

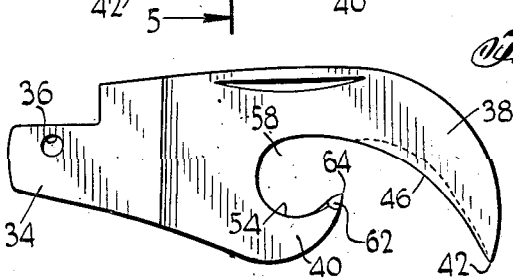
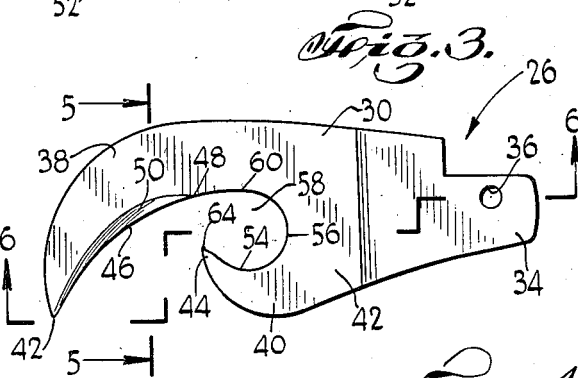
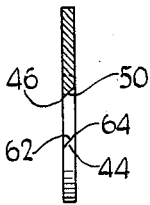
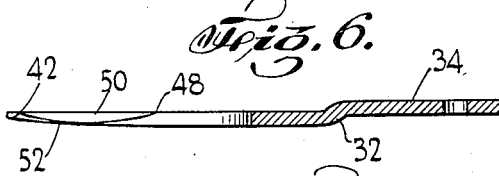
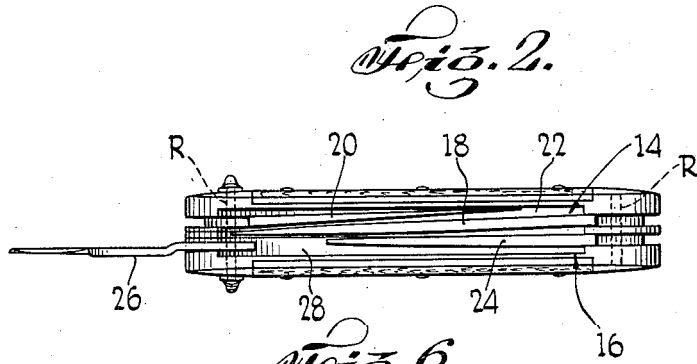
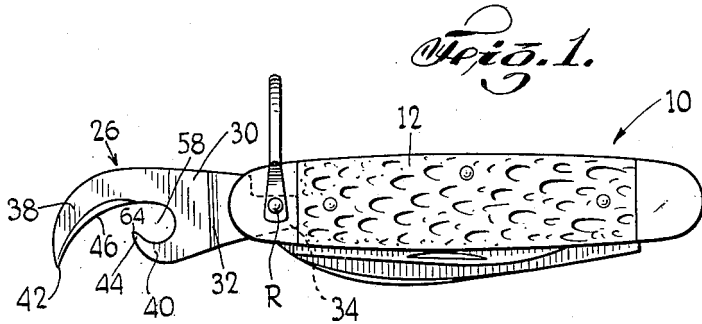
Dec. 25, 1945.

M. A. MIRANDO

2,391,732

CAN OPENER

Filed Nov. 7, 1944



INVENTOR.

MICHAEL F. MIRANDO

BY

Elyon Hirschman
ATTORNEY

UNITED STATES PATENT OFFICE

2,391,732

CAN OPENER

Michael A. **Mirando**, Providence, R. I., assignor to
Imperial Knife Company, **Inc.**, Providence,
R. I., a corporation of Rhode Island

Application November 7, 1944, Serial No. 562,289

11 Claims. (Cl. 30—22)

This invention relates to can openers and, more particularly, to flat can openers which, like knife blades, can be mounted for folding into the handles of general utility pocket knives.

