June 10, 1941. R. L. PENNEY 2,245,096

CUTTING IMPLEMENT

Filed Oct. 2, 1940

Fig. 1.

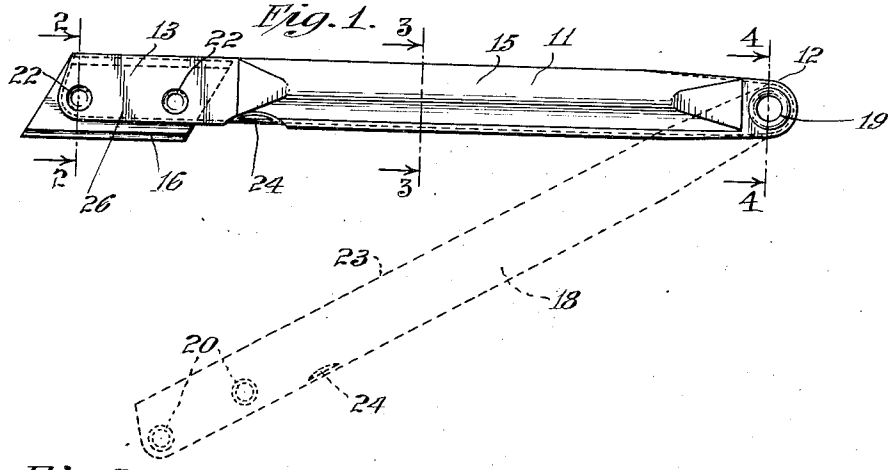


Fig. 2.

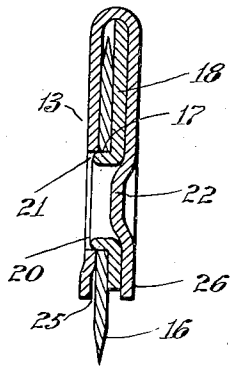


Fig. 3.

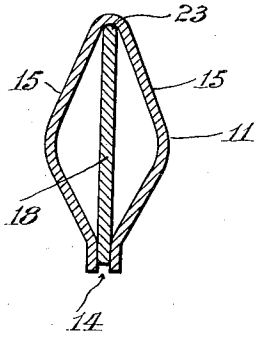


Fig. 4.

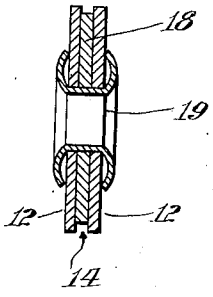


Fig. 5.

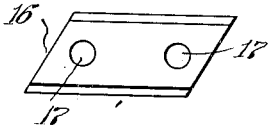


Fig. 6.

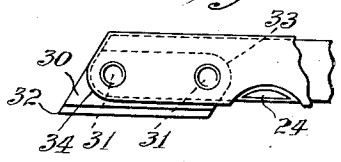


Fig. 7.

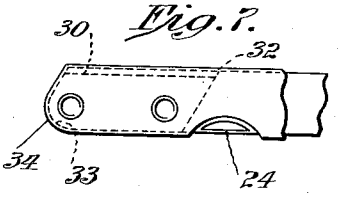


Fig. 8.

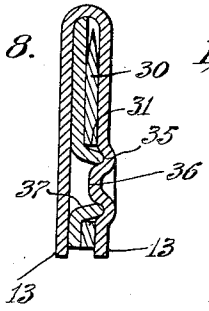
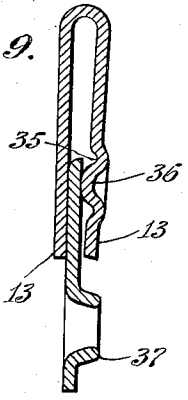


Fig. 9.



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CUTTING IMPLEMENT

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Application October 2, 1940, Serial No. 359,373

4 Claims. (Cl. 30—339)

This invention relates generally to improvements in knives and cutting implements and specifically to that type providing a blade removable from the handle.

The present holder is intended particularly for the use of draftsmen, as for cutting paper and erasing ink lines, and for model makers, sculptors, etc.

One of the objects of this invention is to provide a knife including a removable blade which is held in the handle by means which allow the blade to be easily inserted and removed by the use of the fingers alone and without the use of tools, but which means will not permit the blade to become loosened or detached while in use as when cutting hard or gummy wood, heavy cardboard, etc.

Another object is to provide a construction including means for the simple and economical replacement of broken or dulled blades and which eliminates the use of screws, tubular clamps or other exterior fastening means.

Another object is to provide a cutting instrument which includes a double-edged blade and means whereby one edge is protected from injury while the other is being used.

