

Patented Aug. 9, 1870.



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United States Patent Office.

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Letters Patent No. 106,257, dated August 9, 1870.

IMPROVEMENT IN MACHINES FOR SOLDERING METALLIC VESSELS.

The Schedule referred to in these Letters Patent and making part of the same

I, EDWARD T. COVELL, of Brooklyn, in the county of Kings and State of New York, have invented certain Improvements in Apparatus for Soldering Tin Cans and other Vessels, of which the following is a specification.

Nature and Object of the Invention.

This invention is designed to facilitate the process of soldering tin cans and other vessels by dipping the seams in molten solder, and relates to the combination of one or more suitable devices for supporting the cans while they are being immersed in the solder, with a carriage or stand moving horizontally over the pan containing it, to and from the same, either in a right line, or, by preference, about a central vertical axis, the object of my invention being to simplify and more readily control the entire operation of arranging and presenting the cans for immersion in the solder-bath, and their removal therefrom, as that with ordinary labor it may be accomplished with far greater rapidity than has heretofore been the case.

Description of the Accompanying Drawing.

Figure 1 is a top or plan view of my apparatus, when constructed to revolve upon a central pivot.

Figure 2 is an elevation thereof.

Figure 3, a plan view of my apparatus when constructed to move in a right line, the extremities of the apparatus being broken away;

Figure 4 being a transverse section, taken in the direction of the indirect line $x\ x$ of fig. 3.

General Description.

A is a circular plate or carriage, revolving about and upon a central standard, B.

C C C C are supports for metallic cans, each suspended between two upright standards or guides, D D D D, secured to the revolving plate or carriage A, at proper intervals, upon spiral springs, encircling said standards, so as to have a vertical movement between them.

E E E E are openings, cut through the carriage-plate A, between the standards D D and D D, corresponding in form to the supports C C, and made large enough to admit of a ready passage of the supports and of the cans placed thereon through them when the latter are depressed.

F is a central upright pillar, extending from and forming a continuation of the standard B, upon which the carriage revolves.

G is a lever, pivoted at or near one end to the upper end of said pillar F, and extending thence far enough to project beyond the perimeter of the carriage A.

H is a set-screw, working vertically in a projecting

piece, secured to the side of the pillar F, immediately under the lever, to limit its downward movement.

L is a spring, secured to the short arm of the lever, projecting beyond its pivot point, and which serves to lift the lever after it has been depressed.

K K are rods, extending between and connecting the two arms, $c\ c$, fig. 2, of each support. These rods are each bent upwardly far enough to come within reach of the long arm of the lever, so that when the lever is depressed, it shall bear thereon, and, forcing the same down, depress the support and carry it through the opening in the carriage-plate to reach the bath of molten solder beneath.

L, fig. 2, is a solder-pan, upon a suitable furnace, placed under the carriage at a point directly under the lever G. The solder-pan is so arranged as that the carriage A shall cover it closely, while the openings E E therein will, in its movements, pass directly over the same.

M is a can to be soldered, illustrated as placed upon one of the supports, C, of the apparatus, and brought under the lever and over the solder-pan in position to be dipped therein. When the support is in this position, the lever G drops, when forced down, into a central notch, t , fig. 2, in the cross-rod K, which prevents any movement of the support in a horizontal direction.

P, fig. 3, is a plate or carriage, arranged to move horizontally in and between suitable ways R R', placed on each side thereof.

E' E' are openings formed in the plate, and O' O' C' C' supports arranged to move vertically over said openings between standards D' D', secured to the carriage and provided with a transverse rod K', as heretofore described with reference to the carriage A, figs. 1 and 2.

L', fig. 4, is a solder-pan and furnace, arranged under the carriage P, in such position as that the openings in the carriage may be brought successively over the pan.

S is a standard or pillar, secured to one of the ways, R', opposite the furnace L', to the upper end of which is pivoted a lever, G', extending out over the carriage, and centrally over the solder-pan, to bear upon the cross-rods of the supports on the carriage, when they are brought in line beneath it.

When my apparatus is in operation the cans to be soldered, whose seams have first been properly closed and dipped in acid or other flux, are placed successively upon the supports on one side of the solder-pan. The carriage is then revolved or moved forward until one of the supports carrying a can is brought centrally under the lever of the machine. The lever being now pressed down will force the support down through its opening in the carriage far enough

to cause the seams of the can thereon to dip into the molten solder in the pan below, the exact degree of immersion being regulated by the means of the set-screw H controlling the movement of the depressing-lever G.

After the seams have thus been immersed, the lever, being released, will be immediately elevated by its spring L, and the support at the same time lifted by the springs upon its guide-standards D D, and by a movement of the carriage the next can may be brought in position over the solder-pan, and that which has been soldered be carried forward to be readily removed from the apparatus.

It is evident that various forms of supports and supporting-plates may be combined with the carriages A or P, and also that the solder-pans or vessels may be of any form or design, and be constructed as well with simple channels to contain the solder as with an open body to contain a continuous mass thereof. Also, that the supports may be fixed over the openings in the carriage instead of being made movable, as described, and the solder in such case be elevated in its containing vessel through the opening by means of suitable mechanism, to reach the seam of the can placed on such fixed support.

I contemplate the application of suitable stops and catches with the carriages A or A', to stop, limit, and

control their movements at pleasure, and of levers or other mechanical devices for imparting movement thereto.

In the forms of apparatus illustrated in the accompanying drawing the carriages are moved simply by hand.

To avoid the necessity of holding the can down upon its support when its seams are being immersed in the solder, I contemplate combining with the lever G an elastic pressure-plate, W, fig. 2. This plate W is secured by means of an interposed spring connection to the lever, at a point just over the can, so that when the lever is depressed the plate shall bear thereon with an elastic pressure until the lever is again elevated.

I claim as my invention—

The combination of one or more supports or supporting devices, for sustaining a can or other vessel to be soldered, with a carriage or frame moving horizontally over a pan or vessel to contain molten solder, so as to carry the support device or devices successively to and from the solder-pan, substantially in the manner and for the purpose herein set forth.

E. T. COVELL.

Witnesses:

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