

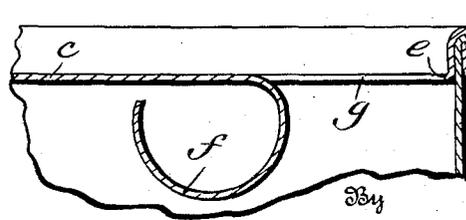
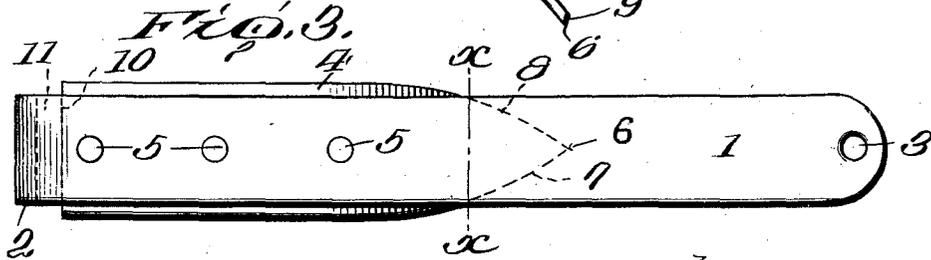
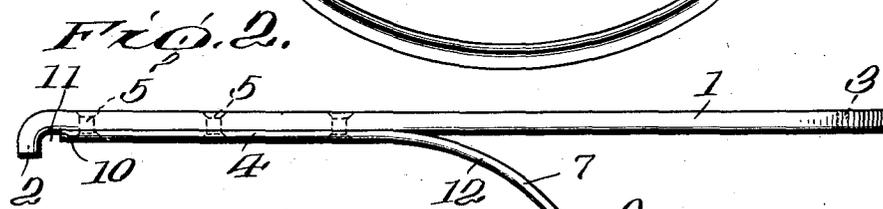
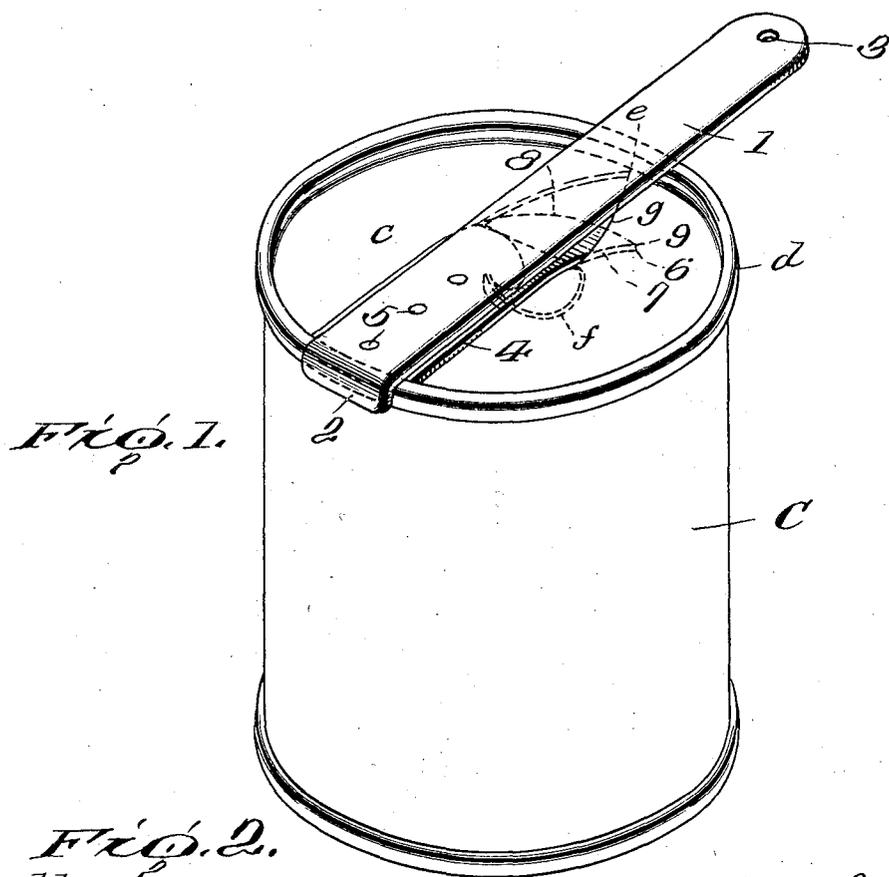
Sept. 8, 1936.

