

No. 697,622.

Patented Apr. 15, 1902.

E. F. GRIFFIN & W. E. HIGGS.

SHEET METAL BOX OR CAN.

(Application filed Dec. 23, 1901.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

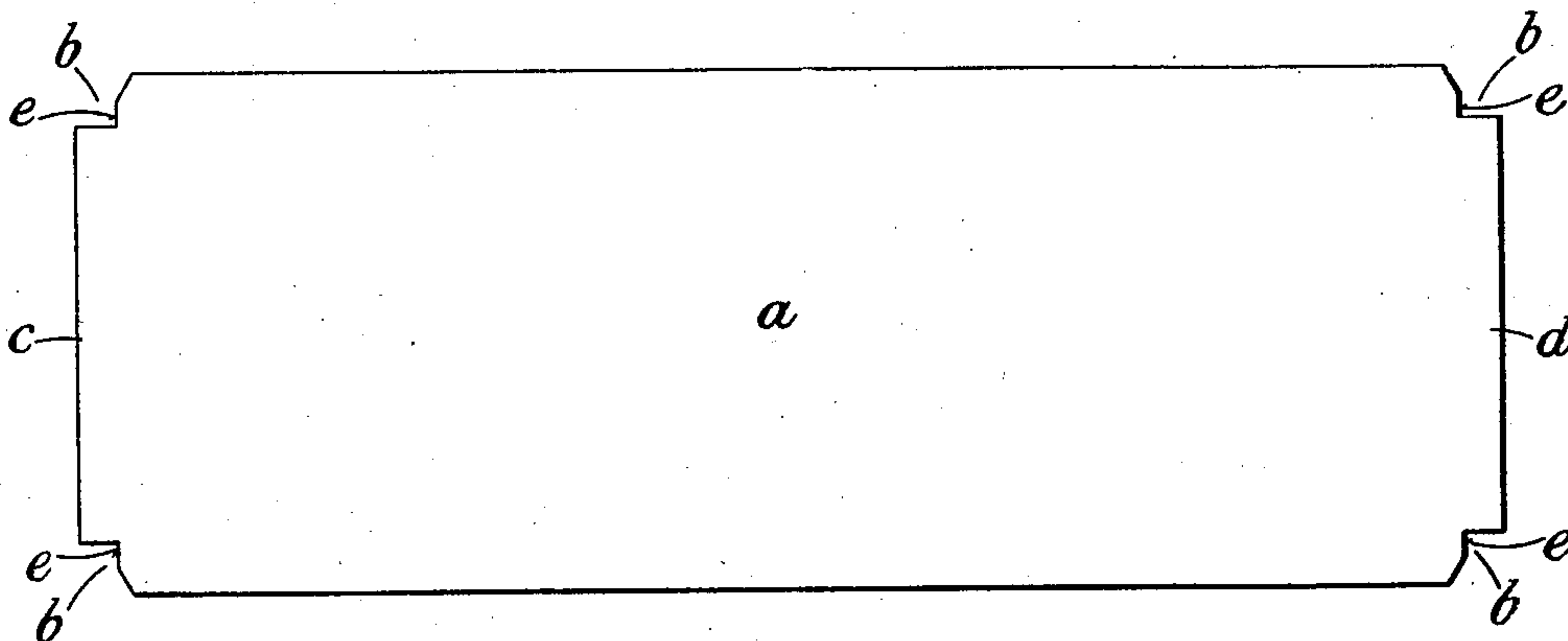


Fig. 2.

