

(No Model.)

C. B. McDONALD.  
KEY OPENING CAN.

No. 543,347.

Patented July 23, 1895.

Fig. 1.

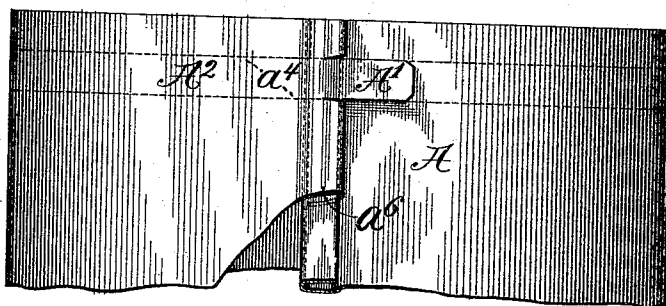


Fig. 2.

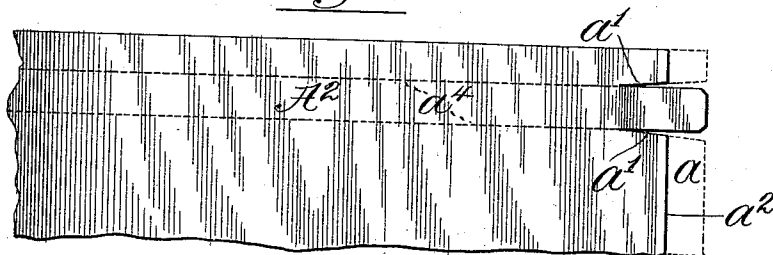


Fig. 3.

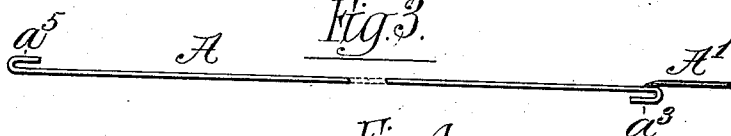


Fig. 4.

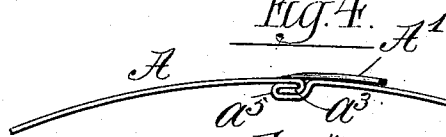


Fig. 5.

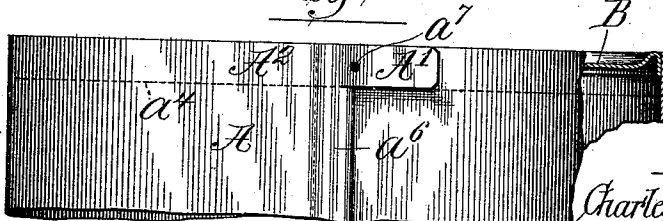
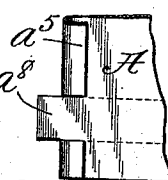


Fig. 6.



Witnesses:-

Louis H. Whitehead.

John W. Adams.

Inventor:-

Charles B. McDonald.

By: Dwyer, Pool & Brown

his Attorneys.

# UNITED STATES PATENT OFFICE.

CHARLES B. McDONALD, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE NATIONAL KEY-OPENING CAN COMPANY, OF SAME PLACE.

## KEY-OPENING CAN.

SPECIFICATION forming part of Letters Patent No. 543,347, dated July 23, 1895.

Application filed January 26, 1893. Serial No. 459,728. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES B. McDONALD, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful 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, which form a part of this specification.

This invention relates to key-opening cans or other sheet-metal vessels of that order in which the body-sheet is provided with a detachable circumferential strip made detachable by the presence of one or two weakened lines in the sheet and having a free tongue at one end thereof by which it may be seized by a suitable implement for tearing it out, and thus opening the can. Heretofore this device has been applied only to lap-seamed cans. The present invention has for its object to produce a "lock-seamed" can having this so-called "key-opening" feature.

In the accompanying drawings, which illustrate a preferred form of my invention, Figure 1 represents that end of a lock-seamed can-body which contains the detachable strip, the latter being constructed with reference to the seam in accordance with my invention. Fig. 2 is a fragment of the prepared body-sheet of a can in its flat state, showing two weakened lines to afford a detachable strip and the tongue as a part of said strip. Fig. 3 is an edge view of the body blank or sheet after having folds formed upon its ends preparatory to making the locked side seam. Fig. 4 is an end view of a can-body after having the locked seam formed therein, showing the relation of the free tongue to the seam of the completed body. Fig. 5 is a side view in partial section of a part of a can-body, showing the detachable strip situated at the extreme end of the body and made detachable by the use of a single weakened line in the body-sheet. Fig. 6 illustrates a possible addition to the general invention.

A represents the body-sheet. In Fig. 1 this sheet is shown to have been bent and lock-seamed at its edges to form the complete can-body. This can-body may be either cylindrical,

cal, oval, polygonal, or of any other desired form. In Fig. 2 the sheet A is shown in its flat state and as having a tongue A' formed thereon by cutting away the marginal portion *a*, exteriorly bounded by dotted lines, and cutting slits at *a'* *a'* inwardly from the edge *a*<sup>2</sup>. These slits *a'* extend inwardly from the edge *a*<sup>2</sup> of the body-sheet to a depth equal to and preferably greater than the width of the proposed fold, as indicated in Figs. 1, 3, and 4.