H. SCHRADER

2,053,637

CAN OPENER

Filed Feb. 17, 1933



Inventor

Herbert Schrader

Sturtevant, Mason & Porter
Attorneys

UNITED STATES PATENT OFFICE

2,053,637

CAN OPENER

Herbert Schrader, Wheeling, W. Va., assignor to
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N. Y., a corporation of New York

Application February 17, 1933, Serial No. 657,305

3 Claims. (Cl. 164—119)

The invention relates to new and useful improvements in can openers, and more particularly to a can opener which is adapted to form an opening in the end of a can wherein the metal is severed along diverging lines.

5 An object of the invention is to provide a hand operated metal cutting tool which may be applied to a can so as to provide a leverage for the cutting of the metal and wherein the cutting blade is so disposed and shaped as to cut the metal along diverging lines, rolling inwardly and downwardly the portion of the metal between said lines so as to provide a wide opening through which the contents may be discharged.

15 A further object of the invention is to provide a can opening tool of the above type having an operating handle and a retaining means adapted to engage the double seam of a can, and wherein the cutting blade is so disposed as to sever the end of the can beginning at a point adjacent the double seam and leading inwardly along diverging lines.

In the drawing, which shows by way of illustration one embodiment of the invention:

25 Figure 1 is a perspective view showing a can opener embodying the invention as applied to a can and having been manipulated for forming an opening in the can end.

Figure 2 is a side view of the can opening tool.

Figure 3 is a top plan view of the same.

30 Figure 4 is a sectional view through the can and the opening formed by the can opening device.

The improved can opening tool consists of a bar having a handle portion and a retaining means adapted to engage the double seam of a can. This serves as an actuating means for manipulating the cutting blade to sever the metal. The cutting blade is rigidly attached to the bar and is shaped so as to provide a piercing point disposed midway between the ends of the bar and spaced therefrom so that when the retaining means is applied to the double seam, the cutter bar may be held by hand thereagainst and used as a lever for forcing the cutting blade through the metal. This cutting blade has a cutting edge which recedes from the piercing point toward the bar and the retaining means.

Referring more in detail to the drawing, the improved can opening device includes a cutter bar 1 having one end thereof bent downwardly as indicated at 2, thus forming a hook end. The cutter bar otherwise is substantially straight from one end to the other and is provided with an opening 3 at the handle end thereof which may

be inserted onto a supporting means when the cutting tool is not in use.

Attached to the under side of the cutter bar is a blade 4, said blade as shown being slightly wider than the cutter bar. The relative dimensions of the cutter bar and blade, however, are not important. The bar should be of sufficient width so as to provide a rigid cutter bar, while the blade is of proper width to provide the desired width of opening in the can end. Said blade is secured to the cutter bar by screws or bolts 5, 5. It may be attached in any suitable way so as to provide a rigid connection between the blade and the cutter bar.

The cutting blade toward its free end tapers so as to provide a piercing point 6. The tapered edges 7 and 8 are preferably curved outwardly slightly from the center line of the bar. The blade is also curved downwardly from the line $x-x$ to the piercing point and this curve is so dimensioned that the inner face of the piercing point extends generally in an upward or nearly vertical direction. The outer edge 9 of the piercing point likewise extends upwardly and nearly vertical so as to provide a piercing point of sufficient strength to pierce the metal of the can end. The rear end 10 of the cutting blade is spaced away from the hook end 2 of the cutter bar so as to provide a recess 11 serving as a retaining means for engagement with the double seam of the can. This space is dimensioned so that when the cutter bar is placed on the double seam it will freely engage the double seam but will have a restricted movement in a direction lengthwise of the cutter bar. The side edges 7 and 8 of the cutting blade are substantially vertical, thus providing a sharp cutting edge 12 at the lower face of the cutting blade. The cutting edges 12 recede from the point toward the cutter bar and also toward the retaining means. From the above it will be apparent that the cutting blade is provided with a curved underface extending from a direction lengthwise of the operating member to a direction at an angle thereto at its outer end, and that the cutting edges are so disposed that any plane at right angles to the bar and passed at any point of the curved end will trace a straight line including the cutting edges and the body of the blade. This enables the end to be cut along diverging lines and the metal between the lines contacting with the curved underface will be progressively rolled downwardly into the container and away from the opening formed in the end of the container.

