

April 24, 1928.

J. T. SWEENEY

1,667,360

CAN OPENER

Filed Aug. 4, 1922

Fig. 1.

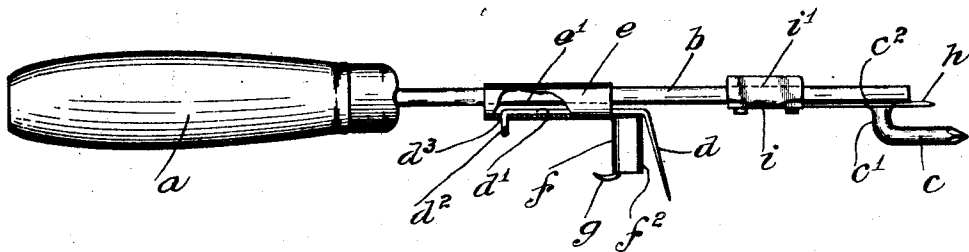
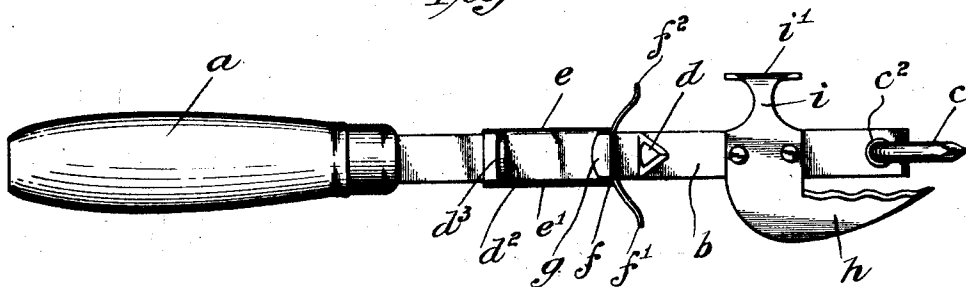


Fig. 2.



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CAN OPENER.

Application filed August 4, 1922. Serial No. 579,586.

My invention relates to tools, and more particularly to a tool essentially of the can-opener type embodying therein a piercing point adapted to be forced through the central portion of the top of a substantially circular can, and a metal-cutting blade adapted to be adjusted longitudinally of the shank supporting this point so as to adapt the tool for use upon cans of different dimensions.

The general type of tools above referred to is old and well known in this art, it having been a common practice in such tools, whether they be of the type having a circular carrier for the piercing point and the blade, or of a radially extending shank carrying the blade, to provide a clamp screw whereby the blade could be firmly set at a fixed radius with relation to the pivot portion of the piercing point, a construction requiring considerable nicety in the piercing of the top of the can to prevent interference of the side wall of the can with the cutting blade.

A tool embodying my invention is so constructed that the metal-cutting blade is maintained in close juxtaposition to the side wall of a can by a member engaging the outside of a can, thus avoiding any likelihood of the jamming of the cutting blade against the side of a can, irrespective of any eccentricity of the place at which the piercing point punctures the top of the can.

In a tool embodying my invention, the cutting blade will be guided by the side wall of the can and is free to move toward and from the center about which the shank rotates. The guide is so constructed as to be adapted for use with round cans of different diameters.

In a tool embodying my invention, the parts are so formed as to permit the use of a hardened cutting blade held in a definite relation to the guide, although formed separately therefrom and of different metal stock. The manner of assembling the cutting blade in relation to the guide and to the shank supporting both these parts, permits the utilization upon the guide of a pry which may be effectively used as a crown bottle-cap remover, a portion of the cutting blade structure co-acting therewith and with the shank to prevent slippage of the blade and the guide with relation to the shaft, while the tool is in use as a bottle-cap remover.

In connection with the parts of the tool

above referred to, I employ a cutting blade such as is ordinarily used in can openers of other types, so mounted upon the shank and in relation to the piercing point, that it may be used for removing the tops from rectangular cans, the piercing point serving as a guide for this blade when so used, and the blade being offset in relation to the center of the bearing portion of the piercing point so as to minimize likelihood of a tilting of the tool while the top is being removed by means of movement of the cutting blade about the center defined by said piercing point in the manner above referred to.

