Sept. 20, 1966 W. H. CHAMBERS 3,273,191

KNIFE IMPLEMENT

Filed May 21, 1964

Fig. 1.

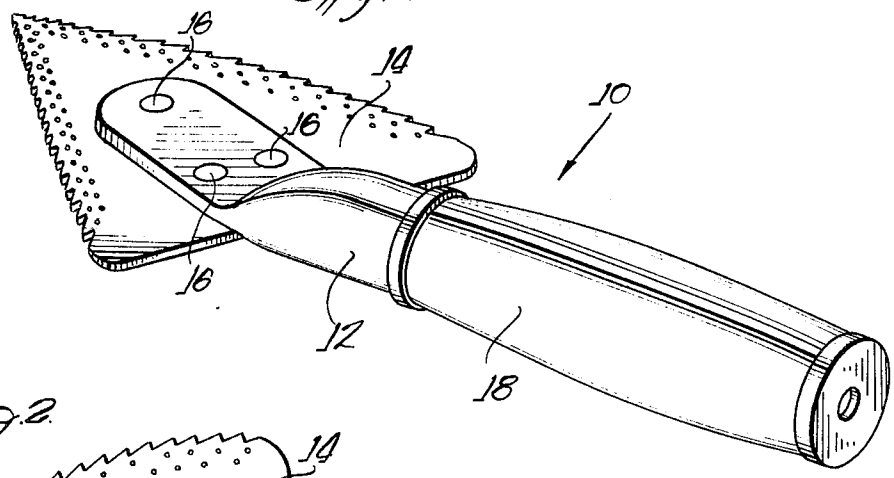


Fig. 2.

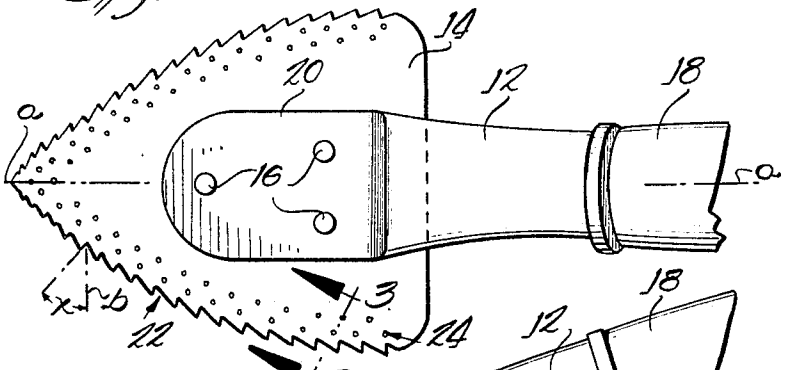


Fig. 3.

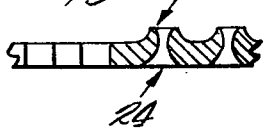


Fig. 4.

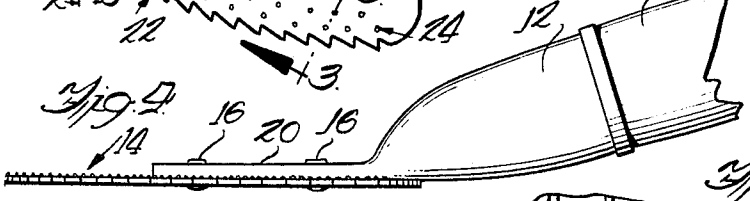


Fig. 5.

