

No. 618,718.

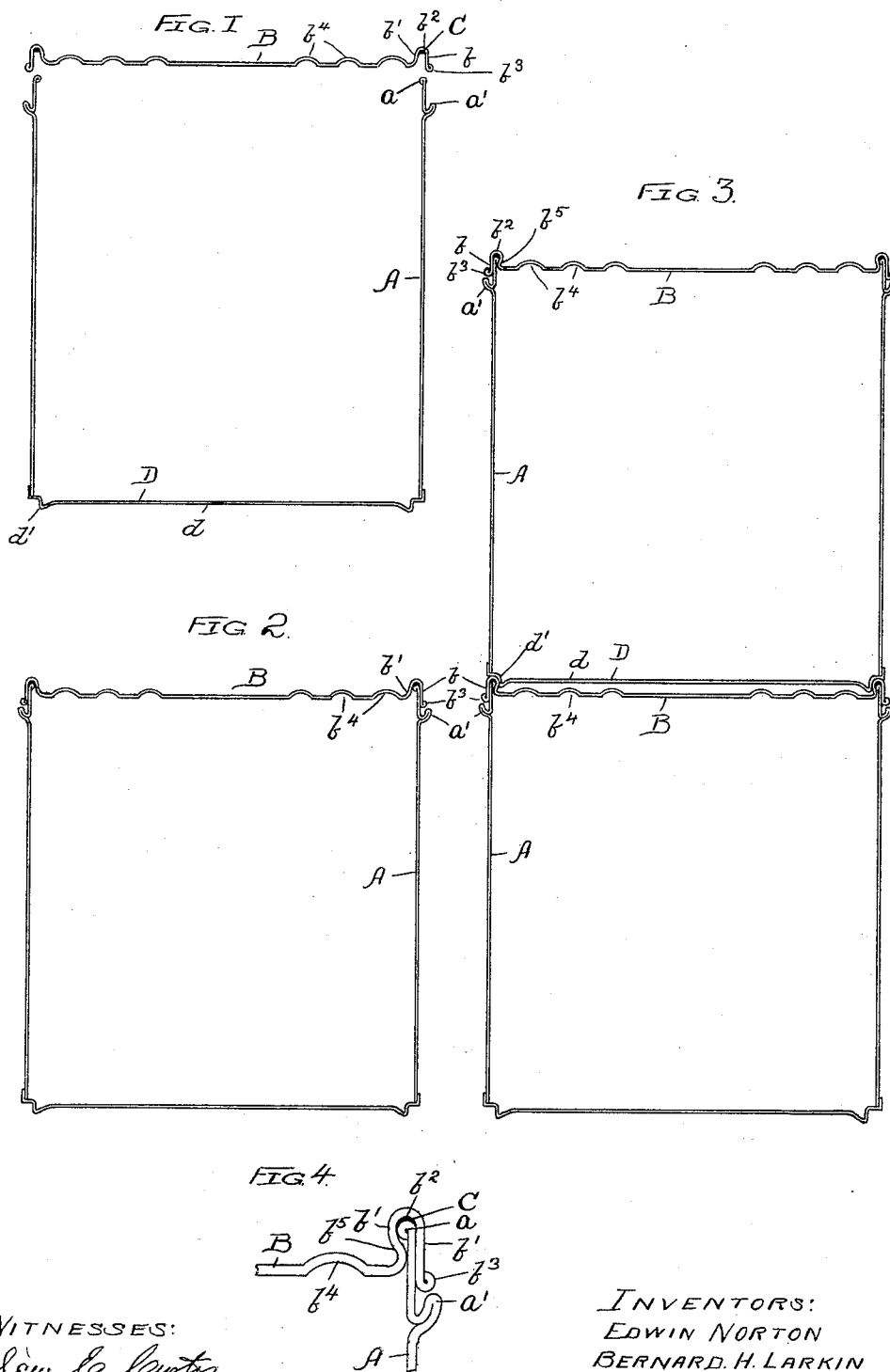
Patented Jan. 31, 1899.

E. NORTON & B. H. LARKIN.

SHEET METAL CAN.

