

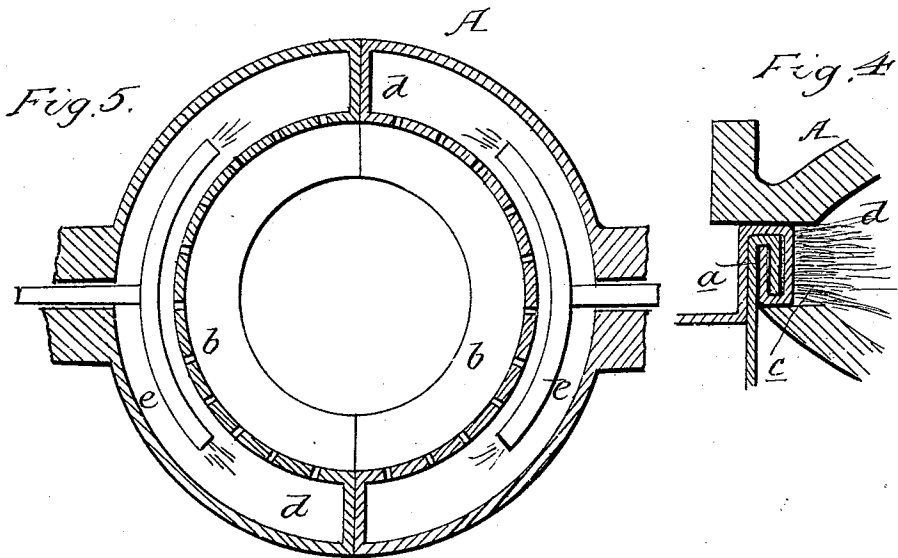
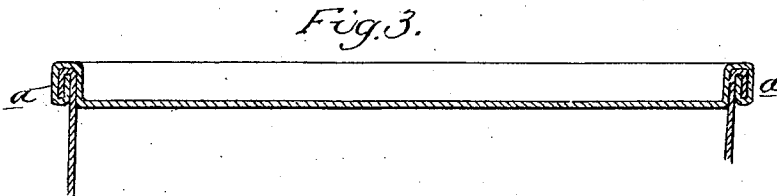
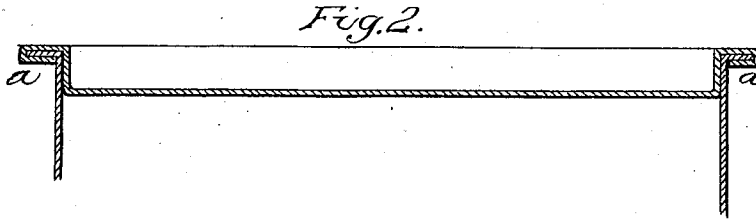
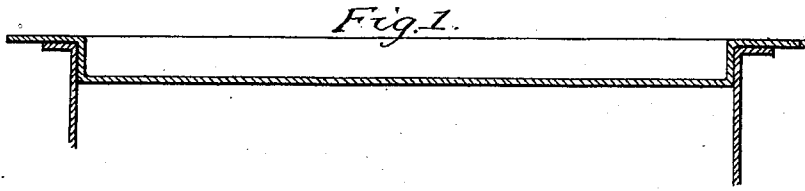
(No Model.)

J. GERSANT & A. G. BUTTIFANT.

PROCESS OF HERMETICALLY SEALING METAL BOXES OR CANS.

No. 583,683.

Patented June 1, 1897.



WITNESSES

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UNITED STATES PATENT OFFICE.

JULES GERSANT, OF DEAL, AND ARCHIBALD GEORGE BUTTIFANT, OF LONDON, ENGLAND.

PROCESS OF HERMETICALLY SEALING METAL BOXES OR CANS.

SPECIFICATION forming part of Letters Patent No. 583,683, dated June 1, 1897.

Application filed May 5, 1896. Serial No. 590,385. (No specimens.) Patented in England September 13, 1894, No. 17,442; in Belgium November 12, 1894, No. 112,695; in Italy November 12, 1894, No. 37,604; in France November 13, 1894, No. 242,880; in Switzerland November 15, 1894, No. 9,492; in Germany November 16, 1894, No. 81,292; in Spain November 17, 1894, No. 16,576; in Austria December 14, 1894, No. 1,935; in Norway January 21, 1895, No. 4,208; in Sweden January 21, 1895, No. 6,631; in New South Wales March 14, 1895, No. 5,679; in Canada March 15, 1895, No. 50,733; in Queensland March 15, 1895, No. 2,926; in New Zealand March 20, 1895, No. 7,498; in Portugal May 30, 1895, No. 2,009; in Tasmania June 22, 1895, No. 1,455, and in South Australia July 5, 1895, No. 3,887.

