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2,453,198

BLADE HOLDER

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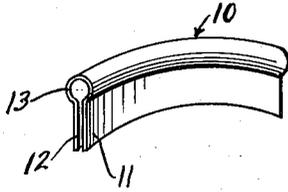


FIG. 1.

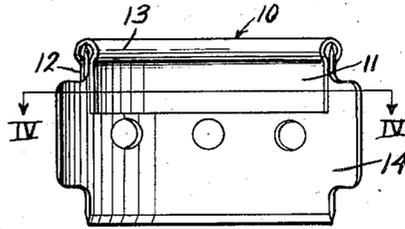


FIG. 2.

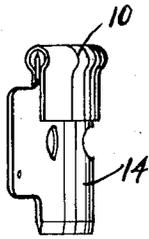


FIG. 3.



FIG. 4.

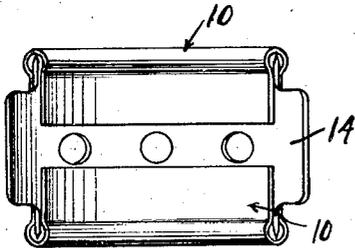


FIG. 5.

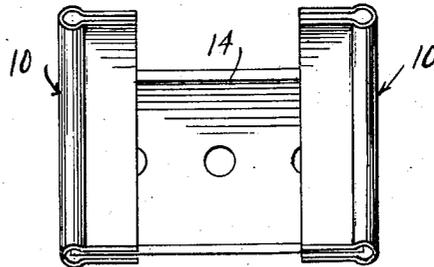


FIG. 6.

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BLADE HOLDER

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5 Claims. (Cl. 30—336)

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This invention relates to a blade holder adapted to hold a cutting blade in either longitudinally or transversely curved condition, and also to serve as a guard for the cutting edge of the blade. More specifically, the invention relates to a simple blade holder which is curved to impart curvature to a resilient blade held thereby for greater efficiency and safety.

In certain cutting operations, such as the paring of corns, callouses, and the like, the removal of paint spots, and similar operations, it is common to employ a thin, resilient metal blade, such as the common safety razor blade. It is difficult to employ such a blade, however, by simply grasping it in the fingers, particularly if a blade having two cutting edges is employed. Consequently, a holder of some kind is commonly used in which the blade is secured. Such holders are usually provided in such form or arrangement that when the blade is held therein, the structure is substantially that of a knife with a handle. Such holders do not take full advantage of the possibilities afforded by the flexibility of the blades. In fact, special provision is often made to prevent flexing of the blade. Various means are employed to hold the blade in the holders which have heretofore been developed, such as screws, projections, wedging or camming means, and the like, requiring more or less manipulation in order to permit assembly and disassembly of the blade and holder.

The blade holder of this invention is of extreme simplicity, and is so formed that no securing means are required to hold the blade affixed in the holder. Furthermore, the present invention provides a blade holder so formed that it holds the blade in curved condition so that only a portion of the blade cutting edge is in contact with the material being cut or scraped, so that undesired and unnecessary cutting, scraping, or scratching of the material or surface is avoided. The cutting edge may, however, be straightened or flattened in use if desired so as to increase the cutting or scraping contact. The blade holder may also be utilized to hold a blade with the cutting edge straight but with the blade transversely curved, so that a rotary cutting action may be obtained. The blade holder of this invention may also be utilized as a guard for the cutting edge of a blade, or a plurality of the blade holders may be utilized as guards for a plurality of cutting edges on a single blade.

It is an object of this invention to provide a blade holder which securely holds a blade without requiring any special securing means.

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It is another object of this invention so formed as to hold a blade therein in curved condition.

It is a further object of this invention to provide a blade holder which serves as a guard for the cutting edge of a blade.

It is also an object of this invention to provide a blade holder which permits absolute control of the amount of cutting pressure and of the direction, depth, and location of the cut made by the blade held therein.

It is still another object of this invention to provide a holder for a resilient cutting blade so constructed that the blade is secured therein by the resiliency of the blade itself.