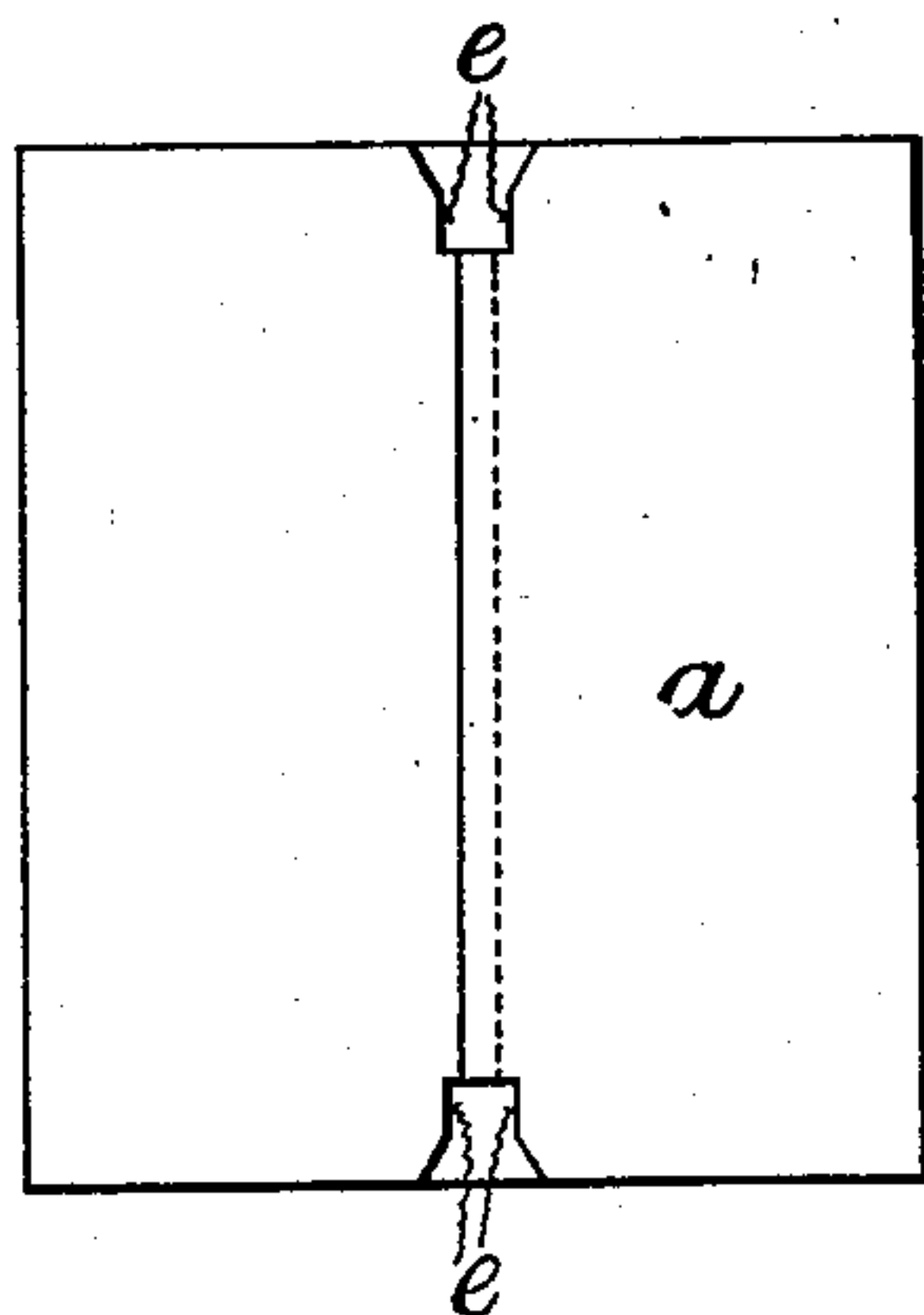


Fig. 4.