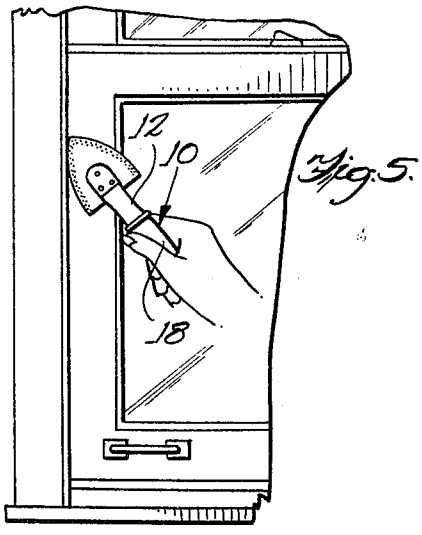
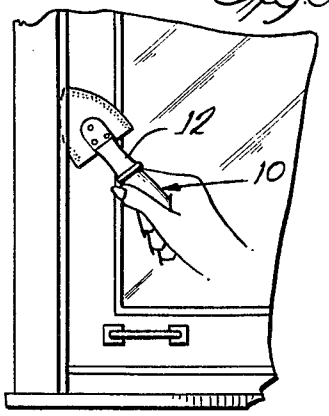


Fig. 6.



Inventor
William H. Chambers
Dominik & Stein
Attorneys

United States Patent Office 3,273,191 Patented Sept. 20, 1966

3,273,191

KNIFE IMPLEMENT

William H. Chambers, 5457 N. Artesian, Chicago, Ill.

Filed May 21, 1964, Ser. No. 369,077
9 Claims. (Cl. 15—105)

This invention relates to an improvement in a knife implement, of the type which may be used advantageously in opening windows or the like.

It is generally found that after painting or varnishing a window sash, the window is sealed shut by the paint or varnish, or is at leat difficult to open. A window may also become difficult to open due to warpage of the window and/or the window sash. Knife implements have been devised for freeing stuck windows, however, none of them, for one reason or another, have been entirely satisfactory. Accordingly, it is the principal object of this invention to provide an improved knife implement for freeing windows which are sealed shut, or made difficult to open, by reason of paint or the like entering the crack between the window and the window sash, or by reasons of the window and/or the window sash being slightly warped.

In freeing windows, it is generally necessary to work in cramped areas, such as in the corners of the windows. Hence, it is a further object of the invention to provide an improved knife implement which allows convenient and effective usage in cramped areas, such as in the corners of the window.

It is still another object of the invention to provide an improved knife implement for opening windows or the like which has a self-wedging action.

It is a still further object to provide an improved knife implement which is effective to both open the seal between the window and the window sash and to clean the paint out of the crack between the window frame and the window sash.

It is still another object of the invention to provide an improved knife implement of the above described type which is of simple construction so that manufacturing costs are minimized, and which is of relatively light material and of sturdy construction.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

Briefly, the knife implement, or window opening knife **10**, of the present invention comprises a flat, substantially arrow-head shaped blade **14** having a plurality of hook-like teeth **22** of increasing size and angular disposition formed along the opposite sides thereof and a plurality of upstanding circular cutting perforations **24** formed therein adjacent the teeth. This construction, as will be more fully described hereinafter, provides a window opening knife which is self-wedging because of the reverse hook-like disposition of the teeth, and which is effective to both open the seal, and to clean out the paint in the crack, between the window frame and the window sash.

The invention accordingly comprises an article of manufacture possessing the features, properties and relation of elements which will be exemplified in the article hereinafter described, and the scope of the invention will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawing, in which:

FIG. 1 is a perspective view of a window opening knife exemplary of the present invention;

FIG. 2 is a top plan view of the window opening knife, with a portion of the handle cut away;

FIG. 3 is a sectional view taken along lines **3—3** of FIG. 2;

FIG. 4 is a side plan view of the window opening knife, with a portion of the handle cut away;

FIG. 5 is a pictorial view illustrating how the window opening knife is used during a first operation, to open the seal between a window frame and a window sash; and

FIG. 6 is a pictorial view illustrating how the window opening knife is used during a second operation to clean out the paint in the crack between the window frame and the window sash by sanding operation.

Similar reference characters refer to similar parts throughout the several views of the drawing.

Referring now to the drawing, a window opening knife **10** exemplary of the present invention is shown comprising a tubular shaped handle **12** having a flattened portion **20** on one end thereof to which is attached by means of rivets **16** or the like, a substantially arrow-head shaped blade **14**.