The invention consists primarily in a can opener embodying therein a shank, a piercing point having an angular portion carried by said shank adjacent one end thereof, and a slide including therein a metal cutting blade, a guide member adjacent thereto and projecting from said shank a distance greater than said piercing point, and means carried by said slide and having a free sliding fit with said shank, whereby said metal cutting blade may be quickly brought into a desired relation to the top of a can adjacent the edge thereof, and said guide will engage the outside of a can body closely adjacent said cutting blade, said slide being adapted to move freely toward and from said piercing point when removing the top from a can; and in such other novel features of construction and combination of parts as are hereinafter set forth and described, and more particularly pointed out in the claims hereto appended.

Referring to the drawings,

Fig. 1 is a side view of a tool embodying my invention; and

Fig. 2 is a bottom plan view thereof.

Like letters refer to like parts throughout both of said views.

In the embodiment of my invention shown in the drawings, I provide a handle *a* having a shank *b* preferably rectangular in cross-section, one end of said shank having riveted or otherwise secured thereto a piercing point *c* provided with a forwardly projecting portion and a pivot portion *c'* extending at right angles to the shank *b* and the axis of the point *c*. The pivot portion *c'* is provided with an enlarged shouldered portion *c''* bearing against the shank *b* to ensure the desired rigidity of the point *c*, the manner of connecting the point to the shank being such as

to prevent any rotative movement of the shank, any desired expedient for this purpose being permissible.

Mounted upon the shank *b* between the piercing point *c* and handle *a* is a slide including therein a cutting blade *d* projecting from the slide on the same side of the shank as that upon which the piercing point *c* is positioned, and to a greater extent. Preferably the body of the slide is made of sheet metal, the sides being formed upwardly and across the shank *b* in a manner to provide oppositely disposed slideways *e—e'* having a free sliding fit therewith. No means are provided for locking this slide with relation to the shank.

Intermediate the slideways *e—e'* and upon the same side thereof as the cutting blade *d* and the piercing point *c* and closely adjacent the former, is a guide member *f* extending laterally of the slide and of the shank *b*, the opposite sides or wings of this guide member being projected forwardly so as to leave as space substantially centrally of this guide member and form two separated bearing points *f'* and *f''* adapted to engage the side wall of a can and permit the guide to adjust itself to cans of different diameters.

The blade *d* is positioned slightly in advance of the bearing points *f'* and *f''* so that when the tool is in use, ample clearance is provided for the lap joint connecting the top and the body of the can between said cutting blade and said guide, irrespective of the size of the can.

The cutting blade *d* is substantially triangular in shape, has both edges sharpened so that the tool may be moved in either direction, and projects at a slight angle towards the piercing point *c*.

It is desirable to use a hardened cutting blade *d* and practically impossible to use hardened stock for the slide *e*, since in assembling the tool, a forming operation is necessary to produce the metal of the slide, and ordinarily the opposite edges of the material of the slide are formed across the top of the shank *b* in assembling the device. It is impracticable to harden the material after the parts are assembled. While it might be possible to mount the slide upon the shank *b* before assembling the shank with relation to the handle *a*, it is not desirable to harden the material of the slide, particularly as such hardening may be avoided by adopting a special construction and arrangement of parts to facilitate the assembling of the cutting blade *d* with relation to said slide, which construction will also adapt the use of the slide for removing crown bottle caps from bottles.

To secure the above conditions, I employ a cutting blade *d* having formed integrally therewith a plate *d'* adapted to be posi-

tioned between the slide *e* and the shank *b*, and having its end turned at right angles to the plate as shown at *d''*. Said end *d''* in assembling the tool is passed through a slot *d'''* in the slide *e*, and is of a length to project beyond the slide to an extent to ensure against possible displacement of the cutting blade with relation thereto while at the same time serving as a fulcrum point for a pry *g* which is formed integrally with the guide *f* by a tongue bent at substantially right angles to the guide toward the handle *a*, and the angular extension *d''*. The slide is of sufficient length to ensure the engagement of the fulcrum end *d''* with the top of a bottle cap when the pry *g* is engaged with the fluted edge of said cap, the point of engagement of the extension *d''* with the top of the cap being substantially diametrically opposite the point of engagement with the pry *g* therewith.

