

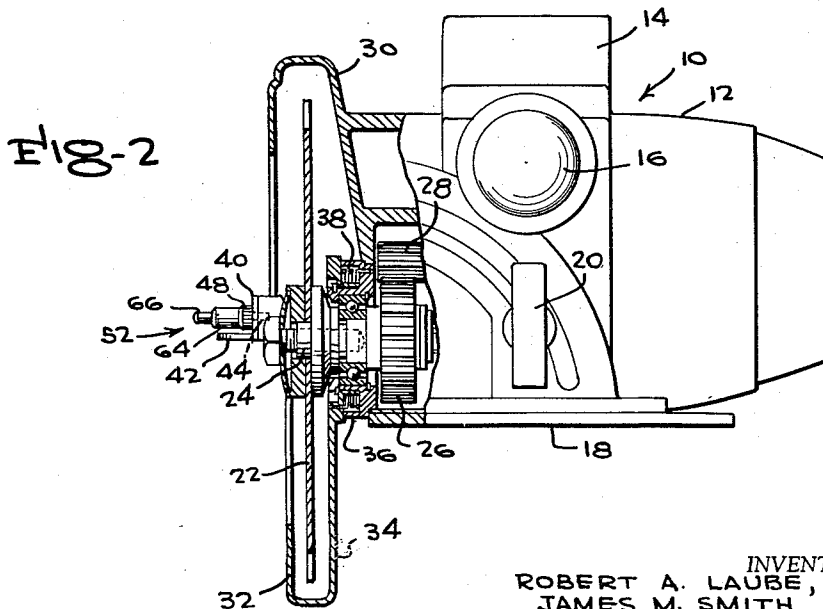
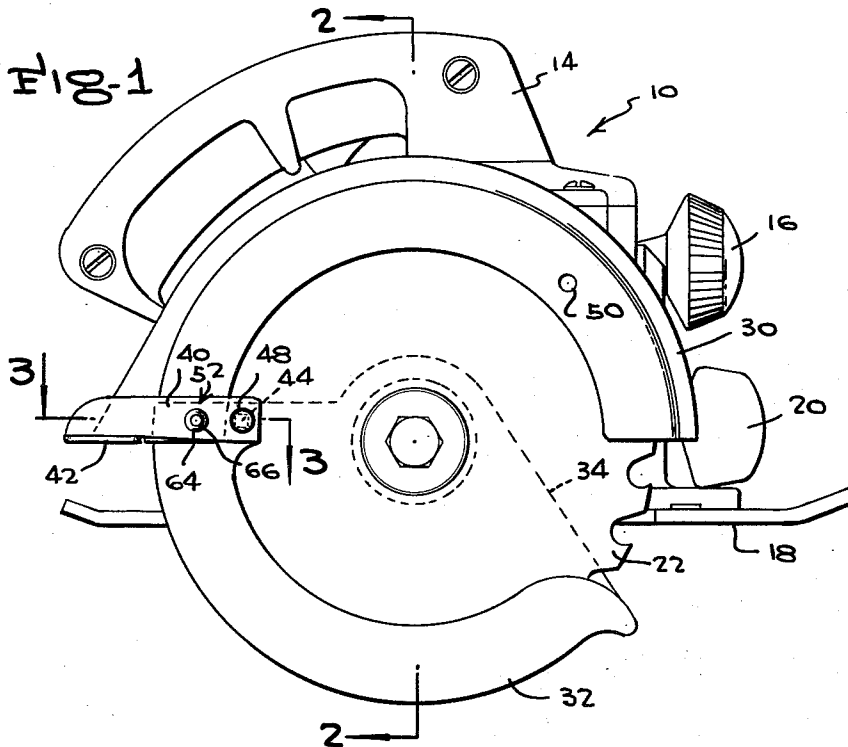
April 13, 1965

