No. 818,439. PATENTED APR. 24, 1906.

O. HEINDORF.

METHOD OF FORMING HERMETIC SEAMS IN SHEET METAL.

APPLICATION FILED MAR. 18, 1905.

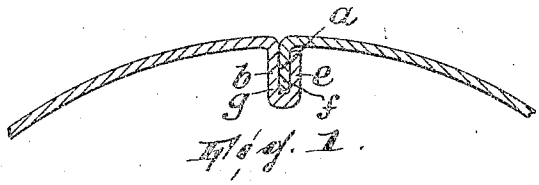


Fig. 1.

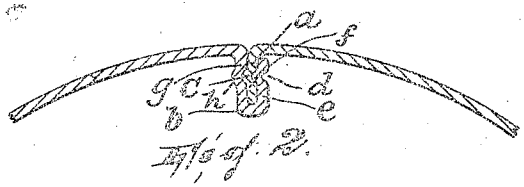


Fig. 2.



Fig. 3.

WITNESSES:

Wm. Dell.

Adele Schatt.

INVENTOR,

Oscar Heindorf.

BY Fairmer & Seward,

ATTORNEYS.

UNITED STATES PATENT OFFICE.

OSCAR HEINDORF, OF LONDON, ENGLAND, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO JOHN MURPHY, OF BROOKLYN, NEW YORK.

METHOD OF FORMING HERMETIC SEAMS IN SHEET METAL.

No. 818,489. Specification of Letters Patent. Patented April 24, 1906.

Application filed March 18, 1905. Serial No. 250,302.

To all whom it may concern:

Be it known that I, OSCAR HEINDORF, a subject of the King of Great Britain, residing in the city of London, England, have invented certain new and useful Improvements in Methods of Forming a Hermetic Seam in Sheet Metal; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to folded or lock seams for sheet-metal vessels; and it consists in a novel method of forming a hermetic joint or seam in such vessels whereby the minimum layers only are necessary, so that metal is saved, wear and tear on the forming machinery reduced, and the output correspondingly increased.

My invention is fully illustrated in the accompanying drawings, in which—

Figure 1 is a transverse sectional view of the seam as it stands after the first step of the operation of forming the same. Fig. 2 is a transverse sectional view of the seam after the same has been longitudinally grooved, and Fig. 3 is a transverse sectional view of the seam when completed.

The seam is shown in the drawings as the side seam of a can; but it should be understood that my invention is applicable in certain aspects thereof to other seams.

a in the drawings is a flange formed, preferably, at right angles to one edge portion of the sheet which forms the body of the can, and *b* is a rebend formed, preferably, at right angles to the opposite edge portion of said sheet. As shown, this flange and rebend preferably project inwardly, the flange being received by the rebend *b*. The flange and rebend being thus assembled by a suitable means acting to displace the metal of the parts longitudinally and for a portion only of the width thereof, a bend is formed at *c* in them, which has the effect of producing a groove *d* in one side of each fold *e f g* and a bead *k* on the other side thereof, beads and grooves fitting into each other. The thus joined and formed flange *a* and rebend *b* are then bent over as one to and against the adjoining face of the portion of the metal from which the flange *a* immediately projects, the layers or folds *e*, *f*, and *g* and the part of the sheet immediately adjacent flange *a* being compactly compressed together as tightly as possible with the view to avoiding the formation of all interstices or leak-openings of whatever nature. Thereupon the portion of the sheet which is immediately adjacent the flange *a* and which directly coincides with or is opposed to the layers *e*, *f*, and *g* is grooved on the outside in coincidence with the groove *d*, thus forming a bead *j* on the inside of said portion which fits into and is coincident with the groove *d* of the layer *e*. The grooving whereby the bead *j* is formed is above described as occurring after the compression of the several layers; but it should be understood that the compressing and grooving may be accomplished in both one and the same operation.

Formed in the manner above described, a seam is produced in which the minimum of metal is necessary and which will be found to be perfectly hermetic. By displacing the metal of the assembled flange *a* and rebend *b* in the manner stated, so as to produce coinciding grooves and beads, when the assembled flange and rebend are bent over into the position shown in Fig. 3 there is a certain wiping together of the surfaces of the layers *e*, *f*, and *g*, bead in groove, which causes the layers to have perfect contact with each other throughout, and thus results in sealing up every possible interstice that might otherwise exist. The grooving which forms the bead *j*, moreover, results in a further restricted compacting and intimate contacting of the layers *e f g* in that restricted portion thereof delineated by the previous grooving of said layers.

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

1. The method of forming a hermetic seam in sheet metal which consists in forming a rebend in one edge portion and inserting the other edge portion therein, grooving the laminated body thus produced longitudinally so as to produce interfitting grooves and beads in the layers thereof, and then bending the thus grooved laminated body over out of the plane of initial assemblage of said edge portions, substantially as described.

2. The method of forming a hermetic seam

in sheet metal which consists in forming a rebend in one edge portion and inserting the other edge portion therein, grooving and compressing the laminated body thus produced longitudinally so as to produce interfitting grooves and beads in the layers thereof, and then bending the thus grooved laminated body over out of the plane of initial assemblage of said edge portions, substantially as described.

3. The method of forming a hermetic seam in sheet metal which consists in forming a rebend in one edge portion and inserting the other edge portion therein, grooving and compressing the laminated body thus produced longitudinally so as to produce interfitting grooves and beads in the layers thereof, and then bending the thus grooved laminated body over and compressing it against the portion of the metal adjacent one of said edge portions, substantially as described.

4. The method of forming a hermetic seam in sheet metal which consists in forming a rebend in one edge portion and inserting the other edge portion therein, grooving and compressing the laminated body thus produced longitudinally so as to produce interfitting grooves and beads in the layers thereof, then bending the thus grooved laminated body over against the portion of the metal adjacent one of said edge portions, and then grooving said portion coincident with the groove of said grooved laminated body, substantially as described.

5. The method of forming a hermetic joint in a sheet-metal lock-seam having longitudinal beads on certain of its layers which consists in compressing the layers of the seam to cause the beads to intimately contact with adjacent layers, and then bending the seam, compressed, over around an axis parallel with the seam, whereby to cause the beads to wipe against the adjacent layers, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 24th day of February, 1905.

OSCAR HEINDORF.

Witnesses:
WM. D. BELL,
JOHN W. STEWARD.