Riveted to the underside of the shank *b*, or on the same side thereof as the piercing point *c* is a cutting blade *h* such as is employed in the ordinary can opener, the major portion of which extends laterally of the shank *b* so that when the blade is being used in removing the top from a can, the blade *h* will rest flatwise upon the top of a can and avoid any possible tilting of the shank *b*.

Formed integrally with the blade *h* is a reduced extension *i* having a head *i'* turned at right angles thereto and projection beyond the extension toward the point *c* and the handle *a* to an extent to permit this head to be used as a pry for removing the tops of cans of the friction top type. This extension, however, may be dispensed with, as may the cutting blade *h*, although I prefer to embody such a blade in the tool not only because of its steady effect when using the cutting blade *d*, but since it permits the tool to be used for removing tops from angularly formed cans.

In use, the above embodiment of my invention operates substantially as follows:—

In opening a circular can, the piercing point *c* which projects beyond the blade *h*, is forced through the top of a can substantially centrally thereof, and the handle *a* used to turn the tool so as to bring the point *c* closely adjacent the under side of the top of a can and advance it forwardly until the pivot portion *c'* is in a position where it can drop through the opening made by said point.

The blade *d* is then brought to adjacent the edge of the top of a can by a movement of the slide carrying this blade, and forced through the top, the slight inclination of said blade having the effect of imparting movement to the slide to compensate for the movement in arc of the shank *b*. As the blade *d* is thus brought downwardly and

forced through the top of the can, the rim of the can will enter the clearance space between said blade and the guide f , the bearing points f' and f'' being brought by the engagement of the blade d with the can body into engagement with the outside of the body of the can at points sufficiently distant from each other to ensure a proper bearing of this guide upon the curved body of the can, irrespective of the size of the can.

After the shank b is brought to a substantially horizontal position, the shank b is turned about the pivot portion c' of the piercing point c , thus causing the blade d to cut the metal of the top closely adjacent the rim of a can.

It is immaterial whether the can top is pierced at the exact center thereof by the point c , since the engagement of the bearing points f' , and f'' with the outside of the can, and the blade d with the top adjacent the body of the can on the inside thereof, will cause any radial movement of the slide carrying these parts which may be necessary to permit the free cutting action of said blade d .

The location of the bearing points f' and f'' upon opposite sides of said blade and their engagement with the can will prevent any substantial tilting action of the slide which will result in such binding thereof against the shank b as would interfere with this free sliding movement. In fact while the shank b turns about the pivot portion c' of the point c , the cutting blade d is guided in its movement by the portion of the can positioned between same and the guide f .

The guiding of the movement of the blade d in the manner above referred to will not only obviate any binding of the blade against the body of a can by reason of the positioning the pivot portion c' eccentrically of the top of a can, but will permit a complete 360° movement of the cutting blade since toward the completion of this movement, the rim of the can will give sufficient support to the blade to compensate for any shifting in the position of the top of the can which is almost completely severed from the body of the can at this point.

When a supplemental cutting blade h is embodied in the tool, it will, when removing the top from a cylindrical can, bear upon this top and thus check any tendency for the shank b to rotate about a horizontal axis, the stem i having a similar effect.

When it is desired to remove a bottle cap, the pry g is inserted beneath the fluted rim of the cap and the extension d'' is brought upon the top of a cap at a substantially diametrically opposite point, and the handle a forced downwardly. As a result, the plate d' of the blade is forced against the shank b and the slide adjacent the pry g will be forced against the opposite side of the shank,

thus preventing any movement of the slide while the cap is being removed.

It will be observed that the slide carrying cutting blade d is at all times free to have movement in relation to the shank b , no clamping means of any nature being provided, and no clamping action being developed in the operation of the cutter.

It is not my intention to limit the invention to the precise details of construction shown in the accompanying drawings, it being apparent that such may be varied without departing from the spirit and scope of the invention.

Having described the invention, what I claim as new and desire to have protected by Letters Patent, is:—

1. A can opener embodying therein a shank, a piercing point projecting forwardly of the end of said shank and having a pivot portion whereby said point is spaced away from said shank, and a slide including therein a metal cutting blade, a guide member adjacent thereto and projecting from said shank a distance greater than said piercing point, and laterally of said shank with the opposite sides or wings thereof projected forwardly to form separated bearing points upon opposite sides of said blade, whereby said slide will automatically adjust itself to cans of different diameters, and means carried by said slide and having a free sliding fit with said shank, whereby said metal cutting blade may be quickly brought into a desired relation to the top of a can adjacent the edge thereof, and said guide will engage the outside of a can body closely adjacent said cutting blade, said slide being adapted to move freely toward and from said piercing point when removing the top from a can.

