Feb. 16, 1937. G. S. MADSEN 2,070,796

CUTTING TOOL

Filed Oct. 15, 1934

Fig. 1.

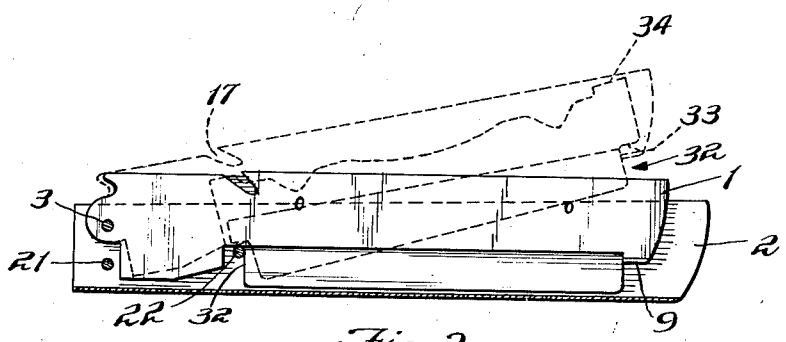


Fig. 2.



Fig. 3.

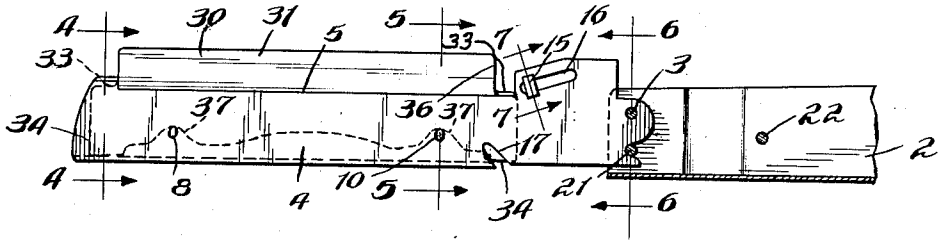


Fig. 4.

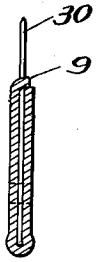


Fig. 5.

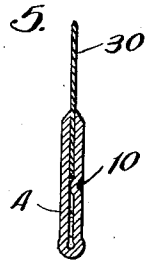


Fig. 6

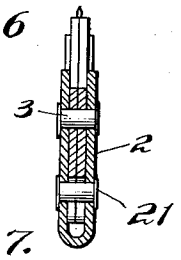


Fig. 8.

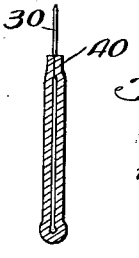
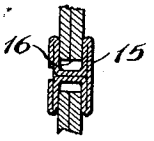


Fig. 7.



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CUTTING TOOL

George Swend Madsen, Chicago, Ill.

Application October 15, 1934, Serial No. 748,283

3 Claims. (Cl. 30—98)

This invention relates to non-shaving cutting appliances that employ razor blades of the so-called "Gillette" type for the cutting edge, and more particularly to the tool for holding the blade.

It is one of the objects of the present invention to provide a blade-holding tool of the above character which is simple and economical in construction and which is very compact, so that it may be carried in the pocket conveniently, and wherein the blade is securely held in place although easily removable and replaceable. Due to the fact that "Gillette" type blades are double-edged, certain difficulties are encountered in providing a tool wherein they may be used much in the manner that a jack knife is used. Means must be provided for holding the blade against transverse movement in the holder when the exposed cutting edge is forced against an object to be cut. Merely to cause the opposite cutting edge to bear against an abutment is unsatisfactory. Movable, or removable, stops that are inserted into openings in the blade after the blade is in position are objectionable in that they render the tool complicated and, generally, also more expensive.

I have invented a tool, of the above general character, wherein one or more of the central openings in a "Gillette" type blade cooperate with an immovable stop, to hold the blade in place and wherein the blade may be inserted and removed in a simple manner. I use only a half of a "Gillette" type blade, the blade being broken in two along a longitudinal center line where it is naturally the weakest. Each blade half, therefore, has only one cutting edge and, opposite thereto, an edge having a series of indentations corresponding to a half outline of the opening or openings in the original blade. The half blade can be inserted into the holder until one or more of the indentations abut against a stationary stop pin.