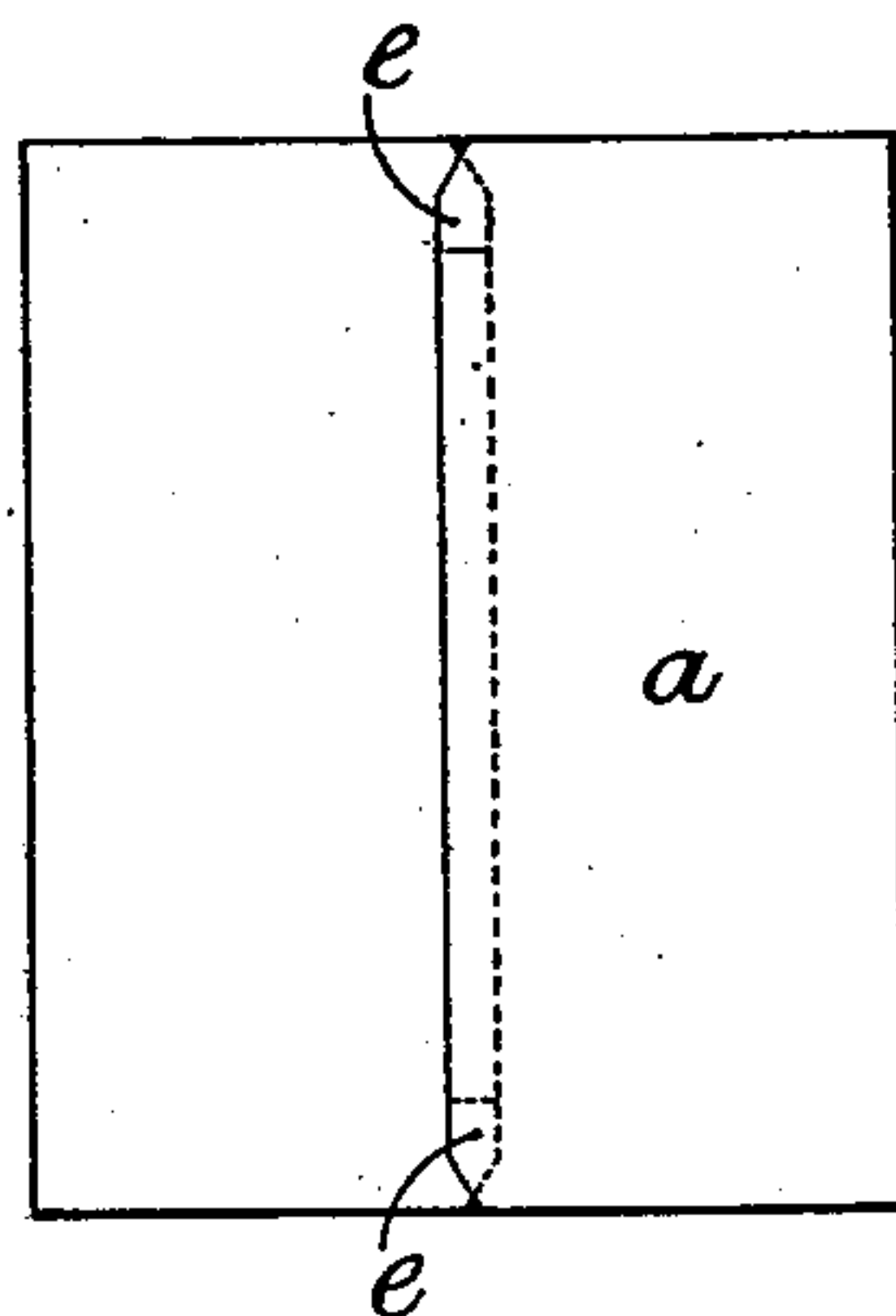


Fig. 3.