2. A can opener embodying therein a shank, a piercing point projecting forwardly of the end of said shank and having a pivot portion whereby said point is spaced away from said shank, and a slide including therein a metal cutting blade projecting at a slight incline toward said piercing point, a guide member adjacent thereto and projecting from said shank a distance greater than said piercing point, and means carried by said slide and having a free sliding fit with said shank, whereby said metal cutting blade may be quickly brought into a desired relation to the top of a can adjacent the edge thereof, and said guide will engage the outside of a can body closely adjacent said cutting blade, said slide being adapted to move freely toward and from said piercing point when removing the top from a can.

3. A can opener embodying therein a shank, a piercing point projecting forwardly of the end of said shank and having a pivot portion whereby said point is spaced away from said shank, and a slide including there-

in a metal cutting blade, projecting at a slight incline toward said piercing point, a guide member adjacent thereto and projecting from said shank a distance greater than said piercing point, and laterally of said shank with the opposite sides or wings thereof projected forwardly to form separated bearing points upon opposite sides of said blade, whereby said slide will automatically adjust itself to cans of different diameters, and means carried by said slide and having a free sliding fit with said shank, whereby said metal cutting blade may be quickly brought into a desired relation to the top of a can adjacent the edge thereof, and said guide will engage the outside of a can body closely adjacent said cutting blade, said slide being adapted to move freely toward and from said piercing point when removing the top from a can.

4. A can opener embodying therein a shank, a piercing point projecting forwardly of the end of said shank and having a pivot portion whereby said point is spaced away from said shank, a slide having slideways upon opposite sides thereof engaging said shank, and a guide member projecting away from said shank a distance greater than said piercing point, said slide having a slot therethrough, and a cutting blade comprising a plate having an angularly turned end adapted to pass through the slot in said slide, said plate being positioned between said slide and said shank, and said cutting blade being positioned between said guide and said piercing point, and spaced away from said guide, whereby said cutting blade may be quickly brought into a desired relation to the top of a can adjacent the edge thereof, and said guide will engage the outside of a can body closely adjacent said cutting blade, said slide being adapted to move freely toward and from said piercing point when removing the top from a can.

5. A can opener embodying therein a shank, a piercing point projecting forwardly of the end of said shank and having a pivot portion whereby said point is spaced away from said shank, a slide having slideways upon opposite sides thereof engaging said

shank, and a guide member projecting away from said shank a distance greater than said piercing point, said guide member having laterally extended sides or wings projected toward said piercing point, whereby said slide will automatically adjust itself to cans of different diameter, said slide having a slot therethrough, and a cutting blade comprising a plate having an angularly turned end adapted to pass through the slot in said slide, said plate being positioned between said slide and said shank, and said cutting blade being positioned between said guide and said piercing point, and spaced away from said guide, whereby said cutting blade may be quickly brought into a desired relation to the top of a can adjacent the edge thereof, and said guide will engage the outside of a can body closely adjacent said cutting blade, said slide being adapted to move freely toward and from said piercing point when removing the top from a can.

6. A can opener embodying therein a shank, a piercing point projecting forwardly of the end of said shank and having a pivot portion whereby said point is spaced away from said shank, a slide including therein a metal cutting blade, a guide member adjacent thereto and projecting from said shank a distance greater than said piercing point, and means carried by said slide and having a free sliding fit with said shank, whereby said metal cutting blade may be quickly brought into a desired relation to the top of a can adjacent the edge thereof, and said guide will engage the outside of a can body closely adjacent said cutting blade, said slide being adapted to move freely toward and from said piercing point when removing the top from a can, and a cutting blade carried by said shank adjacent said piercing point and extending to one side of said shank, whereby tilting of said shank is prevented by the engagement of said blade with the top of a can.

In witness whereof I have hereunto affixed my signature this 2nd day of August, 1922.

JOHN T. SWEENEY.