(No Model.)

F. W. SCHULTZ.

CAN SOLDERING MACHINE.

No. 263,598. Patented Aug. 29, 1882.

Fig. 1.

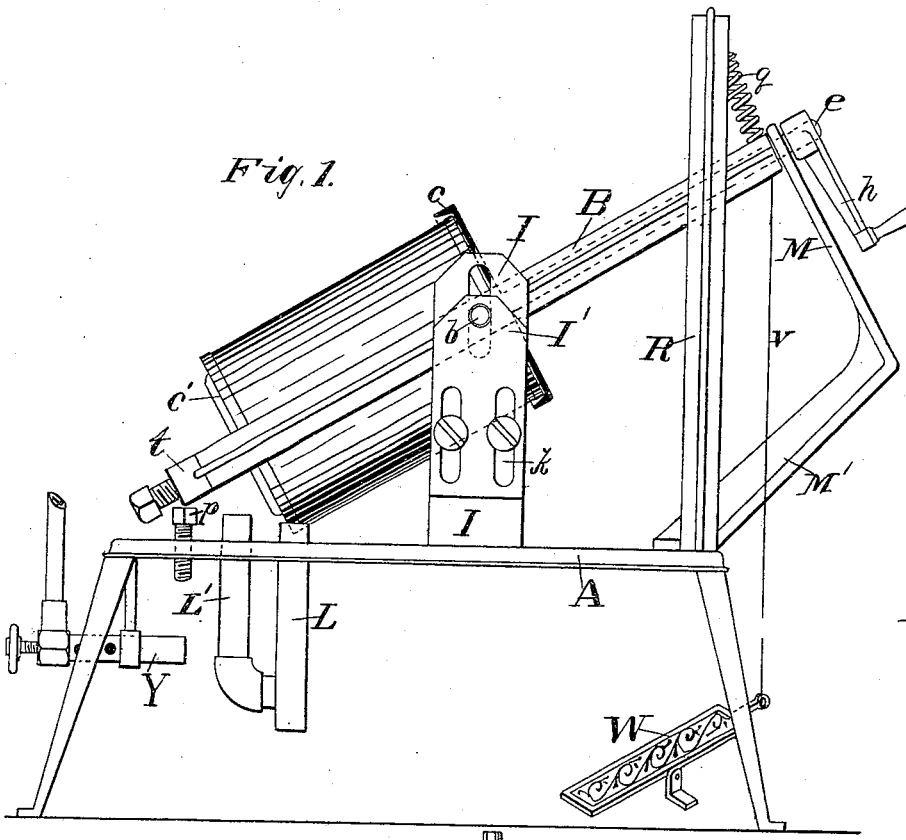

Fig. 3.

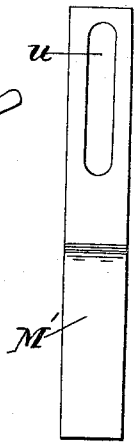

Fig. 2.

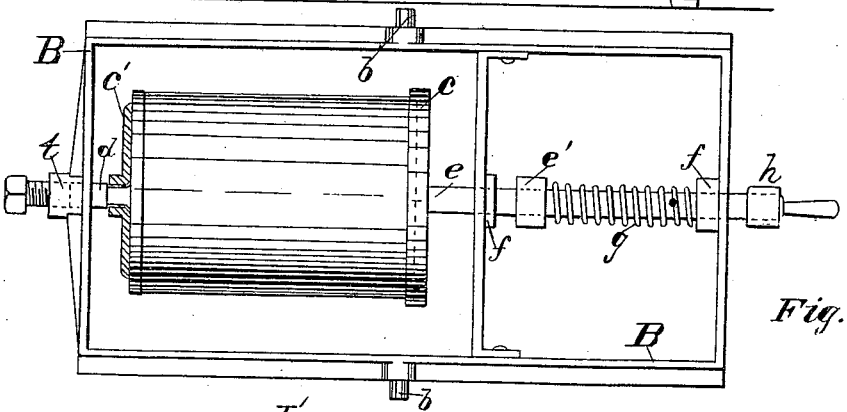

Fig. 4.

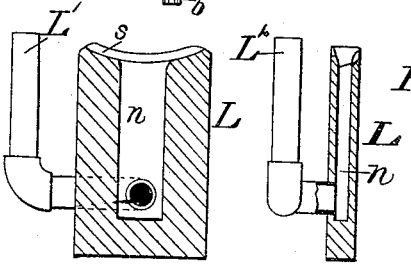

Fig. 5.

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UNITED STATES PATENT OFFICE.

FREDERICK W. SCHULTZ, OF BALTIMORE, MARYLAND.

CAN-SOLDERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 263,598, dated August 29, 1882.