(Application filed Aug. 27, 1897.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

EDWIN NORTON AND BERNARD H. LARKIN, OF MAYWOOD, ILLINOIS,
ASSIGNORS TO EDWIN NORTON, OF SAME PLACE, AND OLIVER W.
NORTON, OF CHICAGO, ILLINOIS.

SHEET-METAL CAN.

SPECIFICATION forming part of Letters Patent No. 618,718, dated January 31, 1899.

Application filed August 27, 1897. Serial No. 649,696. (No model.)

To all whom it may concern:

Be it known that we, EDWIN NORTON and BERNARD H. LARKIN, citizens of the United States, residing in Maywood, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Sheet-Metal Cans, of which the following is a specification.

Our invention relates to improvements in sheet-metal cans or vessels, and more particularly to improvements upon the sheet-metal can or vessel and the process or means of closing it heretofore patented to Frederick E. Heinig in Letters Patent of the United States Nos. 546,466, 546,469, and 546,468, of September 17, 1895.

The object of our invention is to improve the construction of said Heinig patent can, so that it may be more easily, conveniently, and securely closed or sealed and more readily opened, and also to enable the cover to be secured to the can-body by a vacuum or atmospheric-pressure seal as well as by the mechanical or seaming seal shown and described in said Heinig patents.

In the Heinig patent can considerable difficulty is frequently experienced in removing the cover from the can when it is desired to open it, especially if the outwardly-projecting fold in the cover has been securely crimped or secured under the internally-projecting bead at the mouth or edge of the can-body. To overcome this difficulty, we provide the lower edge of the cover-flange with a rolled edge or fold and the body of the can with an externally-projecting shoulder to serve as a fulcrum for prying off the cover by inserting a knife-blade or other instrument between the shoulder on the can-body and the rolled edge of the cover-flange.

In the Heinig patent can the cover was dome-shaped, and it was sealed or secured to the body of the can by pressing down and outwardly the top surface of the cover until it projects under and against the internal bead at the upper end or mouth of the can-body, an operation which is difficult to perform with the certainty and accuracy required to always securely seal the cover on the can. We overcome this difficulty by providing the cover at

the outset, in addition to its vertical flange which fits outside the can-body, with a secondary integral and substantially upright flange which fits inside the can-body, which secondary flange is adapted to be crimped or bent outwardly underneath and against the internally-projecting bead or rolled edge on the can-body at the upper end or mouth thereof. The operation of mechanically sealing the cover to the can-body is thus greatly simplified, as in our can all that we are required to do to seal the cover to the can-body is simply to crimp or press outwardly this secondary upright flange with which the cover is provided. The two flanges with which our cover is thus provided—the outer flange and the secondary or internal flange—also together form a deep groove or annular channel in the cover suitable for receiving and retaining in position a gasket or layer of cement of any suitable kind, which may thus be interposed between the cover and the bead or rolled edge on the can-body, so as to securely and hermetically seal the can. Our can is in this feature also a material improvement over the Heinig patent can, as in the latter neither the can-body nor the cover had any suitable seat or groove for retaining a gasket or cement packing in position while the cover was being seamed or secured upon the can-body.

As our improved can is, as before stated, provided with an annular channel or groove suitable for receiving and retaining in position a gasket or layer of cement, our can is also adapted to have its cover automatically and instantaneously hermetically sealed and secured to the can-body by a vacuum or atmospheric-pressure seal by simply placing the can, with its cover, loosely in place thereon in a suitable receiver, from which the air may be exhausted and then suddenly admitting the air and restoring the pressure, and thus instantaneously and automatically forcing the cover home on the can-body and hermetically sealing and securing it thereto. Our improved can is or may be thus provided with both a vacuum or atmospheric-pressure seal and also with a mechanical seal, both operating to seal and secure the cover on the

can-body with great firmness, rigidity, and safety, and we find by experiment that in our can when the cover is sealed and secured to the can-body both by means of the vacuum-seal and the mechanical seal the means we have before described readily remove the cover from the can when it is desired to open it and render it unnecessary to puncture the can or its cover in order to break or destroy the vacuum-seal, thereby preventing the destruction of or injury to the can.

