

(No Model.)

C. LONG & J. B. OSBORN.
EXPANSION CLAMP FOR SHEET METAL CANS.

No. 415,544.

Patented Nov. 19, 1889.

Fig. 1.

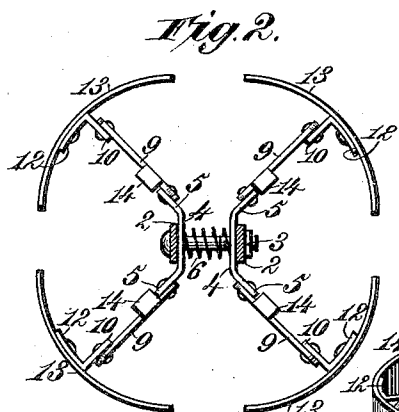


Fig. 3.

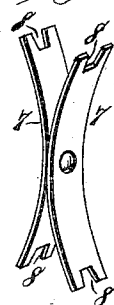
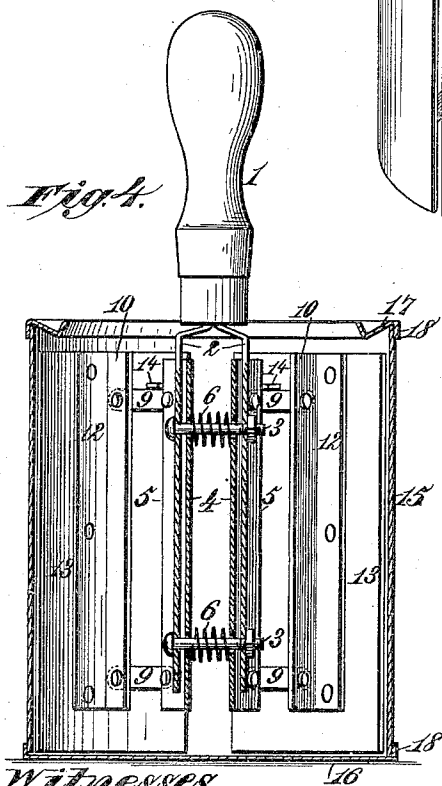
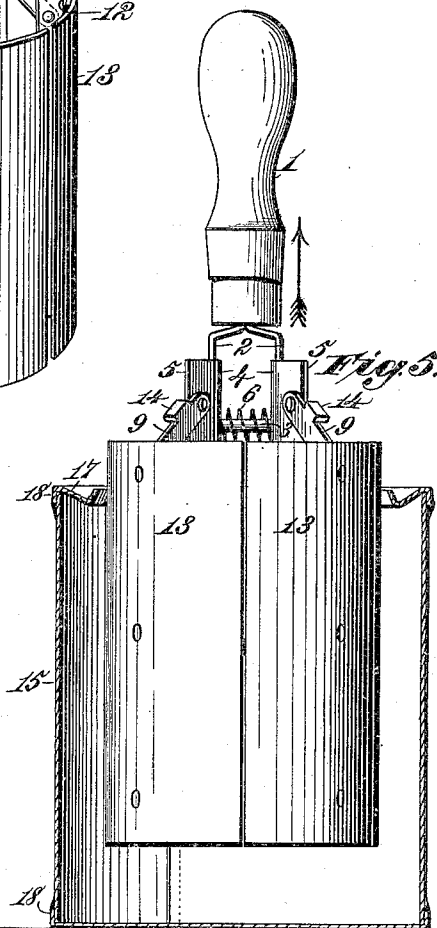


Fig. 4.



Witnesses.
Robert G. Vreeland
J. A. Rutherford

Inventors.
Clark Long
James B. Osborn
By *James L. Norris*
Att'y.

UNITED STATES PATENT OFFICE.

CLARK LONG AND JESSE B. OSBORN, OF GALLATIN, MISSOURI.

EXPANSION-CLAMP FOR SHEET-METAL CANS.

SPECIFICATION forming part of Letters Patent No. 415,544, dated November 19, 1889.

Application filed August 15, 1889. Serial No. 320,833. (No model.)