The flattened portion **20** facilitates fastening the blade **14** to the handle **12**, and provides a flat support for the blade **14** so that it may be held flat against the surface of a window sash. For this latter purpose, the flattened portion **20** is preferably disposed at an angle of approximately 30° to the gripping portion of the handle so that a person can easily hold the blade **14** flat against the window without striking his knuckles. A rubber or vinyl grip **18** can be provided on the handle **12**.

The blade **14** has a plurality of teeth **22** formed along the two tapering edges thereof and a plurality of perforations **24** which project upwardly on the top side of the blade **14**, adjacent to the teeth **22**.

The teeth **22**, as may be best seen in FIG. 2, progressively increase in size, as the edge of the blade **14** is traversed reawardly, from its tip. Also, the cutting portion, or base, of the teeth **22** are angularly disposed with respect to a plane, indicated by the line *b*, extending perpendicular to the axis *a—a* of the knife **10**. The angular disposition is represented by the angle *x* and it may be noted that the angle *x* varies from an angle of approximately 90° to 0° as the edges of the blade **14** are traversed rearwardly from the tip of the blade. This construction results in a blade which tends to wedge itself in the crack between a window frame and a window sash, as the blade is drawn downwardly with the teeth **22** pressed lightly against the crack, in a manner described more fully hereinafter.

The larger teeth **22** which are angularly disposed at a smaller angle *x* have a far greater self-wedging action than the smaller teeth **22** which are angularly disposed at a larger angle *x*. The blade **14** can therefore be started in the crack more easily, by first drawing the smaller teeth along the edge of the crack, in the manner described below.

The blade **14** being pointed allows the window opening knife **10** to be worked into the corners of the window. Also, since the self-wedging action of the teeth **22** near the tip of the blade **14** is not as great, for the reasons set forth above, the blade can be easily drawn downwardly in the crack between the window frame and the window sash. Without this construction, it would be extremely difficult to place the tip of the blade **14** into a corner of a window and to draw the window opening knife **10** downwardly, since the teeth would immediately draw or wedge the blade **14** in the crack, causing it to stick or bind.

The perforations **24** adjacent to the teeth **22** are stamped in a manner such that upstanding circular cutting portions **25**, which may be best seen in FIG. 3, are formed in the upper surface of the blade **14**. These perforations **24**, that is, the upstanding circular cutting portions **25**, operate much as sandpaper and function to clean out the paint in the crack between the window frame and the window sash.

Referring now to FIGS. 5 and 6, the method in which the window opening knife **10** is used can be seen and easily understood. The window opening knife **10** is gripped by its handle **12** and positioned with the blade **14** flat against the surface of the window sash and with the teeth **22** butting against the edge of the window frame. Initially, the window opening knife **10** is preferably held at an angle, as illustrated in FIG. 5, so that the teeth **22** near the tip of the blade **14** are butted against the window frame since, as previously stated, the self-wedging action of the teeth **22** is not as great on this portion of the blade **14**. The window opening knife **10** is then drawn downwardly, with the bottom of the blade **14** flat against the surface of the window sash, and the handle **12** simultaneously turned towards the window frame so that the teeth **22** near the base of the blade **14** are engaged in the crack between the window frame and the window sash. As the window opening knife **10** is drawn downwardly in this fashion, the self-wedging action of the teeth **22** will draw the blade **14** into the crack between the window frame and the window sash, to open the seal.

After the seal has been opened, the window opening knife **10** is positioned in the same manner as described above and drawn downwardly while sufficient force is applied to wedge the blade **14** into the crack between the window frame and the window sash to force the perforations **24** into the crack, as shown in FIG. 6. When the window opening knife **10** is drawn downwardly with the blade **14** in the crack, the upstanding circular portions **25** of the perforations **24** operate much as sand paper to remove the paint or the like in the crack between the window frame and the window sash.

The above described operations can be repeated continuously until the seal is opened and the paint removed so that the window may be easily opened.

