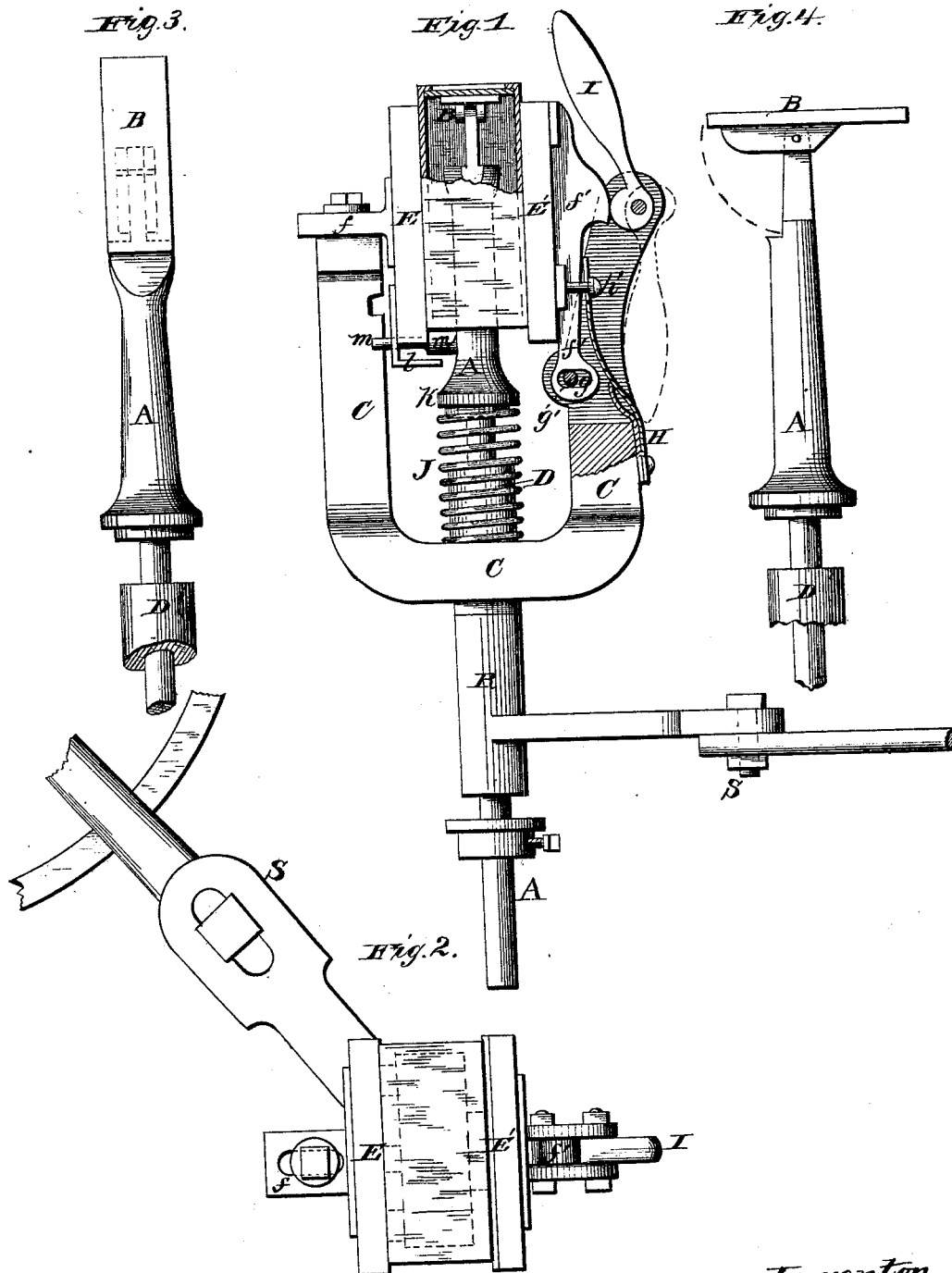


R. GORNALL.
Machine for Soldering Square Cans.

No. 204,315.

