

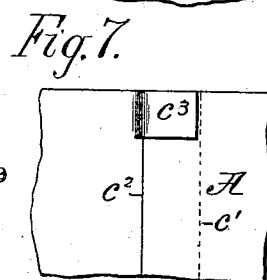
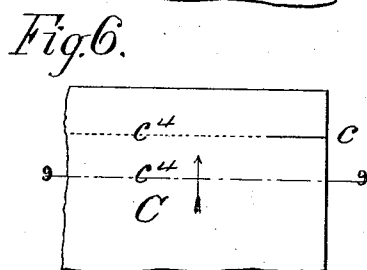
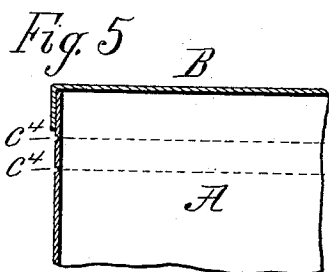
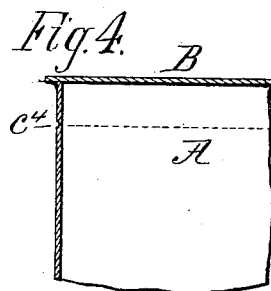
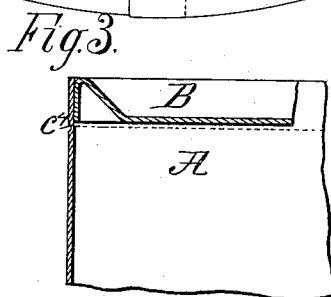
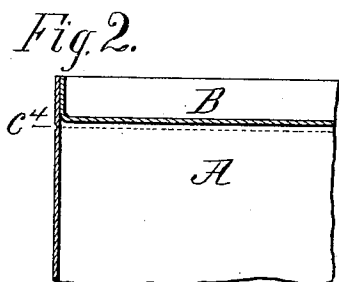
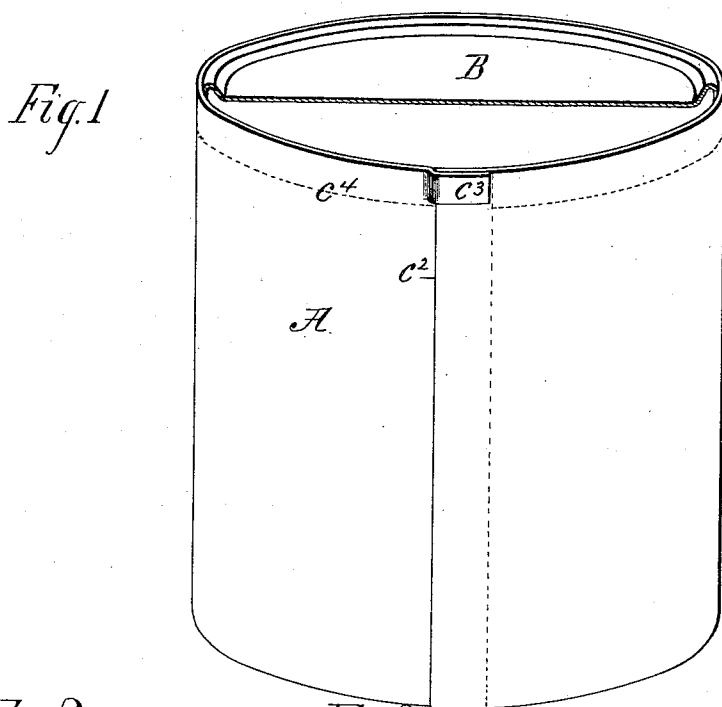
(No Model.)

2 Sheets—Sheet 1.

J. ZIMMERMAN.
KEY OPENING CAN.

No. 486,522.

Patented Nov. 22, 1892.



Witnesses.
E. C. Robinson,
Louis M. F. Whitehead.

Inventor.
John Zimmerman.
by Dayton, Pool & Brown,
Attys.

(No Model.)

2 Sheets—Sheet 2.

J. ZIMMERMAN.
KEY OPENING CAN.

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Fig. 8.

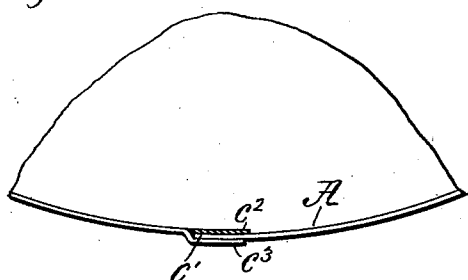


Fig. 9.

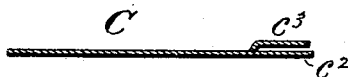


Fig. 10.

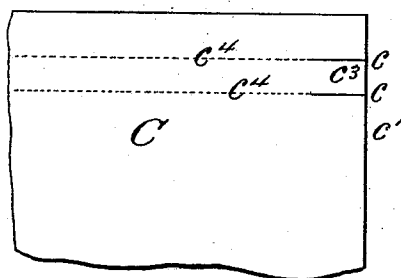


Fig. 11.