The cutting blade is so proportioned that when

the retaining means of the cutter bar is placed on the double seam, the piercing point will contact with the can end adjacent the double seam at a point diametrically opposed to the point where the retaining means engages the double seam. The operator places one hand directly above the retaining means and holds the cutter bar rigidly against the double seam. The other hand is placed on the handle end of the bar and the cutter bar pressed down. This will cause the piercing point to penetrate the end of the can, and the cutting edges 12 sever the metal along diverging lines leading inwardly toward the center of the can. These lines, however, are spaced and the space between the lines gradually increases for the purpose of producing a relatively large opening. The curvature and the angle of the cutting edges 12 relative to each other may be greatly varied from that shown in the drawing. As the cutter bar is moved toward the can end, the metal will be progressively cut by the receding edges 12 of the cutting blade. At the same time that the metal is cut, the portion between the severing lines will be curled, and the curl will gradually continue to form as the cutting lines are formed. The result is that the metal between these severing lines is curled downwardly and inwardly away from the opening thus leaving the opening free for the discharge of the contents of the can.

In Figures 1 and 2 of the drawing, the can is illustrated at C. The end which is to be cut is indicated at c and the double seam adjacent which the end is penetrated is indicated at d. When the cutter is applied to the can, the metal is penetrated at the point e and the part cut away, indicated at f, is curled downwardly and inwardly and thus leaves an opening g which is unobstructed, and through which the contents may be dispensed. It will also be noted that the cutter penetrated the metal close to the double seam and the body wall of the container. When the cutter swings about the retaining means as a center, it can be so proportioned as to cut very close to the inner wall of the double seam, and this has the advantage that the opening when formed extends so close to the body wall that the entire contents may be emptied from the container through the opening by a tilting of the container to the usual pouring angle.

It will be obvious that the cutting blade may be otherwise formed and attached to the cutter bar. It is essential, however, that it shall be so shaped as to pierce the metal and then sever the same along diverging lines, rolling back the part of the metal between the lines where it is severed so as to make a very wide opening through which the contents may be dispensed.

Having thus described the invention, what I claim as new and desire to secure by Letters-Patent, is—

1. A can opener comprising an operating member having a handle portion and a portion adapted to engage the double seam of a container, said operating member having a cutting blade rigid therewith, said cutting blade being shaped so as

to provide a curved under face extending from a direction lengthwise of the operating member to a direction at an angle thereto at its outer end, said cutting blade terminating in a penetrating point disposed intermediate the handle portion and the engaging portion and having diverging cutting edges so disposed that any plane at right angles to the bar and passed at any point of the curved end of the blade will trace a straight line including the cutting edges and the body of the blade, whereby the container end may be penetrated and cut along diverging lines, said curved underface being disposed at a sufficient distance from said seam contacting portion to bring about cutting engagement with the metal between said diverging lines, for rolling the same downward into the can and away from the opening formed in the end thereof.

2. A can opener comprising an operating member having a handle portion at one end thereof and a portion adjacent the other end thereof adapted to engage the double seam of a can, said operating member having a cutting blade rigid therewith, said cutting blade being disposed and shaped so as to provide a curved under face extending from a direction lengthwise of the operating member to a direction at an angle thereto at its outer end, said cutting blade terminating in a penetrating point adapted to penetrate the can end and having widely diverging independent cutting edges for cutting the metal along lines which intersect and diverge from each other, said cutting edges being so disposed that any plane at right angles to the bar and passed at any point of the curved end of the blade will trace a straight line including the cutting edges and the body of the blade, said curved under face being disposed at a sufficient distance from said seam contacting portion to bring about cutting engagement with the metal between said lines for rolling the same downwardly into the can and away from the opening formed in the end thereof.

