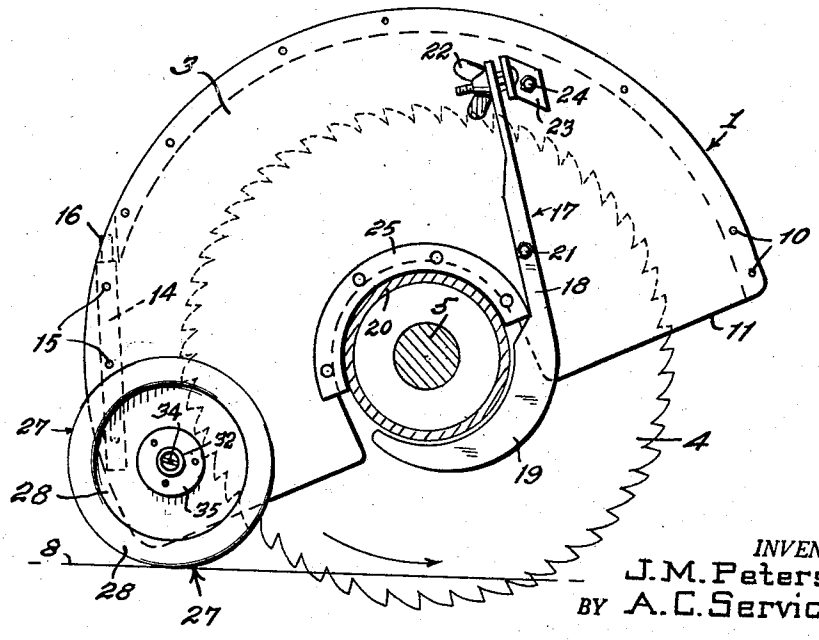


Fig. 2.



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Fig. 3.

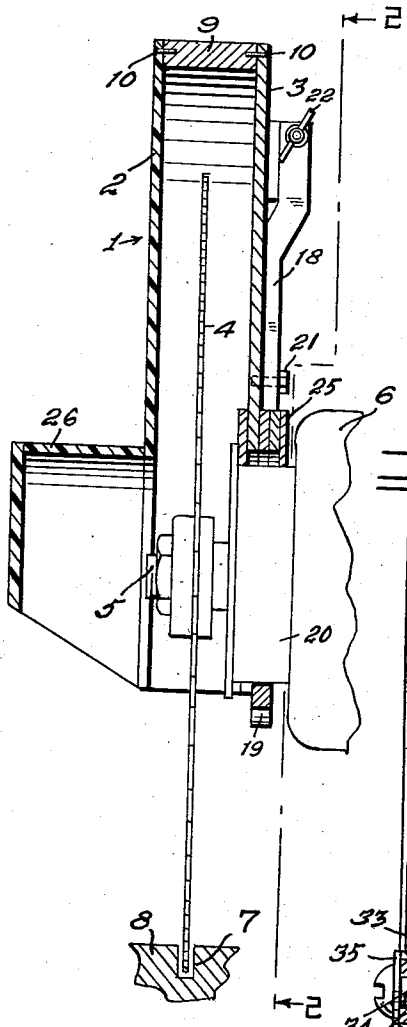


Fig. 4.

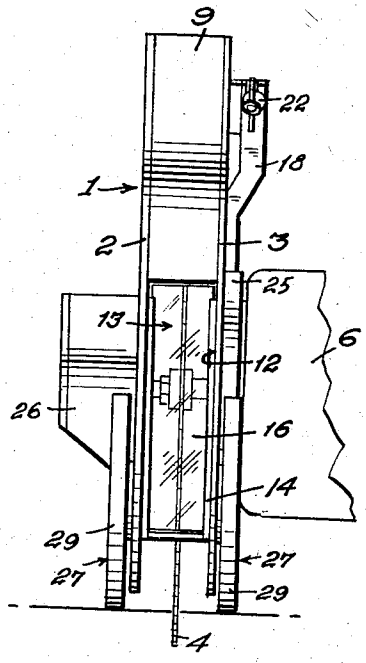


Fig. 5.