One of the objects of the invention is to provide a simple, inexpensive and rugged can opener of the character described, having an outline of pleasing appearance and a minimum of sharp points, consistent with efficient operation.

Another object of the invention is to provide a can opener of the character described which will engage and firmly grip a can as it opens the same.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts which will be exemplified in the construction hereinafter described, and of which the scope of application will be indicated in the claim.

In the accompanying drawing, in which is shown one of the various possible embodiments of this invention,

Fig. 1 is a side view of a knife from which there extends a can opener blade embodying the invention;

Fig. 2 is a front view thereof;

Fig. 3 is an enlarged view of one side of the can opener blade as it appears when removed from the knife;

Fig. 4 is a similar view of the other side of said blade; and

Figs. 5 and 6 are sectional views taken substantially along the lines 5—5 and 6—6, respectively, of Fig. 3.

Can openers embodying the invention are essentially flat and are adapted to cut downwardly through a can top and to leave a narrow slit whose exposed edges are smooth. Heretofore, can opener blades of this character were subject to various drawbacks. For example, they were relatively expensive to manufacture, due to the presence of two spaced cutting points which were designed to pierce the can top at the front and back ends of the slit. Another difficulty was that the slits left by the blades were straight, whereas the outlines of can tops were usually circular. Attempts were made to avoid this latter drawback by curving the cutting edges of the blades; but, although this added considerably to the expense of manufacturing the blades, straight slits were still left, since the backs of the blades were straight. Another difficulty was that the fulcrum points tended to shift during cutting, thus giving the user an insecure feeling and requiring additional time and effort to open cans.

The improved can opener, now to be described, obviates all of the foregoing difficulties by employing a cutting edge whose rear end merges

smoothly into the aperture which receives the rim of a can, by curving convexly the outer face of the blade, and by beveling the surface of the can engaging point that faces away from the can and beveling the surface of the cutting edge that faces toward the can.

Referring now in detail to the drawing, 10 denotes a pocket knife, of the type commonly known as a jackknife, which comprises a body 12 of conventional construction including two compartments 14, 16, into which divers blades are adapted to be received in part upon the infolding thereof.

The compartment 14 houses a conventional cutting blade 18 and a reamer blade 20 which are pivotally mounted at opposite ends of the knife on rivets R and are of such construction that the ends of the blades overlap in closed position. A standard resilient block spacer 22 biases these blades to either fully opened or fully closed position, in a manner well known to the art.

The other compartment 16 houses a long screw driver blade 24 and a can opener blade 26, the latter of which is the subject of this invention. Said blades are pivotally mounted at opposite ends of the compartment 16 on the rivets R and are biased to fully open or fully closed position by a second standard resilient block spacer 28. The can opener and screw driver blades likewise overlap in closed position.

Pursuant to the invention, the can opener blade 26 is composed of a single flat piece of strong, tough metal, e. g. steel. This metallic piece comprises a flat body 30 connected by a slight offset

32 to a tang 34 pierced at 36 to receive a rivet R. For convenience, in referring to the positions of various parts of the can opener blade, the following terms as employed hereinafter will have the meanings given below:

Top—the top of the blade as viewed in Fig. 3;
Bottom—the bottom of the blade as viewed in Fig. 3;

Upwardly—towards the top of the blade;
Downwardly—towards the bottom of the blade;

Front—the left end of the blade as viewed in Fig. 3;

Rear—the right end of the blade as viewed in Fig. 3;

Below—a point lower than another point on the blade when the blade is held in the position shown in Fig. 3;

Front side—the side of the blade shown in Fig. 3;

Back side—the side of the blade shown in Fig. 4;

Outwardly—in a direction from the front side to the back side of the blade;

Inwardly—in a direction opposite to outwardly.