R. A. LAUBE ET AL
SAW BLADE GUARD LOCK

3,177,909

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2 Sheets-Sheet 1



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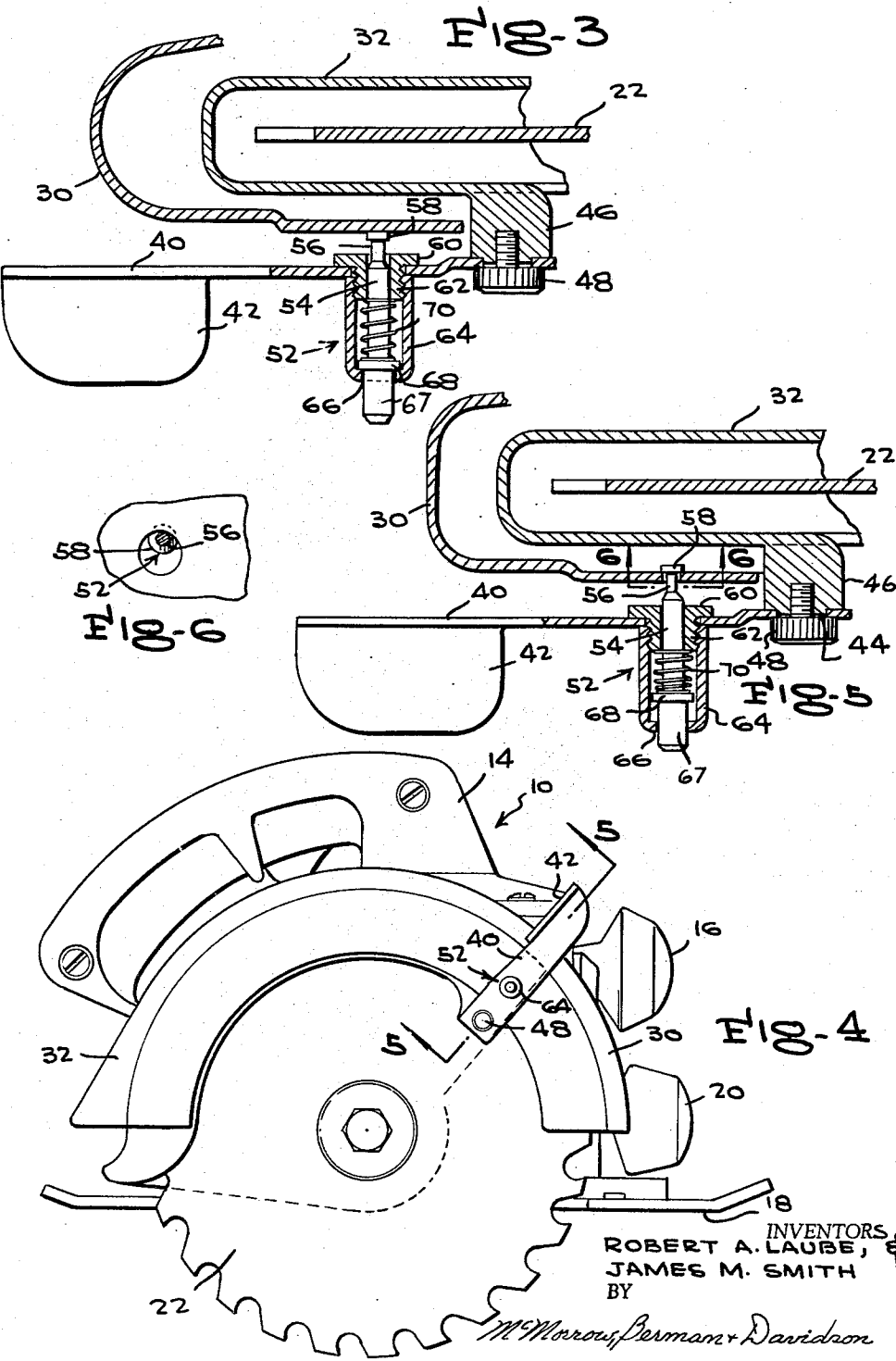
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SAW BLADE GUARD LOCK