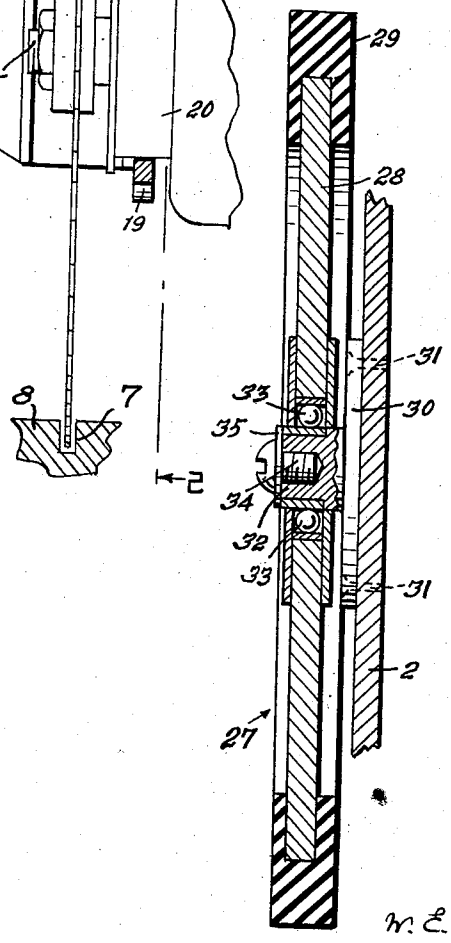
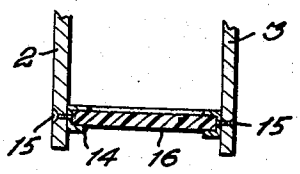


Fig. 6.



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POINT OF OPERATION SAW GUARD

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4 Claims. (Cl. 143—159)

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The invention described herein may be manufactured and used by or for the Government for governmental purposes without the payment of any royalty thereon.

This invention relates to a guard for use with a rotary power saw, and more particularly to a point of operation guard which allows the operator to see the work as it progresses.

Saws of this type consist of a rotating disc cutter which is mounted on the shaft of a motor. The motor is adjustably supported on an arm and the saw is capable of cutting along a straight line or at an angle. Usually, the cutter disc rides in a groove in a work table.

Guards heretofore used in connection with this type of saw do not allow the operator to follow the line of cut by the eye and therefore were a disadvantage. Usually, the saw could only be used to cut in a straight line only as the guard obscured the saw disc.

This disadvantage tempted the operator to dispense with the guard when cutting on an angle, hence exposing himself to the attendant dangers of the unguarded disc. Also, prior art teaches the use of guards that must be either very loosely mounted on the motor shaft to cover the upper portion of the disc or else be permanently fixed to the motor housing. In both cases, the work is obscured from the operator's vision, and were clumsy at best.

The present invention provides a saw guard that is light, easy to attach or detach and constructed to cover the point of operation without obscuring the line of cut from the vision of the operator either when cutting straight or at an angle. Its construction is simple, consisting of a pair of semi-circular plates, one transparent and the other of suitable lightweight material such as aluminum, and spaced by spacing elements. It is quickly clamped on a motor housing by a bracket. One of the spacing elements consists of a window disposed at the point of operation.

A pair of work-following rollers weight the guard downward to prevent the operator from becoming injured, yet allows the guard to lift up to follow the work. This protects the operator from both sides and the edge of the cutting disc. The guard will easily ride over work pieces to be cut, always preventing exposure of the danger points of the disc.

It is therefore a primary object of this invention to provide a saw guard protecting the operator from the attendant dangers present from use of a rotary disc saw.

It is another object of the invention to provide a saw guard that allows the operator to see the line of cut of the saw.

It is a still further object to provide an inexpensive, yet efficient saw guard that protects the operator from the saw disc at all times during the cutting operation.

It is yet another object to provide a saw guard that can be quickly attached or detached to a rotary saw.

The exact nature of the invention as well as other objects and advantages thereof will clearly appear from a

description of a preferred embodiment as shown in the accompanying drawings in which:

Fig. 1 is a side elevation of a guard constructed in accordance with the invention and protecting a rotary saw disc,

Fig. 2 is a section taken along line 2—2 of Fig. 3 and illustrating the saw guard as viewed from the other side,

Fig. 3 is a section taken along line 3—3 of Fig. 1 and illustrates the guard mounted on the motor housing,

Fig. 4 is an end elevation of the saw guard,

Fig. 5 is a section taken along line 5—5 of Fig. 1 illustrating a roller and the manner of mounting same to the guard, and,

Fig. 6 is a section taken along line 6—6 of Fig. 1 and illustrates the mounting of the window between the plates.