The body of the can opener blade includes two coplanar arms 38, 40, which extend away from a base 42 adjacent the offset 32. The cutting

arm 38 is considerably longer than the can engaging arm 40, and both arms are curved toward each other (see (Fig. 3), the cutting arm 38 being topmost and curving downwardly toward its tip 42 and the can engaging arm 40 being bottom-most and curving upwardly toward its tip 44. Said arms are curved to such an extent that the tip of the cutting arm 38 is disposed considerably below the tip of the can engaging arm 40. This enables the cutting stroke to be terminated when the knife is about horizontal and does not require the knife to be raised to a position wherein the body 12 extends substantially upwardly from the rivet R on which the can opener blade is pivoted. It is pointed out that a hand is cramped when moving a knife to the latter position.

The cutting edge 46 is formed along the bottom edge of the cutting arm, 38. Said cutting edge extends rearwardly from the tip 42 and may have a lateral profile which is concave downwardly from said tip to the rear 48 of the cutting edge, as shown in Fig. 3. The cutting edge is formed by providing a bevel 50 on the front side of the blade.

The back side of the blade is outwardly convexly curved from the front of the blade to near the rear of the cutting edge, as shown in Fig. 6, said curved portion being denoted by the numeral 52. As a result of this curvature, the outer edge of the slit in a can top cut by the can opener blade 26, i. e. the edge of the slit closest to the rim of the can, will be curved to approximately conform to the curved contour of the can. The inner edge of the slit will remain straight since the front side of the blade 26 is plane. However, this is not important, since the portion of the can top defined by the inner edge of the slit is either lifted out of the plane of the can top or, entirely removed from the can.

The top edge 54 of the can engaging arm, 40 may be upwardly, concavely curved and merges smoothly and unbrokenly into the rear edge 56 of a frontwardly-opening aperture 58 in which the rim of a can is adapted to be freely received. Said aperture is disposed between the arms 38, 40, and its top edge 60 merges smoothly and unbrokenly into the rear 48 of the cutting edge 46, thereby eliminating a second point on the cutting edge. The aperture 58 may form a smooth and continuously curved opening so that the blade will have a pleasing appearance and permit the rim of a can to pass evenly and freely there-through.

The tip 44 of the can engaging arm has a bevel 62 on the back side of the blade which causes the point 64 of said tip to be located at the front side of the blade and thus be disposed inwardly of the cutting edge 46. In use of the blade, the point 64 will be disposed outside of the rim of a can and the cutting edge 46 inside of said rim. When a blade of the construction described is placed in such position, it will be tilted out of a vertical plane. As a result, the righting couple, automatically developed during operation, will force the point 64 against the outside of the rim of a can and at the same time force the cutting edge 46 against the inside of the rim of a can. This causes the Point 64 to firmly grip the can rim and the cutting-edge 46 to closely follow the can rim.

It will thus be seen that there is provided a device in which the several objects of this invention are achieved, and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawing is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A can opener of the type which is adapted to cut downwardly through a can top and leave a narrow slit whose exposed edges are smooth, said can opener comprising a base having a cutting arm and a spaced coplanar can engaging arm both extending frontwardly therefrom, said cutting arm being longer than said can engaging arm and the arms being spaced apart adjacent said base to provide a frontwardly opening aperture between said two arms in which the rim of a can is adapted to be freely received, both of said arms being curved toward each other, said cutting arm being topmost and curving downwardly and said can engaging arm curving upwardly, said arms being curved to such an extent that the tip of the cutting arm is considerably below the tip of the can engaging arm so as to enable a cutting stroke of the can opener to be terminated when the can opener is about horizontal, the bottom edge of said cutting arm being beveled on the front side of the can opener to provide a cutting edge, said cutting edge being concave downwardly and merging at its rear end smoothly and unbrokenly into the top-edge of said aperture, the back side of the blade being outwardly convexly curved from the front of the blade to near the rear of the cutting edge to impart to the outer edge of the slit a curved configuration approximately conforming to the curved contour of the can, the tip of the can engaging arm having a bevel on the back side of the blade so that the point of said can engaging arm is disposed inwardly of the cutting edge whereby a righting couple will be automatically developed during operation of the can opener to cause the point of the can engaging arm to firmly grip the can rim and the cutting edge to closely follow the can rim, said aperture being smoothly and continuously curved to permit the rim of a can to pass evenly and freely therethrough.

