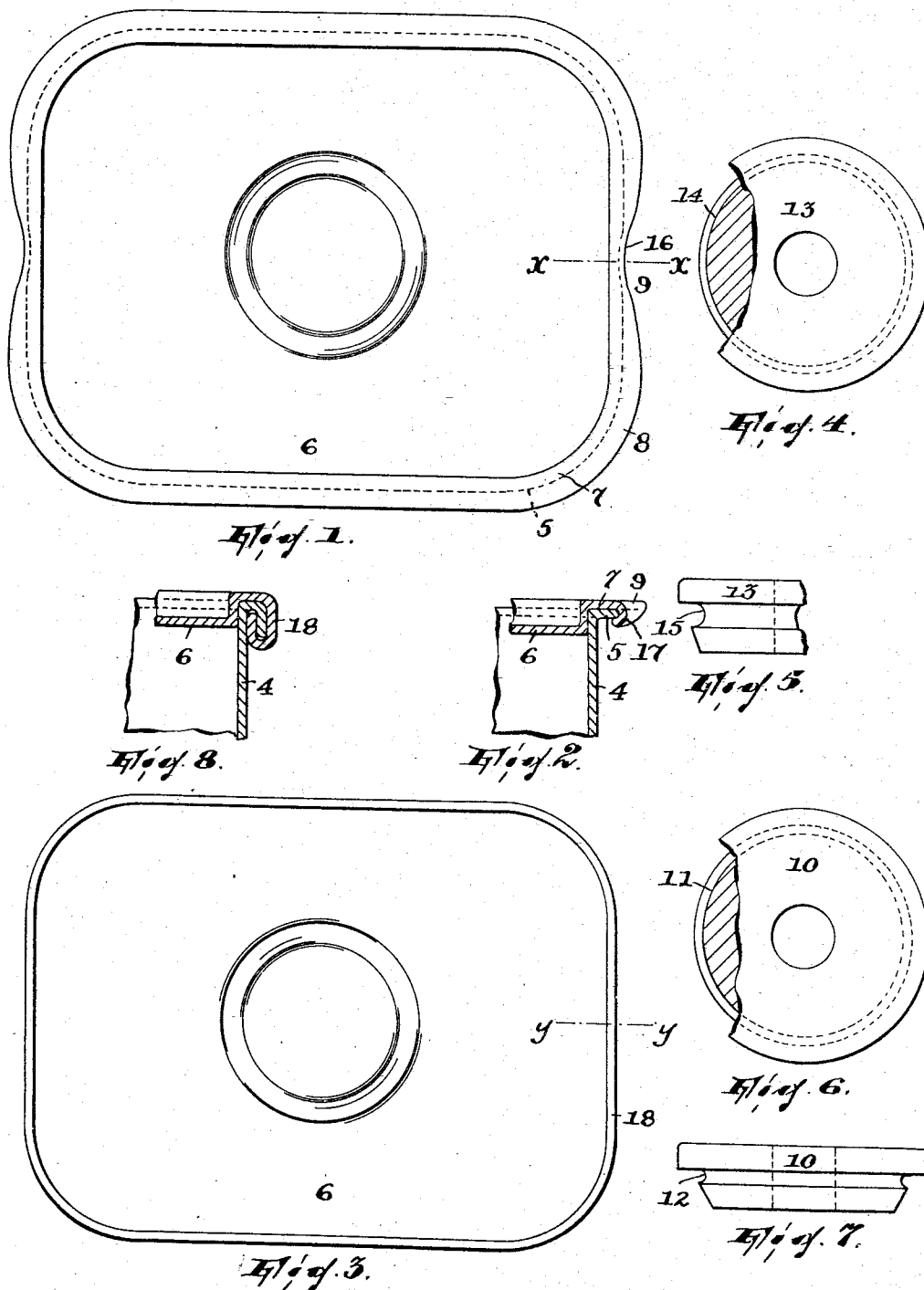


B. ADRIANCE.
METHOD OF HEADING SHEET METAL CANS.
APPLICATION FILED JULY 22, 1907.

939,197.

Patented Nov. 9, 1909.



WITNESSES

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BENJAMIN ADRIANCE, OF BROOKLYN, NEW YORK.

METHOD OF HEADING SHEET-METAL CANS.

939,197.

Specification of Letters Patent.

Patented Nov. 9, 1909.

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To all whom it may concern:

Be it known that I, BENJAMIN ADRIANCE, a citizen of the United States, residing in Brooklyn, Brooklyn borough, State of New York, have invented a certain new and useful Improvement in Methods of Heading Sheet-Metal Cans; 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 numerals of reference marked thereon, which form a part of this specification.

