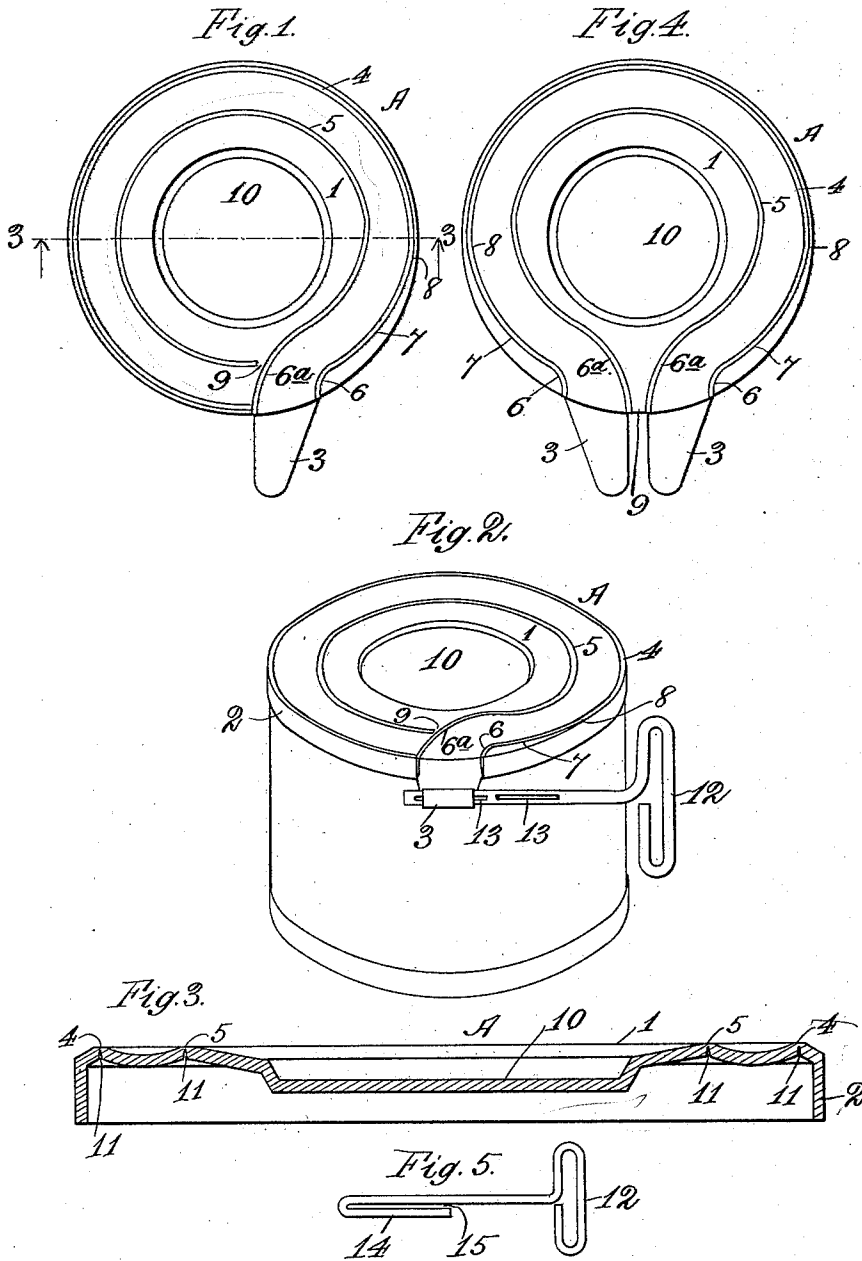


(No Model.)

B. W. MORFOOT.
KEY OPENING CAN HEAD.

No. 606,471.

Patented June 28, 1898.



Witnesses:
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UNITED STATES PATENT OFFICE.

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KEY-OPENING CAN-HEAD.

SPECIFICATION forming part of Letters Patent No. 606,471, dated June 28, 1898.