2. A can opener of the type which is adapted to cut downwardly through a can top and leave a narrow slit whose exposed edges are smooth, said can opener comprising a base having a cutting arm and a spaced coplanar can engaging arm both extending frontwardly therefrom, said cutting arm being longer than said can engaging arm and the arms being spaced apart adjacent said base to provide a frontwardly opening aperture between said two arms in which the rim of a can is adapted to be freely received, both of said arms being curved toward each other, said cutting arm being topmost and curving downwardly and said can engaging arm curving upwardly, said arms being curved to such an extent that the tip of the cutting arm is considerably below the tip of the can engaging arm so as to enable a cutting stroke of the can opener to be terminated when the can opener is about horizontal, the bottom edge of said cutting arm being beveled on the front side of the can opener to provide a cutting edge, said cutting edge being concave downwardly and merging at its rear end smoothly and unbrokenly into the top edge of said aperture, the back side of the

blade being outwardly convexly curved from the front of the blade to near the rear of the cutting edge to impart to the outer edge of the slit a curved configuration approximately conforming to the curved contour of the can, the tip of the can engaging arm having a bevel on the back side of the blade so that the point of said can engaging arm is disposed inwardly of the cutting edge whereby a righting couple will be automatically developed during operation of the can opener to cause the point of the can engaging arm to firmly grip the can rim and the cutting edge to closely follow the can rim.

3. A can opener of the type which is adapted to cut downwardly through a can top and leave a narrow slit whose exposed edges are smooth, said can opener comprising a base having a cutting arm and a spaced coplanar can engaging arm both extending forwardly therefrom, said cutting arm being longer than said can engaging arm and the arms being spaced apart adjacent said base to provide a frontwardly opening aperture between said two arms in which the rim of a can is adapted to be freely received, the bottom edge of said cutting arm being beveled on the front side of the can opener to provide a cutting edge, said cutting edge being concave downwardly and merging at its rear end smoothly and unbrokenly into the top edge of said aperture, the back side of the blade being outwardly convexly curved from the front of the blade to near the rear of the cutting edge to impart to the outer edge of the slit a curved configuration approximately conforming to the curved contour of the can, the tip of the can engaging arm having a bevel on the back side of the blade so that the point of said can engaging arm is disposed inwardly of the cutting edge whereby a righting couple will be automatically developed during operation of the can opener to cause the point of the can engaging arm to firmly grip the can rim and the cutting edge to closely follow the can rim.

4. A can opener of the type which is adapted to cut downwardly through a can top and leave a narrow slit whose exposed edges are smooth, said can opener comprising a base having a cutting arm and a spaced coplanar can engaging arm both extending forwardly therefrom, said cutting arm being longer than said can engaging arm and the arms being spaced apart adjacent said base to provide a frontwardly opening aperture between said two arms in which the rim of a can is adapted to be freely received, the cutting edge running along the bottom edge of said cutting arm, said cutting edge being concave downwardly and merging at its rear end smoothly and unbrokenly into the top edge of said aperture, the back side of the blade being outwardly convexly curved from the front of the blade to near the rear of the cutting edge to impart to the outer edge of the slit a curved configuration approximately conforming to the curved contour of the can.

5. A can opener of the type which is adapted to cut downwardly through a can top and leave a narrow slit whose exposed edges are smooth, said can opener comprising a base having a cutting arm and a spaced coplanar can engaging arm both extending forwardly therefrom, said cutting arm being longer than said can engaging arm and the arms being spaced apart adjacent said base to provide a frontwardly opening aperture between said two arms in which the rim of a can is adapted to be freely received, a

cutting edge running along the bottom edge of said cutting arm, said cutting edge merging at its rear end smoothly and unbrokenly into the top edge of said aperture, the back side of the blade being outwardly convexly curved from the front of the blade to near the rear of the cutting edge to impart to the outer edge of the slit a curved configuration approximately conforming to the curved contour of the can.

