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ROOFING KNIFE HAVING A REVERSIBLE AND RETRACTABLE BLADE

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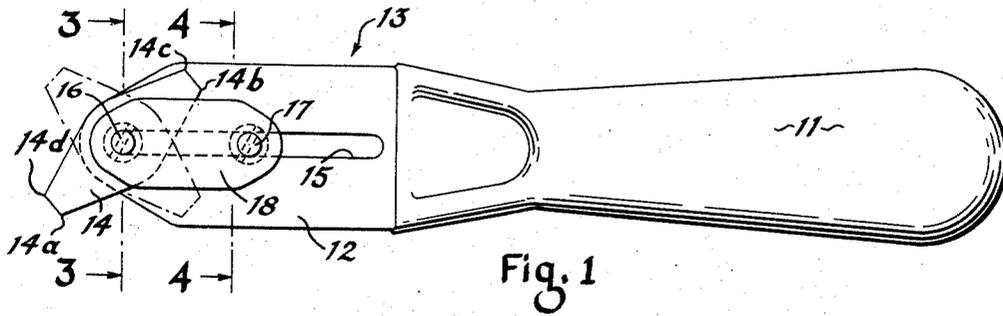


Fig. 1

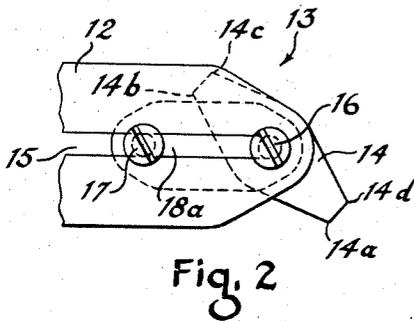


Fig. 2

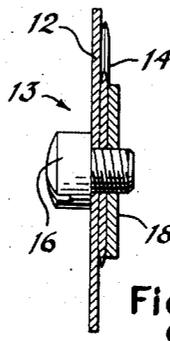


Fig. 3

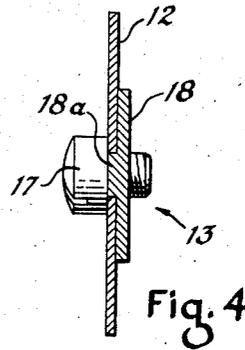


Fig. 4

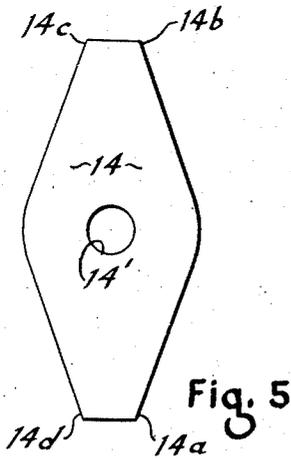


Fig. 5

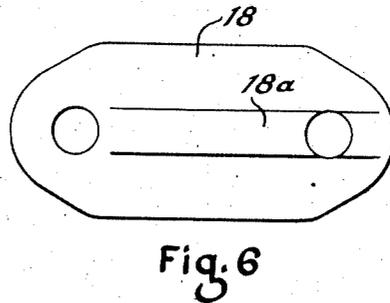


Fig. 6

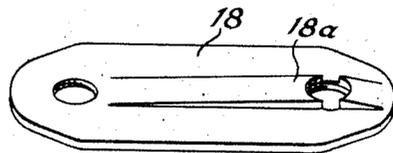


Fig. 7

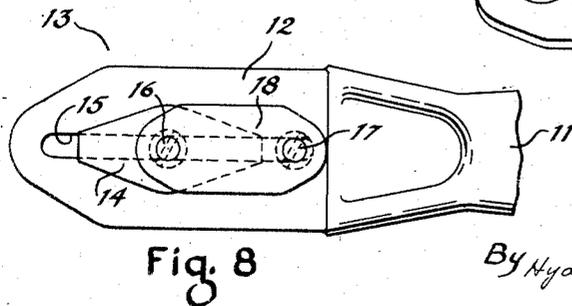


Fig. 8

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ROOFING KNIFE HAVING A REVERSIBLE AND RETRACTABLE BLADE

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1 Claim. (Cl. 30—154)

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This invention relates to improvements in roofing knives and more particularly to a roofing knife with a reversible and swingable blade.

One of the objects of the present invention is to provide an improved knife for cutting linoleum, roofing material, or the like.