It is a further object of the present invention to provide a tool of the above character with a handle that is foldable over the cutting edge of the blade for protective purposes, and is provided with means effective as it is folded into protective position for forcing the blade into its proper position if it has not already been fully inserted.

It is a still further object of the present invention to provide a tool wherein the blade is held against movement therein merely by the spring pressure of the holder pressing thereagainst, and wherein means is provided for assuring that the spring pressure will be applied.

It is a further object of the present invention to provide a blade holder wherein the blade may be readily removed for replacement purpose.

The attainment of the above and further objects of the present invention will be apparent from the following specification, taken in conjunction with the accompanying drawing forming a part thereof.

In the drawing:

Figure 1 is a view, in partial section, showing my tool in its closed position;

Figure 2 is an end view of the same in open position;

Figure 3 is a side view, in partial section;

Figures 4, 5, 6, and 7 are sectional views taken, respectively, along the lines 4—4, 5—5, 6—6, and 7—7 of Figure 3, and looking in the direction of the arrows; and

Figure 8 is a view, corresponding to Figure 4, of a modified construction.

Referring, now, more particularly to the drawing, my tool comprises a blade holder 1 and a combined guard and handle 2, hinged together by a pivot pin 3. The blade holder comprises a flat strip of sheet metal 4, folded upon itself so that the adjacent edges 5—5 define a narrow, longitudinally-extending slot 6 into which a razor blade of the wafer type may be inserted. The upper edges 5—5 are spring pressed towards one another so that when they are slightly spread for insertion of a blade, and then released, they exert a spring pressure tending to hold the blade against retraction. A rivet 8 extends between the opposite folded sides of the folded strip 4 and serves to hold the same against spreading. Also, it acts as a stop to limit the extent of insertion of a blade into the holder, it being located in a definite location with respect to notches in the blade, as will be set forth more fully presently. The outer end of the holder is provided with a lug 9 comprising an integral part of the sheet metal strip 4, bent over the top of the slot 6, and thereby holding the adjacent end of the blade against outward retraction. Adjacent the inner end of the holder, one side of the folded strip has a bulbous indentation 10 formed therein, said indentation serving as a stop to limit the extent of insertion of the blade at that end of the holder.

The blade holder has a certain amount of flexibility, so that the sides of the slot may be spread for insertion of the blade. Means is provided, adjacent the hinge end of the holder, for pinching the ends together. This means comprises a cam in the form of a double-headed

pin 15 that rides in a pair of slots 16 in the blade holder. The pin 15 pinches the ends of the holder together adjacent one end of the blade, when the pin is in the position illustrated in Figure 3. When the pin is retracted in the slot 16 it is further away from the corresponding end of the blade and thus permits more spreading of the holder adjacent that end of the blade. If desired, the holder can be made with the slot 16 longer and extending above the shoulder 33, so that when the cam 15 is in its lower, locking position it lies over the shoulder 33 of the blade and acts as an abutment to hold the blade against retraction, in addition to the holding effect due to the pinching action. The bottom edge of the holder is provided with a slot 17 to facilitate removal of a blade from the holder. By inserting an object, such as the end of a pencil, or the back end of another blade, the blade may be pried out of the holder.

The combined guard and handle comprises a single strip of sheet metal folded upon itself into a U shape, forming a slot 20 of a width sufficient to enable the guard to embrace the blade holder. A rivet 21 cooperates with a notch in the blade holder to limit the extent of opening of the handle, so that when the handle is in its full open position, it is in longitudinal alignment with the blade holder. Another rivet pin 22 is provided for forcing the blade completely into position as the handle is folded over the holder, if the blade was not fully inserted previously.

In order to reduce the overall width of the tool and provide for other simplification, the blade holder is adapted to use one half of a standard "Gillette" type blade. The blade, of wafer form, is indicated at 30 and has a longitudinally-extending cutting edge 31. The corners of the blade endwise of the cutting edge are cut away, as indicated at 32, defining abutment shoulders 33. The blade shown in the drawing is one half of a "Gillette" type blade, the "Gillette" type blade being broken in two along the narrow hinge portion 34—34 of the blade. Each half of the blade has a plurality of irregularities or grooves 37—37 which, in the "Gillette" type blade are provided for positioning the blade in a razor. The pin 8 and the indentation 10 are so located, with respect to the irregularities 37—37 that the irregularities just fit over the pin and indentation and are held thereby in position.

