

(No Model.)

2 Sheets—Sheet 1.

A. JOHNSON.
CAN SOLDERING MACHINE.

No. 601,514.

Patented Mar. 29, 1898.

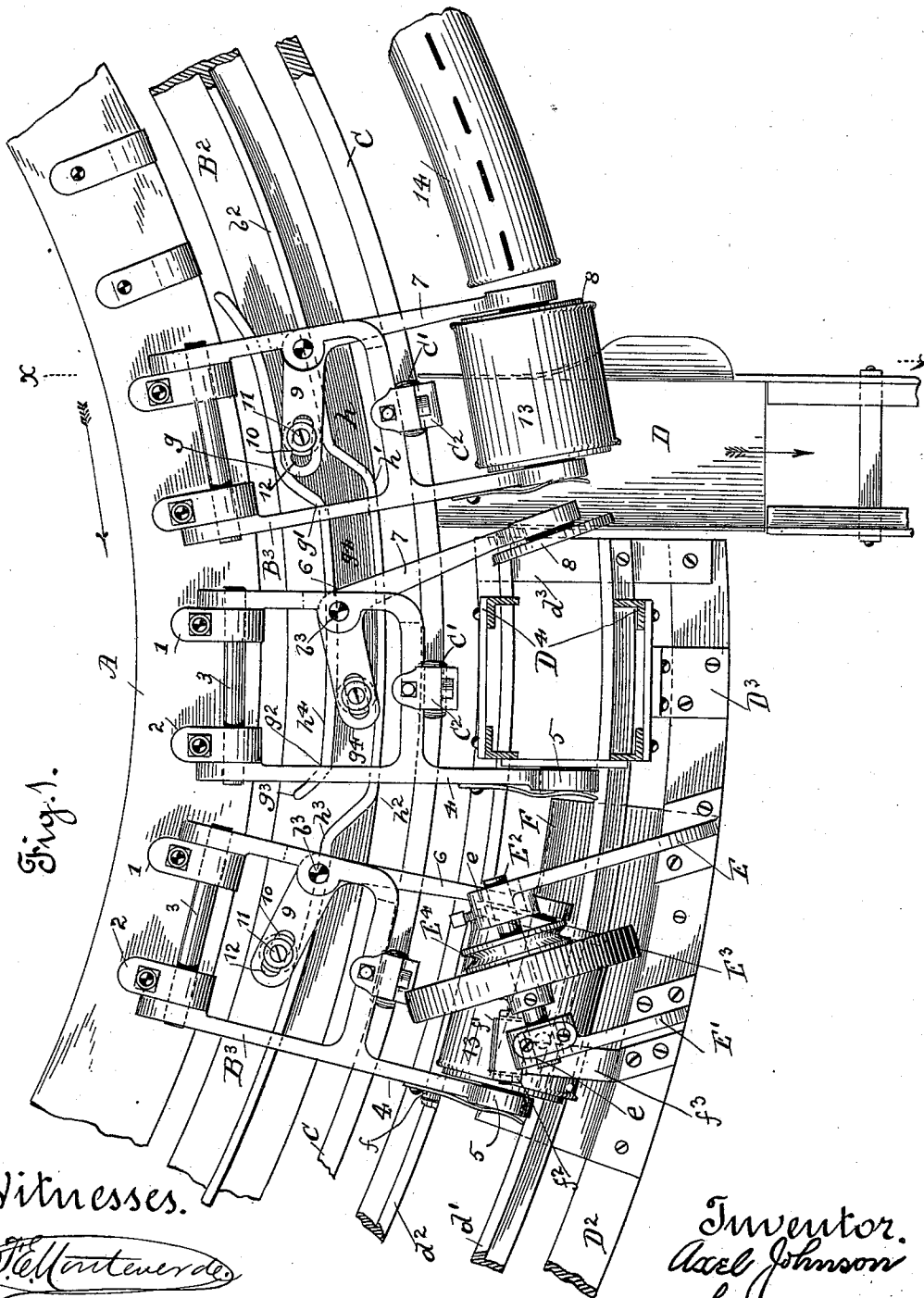


Fig. 1.

Witnesses.

P. H. Antemerde
W. H. Cobb

Inventor.
Asel Johnson
by *H. A. Acker*
his atty.