Referring to the drawing by characters of reference, there is shown in Fig. 1 the saw guard of the invention in its position over a saw disc and the rollers bearing on the work bench. 1 represents the guard in its entirety. The guard per se is a hood to fit over the saw disc and comprises a pair of semi-circular plates 2 and 3. Plate 2 is of transparent material, while plate 3 is made from a light weight material such as aluminum. Plates 2 and 3 are disposed in spaced relation to allow a substantial area for saw disc 4, which is mounted to a motor shaft 5 from motor 6 which is adjustably supported by an arm, etc. (not shown).

When in its cutting position, saw disc 4 rides in a groove 7 (see Fig. 3) in a work bench or the like 8.

The plates 2 and 3 are maintained in their spaced, parallel position by an arcuate spacer block 9 and are fastened thereto at their circumferential edges by suitable fasteners 10.

As previously described, plates 2 and 3 are semi-circular in contour. Spacer block 9 extends from a point at the bottom 11 of the discs to approximately three fourths of the circumferential distance of the plates, leaving a space 12 for a purpose to be described. In this space 12, there is positioned a window generally indicated by 13 to allow the saw operator to see the line of cut. This window consists of a channel bracket 14 fastened to the inner sides of the plates 2 and 3 by suitable fasteners 15. A flat piece of transparent material 16 of substantially rectangular shape is slidably mounted in bracket 14, and serves as the window.

Means for rotatably mounting the hood 1 over the saw is provided and comprises a bearing clamp indicated generally by 17. The clamp has an elongated shank 18 having an arcuate clamp portion 19 integral therewith at its lower end to clamp about a motor housing extension 20.

Shank 18 is pivotally mounted on plate 3 by a fastener 21. Means for releasing the bearing for dismounting the guard 1 are provided, and consists of a bolt and wing nut assembly 22 adjustably and detachably securing the end of shank 18 to a bracket 23 attached to plate 3 by a fastener 24 (see Fig. 2). To provide a bearing surface on plate 3, there is a semi-circular bushing 25 secured in coaxial relation to disc 3 that cooperates with arcuate portion 19 to maintain the hood 1 in a vertical position. To permit attachment of the hood 1 over a saw disc having a longer shaft or larger retaining nuts, etc., an extension hood 26 is provided on plate 2 at an axial location suitable to cover the shaft or nuts.

Means are provided to allow hood 1 to rotate so as to clear the work piece that is being cut and consists of a pair of rollers, generally indicated by 27. Each roller is independently mounted coaxially with each other to the lower forward end of the hood and each roller consists of a disc 28 (see Fig. 5) having a tire 29 of suitable resilient material such as rubber. A disc 30 having a concentric stub shaft 32 is mounted to the side of each plate 2 and 3 by fasteners 31. Anti-friction bearings 33

are mounted between disc 28 and stub shaft 32 for easy rolling and the disc 28 and bearings are secured on the stub shaft 32 by a screw 34 and washer 35.

The attachment of the guard for use is extremely simple. The bearing bracket 17 is detached from bracket 24 by loosening wing nut 22 and is rotated to slip about the cylindrical housing extension 25 and the wing nut 22 is turned until the semi-circular bushing 25 and the arcuate portion 19 of the clamp 17 fits loosely about the extension so as to permit rotation of the guard thereabout.

The operation of the guard 1 is entirely automatic and needs no further attention while in use. The rollers 27 provide enough weight to pull the guard 1 down over the dangerous part of the saw disc 4 and normally rest on the floor of the work bench 8.

As the saw travels back and forth in the sawing of work pieces (not shown) the hood will rise and fall over the piece to be cut, thereby always protecting the operator from the saw disc. The operator can follow the line of cut with his eye by looking at the saw disc through the window 16 and when cutting on an angle, it may be viewed through the transparent plate 2.