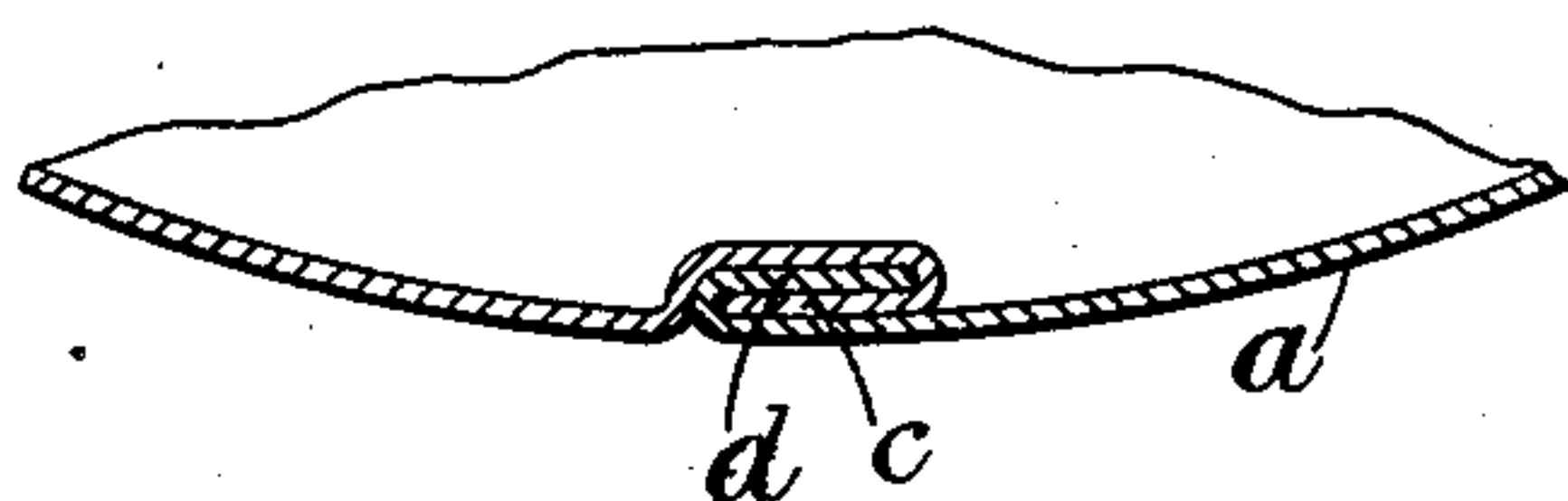
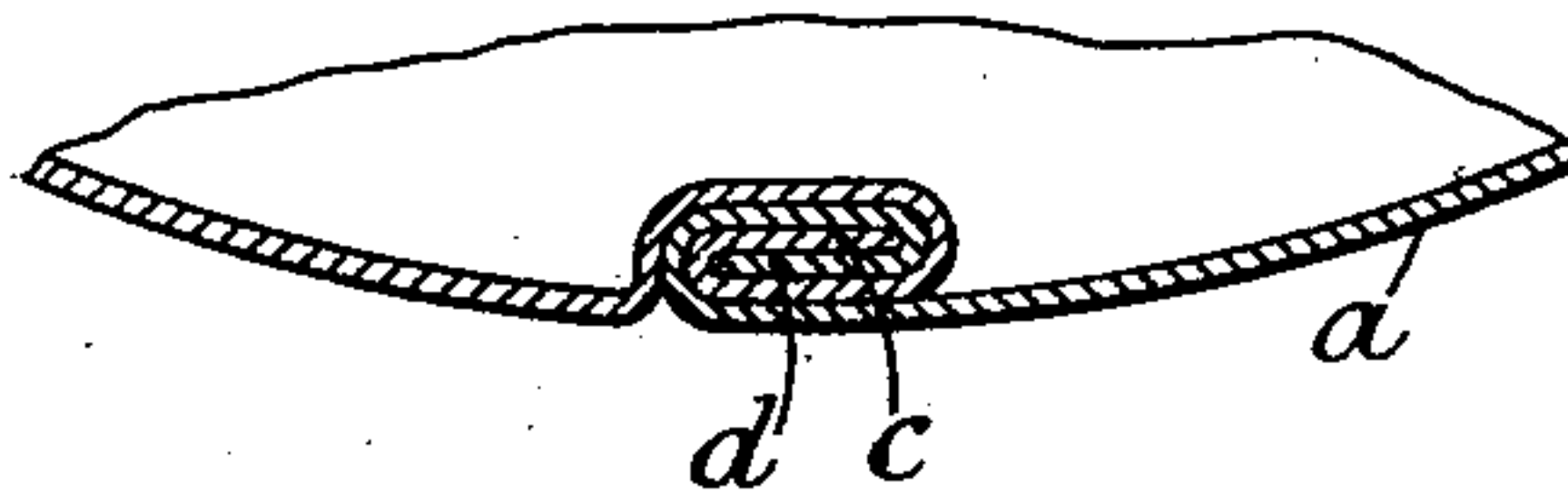


Fig. 5.



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2 Sheets—Sheet 2.

Fig. 6.