To all whom it may concern:

Be it known that we, CLARK LONG and JESSE B. OSBORN, citizens of the United States, residing at Gallatin, in the county of

5 Daviess and State of Missouri, have invented new and useful Improvements in Expansion-Clamps for Sheet-Metal Cans, of which the following is a specification:

Our invention relates to the manufacture
10 of sheet-metal cans, and the purpose thereof is to provide a simple and easily-operated expansion-clamp for expanding the cylindrical body of the can and holding it firmly, with an elastic pressure, against the upset or
15 turned rims or flanges of the top and bottom plates of the can, whereby the parts are rigidly retained in their true relative position during the process of soldering the can.

It is our purpose to simplify the construction and improve the operation of devices of this type, to provide for the adjustment of the elastic force acting upon the expansion-arms and for the ready substitution of one
20 form of spring for another and different form, and to render the parts easily separable for repair or for other purposes.

The invention consists, to these ends, in the several novel features of construction and new combinations of parts hereinafter fully
30 set forth, and then defined in the claims following this specification.

To enable those skilled in the art to practice our invention, we will now proceed to describe the same in detail, reference being had
35 to the accompanying drawings, in which—

Figure 1 is a perspective view of the complete device. Fig. 2 is a transverse section taken just below the handle in Fig. 1, showing the parts in their expanded position.
40 Fig. 3 is a detail perspective of a modified form of expansion-spring. Fig. 4 is a central vertical section showing the device in operation, the parts of the can being shown in position for soldering. Fig. 5 is a similar view
45 of the same parts after the soldering process is completed, the expansion-clamp being shown as it is collapsed and while being withdrawn from the can.

In the said drawings the reference-numeral
50 1 designates the handle of the expansion-clamp, from which depends a bifurcated stock or shank consisting of two parallel arms or

plates 2. Near the upper end of this stock openings are formed, which permit the insertion of a bolt 3, spanning the interval between the plates 2, and a similar bolt (designated by the same numeral) is inserted at or near the lower ends of the same plates, and nuts are turned upon the ends of both bolts. These bolts support two similar angle-plates 4, formed of metal of suitable strength, each plate having a central portion of suitable width, which lies against the inner face of one of the plates 2, said central portion being provided with marginal lateral portions or strips 5, bent at an angle of forty-five degrees, or thereabout, with the central portion. Being mounted upon the bolts 3 inside the parallel plates 2, the angle-plates are free to move upon said bolts toward and from each other as far as permitted by the tension of springs 6, which are interposed between the central portions of said plates. A convenient manner of inserting and supporting these springs is to coil them upon the bolts 3; but we may substitute for the spiral springs shown any form of spring of suitable elastic tension, such as rubber cushion-springs, leaf-springs, &c. We may also use the double spring shown in Fig. 3, consisting of two bent or arched flat springs 7, placed with their convex faces adjacent and centrally united by a rivet or other device. Notches 8 are formed in the ends of these leaf-springs, and the latter being inserted between the angle-plates the bolts 3 lie in these notches and retain the springs in place.

Pivottally connected at one end to the lateral portions 5 of the angle-plates 2 are links or arms 9, which at their other ends are pivoted to a strip 10, forming part of an angle-plate 12. Two of these arms are mounted upon each lateral portion 5 of each angle-plate, one near the top and the other at or near the bottom. Both arms are of the same length and move in parallelism. The angle-plates 12 are riveted or otherwise fastened to the inner or concave faces of expansion-plates 13, which are formed of metal of suitable thickness and of a length somewhat less than the depth of the can. The angle-plates 12 lie against the concave faces of the expansion-plates at such a point that their strips 10 project from the longitudinal center of said plates, or there-

about. Upon each of the arms or links 9, pivoted to the upper ends of the plates 2, are formed lugs 14, which are so located that when said arms and those moving in parallelism therewith are extended in projecting and expanding the plates 13 radially said lugs will abut against the edges of the lateral strips 5 at the point of utmost expansion and arrest the pivotal movement of the said arms, the construction being such, however, that said arms are permitted to pass very slightly beyond the angle of ninety degrees with the axis of the handle before the lugs make said engagement in order to retain the parts in their expanded position against the contracting force exerted by the body of the can. These lugs may be placed upon the arms or links 9, pivoted to the lower ends of the plates 2, if preferred.