3. A can opener comprising an operating member having a handle portion at one end thereof and a portion adjacent the other end thereof adapted to engage the double seam of a can, said operating member having a cutting blade rigid therewith and positioned so as to engage the can end adjacent the double seam at the side opposite that engaged by the operating member, said cutting blade being disposed and shaped so as to provide a curved under face extending from a direction lengthwise of the operating member to a direction at an angle thereto at its outer end, said cutting blade terminating in a penetrating point adapted to penetrate the can end and having diverging cutting edges so disposed that any plane at right angles to the blade and passed at any point through the curved blade will trace a straight line including the cutting edges and the body of the blade, said curved under face engaging the metal between said lines for rolling the same downwardly into the can and away from the opening formed in the end thereof.

HERBERT SCHRADER.

April 14, 1936.

E. G. MASON

2,037,036

CAN PIERCING DEVICE

Filed June 24, 1933

FIG. 1.

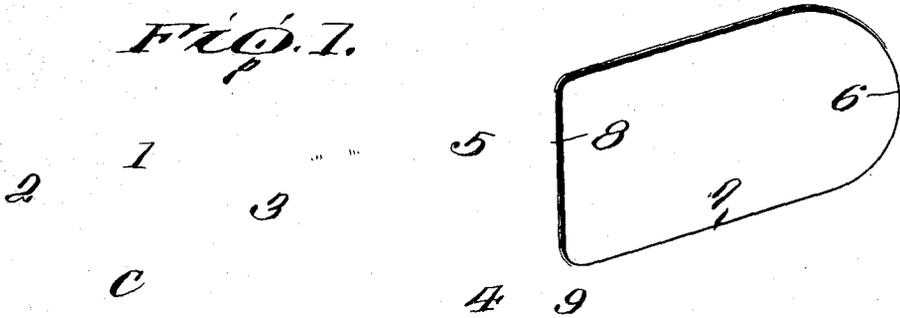


FIG. 2.

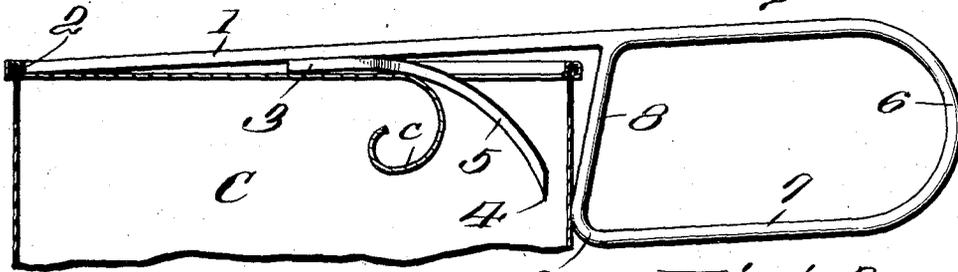


FIG. 3.

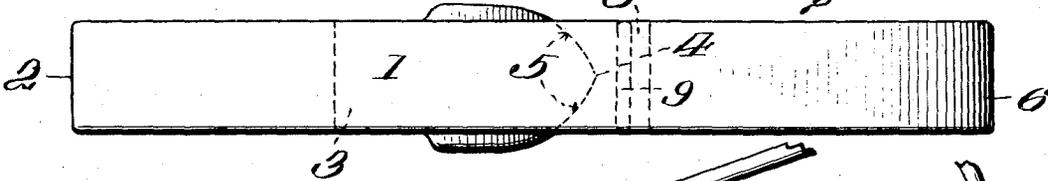


FIG. 4.

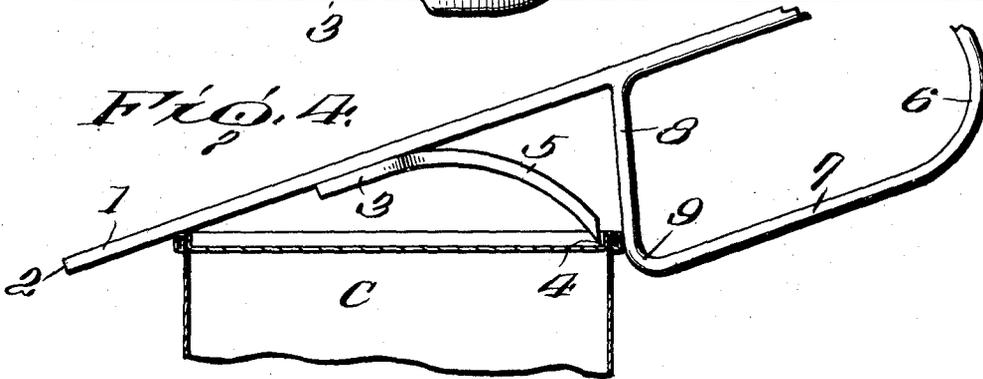


FIG. 5.