6. A can opener of the type which is adapted to cut downwardly through a can top and leave a narrow slit whose exposed edges are smooth, said can opener comprising a base having a cutting arm and a spaced coplanar can engaging arm both extending forwardly therefrom, said cutting arm being longer than said can engaging arm and the arms being spaced apart adjacent said base to provide a frontwardly opening aperture between said two arms in which the rim of a can is adapted to be freely received, a cutting edge running along the bottom of said cutting arm, the back side of the blade being outwardly convexly curved from the front of the blade to near the rear of the cutting edge to impart to the outer edge of the slit a curved configuration approximately conforming to the curved contour of the can.

7. A can opener of the type which is adapted to cut downwardly through a can top and leave a narrow slit whose exposed edges are smooth, said can opener comprising a base having a cutting arm and a spaced coplanar can engaging arm both extending forwardly therefrom, said cutting arm being longer than said can engaging arm and the arms being spaced apart adjacent said base to provide a frontwardly opening aperture between said two arms in which the rim of a can is adapted to be freely received, said aperture being an unbroken continuation of the bottom edge of said cutting arm and being smoothly and continuously curved to permit the rim of a can to pass evenly and freely therethrough.

8. A can opener of the type which is adapted to cut downwardly through a can top and leave a narrow slit whose exposed edges are smooth, said can opener comprising a base having a cutting arm and a spaced coplanar can engaging arm both extending forwardly therefrom, said cutting arm being longer than said can engaging arm and the arms being spaced apart adjacent said base to provide a frontwardly opening aperture between said two arms in which the rim of a can is adapted to be freely received, the bottom edge of said cutting arm, having a cutting edge running along the same, said cutting edge merging at its rear end smoothly and unbrokenly into the top edge of said aperture.

9. A can opener of the type which is adapted to cut downwardly through a can top and leave a narrow slit whose exposed edges are smooth, said can opener comprising a base having a cutting arm and a spaced coplanar can engaging arm both extending forwardly therefrom, said cutting arm being longer than said can engaging arm and the arms being spaced apart adjacent

said base to provide a frontwardly opening aperture between said two arms in which the rim of a can is adapted to be freely received, the bottom edge of said cutting arm being beveled on the front side of the can opener to provide a cutting edge, the tip of the can engaging arm having a bevel on the back side of the blade so that the point of said can engaging arm is disposed inwardly of the cutting edge whereby a righting couple will be automatically developed

during operation of the can opener to cause the point of the can engaging arm to firmly grip the can rim and the cutting edge to closely follow the can rim.

10. A can opener of the type which is adapted to cut downwardly through a can top and leave a narrow slit whose exposed edges are smooth, said can opener comprising a base having a cutting arm and a spaced coplanar can engaging arm both extending frontwardly therefrom, said cutting arm being longer than said can engaging arm and the arms being spaced apart adjacent said base to provide a frontwardly opening aperture between said two arms in which the rim of a can is adapted to be freely received, both of said arms being curved toward each other, said cutting arm being topmost and curving downwardly and said can engaging arm curving upwardly, said arms being curved to such an extent that the tip of the cutting arm is considerably below the tip of the can engaging arm so as to enable a cutting stroke of the can opener to be

terminated when the can opener is about horizontal.

11. A can opener of the type which is adapted to cut downwardly through a can top and leave a narrow slit whose exposed edges are smooth, said can opener comprising a base having a cutting arm and a spaced coplanar can engaging arm both extending frontwardly therefrom, said cutting arm being longer than said can engaging arm and the arms being spaced apart adjacent said base to provide a frontwardly opening aperture between said two arms in which the rim of a can is adapted to be freely received, both of said arms extending toward each other, said cutting arm being topmost and extending downwardly and said can engaging arm extending upwardly, the tip of the cutting arm being considerably below the tip of the can engaging arm so as to enable a cutting stroke of the can opener to be terminated when the can opener is about horizontal.

, MICHAEL A. MIRANDO.