Another object is to provide a holder which is light in weight but strong enough to enable the user to use considerable force in its use without danger of bending or buckling.

Another object is to provide a device of the type above described and having means for covering and shielding an entire blade when not in use, allowing the knife to be safely handled or carried in the pocket.

Another object is to provide a handle which can be used with a double edged blade for bench or shop work or with a single edged blade to be carried in the pocket.

A further object is to provide a knife of the above structure and which is durable, simple in operation and inexpensive to manufacture.

I accordingly provide a long handle formed of sheet metal of substantially tubular form, slotted along one edge and flattened at the ends. This is approximately diamond shape in cross section along its central portion to stiffen it against bending and has a thin blade carrier arm hinged in one flattened end and foldable into the slot along the entire length of the handle. This carrier arm has two tubular studs near the end opposite the hinge adapted to receive an overlapped perforated cutter blade which is thus held in place between the flattened jaws of the handle when the carrier arm is folded into the slot. The handle has indented bosses which project into the openings of the tubular studs to hold the carrier arm and the attached blade in the handle. The tubular studs and the bosses are so located in the handle that a single edged blade can be mounted in the handle either with the edge exposed or with it guarded within the handle for carrying in the pocket.

In the accompanying drawing—

Fig. 1 is a side elevation of a preferred form of this invention, also showing the blade carrier arm dotted in the open position.

Fig. 2 is a cross section taken on the line 2—2 of Fig. 1 but on a much larger scale.

Fig. 3 is a cross section taken on the line 3—3 of Fig. 1.

Fig. 4 is a cross section taken on the line 4—4 of Fig. 1.

Fig. 5 is a view of a double edged blade shown detached from the holder.

Figs. 6 and 7 are fragmentary views showing a modified form of single edged blade in my holder of this invention and in which the blade may be entirely housed in the handle.

Fig. 8 is a sectional view of a holder with a single edged blade as shown in Figs. 6 and 7 but in which the holder is somewhat modified.

Fig. 9 is a sectional view of the holder of Fig. 8 with the carrier arm only partly housed in the handle.

In all of the sectional views the desired thickness of metal is much less than that shown.

The handle is formed of sheet metal stamped into a tubular or channel shape with a central bulbous body portion 11, flattened ends 12 and 13 and with a slot 14 open along its lower edge from end to end.

The central portion is preferably diamond shaped in cross section and provided with oppositely inclined walls 15, 15 which not only reinforce the body laterally but furnish outwardly flaring abutments for the thumb and fingers when grasping the knife.

The cutting blade 16 is sharpened on both edges and has two or more holes 17 arranged along its longitudinal central axis. Such blades are usually very thin, e. g. .01" to .015" thick.

A carrier arm 18 of approximately the same thickness or perhaps a little thicker than the blade is hinged at one end 12 in the handle for instance by means of a tubular eyelet 19 which may also be utilized for hanging up the device. The other end of the carrier arm has a number of tubular studs 20 projecting from one face to receive the holes 17 of the blade 16 when the

arm is opened out as shown by the dotted lines in Fig. 1. The studs fit the holes snugly, preferably with a press fit, so that the blade cannot shift or slide on the carrier arm. In fact the studs may be slightly tapered or conoidal so as to facilitate application of the blade to the arm and seating it snugly in place. If the studs are of less height than the thickness of the blade, the blade will be gripped between the carrier arm and an adjacent face of the end **13** of the handle member. Even greater security can be provided by making the studs higher than the thickness of the blade and providing recesses or apertures **21** in the adjacent face of the handle into which the studs can extend. The holder also preferably has an indented boss **22** adapted to fit into the opening of one of the studs so as to aid in holding the carrier and the attached blade in place. This boss is preferably located nearer to the open edge of the handle than to the closed edge. The slot **14** may be somewhat wider at the end where the blade is held than at the hinged end. Preferably the two edges of the handle slot **14** are biased toward each other so as to press against the opposite faces of the carrier arm and thus assist in holding the parts together and prevent chattering or buckling of the thin arm. As the hinged end of the arm is always located between the flattened faces of the handle, the arm can always be swung to closed position without difficulty gradually entering the slot from the hinged end toward the other end and forcing apart the edges of the slot until the blade enters the operating position.

As the arm is wholly concealed within the handle when in use there is no danger of accidental detachment of the blade. The inner edge **23** of the carrier arm abuts against the upper wall of the inside of the handle member and extends from end to end of the handle member and thus reinforces it materially. The parts of the carrier arm, the blade and the holder are so dimensioned that the inner edge of the blade does not touch the inside of the holder when in its usual position. There is therefore no danger of dulling that edge of the blade.