Another difficulty which we have experienced in the manufacture and use of the Heinig patent can is that owing to its dome-shaped cover and other peculiarities of construction the cans are not adapted to be readily or securely stacked or piled one on top of another for purposes of storage or shipment either before or after they have been filled. To adapt our improved can to be sealed by a vacuum-seal and prevent irregularity in the collapsing of the cover, we provide the cover with a series of strengthening-beads, and to enable the cans to be securely piled or stacked one on top of another we provide the bottom of the can with a raised projecting central portion adapted to fit within the secondary or inner flange on the cover, so that the cans will properly nest together, one on top of another.

In the accompanying drawings, which form a part of this specification and in which similar letters of reference indicate like parts, Figure 1 is a central vertical section of a can embodying our invention, showing the form of the cover before being sealed or secured to the body either by the vacuum or mechanical seal. Fig. 2 is a similar view showing the can after the cover has been secured and sealed thereto by the vacuum or atmospheric seal. Fig. 3 is a similar view showing the can after the cover has been sealed and secured to the body both by the vacuum and mechanical seal. This latter figure also illustrates the fitting or nesting of the cans one on top of another, and Fig. 4 is an enlarged detail sectional view to better illustrate the construction.

In the drawings, A represents the can-body, B the cover, and C the gasket or cement interposed between the cover and body.

The body A of the can is provided at its upper or mouth edge with an internally-projecting roll or bead *a*. It is also provided just below the cover B with an externally-projecting shoulder *a'*, preferably formed integral with the body by providing the body with an external bead and closing the walls thereof together. This external shoulder *a'* on the can-body constitutes the fulcrum or means for prying off the cover B with the blade of a knife, screw-driver, or other suitable instrument.

The cover B is provided with an outer upright flange *b*, which fits outside the can-body A. It is also provided with an inner secondary flange *b'*, the same being also substan-

tially upright or at right angles to the general plane of the cover. The flanges *b b'* together form a deep annular channel or groove, constituting a secure seat for the gasket, cement, or other packing C, which is thus adapted to be compressed directly between the bottom *b²* of said groove in the cover and the rolled edge or bead *a* at the upper end of the can-body. The outer flange *b* of the cover B is provided at its lower edge or end with a roll, bead, or fold *b³*, so that when a knife-blade or other instrument is inserted between the roll *b³* on the cover-flange and the shoulder or fulcrum *a'* on the can-body the cover can be readily pried off, as a very powerful leverage is thus afforded. The cover B is also provided or preferably provided with a series of circular strengthening-beads *b⁴*.

After the cover B is placed on the can-body, as illustrated in Fig. 2, the inner secondary flange *b'* of the cover is given an outward bend or crimp *b⁵* under and against the internal roll or bead *a* at the upper end or mouth of the can-body, thus mechanically locking, securing, or seaming the cover on the can.

The bottom D of the can is provided with a raised central portion *d*, and preferably also with an annular bead *d'*, surrounding the same, the raised portion of the cover being adapted to fit within the inner flange *b'* of the cover B, as is clearly illustrated in Fig. 3, the raised bottom of one can fitting within the countersunk cover of the can upon which it is piled or stacked, so that the cans will thus rest securely one on top of another for storage or shipment.

To seal and secure the cover B to the can-body by a vacuum or atmospheric-pressure seal, the gasket, cement, or packing C being placed in the annular groove or seat in the cover, the cover is first placed loosely in position on the can-body, as indicated in Fig. 2, and then the filled can is placed within the receiver of an air-pump and the air or other fluid in the receiver exhausted and also from the can, and then the pressure is suddenly restored to the receiver, thus forcing the cover B home upon the can-body and hermetically sealing and securing it thereto by a vacuum or atmospheric-pressure seal. If it is desired to remove the cover thus sealed and secured to the can-body by the vacuum-seal, it may be done without puncturing the can or cover by simply inserting an instrument between the rolled edge *b³* of the cover-flange and the fulcrum or shoulder *a'* on the can-body and prying the cover off, and thus breaking the vacuum-seal.