To insert a blade in the holder, one of the abutment shoulders 33 is inserted under the lug 9 and the entire blade is then pushed downwardly and to the left, as seen in Figure 3. When the grooves 37—37 engage the pin 8 and indentation 10 of the blade is in proper position. However, it does not matter if the blade is not fully inserted. When that is the case, a closure of the handle will bring the pin 22 into engagement with the abutment shoulder 33 on the right-hand side (as seen in Figure 3) of the blade and with the blade edge 36, and force the blade into position.

The modification shown in Figure 8 differs from the section shown in Figure 4 in that here the lug 9 is omitted, and instead the ends of the folded piece of strip metal are pinched together at the end of the slot, as indicated at 40, and may be welded.

In compliance with the requirements of the patent statutes, I have shown and described a preferred embodiment of my invention. It is, however, to be understood that the invention is not limited to the precise construction shown, the same being merely illustrative. What I consider new, and desire to secure by Letters Patent is:

1. A tool comprising a razor blade holder and a combined guard and handle pivoted together, the holder comprising a metal strip folded upon itself so that its opposite longitudinal edges define a narrow longitudinally-extending blade receiving slot into which a razor blade of wafer form may be inserted and against which the edges of the folded strip exert a spring pressure, a blade of wafer form in said holder, means for limiting the extent of insertion of the blade into the slot, the guard and handle comprising a second strip of metal folded upon itself so that its opposite longitudinal edges define a longitudinally-extending slot wide enough to embrace the blade receiving edge of the holder, the handle being swingable from a position substantially in alignment lengthwise of the holder to a position embracing the blade receiving edge of the holder, and means associated with the handle for forcing the blade into its fully inserted position in the holder as the handle is swung into a position embracing the holder.

2. A tool comprising a razor blade holder and a combined guard and handle pivoted together, the holder comprising a metal strip folded upon itself so that its opposite longitudinal edges define a narrow longitudinally-extending blade receiving slot into which a razor blade of wafer form may be inserted and against which the edges of the folded strip exert a spring pressure, a blade of wafer form in said slot, one longitudinal edge of the blade constituting a cutting edge, and the opposite longitudinal edge being a non-cutting edge and having at least one pin receiving indentation, said blade having cut-away portions disposed endwise of its cutting edge and defining abutment shoulders, means on the handle for forcing an abutment shoulder of the blade into its fully inserted position, and means for limiting the extent of insertion of the blade into the holder.

3. A tool comprising a razor blade holder and a combined guard and handle pivoted together, the holder comprising a metal strip folded upon itself so that its opposite longitudinal edges define a narrow longitudinally-extending blade receiving slot into which a razor blade of wafer form may be inserted and against which the edges of the folded strip exert a spring pressure, a blade of wafer form in said slot, one longitudinal edge of the blade constituting a cutting edge, and the opposite longitudinal edge being a non-cutting edge and having at least one pin receiving indentation, said blade having cut-away portions disposed endwise of its cutting edge and defining abutment shoulders, means for limiting the extent of insertion of the blade into the holder, said means comprising at least one rivet pin extending through the folded strip and against which the pin receiving indentation bears, the edges of the folded strip being held together at one end of the slot and cooperating with one of the abutment shoulders of the blade for holding the blade against retraction outwardly at that end of the slot, a sliding cam mounted and movable in grooves in the folded strip adjacent the opposite end of the slot and bearing against the two outer ends of the folded strip for pinching the folded strip together, the guard and handle comprising a second strip of metal folded upon itself

so that its opposite longitudinal edges define a longitudinal slot wide enough to embrace the blade receiving edge of the holder, the handle being swingable from a position substantially in alignment lengthwise of the holder to a position embracing the blade receiving edge of the holder, and means associated with the handle and bearing against an abutment shoulder of the blade for forcing the blade into its fully inserted position in the holder as the handle is swung into a position embracing the holder.

GEORGE SWEND MADSEN.