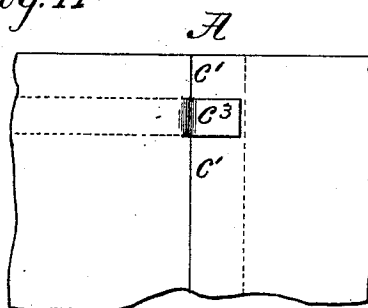


Fig. 12.

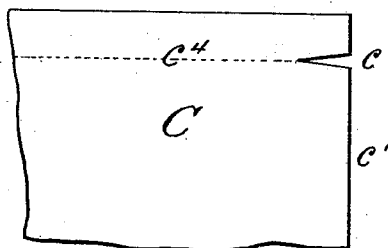
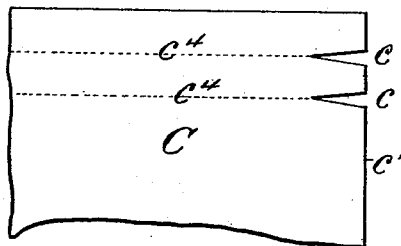


Fig. 13.



Witnesses

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Inventor.

John Zimmerman.
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Att'y.

UNITED STATES PATENT OFFICE.

JOHN ZIMMERMAN, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE NATIONAL KEY-OPENING CAN COMPANY, OF SAME PLACE.

KEY-OPENING CAN.

SPECIFICATION forming part of Letters Patent No. 486,522, dated November 22, 1892.

Application filed May 3, 1892. Serial No. 431,727. (No model.)

To all whom it may concern:

Be it known that I, JOHN ZIMMERMAN, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful
5 Improvements in Key-Opening Cans; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon,
10 which form a part of this specification.

This invention has for its object to provide an improved construction in key-opening cans of that class in which a free tongue is provided on the sheet forming the body of the
15 can at the side seam thereof and in prolongation of a detachable strip of the body-sheet for the purpose of giving a hold to a suitable instrument for tearing out the detachable
20 strip to open the vessel. By a "detachable strip" is meant a strip forming a part of the can-body and rendered separable therefrom by reason of the body having been weakened in a line or lines bordering said strip.

Heretofore sheet-metal cans of this description have been provided with the free tongue in either of two ways—that is to say, either by employing a separate piece for the tongue, such piece being partly inserted beneath the
25 overlapping or external edge of the body-sheet at the side seam, or by forming the tongue integrally with the overlapping or external edge of the sheet and making it to project beyond the side seam by cutting away a portion of said edge to leave the tongue. The last-mentioned method has been preferred, notwithstanding the waste of material occasioned
30 thereby, because such waste has been found less costly than the extra labor involved in the employment of a tongue formed of a separate piece.

It is the purpose of the present invention to avoid both the waste occasioned by one of said methods and the extra labor demanded by the other, and also to provide a construction
45 by which a can may have all the advantages of being cheaply made, certainly sealed, and surely opened.

To these ends the invention consists in the method and in the construction hereinafter described by the aid of the accompanying
50 drawings.

In said drawings, Figure 1 is a perspective view of a can constructed in accordance with my invention in one of its forms. Fig. 2 is a fragmentary vertical section of a can having the general form of my invention shown
55 in Fig. 1, but having the inserted head provided with an upwardly-directed marginal flange. Fig. 3 is a fragmentary vertical section similar to Fig. 2, but having the interior
60 head formed with a downwardly or inwardly turned flange, as indicated in Fig. 1. Fig. 4 is a section representing a head resting upon the end of the can-body. Fig. 5 is a vertical
65 section similar to Figs. 2 and 3, but showing the can as having an externally-applied head. Fig. 6 is a fragment of the blank from which the can-body of Figs. 1, 2, 3, and 4 is formed. Fig. 7 illustrates the manner of bringing the
70 opposite edges of the blank together when prepared as illustrated in Fig. 6. Fig. 8 is a top edge view of Fig. 7. Fig. 9 is a section in the line 9 9 of Fig. 6, looking in the direction of the arrow applied to said line. Fig.
75 10 illustrates a fragment of the blank prepared for an externally-applied head, as shown in Fig. 5. Fig. 11 illustrates the two edges of the body-blank brought together when constructed in accordance with Fig. 10. Figs. 12
80 and 13 illustrate the slit or slits cut in the edge of the blank by removing a triangular piece instead of by making a simple straight cut, as shown in Figs. 6, 7, 10, and 11.