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1 Claim. (Cl. 143—159)

This invention relates to portable power saws, and in particular to a locking device for holding the saw blade guard in an out-of-the-way position. Such guards are standard equipment on portable power saws, and usually comprise an arcuate channel, mounted for swinging movement about the axis of the saw blade, and spring-urged to a position normally covering most of the exposed portion of the saw blade, and automatically retractable in response to contact with the edge of the work, followed to continued progress of the saw. While these guards are functionally adequate in simple sawing cuts, through the edge of the work, and perpendicular to the work surface, the automatic action is not obtained in certain other cases, as where the blade is made to enter the wood at an angle to the surface of the wood other than 90°, or when applying the blade to a flat wall surface, as when making a rectangular opening for a vent, for instance, in these instances it is necessary to disengage one hand (usually the left hand) from one of the two handles on the saw, and used it to retract the saw blade guard, and hold it retracted for a substantial portion of the cutting operation. Obviously, this makes for inefficiency and inaccuracy, and is also dangerous, since it involves a confusing cross-over of the hands in dangerous proximity to the whirling blade.

It is therefore a general object of the invention to provide a lock means for a saw blade guard, so that no manual attention to the guard is required during any part of the sawing operation, a related object being to provide for full use of both hands to control, steady, and guide the tool during the operation.

A further object is to provide a latch action in the locking device, which, in part, utilizes the spring loading of the saw guard. Yet another object is to provide a latch-action guard, as aforesaid, which is unlocked by a simple, pressure contact on the guard.

A still further object is to provide a guard lock which utilizes, to a large extent, existing structural features of conventional saws.

In still greater particular, it is an object to provide a detent, spring-loaded for unlatching, and having a headed portion engageable in an opening in the fixed structure of the saw assembly in response to restorative action of the spring loading of the saw guard.

It is also among the objects to provide a device which is simple in structure, and easy of installation, yet reliable in operation and durable, and which is easy of manufacture and low in cost.

These and other objects, which will be readily apparent, are attained by the present invention, a preferred form of which is described in the following specification, as illustrated in the drawings, in which:

FIGURE 1 is a side elevational view of a saw, employing the guard lock, and showing the guard in normal, protective, covering relation to the circular saw blade,

FIGURE 2 is a front elevational view of the device of FIGURE 1, with the saw blade portion to the left sectioned, axially of the saw, along the line 2—2 of FIGURE 1,

FIGURE 3 is a sectional view taken along the line 3—3 of FIGURE 1,

FIGURE 4 is a view similar to FIGURE 1, showing the saw blade guard retracted from the blade-covering position, and locked in place by the detent,

FIGURE 5 is a sectional view taken on the line 5—5 of FIGURE 4,

FIGURE 6 is a sectional view through the detent, taken on the line 6—6 of FIGURE 5.

Referring to the drawings by characters of reference, there is shown, in FIGURES 1, 2 and 4, a conventional, powered saw, indicated generally by the numeral 10, and comprising a motor housing 12, carrying on its top a main handle 14, and on its front an auxiliary, or steadying handle or knob 16. On its bottom side, the housing carries the usual plane guide 18, adapted to dwell on the surface of the work, and thus determine the angle of the saw blade, and being secured in working position by a wing nut 20, as understood in the art.

The circular saw blade 22 is suitably secured on the shaft 24 of a pinion 26, meshing with a cog 28 on the shaft of the motor (not shown). The fixed, upper guard 30 is integral with the housing 12, and its outer portion is in the form of an annular channel, in surrounding relation to the saw teeth, extending through about 180° of arc, and located above the plane guide 18.