Application filed December 27, 1897. Serial No. 663,560. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN W. MORFOOT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Key-Opening Can-Heads; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a novel construction in a can-head of the class known as "key-opening," the object being to provide a device of this kind which can be made in a single operation of the dies, which will not require more metal than the ordinary can-head now in general use, which can be soldered to the can-body in the soldering machines now in general use, and which can be easily opened by means of a simple key without the exercise of undue strength; and it consists in the features of construction and combinations of parts hereinafter fully described and claimed.

In the accompanying drawings, illustrating this invention, Figure 1 is a top plan view of a can-head made in accordance with this invention. Fig. 2 is a perspective view of a can provided with a head made in accordance with this invention and showing a key secured to the tongue on said head, by means of which said head is ripped to open said can. Fig. 3 is a sectional view of said head on an enlarged scale taken on the line 3 3 of Fig. 1. Fig. 4 is a top plan view of a modified form of can-head which is provided with two tongues either of which may be used in case the other break off. Fig. 5 is a detail view in elevation of another form of key which may be used to rip a can-head.

One feature of this invention consists in weakening the metal in the can-head along certain lines to enable it to be easily ripped along such lines to open the can.

Another feature of this invention consists in so arranging said weakened lines that in one or more parts of said head they turn outwardly toward the periphery thereof and in extending the metal between such weakened lines beyond such periphery to form a tongue or tongues which may be engaged by a key.

Another feature of this invention consists

in so arranging said weakened lines as to cause the metal strip between the same, of which such tongue or tongues form a part, to coil themselves evenly upon the key as the same is turned to rip said head along said weakened lines.

Another feature of this invention consists in providing the cover with weakening-lines forming the detachable strip, the lines following the contour of the cover for the major portion of their length and being deflected inwardly and then outwardly across the cover edge at right angles or radially, as the case may be, whereby in the ripping operation equal strain on the strip edges is obtained and the liability of fracture of the strip at the commencement of the operation is reduced to the minimum.

Another feature of this invention consists in providing an unweakened portion in the inner weakening-line and in causing the outer line to enter the inner line at the cover edge, whereby complete detachment or separation of the central portion of the cover is prevented.

Another feature of this invention consists in so arranging the tongue on said head as to enable it to be cut out of such part of the metal sheet as is otherwise wasted.

Referring now to said drawings, A indicates a can-head made in accordance with this invention, which consists of a disk 1, provided with a peripheral flange 2 and an outward extension or tongue 3 on said flange 2. Weakened lines 4 and 5 are formed in said flange 2 and disk 1, which begin at the points where the edges of said tongue 3 meet the edge of said peripheral flange 2 and extend transversely across said flange 2 and thence around said disk 1 in the manner hereinafter described. Said weakened line 4 extends spirally inwardly on said disk 1, away from the edge thereof, in a sharp curve 6, about ninety degrees in extent, and curves thence very slightly in the opposite direction spirally toward the outer edge of said disk 1, as shown at 7, and when it reaches the point 8 continues annularly around said head—that is, parallel or concentric with the flange 2 and adjacent the same—until it meets the weakened line 5 at the point where the same first enters upon the disk 1. Said weakened line 5

extends around said disk 1, parallel with said line 4, so as to leave a removable strip of metal inwardly of said line 4 and between the latter and the line 5, of which strip said tongue 3 forms a continuation. Said line 5 continues around said head until it reaches a point adjacent the portion 6^a thereof which is parallel with said portion 6 of said line 4, so as to leave a small portion 9 of unweakened metal between said end of said line 4 and the portion 6^a thereof, which will prevent the central portion 10 of said head from becoming entirely separated from said removable strip, as will be obvious, thus causing said portion 10 to be removed with said removable strip. In removing said strip it will be obvious that the fracture along the line 4 will be complete, owing to the fact that said line meets the line 5, thus separating the entire disk 1 from its flange 2, except the small portion between the portions 6 and 7 of the line 4 and the flange 2, so as to lay open the entire top of the can.

The weakened lines 4 and 5 are formed by cutting into the metal, as shown at 11 in Fig. 3, so that along such lines the metal is thinner, and consequently weaker, than at other points and is easily fractured or ripped.