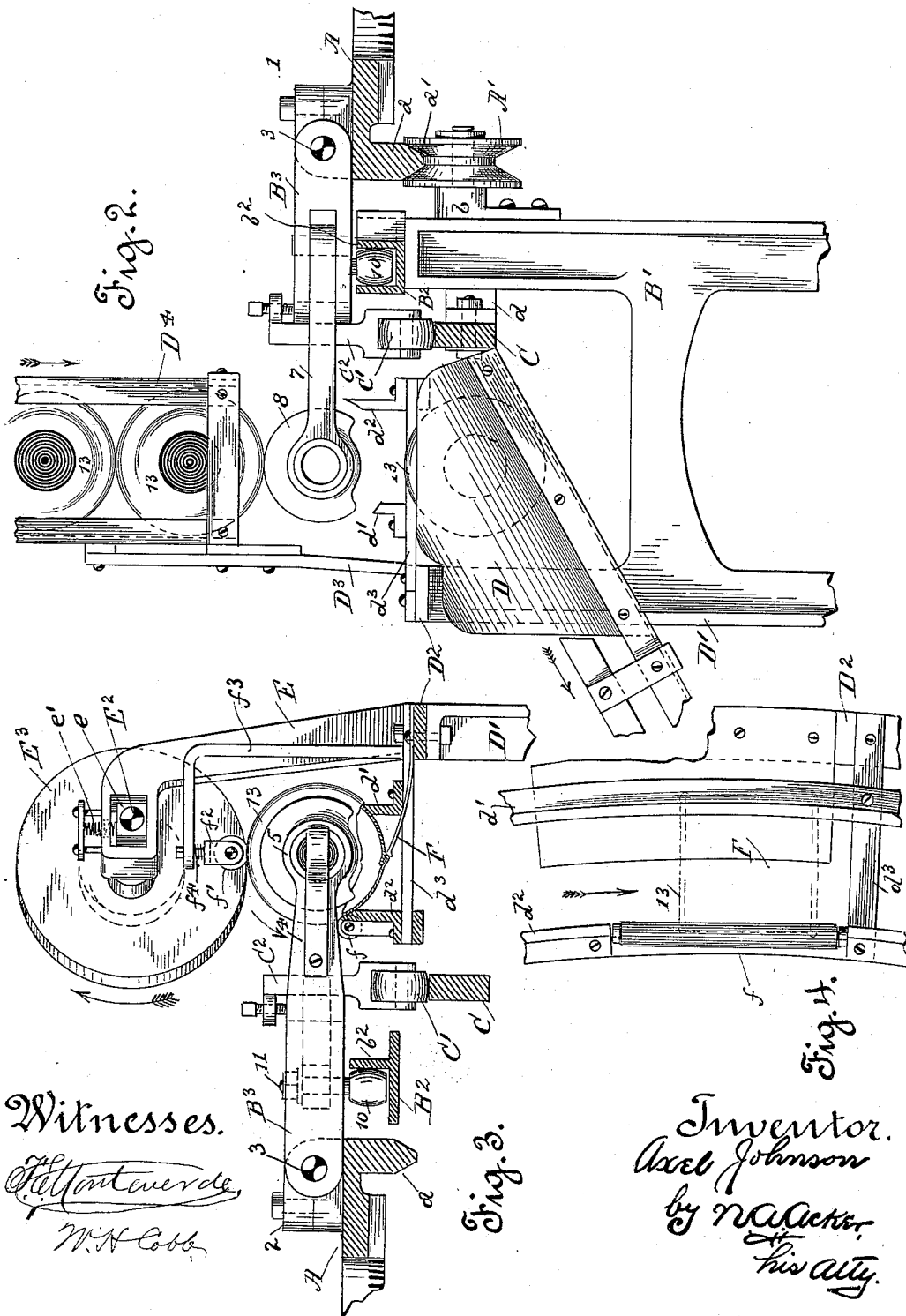
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2 Sheets—Sheet 2.

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CAN SOLDERING MACHINE.

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Patented Mar. 29, 1898.



Witnesses.
W. H. C. Cobb

Inventor.
Asel Johnson
by *W. A. Carter*
his atty.

UNITED STATES PATENT OFFICE.