The movable blade guard 32 is also in the form of an annular channel, extending for about 120°, and having a sector-form inner wall 34, swingably mounted on a fixed sleeve 36, carried by housing 12, in surrounding relation to the shaft assembly of pinion 26. A coil spring 38, with one end attached to wall 34 of the movable guard, and the other end secured to fixed sleeve 36, normally urges the guard to the position shown in FIGURE 1. For rotational retraction of guard 32, against the spring pressure, one end of the guard is provided with a plate 40 having a transversely extending tab 42, for ready grasping by the finger tips, the plate being mounted by means of a square opening received on a square boss 44 (FIG. 5) on a projection 46 on guard 32, where it is secured by a screw 48.

The structure described thus far is conventional, and in its general organization is found on most commercially available saws. As seen in FIGURE 1, the fixed guard 30 has a circular opening 50 in its outer, skirt portion, and this, which may be found in the commercial item, or may have to be drilled, forms the cooperative female element of the detent of the present invention, which will now be described.

As seen in FIGURES 3 and 5, the male element of the lock or detent, indicated as whole by the numeral 52, comprises a pin 54 with a reduced neck 56 and a headed end 58, the pin being slidably mounted in an axial bore in a flanged nipple 60, having a threaded shank 62, passing through a circular opening in guard 32, the opening being so located that head 58 of the detent pin is registrable with opening 50 in the fixed guard, the head being of such size as to permit its passage through opening 50. The flange of nipple 60 is located on the inside of movable guard 32, and the nipple is secured in place by a cup housing, or thimble 64, with internal threads engaged with threaded portion 62 of the nipple. Cup 64 has a central opening 66 in its bottom, passing an enlarged, outer end portion 67 of pin 54, which constitutes a push button, being limited in its outward, sliding movement by an annular flange or collar 68, which also serves to take the thrust of a compression coil spring 70, surrounding the pin 54 and acting against the nipple 60, and urging the portion 68 of the pin outwardly.

As seen in FIGURE 3, the head 58 of the detent pin is normally urged to a position outwardly of fixed guard 30, by the spring 70. Prior to an operation which requires retraction of the lower saw guard, the latter is swung against the bias of its spring 38, and at the same time finger pressure is applied to outer head 66 of the detent pin, and maintained until the inner head 58 of the

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pin registers with opening 50 in the fixed guard, whereupon the applied finger pressure causes the head 58 to pass through opening 50, after which, relaxation of the back force on torsion spring 38 allows the movable guard to move backward slightly until the head 58 of the detent is engaged behind the fixed guard. In this position, the continued pressure of spring 38 guarantees retention of the detent in locking position. However, when it is desired to release the swinging guard, it is only necessary to effect a slight pressure on torsion spring 38, as by touching an end of the movable guard against something solid, and the detent is immediately ejected by action of its spring 70, following which the guard returns to normal position by action of spring 38.

While a certain preferred embodiment has been shown and described, various modifications will be apparent, in the light of this disclosure, and the invention should not, therefore, be deemed as limited, except insofar as shall appear from the spirit and scope of the appended claim.

What is claimed is:

In a portable power saw of the type having a fixed, arcuately disposed, channel-form guard, and a spring-biased movable, arcuately disposed channel-form guard, mounted for swinging movement about the center of curvature of said fixed guard, the improvement comprising a detent means carried by said movable guard, and having a pin mounted for sliding movement perpendicular to the plane of swing of said movable guard, and said fixed guard having an opening adapted to re-

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ceive said pin in one position of unguarding swing of said movable guard, said movable guard having an opening, and said detent means comprising a slide bushing with a central bore and a flange located inwardly of said movable guard, and having a threaded stem received through said opening in said movable guard, a cup-form housing with a central opening in its bottom, and its open end threadedly secured on said stem, said pin having an outer portion slidably mounted in the opening in said housing, a collar limiting outward slide of said element, said element having a portion, a portion slidably mounted in said slide bushing, a reduced neck portion on said element inwardly of said slide bushing, and an enlarged head on said element inwardly of said neck portion, and a coil compression spring within said housing, in surrounding relation to said pin, and acting between said slide bushing and said collar.

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