Other and further objects and advantages of this invention will be apparent to those skilled in the art from the following description and the appended drawings.

In the drawings:

Figure 1 is a perspective view of the blade holder of this invention;

Figure 2 is a front elevational view of the blade holder of this invention with a blade secured therein;

Figure 3 is an end view of the blade holder with a blade therein;

Figure 4 is a longitudinal sectional view taken on the line IV—IV of Figure 2;

Figure 5 is a front elevational view of a pair of blade holders utilized as guards, for the cutting edges of a double-edged blade; and

Figure 6 is a front elevational view of a pair of blade holders applied to the ends of a double-edged blade.

The blade holder 10 of this invention, as shown in the drawings, comprises a generally channel shaped member which is longitudinally curved and has a front wall 11 and a rear wall 12 disposed in substantially parallel relation. One edge of the channel member is open, and the other is closed by an enlarged hollow bead portion 13 which connects the front and rear walls 11 and 12. The blade holder may be formed of any suitable material, and it will be obvious that it may readily be made of a single piece of such material. The connecting bead portion 13 serves not only to join the walls 11 and 12, but also as a stiffening or rigidifying element for the blade holder. It further provides a convenient gripping means facilitating firm grasping of the blade holder 10 by the fingers. The blade holder may be made with the walls 11 and 12 slightly spaced apart, as shown in Figure 1.

A blade 14, illustrated in the drawings as a conventional double-edged razor blade, possessing re-

quisite qualities of flexibility and resilience, is held in the blade holder 10. One edge of the blade 14 is inserted between the walls 11 and 12 and extends into the interior of the connecting bead portion 13. When the blade is so inserted in the blade holder 10, it necessarily assumes a longitudinal curvature corresponding to that of the blade holder. The resilience of the blade tends to return the blade to its normal flat condition, with the result that the blade is firmly secured in the blade holder by a sort of binding action, without requiring the use of any clamps, screws, or the like. It will be obvious that if the blade holder 10 is formed with a space between the walls 11 and 12, the space may be greater than the thickness of the blade because it is not frictional surface contact between the blade and the walls, but the tension of the blade, which is depended upon to retain the blade in the holder. If the holder 10 is formed so that the walls 11 and 12 are resiliently urged together, the blade 14 is secured not only by its tendency to straighten out in the curved holder 10 but also by the resilient clamping action of the walls 11 and 12 on the blade. The curvature of the holder 10 and therefore of the blade 14 may be more or less than indicated in the drawings, particularly in Figure 4, and it will also be clear that the curvature may be arcuate or non-arcuate, as may be desired. In Figure 4 is shown a cross-sectional view of a blade held in a channel member in which the space between the walls of the member is the exact thickness of the blade and therefore the blade will assume the exact curvature of the opening.

In use, the holder 10 with the blade 14 therein is held in the fingers and is manipulated as desired or necessary to accomplish the cutting operation. The curvature of the blade results in the employment of only a limited portion of the cutting edge in delicate cutting operations, such as the paring of corns, callouses and the like, with the remainder of the cutting edge being held out of contact with the area surrounding the portion being cut, thus preventing unintentional or undesired cutting in the portion adjacent the portion being cut. The curvature of the blade also permits variation in the size and depth of cuts by permitting a greater or smaller portion of the cutting edge to be employed in making any particular cut. When the blade is utilized as a scraper, particularly on a hard surface, the cutting edge may be straightened or flattened if desired by pressing the edge against the surface so that a greater area may be scraped at one stroke. The flexibility and resilience of the blade permits such deformation of the cutting edge, while still maintaining unflattened portions of the cutting edge out of contact with the surface being scraped.

