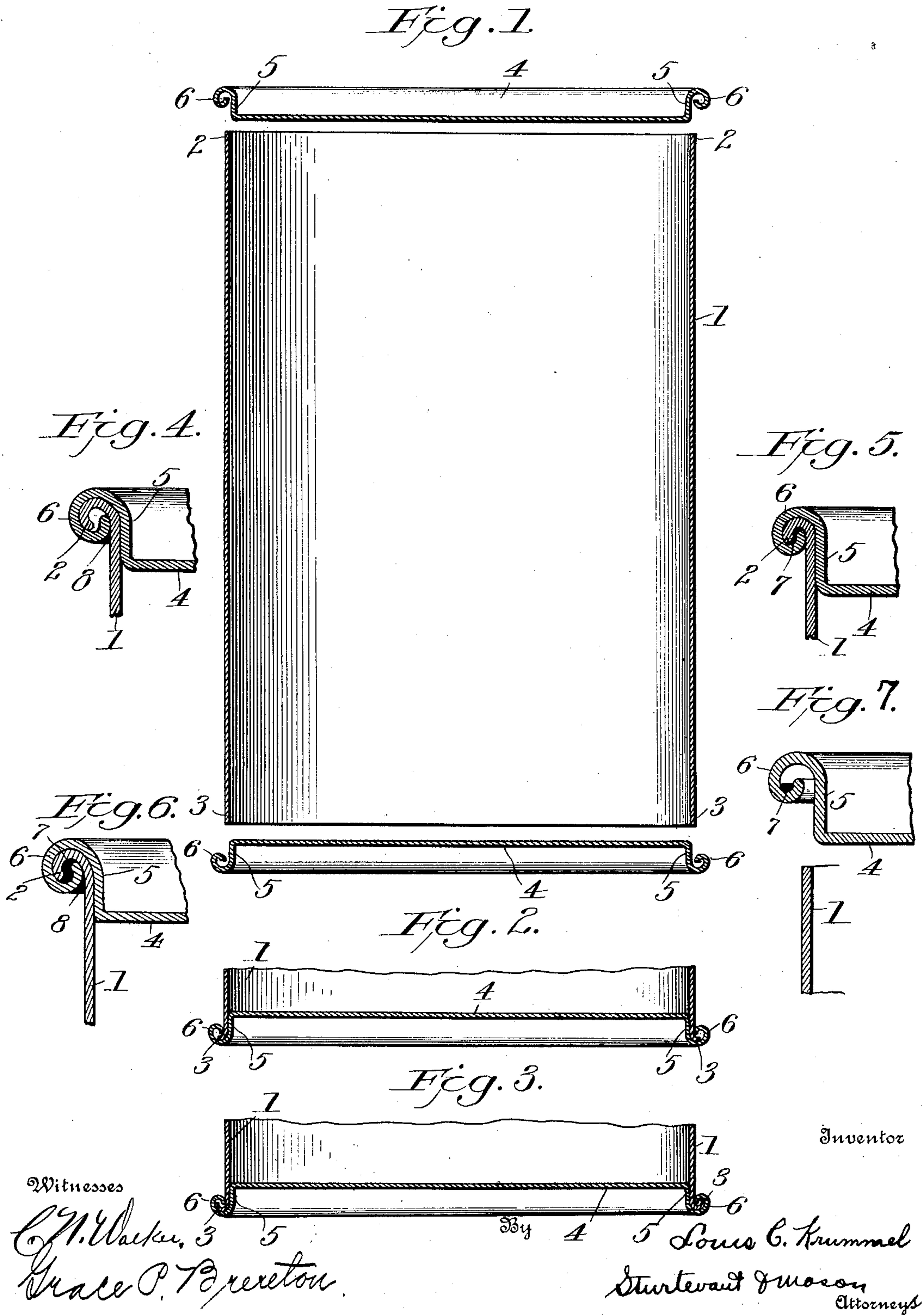


No. 874,346.

PATENTED DEC. 17, 1907.

L. C. KRUMMEL.  
METHOD OF FORMING SHEET METAL RECEPTACLES.  
APPLICATION FILED JULY 11, 1907.





# UNITED STATES PATENT OFFICE.

LOUIS C. KRUMMEL, OF CLINTON, CONNECTICUT.

## METHOD OF FORMING SHEET-METAL RECEPTACLES.

No. 874,346.

Specification of Letters Patent.

Patented Dec. 17, 1907.

Application filed July 11, 1907. Serial No. 383,246.

*To all whom it may concern:*

Be it known that I, LOUIS C. KRUMMEL, a citizen of the United States, residing at Clinton, in the county of Middlesex, State of Connecticut, have invented certain new and useful Improvements in Methods of Forming Sheet-Metal Receptacles, of which the following is a description, reference being had to the accompanying drawing and to the letters and figures of reference marked thereon.

This invention relates to the method of forming sheet metal receptacles, and has for its object more especially to improve the method of connecting the end blank to the body portion of the receptacle, whereby said end blank may be quickly secured to the body portion by a joint or seam, that will securely hold the parts together, so that all liability of the parts being separated in handling or in transportation, is avoided, which joint or seam also may be made perfectly hermetic if desired.

A further object of the invention is to provide a method of connecting the closing blanks to the body of a receptacle wherein the parts may be interlocked by the use of simple expedients and wherein there is little or no wear upon the assembling mechanism, and furthermore, wherein the steps are few in number and quickly performed so that the receptacles may be made in large quantities in a given time.

The invention consists in the novel steps hereinafter described and set forth in the claims.