A represents the body of a sheet-metal can, and B its head. The body A is formed from
85 a blank C, which, as shown in Figs. 6, 7, and 12, is provided with a single slit or notch c , cut inwardly from one of its vertical edges c' , substantially parallel with the top or bottom
90 edge of the blank, such slit being of the depth of the proposed lap of the side seam of the can. In bringing the two edges c' c^2 of the blank so slitted together to form a lapped side seam the edge c^2 , which is straight, is
95 inserted in the slit c so as to bring the laterally-detached tongue c^3 upon the outside of the can-body. In this position of the edges c' c^2 solder is applied along the exposed edge c^2 in the usual manner, and, if necessary, the
100 iron by which the solder is applied may be continued in its motion over the base of the tongue or over a part thereof for the purpose

of more certainly flowing the solder through the inner end of the slit c to fill the hole at this point, or to solder the base of the tongue to the subjacent portion of the edge c^2 . The end of the tongue is left free, so that it may be seized by the usual key or other instrument by which the can is to be opened. In continuation of the slit c and at the dotted line c^4 the metal of the body is weakened in the usual or any suitable manner to insure severance of the metal in the proper direction by operation of such key or instrument. The head B, if provided with a marginal cylindrical flange and inserted within the end of the can-body, as indicated in Figs. 1, 2, and 3, or if resting upon the end of the body, as shown in Fig. 4, is soldered only to the detachable strip of which the tongue c^3 forms a part, and by tearing off said strip the can-body is severed and the vessel opened.

If it be desired to apply the can-head B externally to the body, as indicated in Fig. 5, the edge c' of the body-blank is provided with two slits c , forming the tongue c^3 between them, as indicated in Figs. 10 and 13, and in bringing the edge of the body-blank having this arrangement of the tongue into union with the opposite edge c^2 the latter is made to overlap the edge c' at both sides of the tongue, but to underlap the tongue itself, as indicated in Fig. 11. The soldering-iron is then drawn along the exposed edge c^2 , as before, and desirably over the base of the tongue c^3 , with the effect of making a close seam throughout the length of the can-body. In the act of forming or after forming the tongue c^3 I prefer, as an additional improvement, to give it the offset relation to the body of the blank indicated in Figs. 8 and 9, in which it will be seen to occupy a plane or curve outside that of the remainder of the body. The tongue being thus offset, the edge c^2 of the blank may be quickly and without deflection inserted beneath said tongue in proper position to be soldered.

It will be observed that in the construction above described the tongue, though itself external to the can-body, is a part of the underlapping margin of the body-blank, instead, as heretofore, of being a projection formed upon and extending beyond the overlapping or external edge of said blank. While for the general purposes of my invention the weakened line c^4 may be produced by any suitable means—as, for example, by a longitudinal incision, by compression in a narrow line which will render the metal more dense and brittle, or by forming a more or less sharp bead and opposite groove, by which means the metal is partially fractured—I prefer to form such weakened line or lines of severance by which a strip in continuation of the tongue c^3 may be more readily detached by first forming a sharp groove in the sheet and then flattening the elevated surface or bead. This produces two flexures in the metal and reduces the co-

hesion of the fibers in the line when so bent successively in opposite directions to such an extent that the strip is rendered very easily detachable by means of the key or other instrument, while the can-body is in no degree injured for its legitimate purpose and the surface-coatings of the metal are not removed. In thus forming the weakened line or lines of severance I prefer to use the familiar devices of tongue-and-grooved pressure-rollers to first form a narrow or sharp bead and then plain cylindric rollers between which to flatten the bead. It will be desirable to compress the metal between the tongue of one roller and the bottom of the groove in the other, thus rendering the metal more dense or hard, so that it will be weakened in a greater degree when flattened between the plain rollers.

I claim as my invention—

1. The method of constructing the bodies of hermetically-sealed sheet-metal key-opening cans of the class having a free lip or tongue, which forms a prolongation of a detachable circumferential strip of the body-sheet, which method consists in slitting one side edge of the sheet to form the tongue, forming a weakened line parallel with the end of the sheet and continuous with the slit or with each slit, if more than one, placing the opposite side edge of the sheet in the slit beneath the tongue and over the remainder of the slitted edge, and finally passing a soldering-tool along the superposed edge and over the base of the tongue, whereby the oppositely-overlapping surfaces are soldered in a straight line from end to end of the body, leaving the end of the tongue free.

2. A hermetically-sealed sheet-metal can having the body described, said body consisting of a sheet of single thickness throughout, which has as a part thereof a circumferential detachable strip, the extremity of which is a free tongue that is laterally disconnected from the body by a slit or slits in one margin of the sheet, the opposite margins of the sheet being beneath the tongue and elsewhere throughout superposed upon the slitted edge of the sheet to form a lapped side seam, and a straight continuous line of solder extending along the said superposed edge and beneath the base of the tongue.

3. A hermetically-sealed sheet-metal can comprising a body having a lapped and soldered side seam and a head soldered to the body, the body being constituted of a sheet of single thickness throughout, having a marginal detachable strip to which the head is soldered, and which has a free extremity separated laterally from the body-sheet by a slit substantially parallel with the head and overlapping the opposite edge of the sheet which the remainder of the slitted margin underlaps to form the side seam.

4. A blank for sheet-metal can-bodies, having one or more weakened lines to afford a detachable strip at or parallel with the edge

of the blank, the said strip having one of
its extremities laterally disconnected from
the blank by a slit or slits formed in contin-
uation of the weakened line or lines to con-
5 stitute a tongue, said tongue being offset, sub-
stantially as described, and for the purpose
set forth.

In testimony that I claim the foregoing as
my invention I affix my signature in presence
of two witnesses.

JOHN ZIMMERMAN.

Witnesses:

M. E. DAYTON,

TAYLOR E. BROWN.