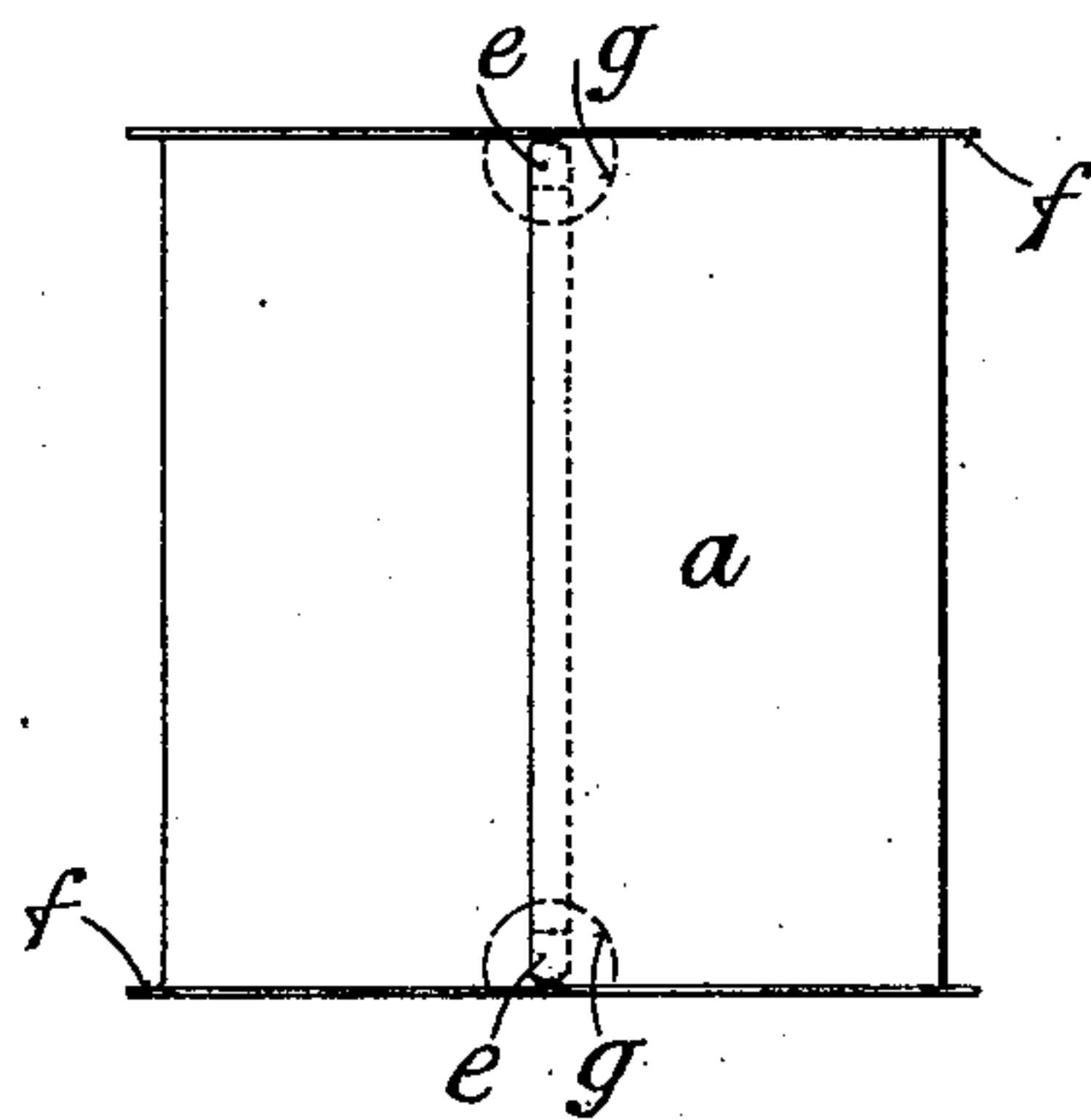
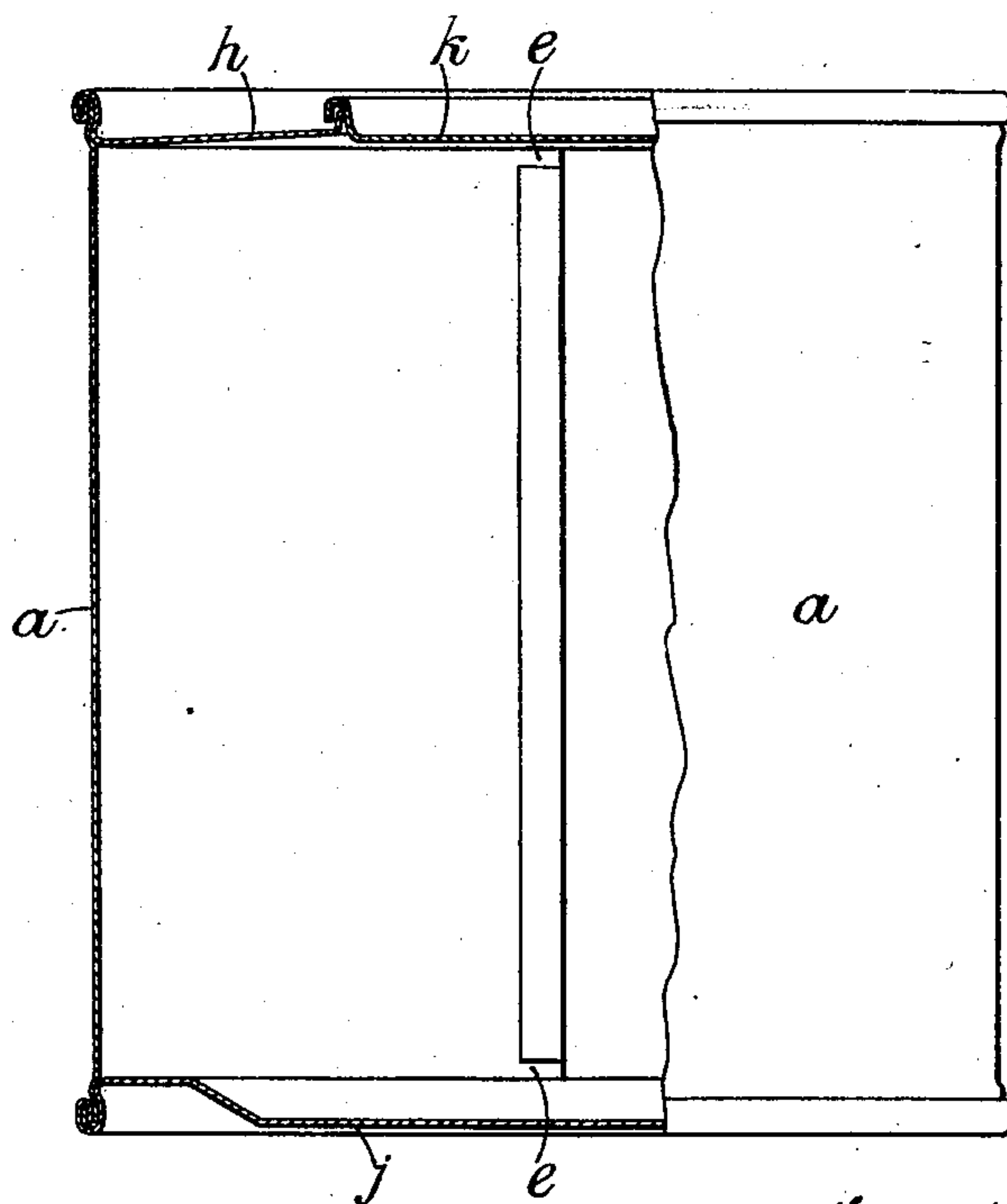