Another object of the present invention is to provide in a roofing knife of the type described means to swingably mount a blade, said means adapted to limit the blade swing in either direction.

Another object of the present invention is to provide in a roofing knife of the type described means for swingably and reversibly mounting the blade to provide a multiplicity of cutting edges.

A further object of the invention is to provide a knife of the character described which is adapted for immediate reversibility of the blade whereby to render either one of two cutting edges immediately available at the will of the operator.

Another object of the present invention is to provide in a roofing knife of the type described means for swingably and reversibly mounting the blade to provide for adjustment of a multiplicity of cutting edges and to permit the user to retract the blade to a safe position for carrying.

Other features of this invention reside in the arrangement and design of the parts for carrying out their appropriate functions.

Other objects and advantages of this invention will be apparent from the accompanying drawing and description and the essential features will be set forth in the appended claim.

In the drawings,

Fig. 1 is a side view of the cutting knife with the cutting blade shown in two positions, as disclosed by the blade in solid line and dot-dash line;

Fig. 2 is a side view of the blade and the attaching means therefor, said view taken from the rear of Fig. 1;

Fig. 3 is a vertical sectional view along line 3—3 of Fig. 1;

Fig. 4 is a vertical sectional view taken along line 4—4 of Fig. 1;

Fig. 5 is an enlarged view of the blade;

Fig. 6 is an enlarged view of the blade clamping plate;

Fig. 7 is a perspective view of the plate of Fig. 6; while

Fig. 8 is a side view, similar to Fig. 1, but showing the blade in its retracted or safe position.

The knife herein illustrated as one embodiment of my invention is especially designed to cut linoleum, roofing material, or the like. Its swing-

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ably and reversibly mounted blade has several cutting edges, each cutting edge being available without requiring a major adjustment.

In general, the roofing knife consists of a handle 11 having a supporting plate 12 attached at one end thereof. A blade 14 is attached at the other end of the supporting plate 12 by a blade gripping or attaching means indicated generally at 13.

The blade gripping or attaching means 13 will now be described. The supporting plate 12 has a longitudinal, elongated slot 15 therein. An elongated, oval shaped, blade clamping plate 18 lies over this slot, as seen in Fig. 1. This plate 18 has holes at each end adapted to threadably receive studs 16 and 17 therein. Each of these studs has an enlarged head engaging the left side of the supporting plate 12 in Figs. 3 and 4. Each stud is loosely and slidably mounted in slot 15 and is threadably attached in plate 18. Stud 16 also has blade 14 loosely mounted thereon. The stud 16 is located in the central hole 14' of the blade. Although the studs 16 and 17 may be tightened to clamp or lock the supporting plate 12, the clamping plate 18 and the blade 14 together, the studs are generally in a slightly loosened position while the knife is being used, so as to permit the blade 14 to be easily swung to cutting position. An inclined raised bead 18a, as seen in Fig. 7, is adapted to limit the blade swing in either direction. This bead is of a width substantially equal to the width of slot 15, as shown in Fig. 4, and is adapted to slide in said slot longitudinally along the length of the slot. This bead or inclined cam surface 18a is inclined upwardly from adjacent the hole having the blade supporting stud 16 toward the hole having the stud 17, the surface of bead 18a being higher around stud 17 than around stud 16 and extending into the slot 15.

The blade 14, as seen in Fig. 5, has a six-sided or irregular hexagonal shape. It might also be described as diamond-like in shape since the basic shape resembles a diamond with cut-off ends. The blade is swingably retained between the blade supporting plate 12 and the blade clamping plate 18 of the roofing knife. In Fig. 2, it can be seen that half the length of the blade is less than the distance between the studs 16 and 17. Hence, the bead 18a is the only restraining surface between the studs to limit the blade swing. The blade 14, as seen in Fig. 5, has four cutting edges 14a, 14b, 14c and 14d.