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2,037,036

CAN PIERCING DEVICE

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N. Y., a corporation of New York

Application June 24, 1933, Serial No. 677,488

1 Claim. (Cl. 164—119)

In the application filed by Herbert Schrader, February 17, 1933, Serial No. 657,305, there is shown and described a can piercing device in the form of a hand tool having between the ends thereof a cutter which includes a piercing point and cutting edges receding therefrom toward the end of the hand tool. In operation, the end of the hand tool is placed in contact with the double seam which locates the piercing point of the cutter adjacent the double seam at a diametrically opposed point, so that the opening is formed close to the double seam.

The present invention has to do with an improvement in the can piercing device of the Schrader application, and has for its object to provide a tool of the character shown in said application which can be used on containers of different diameters for forming an opening therein adjacent the double seam.

A further object of the invention is to provide a tool of the above character with means for protecting the hand of the operator from contacting with the piercing point of the cutter when handling the tool, and with means for locating the piercing point relative to the double seam so that the opening when formed is so close to the double seam that the entire contents of the container may be readily drained from the opening.

In the drawing—

Figure 1 is a view showing the can piercing device as applied to a container preparatory to cutting an opening therein;

Fig. 2 is a view similar to Fig. 1, but showing the opening formed by the cutting tool;

Fig. 3 is a plan view of the can piercing tool;

Fig. 4 is a view showing the can piercing tool applied to a container of smaller diameter than shown in Figures 1 and 2, and the manner in which the piercing point is located relative to the double seam preparatory to the cutting of the end, and

Fig. 5 is a view similar to Fig. 4, but showing the cutting tool as applied to a container of larger diameter than that illustrated in Figures 1 and 2, and the locating of the piercing point of the cutter adjacent the double seam for cutting.

In the application above referred to, there is shown a can piercing tool in the form of a bar which carries a cutter attached to the bar intermediate the ends thereof. This cutter has a piercing point and cutting edges leading therefrom toward the end of the bar which is to contact with the double seam. When the cutter is applied, the piercing point enters the end of the container adjacent the double seam and will cut the end

along a line adjacent the double seam and along lines substantially parallel with each other extending toward the center of the container so as to sever the metal and roll the same back to form an opening through which the contents of the container may be readily dispensed. The present invention has to do with an improvement in this type of cutter. Instead of providing the end thereof which is to contact with a double seam with means for hooking over the double seam, the end terminates preferably in a right angle shoulder which may be placed against the double seam, or against a can end back from the double seam, or the end portion may be placed so as to rest on the double seam, and in each case it is held in contact with the container during piercing by placing the palm of the hand on this end of the piercing tool. The cutter is shaped similar to that of the Schrader application, and has a piercing point and cutting edges extending toward this shouldered end of the tool, which cutting edges are so disposed as to cut the metal along diverging lines, rolling the metal therebetween so as to provide a relatively wide opening. The bar carrying the cutting tool is formed into a loop serving as a handle for the operator to grasp while forcing the cutter into the container. The inner leg of the loop of the handle performs two functions. It extends away from the bar supporting the cutter a greater distance than the piercing point, so that it, in a measure, covers the piercing point and protects the operator's hand from contacting with the piercing point, or the piercing point contacting with the support on which the cutting tool is placed, which would be likely to dull the cutting point. The other function of this leg of the handle is to locate the piercing point adjacent the double seam. When the tool is applied to the container, this leg is caused to contact with the double seam, and this will properly place the piercing point adjacent the inner side of the double seam.