AXEL JOHNSON, OF SAN FRANCISCO, CALIFORNIA.

CAN-SOLDERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 601,514, dated March 29, 1898.

Application filed August 19, 1897. Serial No. 648,749. (No model.)

To all whom it may concern:

Be it known that I, AXEL JOHNSON, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Can-Soldering Machines; and I do hereby declare that the following is a full, clear, and exact description thereof.

10 The present invention relates to certain new and useful improvements in side-seam-soldering machines for cans, designed more especially for use in connection with that style or class of soldering-machine fully set forth and described in the application for Letters Patent filed by me in the United States Patent Office on the 11th day of February, 1897, Serial No. 622,936; and the invention consists in the arrangement of parts and details of construction, as will be hereinafter fully set forth in the drawings and described and pointed out in the specification.

15 The main object of the invention is to provide a simple and inexpensive device for centering or placing the side seam of the can in alinement with the flux and solder bath holding receptacles, so as to insure the placing of the flux and solder on the seam or joint proper of the can as carried around by the rotatable spider frame or table.

20 The invention also has for its object to simplify the construction of the can-clamping mechanism set forth in my aforesaid application, Serial No. 622,936.

25 In order to understand the invention, reference must be had to the accompanying sheets of drawings, forming a part of this application, wherein—

30 Figure 1 is a top plan view of the soldering-machine, partly broken away, said view disclosing the discharge-chute, the feed-chute, the irregular pathway for throwing the movable clamp-arm toward or from the can, and the rotary centering device for the can. Fig. 2 is a cross-sectional view in end elevation, taken on line *xx*, Fig. 1, viewed from the discharge end of the machine. Fig. 3 is a detail side view in elevation viewed from the discharge end of the machine, Fig. 1; and Fig. 4 is a detail top plan view of the gage-plate which engages the side seam of the can and the supporting-roll which holds the can in its

seat while being rotated by the centering or alining device.

35 In the drawings the letter A is used to indicate the circular rim of the rotatable spider-frame, which frame is preferably constructed similar to and driven like the one set forth in my said application, Serial No. 622,936, to which reference is hereto made. In the present case the circular rim is formed with a downwardly-extending flange *a*, which rests within the peripheral groove *a'* of the supporting-rolls A'. These supporting-rolls are attached by brackets *b* to a series of standards B', arranged around the spider-frame a slight distance in advance of its circular rim. These standards support the circular plate B², which plate is formed with the central upwardly-extending flange or rib *b*². The circular rim of the spider-frame is formed on its upper face with a series of ears 1 2, to which is hinged by bolt or pin 3 the can-carrying clamp-frame B³. One end piece of the said frame is extended outwardly to form an arm 4, which carries at its end the clamp-disk 5. However, if so desired, the arm 4 need not be formed integral with the frame B³, but may be a separate piece. To the opposite end piece of the said frame is fulcrumed by pin *b*³ the bell-crank lever 6, to the end of the outwardly-extending arm 7 of which is attached the clamp-plate 8, while to the end of the inwardly-extending arm 9 is attached the roll 10, its connecting-pin 11 extending through a slot 12, formed in the end portion of said arm. This roll, as the can-carrying clamp-frame is carried around by the rotation of the spider-frame, bears against the inner face of the rib or flange *b*² of the circular plate B², so as to maintain the inner arm 9 inward and the outer arm 7 toward the end of can 13 in order to hold the said can tightly clamped between the disk 5 and plate 8 while carried from the centering or alining device toward the discharge-chute or runway. Consequently the flange or rib *b*² may be said to constitute a guard-rail for holding the clamp mechanism closed until the discharge-chute is reached.

100 In advance of the circular plate B² is arranged the circular track C, which, like the rolls A', is secured to and supported by brackets *d*, projecting from the standard B'. Upon

this rides the roll C', which roll is journaled in the arm C², attached to the can-carrying clamp-frame. This circular track at given points, as carried past the flux and solder receptacles, (not shown,) is provided with ascending and descending planes which, as the roll C' rides thereover, serve to raise and lower the frame B³, so as to dip the can 13 held between the clamping mechanism into and out of the flux and solder baths.