Application filed January 21, 1881. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK W. SCHULTZ, a citizen of the United States, residing at Baltimore, in the county of Baltimore and State of Maryland, have invented certain new and useful Improvements in Can-Soldering Machines; 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 letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to can-soldering machines of that class in which the head-seam is soldered by inclining the can and rotating it while the head-seam is immersed in a molten solder bath.

The construction of the apparatus embodying my invention will first be described and its operation explained, and then the parts and combinations which I claim as my invention will be designated.

In the drawings which are hereto annexed, Figure 1 is a side elevation of the apparatus. Fig. 2 is a top plan of the can-holder. Fig. 3 is a view transverse to that shown in Fig. 1 of the inclined standard. Figs. 4 and 5 are sectional views of the soldering device.

The letter A designates the stand to which all the parts are attached.

B designates a frame, preferably rectangular in shape, which carries the rotary can-holder consisting of the two disks *c c'*. The first has a flange to encircle one end of the can, as shown in Fig. 1, and the last is without a flange, and is smaller than the cylinder of the can, and is intended to bear against the can-head, as shown.

It will be seen the flanged disk operates to center the cylindrical can at one end with respect to the axis of rotation of the can-holder, while the other end of the can takes position against the smaller and flangeless disk just as may happen—that is, concentrically or eccentrically. The disk *c'* is swiveled to the fixed spindle *d*, (shown in Fig. 2 in section,) while the disk *c* is secured rigidly in any suitable manner to the shaft *e*, which is capable of both a rotating and an endwise-sliding movement through the bearings *f*. A collar, *e'*, is secured to the shaft, and a spiral spring, *g*, surrounds the shaft between the collar and the upper bearing. The effect of this spring is to keep the disk *c* pressed toward its coacting disk, and thereby adapt the two to clamp the can endwise. The outer end of the shaft is provided with a hand crank, *h*, by which the can is rotated.

The can-holding frame B has on two opposite sides a trunnion or pivot, *b*, each of which has bearing in a vertical standard, I, between which the frame is supported. The trunnions permit the frame and can-holder to be tilted for a purpose hereinafter explained. The standard I is provided with a vertical slot, through which the trunnion *b* passes, and an adjustable plate, I', having a hole for the trunnion, and slots *k* are secured to the plate I by set-screws passed through the slots. By means of these vertically-adjustable standards the can-holding frame may be raised or lowered to adapt it to carry either a large or small can.

The soldering device consists of an iron, L, having a receptacle, *n*, extending down its center to contain the solder. In size the solder-receptacle is much broader in one direction than the other, as indicated in Figs. 4 and 5. The top of the iron in the broad direction is concaved, as shown at S, Fig. 4, to correspond with the cylinder of the can, and is provided with a groove extending across the top in the broad direction of the iron, and the upper end of the solder-receptacle opens into the groove.

A vertical tube, L', stands at one side of the soldering-iron, and has its lower end connected with the lower end of the solder-receptacle *n*. This constitutes the solder-supply tube, as will hereinafter be explained.

A stop, *p*, consisting of a set-screw, has a vertical adjustment, and serves to regulate the relative position of the lower head-seam of the inclined can with respect to the soldering-iron, so as to allow the head-seam to bear on the iron with greater or less pressure, as desired; but the stop device also serves another purpose—namely, to stop the tilting frame in such position that the axis of the flangeless disk will be so distanced from the top of the solder-applying device that the lower head of the inclined can will, by its edge turning in contact with the solder-applying device, assume a concentric position in the flangeless

disk. To this end the stop is placed so that one end of the tilting frame B will strike the top of the stop, as shown in Fig. 1. A spring, *g*, is attached to the other end of the frame and to a cross-rod (not shown) at the top of the two standards R. This spring serves to lift the said end of the frame, and of course depresses the opposite end, and thereby inclines the can, bringing the seam of one head in contact with the solder-iron. In this position the can-holder is rotated by means of the crank, and the head-seam of the can is turned in contact with the concaved and grooved upper end of the soldering-iron.

The heretofore-described shape of the iron provides that the flange of the can-head may bear in a groove and the cylinder next to the flange of the head bear on the side edge at the top of the iron. Thereby the iron imparts its heat to both the can head and body, and at the same time the molten solder, which fills the receptacle brimful to the groove in the top of the iron, flows into the seam.

The lower end of the can-holder frame has a boss or thickened part, *t*, through which a set-screw passes. The inner end of the set-screw forms the seat for the end of the disk-shaft *d*. By means of the set-screw the can-disk *c'* may be adjusted to or from its coacting disk.