It is, of course, evident that both of the above described operations can be performed simultaneously, by applying sufficient force during the downward stroke to both open the seal and to wedge the perforations **24** into the crack between the window frame and the window sash.

The blade **14** is removed from the crack by merely reversing the direction of the stroke, that is, the blade **14** is drawn upwardly tip first, and by simultaneously urging the blade out of the crack. This is easily accomplished since the teeth **22** do not tend to wedge the blade **14** into the crack when moved in this fashion. The blade **14** can likewise be removed by rotating the handle **12** away from the window frame at the end of the downward stroke so that only the smaller teeth **22** near the tip of the blade are wedged in the crack. The blade **12** can then be easily removed since the wedging action of these smaller teeth, as previously explained, is not great.

The perforations **24** are formed in the blade **14** by stamping or the like, and preferably have a diameter which is slightly larger than three times the thickness of the blade, the blade being approximately .010" thick, so that the upstanding circular portions **25** will project above the surface of the blade **14** a distance slightly larger than the clearance normally required between a window frame and a window sash in order that the window may be easily opened. The perforations **24**, or the upstanding circular portions **25**, therefore project above the surface of the blade **14** just a sufficient distance to sandingly engage the under surface of the window frame, but not to engage the under surface so as to damage the facing of the window frame as the blade is wedged into, or removed from, the crack.

The perforations **24** are also aligned in rows adjacent to the teeth **22** at a distance from the edge of the blade slightly less than the overlap of the window frame over the window sash, so that the perforations can be wedged completely into the crack between the window frame and the window sash. The perforations are preferably spaced

apart a distance approximately equal to three times the diameter of the perforations, and the rows are preferably spaced apart a distance approximately equal to the diameter of the perforations and are staggered, or offset, with respect to one another so that the perforations in one row are centered between the perforations in the succeeding row. Aligned and spaced in this fashion, the upstanding circular portions **25** of the perforations **24** provide spaces, or pockets, for collecting the paint removed from the window and the window sash, so that it may be removed from the crack. If the paint is allowed to remain in the crack, it would eventually cause the window sash to again bind.

It may also be noted that the window opening knife **10** can be used to free the window if it is binding due to the fact that it is slightly warped or swollen from dampness. The blade **14** of the window opening knife **10** is wedged into the crack between the window frame and the window sash in the manner described above, and the perforations **24** on the blade **14** can be used to sand the window frame to remove slight irregularities due to warpage or swelling.

While the invention has been shown and described as it is used to free windows, it is evident that it may also be used to free similar structures, such as sliding tops or the like on articles of furniture. The invention is therefore not to be limited to the described application.

It will thus be seen that the objects set forth above, among those made apparent from the preceding description, are efficiently obtained and, since certain changes may be made in the above article without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawing, shall be interpreted as illustrative and not a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention, which, as a matter of language, might be said to fall therebetween.

Now that the invention has been described, what is claimed as new and desired to be secured by Letters Patent is:

1. A blade for a knife implement having a pointed tip and at least two edges which taper outwardly in opposite directions from said tip; a plurality of teeth on each of said edges, said teeth progressively increasing in size as the edges of said blade are rearwardly traversed from said tip and angularly disposed with respect to a plane perpedicular to the axis of said blade, with the angle being progressively decreased as the edge of said blade is rearwardly traversed from said tip; and a plurality of perforations providing uprising tips on one side of said blade formed in said blade along said edges adjacent to said teeth.

2. A blade for a knife used for opening the seal resulting from paint or the like in the crack between a window frame and a window sash and for removing said paint, said blade being flat and having at least two edges which taper to a point; a plurality of teeth on each of said edges, said teeth progressively increasing in size as the edges of said blade are rearwardly traversed from said point; said teeth also being angularly disposed with respect to a plane perpendicular to the axis of said knife, with the angle being progressively decreased as the edge of said blade is rearwardly traversed from said point; and a plurality of perforations providing uprising tips on one side of said blade formed in said blade along said edges adjacent to said teeth.

