

J. F. MERRILL.
SHEET-METAL CANS.

No. 178,544.

Patented June 13, 1876.

FIG. 1.

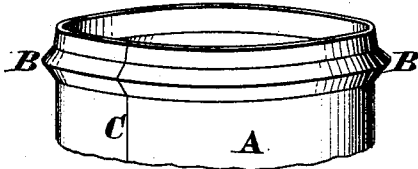


FIG. 2.

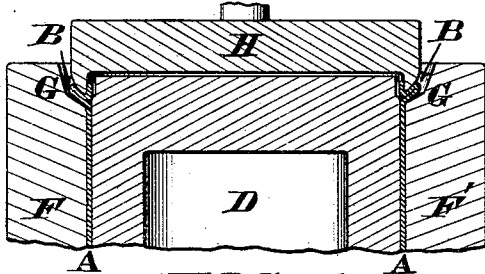
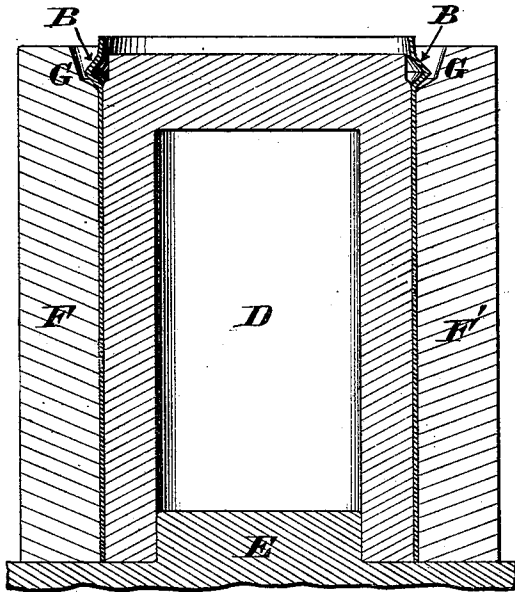
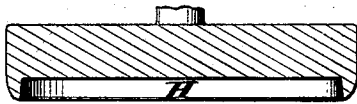


FIG. 4.

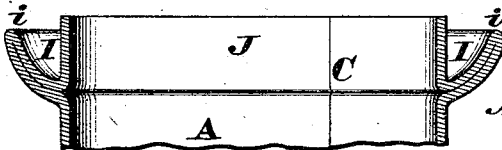
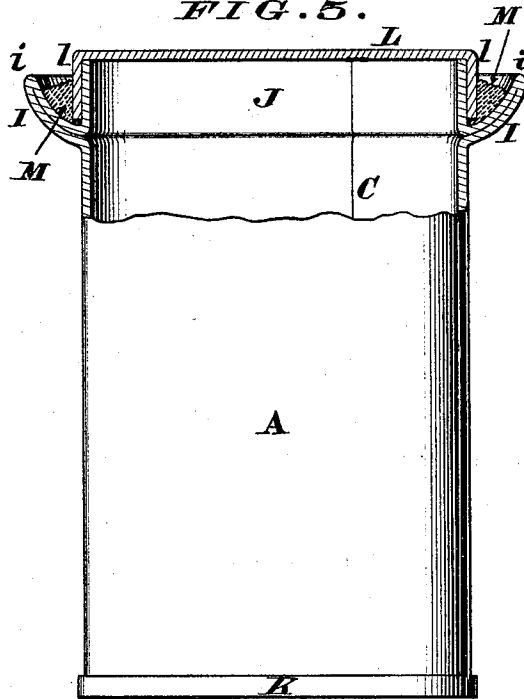


FIG. 5.



Attest,
Jas. H. Lyman,
Chas. Stock

John F. Merrill
Knight Bros
Att'ys.

UNITED STATES PATENT OFFICE.

JOHN F. MERRILL, OF CINCINNATI, OHIO.

IMPROVEMENT IN SHEET-METAL CANS.

Specification forming part of Letters Patent No. **178,544**, dated June 13, 1876; application filed June 21, 1875.

To all whom it may concern:

Be it known that I, JOHN F. MERRILL, of Cincinnati, Hamilton county, Ohio, have invented new and useful Improvements in Sheet-Metal Cans, of which the following is a specification:

This invention relates to that class of sheet-metal cans in which the trough or channel for containing solder, wax, cement, or other sealing agent is formed out of the same piece of metal that constitutes the body of the can, and my improvement comprises the following arrangement of parts: First, the trough proper, which projects outwardly and upwardly from the body of the can, and whose outer wall is composed of two thicknesses of metal, so bent and pressed tightly together as to afford a firm and durable channel, having a smooth and rounded tin-plated upper edge or margin, which is not liable to be oxidized by exposure to acids and the atmosphere, nor to be sprung or dented in the act of removing the wax or other luting preliminary to detaching the cap; secondly, the neck, which is a continuation of the same piece of metal that composes the body and the doubly-thickened trough, said neck being of the same internal diameter as the body of the can, or nearly so, so as to afford ample room for filling, emptying, and cleansing the receptacle, and presenting no corner or cavity for the lodgment of matter. This can-body, the stiffened trough, and the co-radial neck are formed from a single piece of sheet metal, in the manner hereinafter explained.