Patented May 28, 1878.



witnesses:
Frank L. Curraud
C. Church

Inventor:
Richard Gornall
By Hill Villworth
His Attorneys.

UNITED STATES PATENT OFFICE.

RICHARD GORNALL, OF BALTIMORE, MARYLAND, ASSIGNOR TO THOMAS TAUSLEY, JR., OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR SOLDERING SQUARE CANS.

Specification forming part of Letters Patent No. **204,315**, dated May 28, 1878; application filed November 22, 1877.

To all whom it may concern:

Be it known that I, RICHARD GORNALL, of Baltimore, in the county of Baltimore and State of Maryland, have invented a new and Improved Machine for Soldering Square Cans; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of the machine, partly in section, with the can in position for soldering. Fig. 2 is a top-plan view. Fig. 3 is a side view of the standard and tumble-block, the latter being in position for entering a can; and Fig. 4 is a similar view with the tumble-block in the position which it occupies in the can during the soldering process.

Similar letters of reference indicate the same parts in the several figures.

In the manufacture of what are known as "square tin cans" for containing oysters, &c., the edges of the cans at the ends are turned inward to form flanges, and the tops and bottoms are applied to the flanges from the inside of the cans. To apply the tops and bottoms in this manner, an upright standard is used having a flat plate, called a "tumble-block" pivoted centrally to its upper end, which, when inserted in the can, presses the top upward against the inside of the flanges at the end of the can. The workman then holds the can in place upon the tumble-block with one hand, pressing the top firmly against the flanges, while he solders the flanges to the top with the other hand. Thus the top of the can is applied. To apply the bottom, the workman places it in the can edgewise, and turns it diagonally across the can. The tumble-block is now swung down against its standard, and inserted in the hole made in the top of the can for sealing, and then, by pressing the can down upon the block, it swings upward at right angles to the standard, and pushes the bottom up against the flanges of the can, where it is held and soldered, the same as the top above described.

To withdraw the can from the tumble-block and standard, the can is tipped a little in the direction of the length of the tumble-block,

which has the effect of again swinging it down against the standard, when the can is easily lifted off, the tumble-block and standard passing through the hole in the top.

This method of affixing and soldering the tops and bottoms in place is very inconvenient and laborious, besides requiring a great amount of skilled labor, because the workman has to turn the can from side to side while soldering each end, hold it down upon the tumble-block, and keep the sides perfectly straight with one hand, while he uses his soldering-iron with the other.

My invention is designed to avoid these difficulties and enable the workman to perform his labor with slight effort, and at the same time produce a can whose sides shall be perfectly parallel, so that the cans may be packed without waste room.

To this end the invention consists, first, in the combination of clamping-jaws with the tumble-block and standard, for the purpose of holding the can in place while being soldered; secondly, in the combination of the supports for the clamping-jaws with the spring-standard of the tumble-block; and, lastly, in the construction of various parts which I will presently describe.

In the accompanying drawings, A is the standard, and B the tumble-block, pivoted centrally across its top, and made a little the heavier at one end, so as to lie normally down against the side of the standard, as shown in Fig. 3.

C C are the uprights which carry the clamping-jaws, made in the form of a yoke mounted centrally upon the standard, and rising upon opposite sides thereof, a bushing or thimble, D, being formed in the yoke to guide the movements of the standard.

E and E' are the clamping-jaws, each composed of a vertical plate of the requisite size to fit nearly the whole side of the can to be soldered, for the purpose of steadying it and preventing its sides from winding, so that after the cans are completed they shall be of uniform size, and can be packed in cases for shipment without waste spaces between them.

In packing cans made in the usual way, the boxes in which they are packed are made just

large enough to receive a certain number snugly fitted together to prevent injury. If, therefore, the sides of the cans are not true, or out of wind, the number designed for each case cannot be packed, because they will aggregately exceed the area of the case. Some must consequently be left out, and the space left thereby filled with some packing material.