3. A window opening knife for opening the seal resulting from paint or the like in the crack between a window frame and a window sash and for removing said paint comprising: a flat blade; a support connected to said blade for holding said blade flat against the surface of said window; said blade being pointed and having at

least two edges which taper outwardly in opposite directions, a plurality of teeth on each of said edges, said teeth progressively increasing in size as the edges of said blade are rearwardly traversed from the point of said blade, said teeth also being angularly disposed with respect to a plane perpendicular to the axis of said support with the angle being progressively decreased as the edge of said blade is rearwardly traversed from the point of said blade; and a plurality of perforations providing uprising tips on one side of said blade formed in said blade along said edges adjacent to said teeth.

4. A window opening knife for opening the seal resulting from paint or the like in the crack between a window and a window sash and for removing said paint comprising: a flat blade; a tubular shaped handle for supporting said blade, said handle having a flattened portion on one end thereof to which said blade is connected, said flattened portion of said handle being angularly disposed with respect to the remaining portion of said handle to allow said blade to be held flush against the surface of said window sash; said blade being pointed and having at least two edges tapered outwardly in opposite directions, a plurality of teeth formed in each of said edges, and a plurality of perforations adjacent said teeth providing upstanding tips on one side of said blade.

5. A window opening knife for opening the seal resulting from paint or the like in the crack between a window frame and a window sash and for removing said paint comprising a flat blade; a tubular shaped handle for supporting said blade, said handle having a flattened portion on one end thereof to which said blade is connected, said flattened portion of said handle being angularly disposed with respect to the remaining portion of said handle to allow said blade to be held flush against the surface of said window sash; said blade being pointed and having at least two edges tapered outwardly in opposite directions, a plurality of teeth formed in each of said edges, said teeth progressively increasing in size as the edges of said blade are rearwardly transversed from said point; said teeth also being angularly disposed with respect to a plane perpendicular to the axis of said blade, with the angle being progressively decreased as the edge of said blade is rearwardly traversed from said tip; and a plurality of perforations providing uprising tips on one side of said blade formed in said blade along said edges adjacent to said teeth.

6. A knife implement comprising: a flat blade; a support connected to said blade for holding said blade flat

against a surface; said blade being pointed and having at least two edges tapered outwardly in opposite directions a plurality of teeth formed in each of said edges, said teeth progressively increasing in size as the edges of said blade are rearwardly transversed from said point; said teeth also being angularly disposed with respect to a plane perpendicular to the axis of said knife, with the angle being progressively decreased as the edge of said blade is rearwardly traversed from said point; and a plurality of perforations providing uprising tips on one side of said blade formed in said blade along said edges adjacent to said teeth.

7. A knife implement, as claimed in claim 6, wherein the angular disposition of said teeth varies from approximately 90° to 0° as the edges of said blade are rearwardly transversed from said point of said blade.

8. A blade, as claimed in claim 1, wherein said plurality of perforations each have a diameter substantially equal to three times the thickness of the blade, and wherein said uprising tips project upward on one side of said blade a distance slightly greater than the clearance normally required between a window frame and a window sash, to allow the window to be easily opened.

9. A blade, as claimed in claim 8, wherein said plurality of perforations are aligned in rows adjacent said teeth and are spaced apart a distance substantially equal to three times the diameter of said perforations, and wherein said rows are spaced apart a distance substantially equal to the diameter of said perforations and are off-set with respect to one another so that said perforations in one row are centered between said perforations in a succeeding row.

References Cited by the Examiner

UNITED STATES PATENTS

414,908	11/1889	Hirschel.	
1,379,973	5/1921	Gillespie	30—355
1,710,039	4/1929	Bauer	30—355
1,787,057	12/1930	Ward	30—317
2,343,616	3/1944	Kay	30—315
2,568,012	9/1951	Le Boeuf	15—236

FOREIGN PATENTS

853,805	11/1960	Great Britain.

WILLIAM FELDMAN, *Primary Examiner.*

G. WEIDENFELD, *Assistant Examiner.*