The absence of any handle or similar portion renders the holder very safe and efficient in use. A handle or the like necessarily requires that the hand be at some distance from the cutting blade. This necessarily lessens control of the blade, since the "feel" thereof is not directly sensed, and furthermore the lever effect of a handle is likely to cause a difference between the actual cut made and that intended. Since the holder 10 and the blade 14 therein are grasped directly by the hand, close and direct control of the blade is maintained at all times, as will be obvious. The thumb rests on the concave surface, and the fingers on the back or convex space, the curvature of the holder and blade thus lending itself readily to a natural grip. With this grip, it is simple and easy to shift the thumb and fingers to the unconfined portion

of the blade and flex it into a sharper curve merely by pressing in opposite directions with the thumb and fingers, if greater curvature of the blade is desired than is provided by the holder. It has already been explained how the cutting edge or unconfined portion of the blade may be flattened or straightened if less curvature is desired.

As thus far described, the blade holder 10 has been considered only as holding a blade in longitudinally curved condition. It will be obvious, however, that the holder 10 may be applied over the end of a blade so that the cutting edge is straight and not curved, but the body of the blade assumes a transverse curvature. Due to the resilience of the blade, the free end, which is relatively remote from the strength of the blade holder, tends to have a lesser degree of curvature than the portion of the blade in and adjacent the holder. For this reason, it is usually desirable to provide a blade holder 10 on each end of the blade, as shown in Figure 6, and thus assure uniform curvature of the blade throughout its length.

The transverse curvature of the blade achieved by applying a blade holder 10 to the end instead of an edge thereof provides a convenient means for moving the cutting edge of the blade out of engagement with the material being cut or scraped. It is particularly advantageous in close or precise work where a very short cutting or scraping stroke is desirable. The curvature of the blade and of the holder permits the blade to be rocked so that the cutting edge is moved upwardly out of engagement with the material and thus avoids any undesired cutting thereof even if the stroke of the blade continues. The rocking movement can be performed very quickly so as to move the cutting edge abruptly out of engagement with the material if desirable or necessary.

It will be obvious that the blade may be positioned with its cutting edge extending beyond the ends of the blade holders, in alignment with the blade holder ends, or intermediate the opposite ends of each holder. When the cutting edge does not extend beyond the ends of the blade holders, the holders serve to limit the effective length of the cutting edge. The assembled blade and blade holders may be grasped in any convenient manner by either one hand or both hands, and if desired may be so held that the cutting edge of the blade may be flexed from its straightened condition, much in the manner as described in connection with the additional flexing of the blade when held longitudinally curved by a blade holder.

It will be obvious that the blade holder 10 serves as a guard for a cutting edge of a blade. If a blade with a single cutting edge is employed, the blade holder is applied to the blunt edge thereof when the blade is to be used, and slipped therefrom and applied over the cutting edge when the blade is idle. If a double-edged blade is employed, the blade holder may be applied over either edge and the other edge used for the cutting operation. When the blade is no longer in use, a second blade holder may be applied over the edge used for cutting, and both cutting edges are then guarded. In either case, the blade may safely be handled or transported without requiring additional precautions against unintentional cutting by the blade, since the blade will be securely held in the blade holder or blade holders by reason of its resilience, as already described.

It will, of course, be understood that various details of construction may be varied through a wide range without departing from the principles of this invention and it is, therefore, not the pur-

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poses to limit the patent granted hereon otherwise than necessitated by the scope of the appended claims.

I claim as my invention:

1. A one-piece blade holder comprising a pair of parallel opposed wall portions curved longitudinally and an enlarged hollow head portion connecting said wall portions.

2. A blade holder for a resilient blade comprising a channel member longitudinally curved and receiving a blade in the channel thereof and being secured on said blade by resilient engagement of said member and blade.

3. A cutting device comprising a longitudinally curved channel member and a resilient blade having one edge held in said member and a parallel cutting edge protruding therefrom, said blade being held in longitudinally curved condition by said member.

4. A cutting device comprising a resilient blade and a blade holder on each end thereof, each of said blade holders comprising a longitudinally curved channel member receiving a blade end to hold said blade in transversely curved condition.

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5. A one-piece blade holder comprising a pair of parallel opposed wall portions curved longitudinally and an enlarged hollow head portion connecting said wall portions, the inner side of said wall portions providing a curved channel adapted to receive a blade therein and the outer side of said wall portions providing a gripping surface for the fingers of the operator.

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