In the accompanying drawing, Figure 1 is a perspective view, showing the first step in the construction of my improved trough, the sheet-metal body being represented in its cylindrical form, and having a bead formed upon it. Fig. 2 is a vertical section, showing the beaded body located within a suitable holder or clamp, and about to be struck by the descending die. Fig. 3 is a similar section, but showing the shape the bead assumes as soon as it is struck by the die. Fig. 4 is a vertical section through the upper part of the can after removal from the holder. Fig. 5 shows the finished can, with the lid applied thereto, and secured in position, and rendered air-tight by means of wax or other luting.

Of the above illustrations Figs. 4 and 5 are to a larger scale than Figs. 1, 2, and 3.

The sheets A, of tin or other pliable metal, are first cut of a suitable size, and then placed between a pair of rolls, such as ordinarily used by tanners, and brought to a cylindrical shape, after which an outwardly-projecting bead, B, is rolled, spun, or otherwise formed near one end of said sheet, as shown in Fig. 1. Instead, however, of employing two separate and distinct operations for bringing the sheet of metal into this shape, the proper form may be imparted to it by a pair of creasing-rolls. The beaded cylindrical body A B, with its unsoldered seam C, is then dropped down around a mandrel or core, D, the lower edge of said body resting upon a table, bed-plate, or other suitable support, E. A two-part clamp, F F', having a counter-bore, G, at its upper end, is then brought to bear against the exterior of body A, so as to cause its vertical sides to hug the core D very snugly, the bead B occupying said counter-bore G, but without coming in contact with the clamp. This stage of the process is shown in Fig. 2. The body of the can having been thus securely clamped in position, a vertically-acting plunger or die, H, is brought to bear upon the upper surface of the bead B, so as to bend the metal downward and inward toward the core D, as seen in Fig. 3. This vertically-acting die may be operated either by a screw-press or drop-press, or by any other suitable appliance. Immediately upon the elevation of the die the clamp F F' is opened, and the body A B is lifted from the mandrel D, or it may be automatically disengaged by the action of a spring. Upon removal from the clamp and core the body A will be found to have a concave and annular trough, I, having a smooth, rounded, and tin-covered margin, *i*, and a neck, J, whose interior is flush, or nearly so, with that of said body, as shown in Fig. 4. The seam C is now soldered, the bottom K applied in the usual manner, and the can is at once ready for the lid or cap L. To apply this cap its downwardly-projecting flange or rim *l* is fitted over the neck J, and the trough I being then filled with sealing-wax M or other luting in the usual manner of sealing hermetical vessels. This

sealed condition of the can is shown in Fig. 5. The neck J being practically flush, or of the same diameter with the body A, it is manifest that the interior may be cleansed with the utmost facility, and, there being no ledge, projection, or receding angle at its mouth, there can be no accumulation of materials to rust out the sheet metal.

The trough, being composed of two thicknesses of metal, is extra strong, and constitutes a stiffening-rib, to protect the can in transportation and use, and secures the body against collapse from atmospheric pressure. The upper edge or rim of said trough's outer wall presents a smooth, rounded, and tin-plated surface, not liable to oxidize, easily handled, strong, and neat in appearance.

The can, instead of being constructed by the instrumentalities herein described, may be manufactured by means of suitable creasing-rolls, so formed and arranged as to bend and swage the metal into the desired shape.

I am aware that glass jars have been formed with a trough similar to mine; but my invention consists in constructing sheet-metal cans with a trough, in the manner specified.

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

1. The process herein described for constructing a sheet-metal can by passing a suitable sheet of metal through rolls to form an outwardly-projecting bead, placing the sheet around a core, having a support surrounding the sheet with a clamp, having a counter-bore, and striking the upper surface of the bead, as and for the purpose set forth.

2. As a new article of manufacture, and an improvement in the construction of sheet-metal cans, the trough I, exterior to the body, and whose outer wall is constituted of two thicknesses, formed by compression of an outer bulge from the body, and has a rim or margin, *i*, having a rounded surface of tinned iron, formed by the bend of said thicknesses, as set forth.

In testimony of which invention I hereunto set my hand.

JOHN F. MERRILL.

Attest:

GEO. H. KNIGHT,
JAMES H. LAYMAN.