20 The method of using the expansion-clamp is as follows: The can-body 15 being cut out and rolled into approximately - cylindrical form, and the bottom plate 16 and top plate 17 being struck up in dies, forming upon each the upset rim or flange 18, these parts are assembled with the body portion lying within these flanges in the usual manner. The expansion-clamp is then inserted until the lower ends of the expansion-plates 13 rest upon the bottom plate 16. Downward pressure is then exerted upon the handle 1, whereby the arms or links 9 are turned or swung into horizontal position and very slightly beyond said position, thereby projecting the expansion-plates 13 against the inner face of the can-body and forcing it against the rims or flanges 18, and at the same time imparting the required true cylindrical form to the body portion. Under the expanding pressure thus exerted the angle-plates 4 yield against the tension of the springs interposed between them, equalizing the pressure upon each of the expansion-plates 13 and holding them firmly against the can-body with an elastic pressure, whereby the top and bottom plates are not only held rigidly in place, but the edges of the body portion are brought at all points into contact with the rims 18 in position to receive the solder. In this position the lugs 14 engage the edges of the marginal strips 5 of the angle-plates and hold the parts in their expanded engagement. The can is now soldered either in a soldering-machine or in any other suitable manner, whereupon the handle 1 is raised, swinging the arms or links 9 downward and contracting the expansion-plates 13, after which the clamp may be readily withdrawn through the opening in the top plate, as shown in Fig. 5.

60 The essential features of construction and organization shown and described may be considerably modified without departing from the spirit of our invention.

What we claim is—

65 1. In an expansion-clamp for sheet-metal cans, the combination, with a stock or shank, of angle-plates supported and movable upon

bolts carried by said shank or stock and provided with marginal or lateral strips bent at an angle with their central portions, and expansion-plates connected to said angle-plates by arms or links pivotally attached to said marginal strips, substantially as described. 70

2. In an expansion-clamp for sheet-metal cans, the combination, with a stock or shank, of angle-plates movably supported on bolts carried by said stock or shank, a spring or springs interposed between said angle-plates, and expansion-plates connected to said angle-plates by pivotally-attached links, substantially as described. 75 80

3. In an expansion-clamp for sheet-metal cans, the combination, with a stock or shank consisting of two parallel vertical arms, of angle-plates lying against the inner faces of said vertical arms and having support upon bolts connecting the latter, springs interposed between said angle-plates and held in position by said bolts, and expansion-plates pivotally connected to marginal portions of the angle-plates by links or arms, substantially as described. 85 90

4. In an expansion-clamp for sheet-metal cans, the combination, with a stock consisting of two vertical and parallel arms, of angle-plates lying against their inner faces and movably supported on bolts which connect said parallel arms, links pivotally connected at one end to marginal or lateral portions of said angle-plates bent at an angle with the central longitudinal portions of the latter, expansion-plates having angle-plates connected to their inner concave faces and attached pivotally to the outer ends of said links, and spiral springs interposed between said angle-plates and supported on the bolts connecting them, part of said links being provided with lugs which abut against the edges of the angle-plates when the clamp is expanded, substantially as described. 95 100 105 110

5. In an expansion-clamp for sheet-metal cans, the combination, with a stock or shank composed of the parallel arms 2, connected by bolts 3, of the angle-plates 4, having marginal or lateral portions 5, said plates lying against the inner faces of the arms 2 and being supported on the bolts 3, springs 6, interposed between said plates and supported on the bolts, links 9, pivotally connected at one end to the marginal portions 5 of the angle-plates, and expansion-plates 13, having angle-plates 12, pivotally connected to the other ends of said links, part of the latter being provided with lugs 14, which abut against the edges of the marginal portions 5 when the links are extended, substantially as described. 115 120 125

In testimony whereof we have affixed our signatures in presence of two witnesses.

CLARK LONG.

JESSE B. OSBORN.

Witnesses:

T. J. IRVIN,

S. E. ONIGAN.