The discharge-chute or runway D is secured to the standard D', (which may or may not be connected to one of the standards B'.) To this standard is connected one end of the curved plate D², the opposite end being attached to a similar standard. (Not shown.) A short distance beyond the discharge-chute or runway D is fastened to the curved plate D² the upwardly-extending bracket D³, which upholds the feed-chute D⁴, bolted thereto. Between the curved plate D² and the circular track C are located a short distance apart the straps or bands d' d², which act as a seat for the cans dropped from the can-feed chute. These straps or bands d' d² are supported at each end by the bracket-plates d³, secured to and inwardly projecting from the curved plate D², only one of the bracket-plates being shown.

A distance beyond the feed-chute are bolted to the curved plate D² two brackets E E', which support the shaft or axle E². This shaft or axle works in bearing-boxes e, secured within the ends of the brackets, which boxes are held downward by the pressure of the springs e'. Hence the bearing-boxes are permitted slight vertical movement. Upon the shaft or axle E² is secured what I shall term the "centering" or "alining" roll E³. The brackets E E' are so arranged that the centering or alining roll stands at an oblique angle to the can-seat. To one side of this roll upon the axle or shaft E² is mounted the belt-roll E⁴, which is driven by means of a belt (not shown) operated from any suitable mechanism. The motion of this roll is transmitted to the axle or shaft E² and the wheel E³. This centering or alining wheel being arranged at an oblique angle to the can-seat permits of the can gradually moving thereunder. The said wheel is of such diameter as to bear slightly upon the surface of the can as carried by the same. Consequently as the wheel is rotating the motion thereof is imparted to the can until the side seam, which is a lock-joint one, is engaged by the edge of the gage-plate F. This plate consists of a slightly curved or bent piece of metal, which is attached to and projects from the curved plate D² inwardly such a distance as to be in line with the flux and solder receptacles. When the seam of the can is engaged by the end of the plate, Fig. 3, the can is alined or centered with the flux and solder baths, and further rotation thereof ceases. By having the bearing-boxes of the axle E² spring-actuated the wheel E³ will give vertically when the can is brought to rest, so that its rotation

need not cease with the rotary movement of the can. In order to provide against the can being lifted out of its seat by the rotation of the centering or alining wheel, a short longitudinal roll f is placed in the strap or band d², Fig. 4, upon which the can rests while moving beneath the wheel E³. As the can rotates its motion is imparted to this roll and to the roll f', which bears upon the upper surface of the can. This roll is journaled in the lower end of the hanger f², movably attached to the upper end of the bracket f³, fastened to the curved plate D² to one side of the bracket E'. The said roll f' is held downward by the pressure of the spring f⁴ interposed between the hanger and end of the bracket f³. This roll and the roll f may properly be termed "keeper-rolls" for the can.

The rib or flange b² of the circular plate B² is outwardly inclined from h to h' and inwardly inclined from h² to h³, which inclined planes are respectively in line with the discharge-chute or runway and approximately with the feed-chute or runway. Immediately back of this portion of the rib or flange b² is located a second rib or flange h⁴, which flange or rim is outwardly inclined from g to g' and inwardly inclined from g² to g³, to correspond with the outward and inward inclination of the rib or flange b². This second rib or flange of the circular plate B², in conjunction with the rib or flange b², forms an irregular pathway g⁴, within which the roll 10 works to throw the fulcrumed crank-lever so as to move the outer arm 7 thereof from or toward the can 13 to release or clamp the same. As the clamped can is carried past the cooling-pipe 14 toward the discharge-chute or runway the roll 10 enters the pathway g⁴ and riding within the outwardly-inclined portion thereof gradually throws the inner arm of the bell-crank lever outwardly, causing the outer arm carrying the clamp-plate 8 to move away from the end of the can, so as to release the same and permit it to fall into the discharge-chute or runway. The open clamping mechanism being carried past the feed-chute a fresh or unsoldered can is received therebetween, resting upon the seat formed by the bands or straps d' d². As thus carried the roll 10 rides within the inwardly-inclined portion of the pathway g⁴ and draws the arm 9 of the fulcrumed bell-crank lever inward, which moves the outer arm gradually toward the can, so as to loosely hold the can between the disk 5 and the clamp-plate 8. Thus held the can is carried beneath the rotating wheel E³, which being set at an oblique angle to the path of the can gradually engages the upper surface thereof and imparts its rotary motion thereto, so as to rotate the same until the side or lock seam thereof is engaged by the edge of the gage-plate F, Fig. 3, when the seam thereof will be in alinement with the flux and solder baths. During the movement of the can from the centering or alining device to the flux-receptacle the roll 10 rides