As shown in Figs. 1, 2, 3, and 4, the detachable strip A<sup>2</sup> is formed by two weakened lines *a*<sup>4</sup>, which are parallel to each other and to the adjacent top edge of the sheet A or of the can-body. This arrangement of the detachable strip permits the can-head to be applied externally to the body. The weakened lines *a*<sup>4</sup>, which may be of any suitable formation, are in continuation of the slits *a'*, that laterally detach the base of the tongue from the body-sheet, and will commonly extend the entire length of the sheet and the entire circumference of the can-body.

In Fig. 5 the detachable strip A<sup>2</sup> is formed by a single weakened line *a*<sup>4</sup>, parallel with and at a suitable distance from the adjacent edge of the sheet or can-body to give the desired width to the detachable strip, this construction being intended to be employed in connection with an interior can-head, as shown at B.

The body-sheet A, after having the tongue A' formed thereon—as, for example, illustrated in Fig. 2—has its opposite ends or edges folded, as indicated at *a*<sup>3</sup> *a*<sup>5</sup> in Fig. 3, the edge *a*<sup>2</sup> (which in Fig. 2 is in two parts separated by the tongue) being thus folded by a suitable machine which escapes the tongue A' and allows the latter to project from the folded sheet, as indicated in Fig. 3. The folds *a*<sup>3</sup> *a*<sup>5</sup> are interlocked and all the folds are compressed in the usual manner to form the side seam of the can-body, as indicated at *a*<sup>6</sup> in Fig. 1, and also in the sectional view, Fig. 4. When the can-body has been thus formed, the tongue A' projects from the seam over the adjacent portion of the body, as indicated in Figs. 1, 4, and 5, and affords the necessary free projection of the detachable strip A<sup>2</sup>, by which the latter may be

torn from the can-body along the weakened line or lines to open the can.

If the slit or slits  $a'$  be deeper than the width of the seam, or, in other words, if the bend of the fold be made between the ends of the said slit or slits, the tongue of the finished can-body will proceed from the external fold of the seam between the side limits of the latter, as clearly indicated in Figs. 1 and 4, with the advantage that the tearing out of the strip will commence along the weakened lines with greater certainty when force is applied to the tongue.

To insure the flow of solder into the seam beneath the base of the tongue and a perfectly-tight joint at this point, I prefer to provide the tongue with a hole, as indicated at  $a'$ , Fig. 5, in accordance with the invention of John Zimmerman, set forth in Letters Patent No. 486,523, granted November 22, 1892.

The outwardly-turned edge  $a^5$  of the blank manifestly forms a pocket for the receipt of the solder that enters the hole and arrests its passage, so that it will not flow to the interior surface of the can. If preferred, however, the edge of the sheet having the outwardly-turned fold  $a^5$  may be inwardly notched to the depth of the fold, leaving a short projecting tongue  $a^8$ , Fig. 6, upon that edge of the sheet in continuation of the detachable strip which, while destroying the pocket above referred to, will afford an extended surface between which and that of the overlying portion of the body or strip solder may flow to also insure tightness of joint at this point.

By the term "free tongue" as herein employed and as used in the appended claims is to be understood the tongue as provided in the blank and as it exists in the can-body before the application of solder to the seam. After solder has been applied a portion of said tongue at the base will usually be soldered to the body. The words, "free tongue," as herein used, are not meant to apply only to the portion of the tongue which is actually free after such application of solder, but to the entire tongue.

I claim as my invention—

1. A lock-seamed can body having a circumferential detachable strip which extends

across the locked seam and terminates in an integral free tongue projecting from the external fold of the seam.

2. A lock-seamed can body having a circumferential detachable strip extending across the locked seam and terminating in an integral free tongue proceeding from the external fold of the seam at a point between the lateral limits of said fold.

3. The can body blank or sheet described having a detachable strip provided with a tongue  $A'$  projecting beyond the retracted edge  $a^2$  of the blank and laterally separated from the sheet at its base by slits  $a'$ , whereby, when the blank is lock-seamed, as set forth, the tongue proceeds from the external fold of the seam.

4. The can body blank or sheet described having a detachable strip provided with a tongue  $A'$  projecting beyond the retracted edge  $a^2$  of the blank and laterally separated from the sheet at its base by a slit or slits  $a'$  deeper than the width of the fold  $a^3$ , whereby, when the blank is lock-seamed, as set forth, the tongue proceeds from the external fold of the seam between the lateral limits of said fold.

5. The can body sheet described having a detachable strip formed by one or more weakened lines, said sheet having a projecting tongue at each end forming the terminals of the detachable strip, while having the remaining portion of its opposite edges folded to hook into each other and form a locked side seam of a can body.

6. A sheet metal, lock-seamed can body having a circumferential detachable strip terminating at each end in a tongue, one upon the inside and the other upon the outside of the can body, the external tongue being free and projecting from and beyond the locked side seam.

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

CHARLES B. McDONALD.

Witnesses:

M. E. DAYTON,  
TAYLOR E. BROWN.