The jaw E is provided upon its back with a slotted boss, *f*, affixed to the top of its standard by a set-screw, whereby the jaw may be adjusted to or from the standard; and the jaw E' is provided upon its back with a cam-plate, *f'*, which enters a vertical slot or groove in its standard, as shown in Fig. 1.

The lower end of the cam-plate *f'* extends somewhat below the jaw, and is formed with a slot, *g*, for the passage of a bolt, *g'*, by which the cam-plate is pivoted to the standard. A spring, H, secured at its lower end to this standard, passes through the slot, and fits with its upper end under the head of a screw or pin, *h'*, also fastened to the cam-plate, as shown, for the purpose of retracting the jaw from the cans after they have been released by the cam-lever I.

The operation of soldering a can with this apparatus is as follows: The fixed clamping-jaw E having been adjusted to the required position, the cam-lever I is swung up and the can placed upon the tumble-block and standard, as hereinbefore described, between the clamping-jaws. A suitable treadle should be connected to the standard in some way to draw it down through the yoke a certain distance, and there hold it until the can is in position between the jaws. The cam-lever is then swung up, forcing the pivoted jaw E' against the can and the can against the fixed jaw, thus clamping it in place laterally. The treadle is released, and the spring J around the standard between the yoke and a shoulder, *k*, forces the tumble-block up against the can bottom or top, and holds it firmly against the flanges of the can. The operator then applies the solder, and, both hands being left free for the purpose, can complete his work at one operation.

When the can is placed between the jaws it rests down upon supports *ll*, affixed to the lower edge of one of them, to support the can while the jaws are being brought against it.

The standard may be guided in its movements by a forked guide, *m*, secured to one side of it, so as to embrace and slide upon one of the uprights, as shown in Fig. 1.

The pivoted jaw fits rather loosely within its upright, and thus is enabled to turn laterally somewhat, which, in connection with its vertical movement, permits it to conform to the side of the can, and press it uniformly

against the fixed jaw E, thereby truing the can and preventing it from being "out of wind."

In using my improved soldering apparatus, I propose to mount two or more of them vertically upon a horizontal wheel at different points, so that when the wheel is rotated it shall carry each apparatus successively in front of the operator for soldering, while an unskilled laborer on the opposite side of the wheel is applying the unfinished cans and removing those that are soldered. By this means I am enabled to save a large amount of skilled labor, and thereby cheapen the cost of manufacturing the cans.

A collar, R, surrounding the standard, and provided with a jointed arm, S, will serve as one means for connecting the apparatus to the wheel, such apparatus being supported by the collar, as shown in Fig. 1.

Having thus described my invention, what I claim as new is—

1. The combination of clamping-jaws with a tumble-block and standard, for the purpose of holding square sheet-metal cans while the bottoms and tops are being soldered in place, substantially as described.
2. A spring-standard carrying a tumble-block, in combination with the clamping-jaws, substantially as described, for the purpose specified.
3. The uprights or supports of the clamping-jaws, in combination with the standard carrying the tumble-block, substantially as described.
4. The combination of the guide *m* with one of the uprights of the clamping-jaws, and the standard of the tumble-block, to steady the latter within the can, substantially as described.
5. The stops *ll*, secured to and projecting laterally under one of the clamping-jaws, and acting independently of the tumble-block standard, to support a can, substantially as described.
6. The clamping-jaw E', pivoted to its standard by means of the cam-block *f'* entering a slot of the upright, and the slotted extension *g* of said block, mounted upon the bolt *g'*, substantially as described.
7. The combination of the cam-lever I, cam-block *f'*, the slotted upright, and the pivoted clamping-jaw E', substantially as described, for the purpose specified.
8. The collar R and jointed arm S, combined with the tumble-block standard, substantially as described.

RICHARD GORNALL.

Witnesses:

M. CHURCH,
W. M. A. BLACKSTOCK.