To all whom it may concern:

Be it known that we, JULES GERSANT, residing at 71 College Road, Deal, Kent, and ARCHIBALD GEORGE BUTTIFANT, residing at 5 8 St. Benet Place, Gracechurch Street, E. C., London, England, subjects of the Queen of England, have invented certain new and useful Improvements in Processes for Hermetically Sealing Metal Boxes, Cans, &c., (for 10 which we have obtained foreign Letters Patent in the following countries: Great Britain, No. 17,442, dated September 13, 1894; Belgium, No. 112,695, dated November 12, 1894; Italy, No. 37,604, dated November 12, 1894; France, No. 242,880, dated November 13, 1894; Germany, No. 81,292, dated November 16, 1894; Austria, No. 1,935, dated December 14, 1894; Switzerland, No. 9,492, dated November 15, 1894; Spain, No. 16,576, dated November 17, 1894; Canada, No. 50,733, dated March 15, 1895; Norway, No. 4,208, dated January 21, 1895; Sweden, No. 6,631, dated January 21, 1895; Queensland, No. 2,926, dated March 15, 1895; New South Wales, No. 5,679, dated 25 March 14, 1895; South Australia, No. 3,887, dated July 5, 1895; Tasmania, No. 1,455, dated June 22, 1895; New Zealand, No. 7,498, dated March 20, 1895, and Portugal, No. 2,009, dated May 30, 1895;) and we hereby declare the following to be a full, clear, and exact description of the same.

This invention relates to an improved method of hermetically sealing previously-filled metal boxes, cans, &c., such as those intended for preserving alimentary substances and other articles, in which said boxes, cans, &c., are composed of iron, steel, or other plates having an original coating or coatings of tin or other fusible metal or material thereupon.

This invention consists, essentially, in uniting the top and bottom with the side or body of the box or can by a rolled seam that projects above the plane of the top of the can, then inclosing the outer peripheral wall of 45 this seam within a circumscribing envelop or

casing and admitting a wall of heat thereto, so that it will impinge directly and simultaneously upon the entire length of the outer wall of said rolled seam and fuse a portion of the original coating of the tin between the adjacent faces of the rolled portions of the seam constituting the outer part or first lap thereof and without correspondingly heating the inner folds or laps of the rolled seam, which said inner folds are unconfined and are exposed to the action of the exterior air to assist in maintaining said portions substantially cool, the whole of the rolled seam being above the plane of the can-head, so that the contents of the can are not affected by the heat applied to the seamed portion.

In the accompanying drawings we illustrate a means for carrying out our process, in which—

Figures 1, 2, and 3 illustrate steps in the formation of a rolled seam. Fig. 4 illustrates the seam confined and being acted on by the wall of flame. Fig. 5 is a plan view of Fig. 4, but showing the casing A complete.

In carrying out our invention the heads and body of the can or box are united by a seaming-machine of suitable form, and which will produce a rolled seam *a* of several laps or folds, said seam projecting from the top of the can-head, so that it will lie entirely above the plane thereof and of the contents of the can or box. The material from which the can or box is formed is provided with the usual original coating of tin, and the several steps of forming the rolled seam are clearly disclosed in Figs. 1, 2, and 3.

When the seam has been rolled into substantially the form shown in Fig. 4, it is inclosed within a circumscribing envelop or casing A, which in Fig. 5 is shown as having a combustion-chamber *b*, having a slot *c* in its front, the upper and lower walls of which practically constitute jaws, since they are adapted to inclose the outer peripheral wall of the rolled seam and to closely engage the

upper and lower edges of the seam and to confine the heat, so that it may have direct access to the outer portion of the seam. Back of the combustion-chamber and separated therefrom by a foraminous wall is a second chamber *d*, which contains a tube *e*, through which combined air and gas or other vapors may be admitted, which when ignited produce a wall of heat entirely circumscribing the outer portion of the rolled seam.

As the seam is of a rolled character possessing a plurality of laps or folds and is projected above the plane of the can-head, and as the inner peripheral wall of the seam is not confined, but is exposed so that the external air may have access to it, it is evident that when the body of heat is caused to impinge directly and simultaneously against the entire length of the outer peripheral wall of the rolled seam the intense heat will fuse the original coating of tin between the confined adjacent faces of the outer folds to form a hermetically-sealed joint without the employment of a soldering-iron or of solder or other soldering composition. The inner peripheral folds or laps of the seam are also not substantially heated, as the external air acts thereon during the sealing process, and the contents of the can are not affected by the heat, as the rolled seam is entirely above the plane of such contents and projects above

the plane of the outer surface of the head, as shown.

The operation of hermetically sealing the joints is thus greatly facilitated, and a considerable saving in the cost of production and labor is effected.

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

The method herein described of hermetically sealing the heads upon fusibly-coated metal boxes and cans, which consists in first uniting the head to the body by a rolled seam that projects above the plane of the head, then inclosing the outer peripheral portion of said seam within a circumscribing envelop or casing so that the inner peripheral wall may remain exposed to external air, and then admitting a wall of heat to the envelop so that it will impinge simultaneously upon the entire length of the outer peripheral wall of the rolled seam to fuse the original coating between the confined adjacent faces of the outer folds or laps of said seam.

In witness whereof we have hereunto set our hands in presence of two witnesses.

JULES GERSANT.

ARCHIBALD GEORGE BUTTIFANT.

Witnesses:

E. R. SHORT,

J. G. WYLIE.