The operation and adjustment of this roofing knife is easy to understand. In Fig. 1, the blade is shown in the advanced or cutting position. If

both studs 16 and 17 are loosened slightly, the blade 14 may be swung through a limited arc to assume either the full-line position or the dot-dash line position in Fig. 1 when raised bead 18a is in slot 15 blocking clockwise swing of the blade from the full-line position. The blade is moved from the full-line position to the dot-dash line position by swinging it counterclockwise in Fig. 1 while bead 18a stops swing at either end of said limited arc. In the full line position, cutting edge 14a would be used, while in the dot-dash line position with the roofing knife inverted from the position shown in Fig. 1 cutting edge 14b would be used. Since the user pulls the cutting edge across the material to be cut, the cutting force tends to pivot blade 14 around the pivot point at stud 16 until the raised bead 18a prevents further pivoting by forcing the cutting blade 14 firmly against the supporting plate 12. Hence, the blade 14 would then be firmly held in cutting position by raised bead 18a. This same holding action can be used for either blade position in Fig. 1. The user of the roofing knife may use either edge 14a or edge 14b by merely rocking the blade to either the solid line or dot-dash line position in Fig. 1. The blade may be swung or rocked from one position to the other by engaging the back side of the blade against a surface and then pivoting the blade to the other desired position. The other two cutting edges 14c and 14d may also be used. When this is desired, the blade 14 is merely removed from between the plates 12 and 13, turned over, and then reassembled between plates 12 and 13. Cutting edges 14c and 14d will then assume the same positions as cutting edges 14a and 14b in Fig. 1. Cutting edges 14c and 14d may also be positioned by another method. If studs 16 and 17 are loosened considerably and if raised bead 18a is then withdrawn from the slot so that the clearance between bead 18a and plate 12 is greater than the thickness of the blade, the blade can be swung clockwise in Fig. 1 past the raised bead until cutting edge 14c is in the same position as edge 14a in Fig. 1. After studs 16 and 17 are tightened somewhat to force the raised bead 18a back into slot 15, the blade may be swung between the full-line and dot-dash line positions to use either cutting edge 14c or 14d. Hence, the blade 14 in Fig. 5 provides a multiplicity of cutting edges by merely swinging or reversing it in its mounting.

This invention contemplates, of course, that blade 14 might have a diamond shape, a triangular shape or any other desired shape so that it may serve effectively as a cutting blade for sheet material such as linoleum or roofing material. The invention also contemplates that all six edges or sides of the hexagonal blade be sharpened to serve as cutting edges, if desired.

The blade 14 may also be moved to its safety or retracted position shown in Fig. 8, in which position the cutting knife may be safely carried with the blade inoperative to cut. The blade 14 and plate 18 are slidably mounted on the supporting plate 12 by studs 16 and 17 so that they may readily assume the cutting position of Fig. 1 or the safety position of Fig. 8. Stud 16 and 17 and raised bead 18a slidably engage slot 15 to permit this movement. Hence, raised bead 18a serves a dual function. It slidably guides the

plate 18, and the blade 14 carried thereby, on the supporting plate 12 and also limits the swing of blade 14 in either direction when the blade is in the cutting position shown in Fig. 1.

The novel knife of this invention has many advantages. It is especially convenient for cutting linoleum and roofing material. The several cutting edges of the blade are readily available without making a major adjustment so that a sharp cutting edge can always be selected. Any of the four sharp edges of the blade may be moved into cutting position normally in eight seconds or less. The blade can be set to the proper cutting angle and depth of cut to satisfy any cutting requirement by merely setting the blade and then locking it into position by clamping the raised bead against it. The raised bead clamps against the blade without dulling the blade's cutting edges. The clamping or tightening screws or studs each have a wide enough adjustment slot to accommodate a coin. Hence, the studs may be adjusted by either a small coin or a screw driver, whichever is desired. The blade of the knife can also be retracted into a safety position so that it may be safely carried in the user's trouser pocket. A doubled edged razor blade may be used instead of the blade 14 shown in the drawings, if desired. This invention comprises a knife having all of the above features and advantages therein.

What we claim is:

A roofing knife comprising a handle, a blade supporting plate attached to one end of said handle, said plate having a longitudinal slot therein, a substantially diamond-shaped blade having four cutting edges, said blade having a hole through its center, and an elongated blade clamping plate having holes at each end thereof, a stud loosely mounted in said slot and said blade center hole but removably engaged in the outer hole of said clamping plate for clamping together said clamping plate and supporting plate, a second stud loosely mounted in said slot but removably engaged in the other hole of said clamping plate for clamping together said clamping plate and supporting plate, said blade being swingably retained on said first stud between said blade supporting plate and said blade clamping plate, the distance between said studs being greater than one-half the length of the blade, and a raised bead on said clamping plate inclined upwardly between said first and second stud, said raised bead slidably engaging said slot whereby said bead limits the blade swing in either direction by wedging said blade against said supporting plate when said blade is in its advanced or cutting position and whereby said bead and studs slidably engage said slot so that said blade is slidably retractable to render it inoperative to cut.

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