In the drawings which show by way of illustration a receptacle made by the present improved method:—Figure 1 is a sectional view showing the receptacle body and the closing blanks before being applied to said body. Fig. 2 is a sectional view of one end of the receptacle wherein a slight amount of pressure has been used in joining the end blank to the body portion of the receptacle, so that said end blank may be removed if desired. Fig. 3 shows a sectional view of the end of a receptacle wherein considerable pressure has been used in joining the parts and the body portion of the receptacle has been crowded entirely into the curl so that the parts are firmly locked together. Fig. 4 is an enlarged sectional view of the seam or joint shown in Fig. 3. Fig. 5 is a view similar to Fig. 4, wherein a sealing material is used so that the seam or joint is made hermetic. Fig. 6 shows in section a seam for a

receptacle with both inner and outer seal. Fig. 7 is a detail sectional view showing the closing blank with the completely curled edge and a sealing material therein as the same is about to be applied to the can body.

In carrying out my improved method, I form the body 1 of the receptacle in the usual manner; and when making a round receptacle, the sheet metal is merely rolled into a cylinder the meeting edges overlapped and soldered or otherwise secured.

The outer ends 2 and 3 of the cylinder, are now ready to receive the closing blanks and do not require any further bending or preparation for the reception of said closing blanks. The closing blank has a portion 4 formed of practically the same area as the inside cross sectional area of that portion of the body of the receptacle to which it is to be applied. Said closing blank is formed with a flange 5 which extends laterally from the portion 4 and is bent outwardly and then downwardly and inwardly and then upwardly to form a curl 6, which extends entirely around the closing blank.

The inner edge of the curl 6 is slightly spaced from the flange 5. The closing blank is placed on the outer edge of the body portion of the receptacle, so that the edge of the receptacle which is straight enters between the flange 5 and the inner edge of said curl 6. Pressure is now applied to the closing blank or to the receptacle so that the parts are forced together and the edge of the body portion of the receptacle is bent by means of the curl in the closing blank so that the parts are interlocked. This pressure is preferably applied in a direction at right angles to the plane of the closing blank and the entire blank forced on to the body portion of the receptacle at one time, although it is obvious that the pressure may be applied in any other way that will secure the result desired.

The curled flange on the closing blank serves as a die to curl the edge of the body portion of the receptacle. In applying the pressure, the closing blank may be backed up with a suitable block which if desired, may be so formed as to conform to the outer surface of the curled edge on the closing blank. From my method of joining the closing blank to the body portion of the receptacle, it will be noted that the curled edge on the closing blank serves as a die to curl the edge of the body portion of the receptacle and therefore, the wear incident to the moving



of the raw edge of the sheet metal upon the curling die is received by the closing blank and the supporting block for the closing blank, receives little or no wear.

5 By applying the closing blank directly to the body portion of the receptacle, I am thereby enabled to use a great deal of pressure in assembling the parts, and for this reason, the curled edge on the flange of the  
10 closing blank may be made approximately of the same size as the seam, or joint used ordinarily in closing receptacles and therefore, after the parts are assembled, no further pressure is required to close the seam or joint  
15 between the parts.

It will be noted that my method may be used to apply closing blanks to both ends of the body of the receptacle, and thus complete the entire receptacle or the method  
20 may be used to form the bottom of the receptacle, while other means is used to place the cover on the same. While I have referred to my receptacle as being cylindrical in shape, it is very evident that said receptacle  
25 may be rectangular or of any other shape.

If only a small amount of pressure is used in assembling the parts, the body portion of the can will extend only a slight distance into the curled edge on the closing blank as  
30 shown in Fig. 2 and the parts thereby will be locked together.

By this form of construction, a suitable implement may be applied to the cover of the closing blank and the same removed  
35 from the body portion of the receptacle. When however, it is desired to form a permanent seam between the parts, considerable pressure is applied and then the edge of the body portion of the receptacle will extend  
40 around into the curled edge on the closing edge as shown in Fig. 4 and the parts thereby firmly interlocked, so that they cannot be removed without practically destroying the closing blank.

45 When it is desired to hermetically seal the receptacle, I may place in the curled edge of the closing blank a suitable sealing material 7 (see Fig. 5), and as the body portion is forced into the curled edge of said closing

blank, the sealing material will effectively 50 seal the joint thereby providing a seam or joint which is perfectly hermetic, or if desired, a sealing material 8 (see Fig. 4), may be applied to the joint after the parts have  
55 been interlocked.

The invention in its broader aspects is not limited to the formation of the particular receptacle herein disclosed, nor to any particular formation of receptacle, nor to any particular form of closing blank, as changes 60 may be made therein without departing from the main principle of the invention, and without sacrificing its chief advantages.

Having thus particularly described my invention, what I claim as new and desire to 65 secure by Letters Patent, is:

1. The method of forming sheet metal receptacles, which includes the formation of a finished closing blank, with a completely curled edge, placing said blank upon the un- 70 curled edge of the receptacle body, with the edge thereof extending into said curl, applying pressure so that the closing blank is given a movement relative to said body portion, the curled edge of the blank causing the edge 75 of the body portion to be curled and interlocked with said curled edge on the closing blank.

2. The method of forming a sheet metal receptacle which includes the formation of a 80 finished closing blank with a completely curled edge, providing said curled edge with a sealing material, placing said blank upon the uncurled edge of the receptacle body with the edge thereof extending into said 85 curl, applying pressure so that the closing blank is given a movement relative to said body portion, the curled edge of the blank causing the edge of the body portion to be curled and interlocked with said edge on the 90 closing blank.

In testimony whereof I affix my signature, in presence of two witnesses.

LOUIS C. KRUMMEL.

Witnesses:

AGNES KRUMMEL,  
LILY RICHTER.