The clamp 17, being adjustable, allows for attachment of the guard to a wide range of motor housing sizes. Also by the hood extension 26, a wider range of shaft lengths are accommodated.

From the foregoing, it will be apparent that a novel and simple yet efficient saw guide has been devised that will give the operator full vision of the saw cut and full protection from dangers inherent with rotary saw discs at all times during the cutting operation.

Obviously other modifications of the invention may be produced which will fall within the bounds of the invention as set forth by the appended claims.

We claim:

1. In a guard for a rotary saw including a motor, an arbor shaft, a concentric housing attached on said motor and a cutter disc mounted on said arbor shaft, a hood adapted to surround the forward and upper portions of said cutter disc, said hood comprising a pair of semi-circular plates having axially disposed semi-circular openings in their lower edges, a semi-circular bushing fixed along the circumferential edge of one of said openings in said plates, adapted to ride on said concentric housing, an arcuate spacing bar fixed between said plates and adapted to support said plates in a parallel, coaxial relation, said bar extending a substantial distance about the circumferential edge of said hood, a U-shaped bracket fixed between said plates in the forward portion of said hood, a work observation window secured in said bracket, a mounting clamp pivotally mounted to one side of one of said plates and adapted to cooperate with said semi-circular bushing to encircle said concentric housing for rotatably mounting said hood about said housing and a pair of work following rollers, one said roller being attached to a respective outer side of each said plate and said rollers being in coaxial relation with each other, said rollers being disposed at a point on said plates providing for said hood to rotate in a protective position around said cutter disc.

2. In a guard for a rotary saw including a motor, a shaft, a concentric housing attached to said motor and a cutter disc mounted on said shaft, a hood adapted to protectively surround a substantial portion of said cutter disc, said hood comprising a first semi-circular plate having an axially disposed semi-circular opening adapted to fit about said concentric housing, a second semi-circular plate, an arcuate spacing bar adapted to secure said first and second plates in coaxially spaced relation, said bar extending around the circumferential edges of said plates to a point wherein there is left an uncovered space therebetween, a line of cut viewing member mounted in said uncovered space between said plates comprising a substantially U-shaped bracket fastened between said plates and adapted to support a rectangular piece of transparent material, means rotatably supporting said hood on said concentric housing comprising an arm pivotably mounted on the outer side of said first plate, said arm having an arcuate lower portion adapted to cooperate with said semicircular opening in said first plate to maintain said hood in a substantially covering position with respect to said cutter disc, adjusting means for said arm comprising a bracket secured to the outer side of said hood, a wing nut and bolt engaging the upper end of said arm and said bracket and a pair of work following rollers, one each attached to the respective outer side of each said plate and rollers being in coaxial relation with each other.

3. In a guard for a rotary saw as claimed in claim 2 wherein said second plate is of transparent material.

4. In a saw guard for a sawing device including a motor, a housing concentric with said motor, a shaft, a circular cutting disc carried by said shaft, and a work supporting surface below said saw disc, a semi-circular hood adapted to protectively cover a substantial portion of said cutting disc, said hood comprising a pair of semi-circular plates, first and second spacing members disposed between said plates and adapted to secure said plates in a parallel coaxial relation, said first spacing member comprising an arcuate bar extending along a substantial distance of the circumferential edges of said plates, said second spacing member comprising a bracket secured to the inner sides of said plates and disposed forwardly of said first spacing member, a transparent work viewing plate secured by said bracket, there being a coaxial semi-circular opening in one of said plates, a semi-circular bearing member fixed adjacent in coaxial relation, with said semi-circular opening, adjustable means carried by the outer side of one of said plates adapted to cooperate with said semi-circular bearing member to rotatably secure said hood on said concentric housing and a pair of work following rollers secured in coaxial relation, one each on a respective outer side of said plates and disposed to roll on said work surface.

References Cited in the file of this patent

UNITED STATES PATENTS

1,240,430	Erickson	Sept. 18, 1917
1,375,698	Howe	Apr. 26, 1921
1,397,606	Smith	Nov. 22, 1921
1,589,970	Jones	June 22, 1926
2,669,264	Wilson	Feb. 16, 1954

FOREIGN PATENTS

599,718	Great Britain	Mar. 18, 1948