This invention contemplates effecting a preliminary connection between the head and the body of a sheet-metal can before said parts are permanently united by a heading or seaming machine. Thus any shifting of the head before and during the seaming operation is avoided, spilling is prevented, and the manipulation of the can during the seaming operation is facilitated. Referring to the accompanying drawing, Figure 1 is a plan view of a can headed according to my invention, showing the parts before the seam is formed; Fig. 2 is an enlarged cross-section on line $x-x$ of Fig. 1; Fig. 3 is a plan view of a can after the continuous seaming or turning-over is complete; Fig. 4 shows, in plan, a clenching roll, partly in section; Fig. 5 is a side view of the clenching roll in Fig. 4; Fig. 6 shows the "first operation" seaming roll in plan, partly in section; Fig. 7 shows the roll in Fig. 6 in side elevation; and, Fig. 8 is a sectional view on the line $y-y$ of Fig. 3.

The can-body 4 is flanged, as at 5; while the countersunk cover or head 6 has a flange 7, which is supported upon flange 5 and projects over the same, as at 8. In order to effect the temporary connection desired, the flange 7 is clenched or bent at suitable points, so as to there become interlocked with flange 5, Fig. 1. The points 9 at which the clenching operation takes place should be spaced or distanced from each other, the flange-sections between the clenched points retaining their original shape.

It will be understood by those familiar with this art that the seaming operation is performed by one or more tools 10, usually rolls, each having an acting face which presents a convex curve 11 longitudinally thereof and a concave curve 12 transversely there-

of. I have discovered that the clenching tools (see rolls 13, Figs. 4 and 5) should have an acting face presenting the curves 14 and 15 substantially identical to the respective curves 11 and 12 of the seaming tools; if the clenching and seaming tools are substantially identical in this respect, when the seaming tools (which preface their operation of continuously turning-over the flanges 5 and 7 as hereinafter stated by first presenting themselves in the recesses formed by the clenching at 9) begin the seaming or turning-over operation, they do so under perfect conditions of accurate fit and position to the portions of the metal first affected by them, so that the leakage in the can seam which has very frequently manifested itself where no regard to this expedient is had is fully avoided. Thus, in Fig. 1 the clenched points 9, produced by the rolls 13, present in plan, Fig. 1, concave curves 16 which have the same radius as that of the curve 11 of roll 10, and in section, Fig. 2, convex curves 17 which have the same radius as that of the curve 15 of the roll 10.

By the expression "first operation" seaming rolls, I have reference to the first (to operate on the seam in the seaming operation) of two rolls, the principal function of the second of which is to follow the first and finish and perfect the seam.

After the cover has been temporarily secured to the can-body by the clenching rolls in the manner above indicated, the can is subjected to the action of the seaming rolls, which turn down both flanges 5 and 7 along the entire circumference of the can, including the clenched portions thereof, leaving the can substantially as it appears in Fig. 3. In the seam thus formed the edge of the cover flange 7 is folded around the flange 5, so as to be brought sidewise against the can body and be interposed between such body and its turned-down flange. There is thus formed a continuous seam or lock-joint 18, Figs. 3 and 8, which forms a permanent connection with the can and its cover.

The drawing shows the invention applied to a square can clenched at two uniformly spaced points; but it is evident that the number and relative position of such points may be changed and the invention applied to cans of various shapes, as well as the final configuration of the seam varied according to the nature of the seam or lock-joint which it is desired to form.

It may be remarked that the concave curves 12 and 15 presented by cross-sections of the grooves of the rolls 10 and 13, respectively, and the convex curves 17 presented by cross-sections of the clenched portions of the can flanges, all have identical radii; likewise, the convex curves 11 and 14 presented by sections of the rolls 10 and 13, respectively, each in the plane of the roll groove, and the concave curves 16 revealed in the plan of the clenched portions of the can flanges, all have identical radii. In Fig. 5 the curve 15 is exaggerated to present conformity with the curve 17 which it is made to have the appearance of having just formed owing to the relative approximation of these two figures on the drawing.

It will be understood that the clenching tools in practice form parts of one organism and the seaming tools parts of another distinct organism, and that the can is first presented to the clenching means and then removed therefrom and subjected to the action of the seaming means.

Having presented in a separate application executed on even date herewith a claim for the method of heading sheet metal cans which comprises the foregoing steps and the further step of turning-down both flanges along their entire circumference, I make no claim thereto herein; but

What I do claim is:

1. The method of heading sheet-metal cans which consists in placing a flanged

cover on a flanged can-body, clenching a relatively limited portion of the cover-flange to the body-flange by means of a tool having an acting face whose longitudinal section presents substantially the same contour as that of the acting face of the seaming tool which is to follow the clenching tool in the operation of completing the heading, and then causing said seaming tool to fold-over said flanges, introducing said seaming tool first at the clenching point as a starting point, substantially as described.

2. The method of heading sheet-metal cans which consists in placing a flanged cover on a flanged can-body, clenching a relatively limited portion of the cover-flange to the body-flange by means of a tool having a grooved acting face whose cross-section presents substantially the same contour as the grooved acting face of the seaming tool, which is to follow the clenching tool in the operation of completing the heading, and then causing said seaming tool having a grooved acting face to fold-over said flanges, introducing said seaming tool first at the clenching point as a starting point, substantially as described.

In testimony, that I claim the foregoing, I have hereunto set my hand this 2nd day of July, 1907.

BENJAMIN ADRIANCE.

Witnesses:

JOHN W. STEWARD,
WM. D. BELL.