After the cover has been placed on the can-body, as before described, and, preferably, hermetically sealed and secured thereto by a vacuum-seal we next mechanically seal or seam the cover on the can-body by simply bending, crimping, or forcing the inner or secondary flange *b'* of the cover outwardly under and against the internal roll or bead *a* at the upper end of the can-body, thus sealing

and securing the cover to the can by a mechanical seal and a vacuum-seal, one or both.

To open the can, all that is required is to pry the cover off in the manner before described, and when thus opened the can is in no way injured; and the cover may be used for temporarily closing the can, as a slip-cover.

We claim—

1. In a sheet-metal can or vessel, the combination with a body having an internal roll or bead *a* at its upper end or mouth and provided with an externally-projecting shoulder *a'* near its upper end to serve as a fulcrum for prying off the cover, of a cover B having an outer flange *b* fitting outside the can-body and provided at its lower edge with a roll, bead or fold to cooperate with said shoulder on the can-body, said cover B having also an inner secondary flange *b'* adapted to be bent or crimped outwardly under and against said internal roll or bead *a* on the can-body, a gasket, cement or packing C fitting in the groove or channel between said flanges *b b'* on the cover, and compressed between the cover and said roll or bead *a* on the can-body, said cover being sealed and secured to the can-body by a vacuum-seal and a mechanical seal, substantially as herein shown and described.

2. In a sheet-metal can or vessel, the combination with a can-body having an internal roll or bead at its upper end or mouth; and an externally upwardly-projecting fold constituting a shoulder, of a cover having an outer flange and a secondary inner flange bent or crimped outwardly under and against said internal roll or bead at the upper edge of the can-body, said outer flange of the can-cover having a roll or fold at its lower edge to enable the cover to be pried off against said externally-projecting shoulder on the can-body as a fulcrum, the free upper end of the can-body, bearing said internal roll or bead, permitting the same to give as the cover is pried off, gradually, at different points of its circumference, substantially as specified.

3. The combination with a can-body having an internal rolled edge at its upper end, of a cover having an outer flange fitting outside the can-body, an inner secondary flange fitting inside the can-body and adapted to be bent or crimped outwardly under and against said internally-rolled edge of the can-body, and a packing C fitting the annular groove or

seat in the cover formed by said inner and outer flanges thereon, said can-body having an external upwardly-projecting fold constituting a shoulder to act as a fulcrum and the cover having a roll or shoulder on its external flange to cooperate with said fulcrum on the can-body in prying off the cover, substantially as specified.

4. The combination with a can-body A, having internally-rolled upper edge, of cover B, having inner and outer flanges *b b'* fitting one inside and one outside the can-body, packing C sealing and securing said cover to said body by a vacuum-seal, said inner flange *b'* on the cover being crimped outwardly under and against said rolled upper edge of the can-body and securing said cover to said body by a mechanical seal, said outer flange *b* of said cover B having a rolled edge, and said body A having an external integral shoulder *a'* serving as a fulcrum for prying off the cover, the free upper end of the can-body, bearing said internal roll or bead, permitting the same to give as the cover is pried off, gradually, at different points of its circumference, substantially as specified.

5. The combination with a can-body A, having internally-rolled upper edge, of cover B, having inner and outer flanges *b b'* fitting one inside and one outside the can-body, packing C sealing and securing said cover to said body by a vacuum-seal, said inner flange *b'* on the cover being crimped outwardly under and against said rolled upper edge of the can-body and securing said cover to said body by a mechanical seal, said outer flange *b* of said cover B having a rolled edge, said body A having an external integral shoulder *a'* serving as a fulcrum for prying off the cover, and a bottom D having a raised central portion *d* fitting within said inner flange *b'* of the cover to enable the cans to be stacked securely one on top of another, the free upper end of the can-body, bearing said internal roll or bead, permitting the same to give as the cover is pried off, gradually, at different points of its circumference, substantially as specified.

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Witnesses:

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H. A. WING.