Fig. 7.



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UNITED STATES PATENT OFFICE.

ERNEST FEATHERSTONE GRIFFIN, OF FINCHLEY, AND WALTER EDWARD HIGGS, OF LONDON, ENGLAND.

SHEET-METAL BOX OR CAN.

SPECIFICATION forming part of Letters Patent No. 697,622, dated April 15, 1902.

Application filed December 23, 1901. Serial No. 86,921. (No model.)

To all whom it may concern:

Be it known that we, ERNEST FEATHERSTONE GRIFFIN, residing at Finchley, county of Middlesex, and WALTER EDWARD HIGGS, residing at London, England, subjects of the King of Great Britain, have invented certain new and useful Improvements in Sheet-Metal Boxes or Cans, of which the following is a specification.

10 This invention relates to improvements in the manufacture of sheet-metal boxes or cans, and is designed to produce a strong fluid-tight box or can while using a very small amount of solder.

15 This invention will be described with reference to the accompanying drawings, in which—

Figure 1 shows a blank of sheet metal from which the box or can is to be made. Fig. 2 is a side elevation, and Fig. 3 a partial transverse section, illustrating the first stage in the formation of the side seam. Figs. 4 and 5 are similar views to Figs. 2 and 3, respectively, illustrating the second stage in the formation of the side seam. Figs. 3 and 5 are drawn to a larger scale than Figs. 2 and 4. Fig. 6 is a side elevation showing the can-body flanged. Fig. 7 is a partial vertical section, on a larger scale, of a finished can.