An inclined plate, M, is secured in any suitable manner so that the inclination shall extend outward or away from the can-holding frame from the upper to the lower end of the plate. In the drawings the lower end of this plate is connected with an arm, M', the two forming an elbow-shaped standard. The arm is secured to the stand A. This inclined plate is slotted, as seen at *u*, Fig. 3, and the can-disk shaft *c* is passed through the slot, and has on its extremity the head of the crank *h*. This construction and combination of parts serve, when the can-holder is tilted up and the crank end of the can-holding frame is tilted down, to withdraw the shaft-disk *c* from the end of the can, and thereby release the can or permit another can to be placed between the two endwise-clamping disks.

A wire or rod, *v*, is attached to the upper end of the can-holding frame, and extends to the floor, where it connects with a foot-treadle, W, by means of which the can-holder may be raised to take out or place in a can.

A burner, Y, adapted to produce a heating-flame of the Bunsen description, is secured in position adjacent to the soldering-iron, so as to play its flame horizontally against the soldering-iron. The particular position of the burner or the direction in which the flame plays is, however, a matter of not much consequence. The heat of the flame will keep the solder contained both in the supply-tube and in the receptacle of the iron in a molten condition. In practice the receptacle in the soldering-iron is kept full by the operator occasionally dropping a small piece of solder into the supply-tube. The burner is supplied with hydrocarbon fluid—such as gasoline—which is fed to it in any suitable manner, as by elevating the tank containing the fluid so that the latter will flow by gravity.

Having described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a can-soldering machine, the combination of a device by which solder is applied, a rotary can-holder having a disk smaller than the cylinder of the can to bear against the end of the can, a tilting frame carrying the can-holder, and an adjustable stop device against which the tilting frame may strike to regulate the position of the small disk with respect to the solder-applying device, as set forth.

2. The combination of two rotary disks, one to bear against each end of a can, a tilting frame carrying the two disks, and supports to which the frame is pivoted, whereby the clamped can may be inclined to effect the soldering of the end seam, as set forth.

3. In a can-soldering machine, the combination of a device by which solder is applied, a rotary can-holding disk, *c*, having means to insure that one end of can shall be concentric therewith, a flangeless can-holding disk, *c'*, to bear against the other end of a can, a pivoted frame, B, carrying the can-holding disks, and a stop device, *p*, to adjust the relative position of the axis of the flangeless disk with respect to the solder-applying device, as set forth.

4. In a can-soldering machine, a device by which solder is applied, a rotary can-holder placed above the solder device, having two disks, each adapted to clamp one end of the can, and pivoted to enable it to tilt, a movable shaft, to which one of the disks is secured, and a spring to keep the shaft and disk normally pressed to the can, as set forth.

5. In a can-soldering machine, a device by which solder is applied, a rotary can-holder placed above the solder device, having two disks, each adapted to clamp one end of the can, and pivoted to enable it to tilt, a movable shaft, to which one of the disks is secured, a spring to keep the shaft and disk normally pressed to the can, and an inclined plate or standard by which, when the can-holder is tilted up, the pressure of the disks is withdrawn from the can, as set forth.

6. In a can-soldering machine, the combination of a stationary curved and flanged iron, and a tilting frame carrying two disks, one of which reciprocates within its bearings, the other being so located that as the frame tilts the can-edge is brought down upon the iron, as set forth.

7. The combination, with the curved and flanged iron having a central aperture communicating with a source of molten solder, of a tilting can-holder consisting of a pair of disks, one of which is retractable in its bearings, and means for revolving one of the disks, as set forth.

8. In a can-soldering machine, the combina-

tion of a pair of disks mounted in a frame pivoted about an axis at right angles to that of the disks, mechanism for revolving one of the disks, and a solder-receptacle located below one of the disks and arranged to receive the can-edge, as set forth.

9. In a can-soldering machine, the combination of a pair of disks mounted in a pivoted frame and provided with means for revolving one of the disks, and a flanged iron communicating with the source of molten solder, as set forth.

10. In a can-soldering machine, the combination of a pair of revolving disks mounted in a pivoted frame, a flanged soldering-iron and solder-receptacle, and means for adjusting the tilt of the frame, as set forth.

11. In a can-soldering machine, the combination of a frame pivoted in suitable bearings and carrying two disks, one of which reciprocates within the frame, mechanism for revolving one of the disks, a soldering-iron located below the edge of one of the disks, and mechanism whereby the can is clamped between the disks as the frame is tilted, as set forth.

12. In a can-soldering machine, the combination of a pivoted frame carrying a reciprocating flanged disk, and a second disk located opposite the first, mechanism for revolving one of the disks, a soldering-iron and solder-receptacle, and mechanism for tilting the frame and clamping the can, as set forth.

13. In combination with the soldering-iron and revolving disks, the frame vertically adjustable in its bearings, as set forth.

14. In combination with the soldering-iron, vertically-adjustable frame, and the disks, the stop device, as set forth.

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

FREDERICK W. SCHULTZ.

Witnesses:

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JNO. T. MADDOX.