Referring more in detail to the drawing, the improved can piercing device includes a body portion 1 which is in the form of a bar or plate which is longitudinally extended. One end of the plate is cut so as to provide a right angle shoulder 2. Attached to the under side of this bar or body portion 1 is a cutting blade 3 which is secured to the bar in any suitable way. Said cutting blade 3 has a piercing point 4 and cutting edges 5, 5 which diverge from the piercing point. The cutting blade is curved from the point of attachment to the body portion 1 to the piercing point. The body portion 1 is curved at 6 downwardly, thence

backwardly at 7 and thence upwardly at 8 to form the inner leg of the loop. This inner leg 8 is preferably attached to the body portion by welding or in any other suitable way, so that it is rigidly held in a predetermined position relative to the body portion 1. This forms a loop handle for the operator to grasp in the handling of the tool. The length of the leg is greater than the distance between the body portion 1 and the piercing point 4. The bar is curved between the sections 7 of the handle and this inner leg 8 as indicated at 9. The distance between the piercing point 4 and the leg 8 is slightly greater than the width of the double seam.

The piercing tool is adapted to be used with containers of any diameter. In Figures 1 and 2, the container which is indicated at C, is of such a diameter that when the end 2 of the tool is placed against the double seam, the piercing point will contact with the end at a point diametrically opposed to the point of contact between the bar or body portion 1 and the double seam. It is not essential that the end 2 shall rest against the double seam for the positioning of the piercing point, for the reason that the leg 8 may be brought into contact with the outer face of the double seam before the piercing point contacts with the end of the container, and this will position the piercing point so that it will escape the double seam and enter the container end close to the double seam. The operator places the palm of one hand on the end 2 of the body portion 1 and grasps the loop handle with the other hand. Holding the end 2 against the container end, pressure is applied so as to force the piercing point through the metal, and for cutting the metal and rolling back the cut portion as indicated at c in Fig. 2.

In Fig. 4 of the drawing, the cutter is shown as applied to a container of a smaller diameter than that shown in Figures 1 and 2, and in this case, the body portion 1 extends over the double seam and is pressed by the palm of the hand against the double seam as a supporting fulcrum, while the operator grasping the handle of the piercing tool, forces the same downwardly. The leg 8 of the handle serves to position the piercing point so that the container will, with certainty, be cut close to the double seam and form an opening in the end through which the entire contents may be drained, without any trapping of the oil therein.

In Fig. 5 of the drawing, the piercing tool is shown applied to a container of larger diameter than shown in Figures 1 and 2. In this case, the end 2 of the piercing tool is placed against the end of the container wherein it contacts therewith, and this position is determined by the leg 8 contacting with the outer face of the double seam, and thus properly positioning the piercing point

so that it will enter the end close to the double seam. This leg 8, while shown as straight, is inclined slightly, so that the upper end thereof, as viewed in the drawing, is substantially the same distance from the end 2 of the body portion 1 as the lower end of the leg. This leg could be curved about the end 2 as a center, but this is not necessary. The essential feature is that the leg shall be spaced from the piercing point so as to locate the piercing point relative to the double seam for the initial penetration of the end. Inasmuch as the body portion 1 is inclined when the piercing point first contacts with the container end, a downward pressure on the handle tends to force the leg 8 into contact with the double seam during the entire cutting operation, and the leg is shaped so as to permit the cutter to be forced into the container without contacting with the side wall of the body portion of the container. While the leg 8 serves as a locator for the piercing point, it also serves as a means for protecting the piercing point. When the tool is placed on the support therefor, the handle will contact with the support and hold the piercing point out of contact therewith. This prevents dulling the point through laying the tool on the concrete coping or road bed. It also protects the hand of the operator from contacting with the piercing point and being injured thereby.

It is obvious that minor changes in the shaping of the parts may be made without departing from the spirit of the invention as set forth in the appended claim.

Having thus described the invention, what I claim as new and desire to secure by Letters-Patent, is—

A piercing cutter for containers comprising a longitudinally extending body portion bent so as to form a handle loop having the inner leg portion extending substantially at right angles to the body portion intermediate the ends thereof so as to act as a gauge, said cutter being curved away from the body portion and having a piercing point at its free end with cutting edges diverging therefrom, said piercing point being disposed adjacent the inner leg of the handle portion and spaced therefrom a distance slightly greater than the thickness of the double seam joining the can end to the can body, whereby said leg when placed against the outer face of the double seam will position the piercing point so as to cut the metal close to the inner side of the double seam, said inner leg of the handle portion being extended away from the body portion of the cutter a greater distance than the piercing point of the cutter so as to protect said point.

EUGENE G. MASON.