30 Like letters indicate corresponding parts throughout the drawings.

The improved can is constructed as follows: A sheet *a* of tin-plate or other sheet metal of the requisite size is provided with notches *b* at its corners, as indicated in Fig. 1, leaving two laps or projecting pieces *c d*. The sheet *a* is then rolled into cylindrical form to bring the pieces *c d* together. The side seam is made by first folding over each of the pieces *c d* in opposite directions onto each other, thereby forming a seam such as that illustrated in Figs. 2 and 3. The seam so formed is then turned through an angle of about one hundred and eighty degrees to form a seam having six thicknesses of the metal, as shown in Figs. 4 and 5. We do not, however, limit ourselves to this number of folds, as in some cases a greater or less number can be employed, according to the length of the seam.

50 These seaming operations are performed in an ordinary side-seam grooving-machine.

The width of the pieces *c d* is made such that when the final seam, Figs. 4 and 5, is formed the edges *e* of the notches *b* overlap each other, as shown. Flanges *f*, Fig. 6, are then formed on the ends of the cylindrical body by means of suitable rollers in the ordinary machine employed for this purpose in the art, thereby producing the body, as shown in said Fig. 6. Thereupon the seam formed by the pieces *c d* is subjected to one or more blows along its whole length in a suitable press to bring the folds of metal forming the seams into close metallic contact with each other, and thus form a fluid-tight joint. The concave punch used in this step of the process for applying the blow or blows has a surface of the requisite curvature to produce a smooth external surface on the can or box, while the convex block for supporting the interior of the can-body during this operation is provided with a recess in which the folded seam formed from the pieces *c d* lies. The overlapping edges *e* are then fused together by tin or solder or like fusible metal, as shown in dotted lines at *g* in Fig. 6, which renders the whole of the side seam fluid-tight from one flange *f* to the other. By this means the main portion of the side seam is produced without the use of solder, tin, or the like, which is only used near the ends of the body, where it is necessary to reduce the thickness to a minimum in order to apply the head and bottom. This enables the amount of solder or tin used, and therefore also the cost of manufacture of the boxes or cans, to be very considerably reduced. The head *h*, with its lid or cover *k*, and the bottom *j*, all of which may be of any suitable form, are then secured in position by double seaming and expanding, as shown in Fig. 7, these joints being produced simultaneously, for example, by the machine described in the specification of Letters Patent No. 673,720 and expanded, for example, by the machine described in the specification of Letters Patent No. 623,802.

By performing the several steps of the process in the sequence above set forth it is possible to make a strong fluid-tight box or can.

What we claim is—

1. A sheet-metal box or can, comprising a body-piece rolled into cylindrical form, pro-

jecting pieces at two opposite edges of said body-piece, a solderless liquid-tight folded seam uniting said projecting pieces to form the can-body, overlapping edges forming continuations of said seam in both directions, fusible metal uniting said overlapping edges, flanges on the two ends of said can-body, and end pieces secured to said flanges, substantially as described.

2. The method of making sheet-metal boxes or cans, consisting in forming notches in the corners of a body-piece of sheet metal so as to form projections at opposite edges of said body-piece, rolling said body-piece into a cylindrical form, uniting said projections by a solderless liquid-tight multiple-fold seam to form the can-body, flanging the ends of said can-body, striking said seam along its whole length, uniting by fusible metal the overlapping edges of said body-piece beyond said

seam, forming head or top and bottom pieces for the can-body, and securing said pieces to the body, substantially as described.

3. A can-body comprising a body-piece of sheet metal rolled into cylindrical form, projecting pieces at two opposite edges of said body-piece, a solderless liquid-tight folded seam uniting said projecting pieces, flanges at the ends of said body, overlapping edges at the ends of said seam, and solder uniting said overlapping edges, substantially as, and for the purpose, hereinbefore described.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

ERNEST FEATHERSTONE GRIFFIN.

WALTER EDWARD HIGGS.

Witnesses:

ERNST LAPPERT,

GEORGE HARRISON.