In Fig. 4 a modified form of construction of this can-head is shown, in which two of said tongues 3 are provided and in which, consequently, the weakened lines 4 and 5 are differently arranged. In this construction the said weakened line 4 has a curved portion 6 and spiral portion 7 at each end and does not meet said line 5, while the latter is also parallel with said line 4 at both ends, the said ends running off said disk 1 at points a short distance apart, so as to leave a space of unweakened metal between the ends of said line which corresponds to the space 9. (Shown in Figs. 1 and 2.) The advantage of having two tongues is that if one of them should break off the other can be used. In cases where only one tongue is employed if that should break off it would be necessary to employ a different tool in order to open the can. In said Fig. 2 a key 12 is shown secured to the tongue. Said key 12 is provided with one or more slots 13, which are adapted to receive the tongue 3 and by turning said key wind said tongue around the same, as shown. By continuing to turn said key 12 it will be obvious that the tongue 3 will be completely wound upon the same and thereafter the strip of which said tongue forms a part, and while being wound upon said key will be ripped from said head.

In Fig. 5 another form of key is shown, which is formed by bending the end 14 over so as to bring it parallel with the shank, having a small space 15 between said end and said shank to receive said tongue 3.

A can-head made in accordance with this invention is obviously just as cheap as the ordinary heads now generally used and, besides this, has the advantage of requiring no

extra operations to make it complete, as is the case with other can-heads of this character. It also has the advantage that it can be soldered to the can-body in machines used for soldering the ordinary can-heads thereto.

The provision of the features above described adds materially to the effectiveness of a can-head, as in the first place precaution is taken to prevent breakage of the strip at the point where the tongue enters the head by so arranging the lines as that during the ripping operation the strain on the edges is equalized. To this end the tongue is arranged at right angles or radially to the can-head, such arrangement being effected by the employment of the compound or reverse curve in the inner and outer parallel weakening-lines. The easy curve of these lines also insures against breakage of the strip after the edge of the cover is passed, so that a double function is performed by this peculiar deflection of the lines. In the second place, the provision of the space 9 enables the central portion of the cover to be opened without completely detaching the ripped-out portion.

I claim as my invention—

1. A sheet-metal cover for cans and the like provided with weakening-lines forming a detachable strip, a portion of which follows the contour of the cover and is located near the edge, the remaining portion being deflected inwardly and then outwardly across said edge and terminating in a projecting tongue, whereby said tongue is disposed approximately at right angles to said edge, and the strain on the weakening-lines is equalized in the ripping operation, substantially as described.

2. A flanged sheet-metal cover for cans and the like provided with weakening-lines forming a detachable strip, a portion of which follows the contour of the cover and is located near the flange, the remaining portion being deflected inwardly and then outwardly across said flange at a point adjacent to the commencement of the strip and terminating in an approximately radially-projecting tongue, substantially as described.

3. A sheet-metal cover for cans and the like having weakening-lines providing a detachable strip, said lines conforming for the major portion of their length to the contour of the cover edge, the remaining portion being deflected inwardly from the edge and thence outwardly across the latter, and an extension of the strip projecting approximately radially from said edge to provide a tongue, substantially as described.

4. A flanged sheet-metal cover for cans and the like having weakening-lines providing a detachable strip, said lines conforming for the major portion of their length to the contour of the cover edge, the remaining portion being deflected inwardly from the edge in the arc of a circle, thence outwardly in the arc of a circle across the edge and finally down-

wardly in vertical direction across the flange, and a right-angled extension of the flange between the said lines providing a tongue, substantially as described.

5 5. A flanged sheet-metal cover for cans and the like provided with weakening-lines forming a detachable strip the middle portion of which follows the contour of the cover and is located near the flange, the end portions being
10 deflected inwardly and then outwardly across

the flange approximately to each other and terminating in radially-projecting tongues, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

BENJAMIN W. MORFOOT.

Witnesses:

RUDOLPH WM. LOTZ,
ERWIN J. LOTZ.