upon the inner face of the rib or flange b^2 , which being formed eccentric for a short distance from the point b^3 draws the inner arm of the bell-crank lever inward its full distance, so as to close the clamping mechanism to tightly clamp the can between the disk 5 and clamp plate or head 8. The can remains thus clamped until the discharge-chute or runway is reached, when the operation just described is repeated.

Inasmuch as the can soldered by the present machine has what is known as a "side-seam lock-joint," it is essential that a centering or alining device be employed, for as the cans fall from the feed-chute with the side seam in any position there would be no certainty of the said seam coming in contact with the flux or solder baths. As the centering or alining wheel works in spring bearing-boxes, it will give vertically the moment the can offers certain resistance to rotation, and the said wheel will then be free to rotate without disturbing the position of the can.

The clamp-frames are arranged such a distance apart that as the can clamped between the arms of one frame moves from within its seat the fixed arm of the next clamp-frame will move beneath the lowermost can held in the feed-chute and uphold the can until the said arm is moved or carried from beneath the same. As the arm is carried past the center of the can the said can will gradually lower or fall into its seat. It will thus be observed that in the present case the fixed arm of each clamp-frame acts as a support for the lowermost can held in the chute while a clamped can is being removed from within its seat.

Having thus described my invention, what I claim as new, and desire to secure protection in by Letters Patent, is—

1. In a can-soldering machine, the combination with the can-clamping mechanism, of a device which centers or alines the side seam of the can with the flux or solder bath.

2. The combination with a side-seam-soldering machine for cans, of the can-clamping mechanism, and of a continuously-rotating device which centers or alines the side seam of the can with the flux or solder baths.

3. The combination with a side-seam-soldering machine for cans, of a continuously-rotating device which frictionally engages the can and rotates the same until the side seam thereof is centered or alined with the flux or solder bath.

4. The combination with a side-seam-soldering machine, of a continuously-rotating device which centers or alines the side seam of the can with the flux or solder baths, and the

keeper-rolls for maintaining the can in place while being centered or alined.

5. The combination with a side-seam-soldering machine for cans, of a spring-actuated rotating device which engages with the can and rotates the same until its side seam is centered or alined with the flux or solder baths.

6. In a side-seam-soldering machine for cans, the combination with a continuously-rotating device which frictionally engages the can and rotates the same until the side seam thereof is centered or alined with the flux or solder bath, of a gage-plate or device which engages the side seam of the can when brought into alinement with the flux or solder bath.

7. The combination with a side-seam-soldering machine for cans, of a rotating device arranged at an oblique angle to the path of the can which frictionally engages the can and rotates the same until its side seam is centered or alined with the flux or solder bath.

8. In a side-seam-soldering machine for cans, the combination with the spider-frame, of the can-carrying clamp-frames hinged thereto, the fixed arm projecting from one side of said frame, a clamping-disk carried thereby, an arm fulcrumed to the opposite side of the frame, a clamp-head attached to the free end thereof, a rotating device which frictionally engages the can and rotates the same until its side seam is centered or alined with the flux or solder bath, and of devices for throwing the fulcrumed arm toward or from the can so as to clamp or release the same.

9. The combination in a side-seam-soldering machine for cans, of the spider-frame, the can-carrying clamp-frame hinged thereto, a fixed arm projecting from one side of said frame, a clamp-disk carried thereby, an arm fulcrumed to the opposite side of the frame, a clamp plate or head attached to the free end thereof, devices for throwing the fulcrumed arm toward or from the end of the can so as to clamp or release the same, a centering or alining device which frictionally engages the can and rotates the same until its side seam is brought into alinement with the flux or solder bath, and of a gage-plate or stop which engages the side seam of the can and prevents its rotation when brought into proper alinement.

In testimony whereof I affix my signature, in presence of two witnesses, this 31st day of July, 1897.

AXEL JOHNSON.

Witnesses:

N. A. ACKER,
LEE D. CRAIG.