To remove the blade the arm is withdrawn or opened by either pressing on the end of the blade or by engaging an edge of the arm at **24** where a notch or indentation is formed. In case the stud **20** is allowed to project into a recess or hole **21** in the handle as shown in Fig. 2, it may be desirable to insert something in the slot **14** near the blade so as to pry the edges of the handle apart sufficiently to release the stud. It may also be desirable in such a case to provide a groove **25** adjacent the recess **21** to facilitate passage of the stud into position when closing the carrier arm.

To attach a cutting blade to the holder the arm **18** is opened, the blade applied to the studs **20** and the arm and blade then closed or shut into the handle member. The edges of the handle member at the slot **14** serve to resiliently grip and hold the arm and the blade and the boss **22** slips into a recess in a stud. This provides a wedging frictional catch in the nature of a spring-ball detent. The blade is thus securely held in place. It will also be noted that the edges **26** of the handle extend well down upon the blade so as to support it laterally close to the cutting edge.

Obviously when one edge of a blade is dulled or chipped it is merely necessary to reverse the blade and use the other edge.

In Figs. 6 and 7 I have shown how the invention is adapted to use as a pocket knife. In this case, the blade **30** has a single cutting edge and the holes **31** of the blade are arranged nearer to the non-cutting edge. For use the blade is inserted as shown in Fig. 6. For carrying in the pocket, the blade is reversed and mounted as shown in Fig. 7 where the cutting edge is completely housed without coming in contact with the holder. One end may be pointed as at **32** and the other rounded at **33** to correspond with the rounded corners of the handle and carrier arm at **34**.

Instead of a perforation **21** for the stud as shown in Fig. 2, I may provide a recess **35** as shown in Fig. 8 and the boss **36** may project into the smaller end of the stud **37**. In other words the recess and boss are both on the same side of the blade instead of on opposite sides as in Fig. 2.

Fig. 9 shows how the edges **13** spring toward each other when the carrier arm is partly out and the blade is removed.

It should be understood that the outer end of the cutter blade might be used as a scraper since the blade is held securely against longitudinal movement in the handle as well as against transverse movement.

Preferably a locking boss such as **22** or **36** is provided for each of the blade supporting studs. In some cases the edges of the body at the slot **14** may be bent toward each other and made stiff enough to hold the carrier arm and blade in place without a boss or bosses since the arm extends from end to end of the handle which is always held tightly by the operator in use.

Although such a device is very light in weight and quite inexpensive, it is strong and safe to use with no danger of the blade flying out or working loose.

Although the forms shown are preferable, some of the advantages of the invention might be attained by locating the locking studs on the blade itself and providing recesses or openings in the carrier arm to receive these studs in which event the locking of the carrier arm within the handle member may be accomplished in the same manner as previously described. Or the arm and holder may be provided with interlocking portions at one or more points along the length of the holder. It is preferable however that the interlocking parts between the arms and the handle member shall be located some where near the outer ends of these members rather than near the pivotal connection.

I claim:

1. A cutting implement comprising a handle member flattened at opposite ends and of bulbous section throughout its intermediate portion, a carrier arm hinged in one flattened end and having a plurality of hollow studs at the other end and foldable into the opposite flattened end of the handle and adapted to support a perforated cutting blade, said latter end having a boss projecting inwardly from one side to fit into one end of one of said hollow studs to lock the carrier arm and blade in place within the handle member, said arm reinforcing said handle member from end to end.

2. A cutting implement comprising a handle member formed of sheet metal with a tubular central part and flattened ends and having a slot extending from end to end, a carrier arm hinged in one of the flattened ends and folded through said slot into the handle member and

having a number of tubular studs projecting from one side to support a removable blade in the opposite flattened end of the handle member, one side of the latter flattened and having means cooperating with at least one of said tubular studs to lock the carrier arm and the attached blade in the handle member.

3. A cutting implement comprising a handle member formed of sheet metal with a tubular central part and flattened ends and having a slot extending from end to end, a carrier arm hinged in one of the flattened ends and folded through said slot into the handle member and a cutting blade member, one of the two latter members having a number of tubular studs projecting from one side for holding a perforated blade and the other of the two latter members having recesses for receiving said tubular studs, the handle member having a projection interlocking with one of the tubular studs for locking the carrier arm and the attached blade in the handle member.

4. A cutting implement comprising a handle member having a slot, a carrier pivoted in said slot, a blade detachably mounted on the carrier, means on the carrier for positioning the blade and means coacting between said handle member and said positioning means for locking the carrier in the handle member.

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