

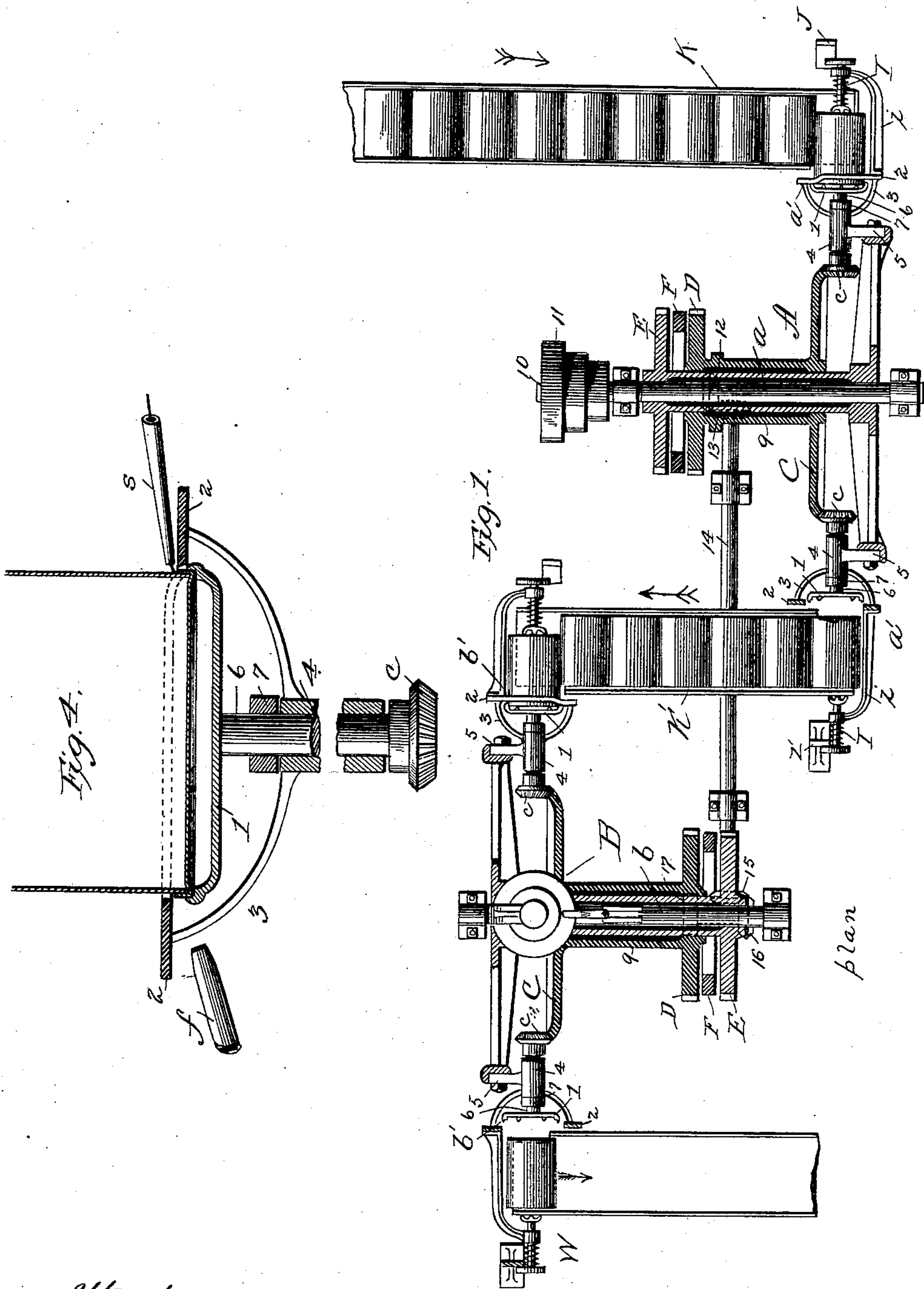
(No Model.)

2 Sheets—Sheet 1.

J. SOLTER.
CAN SOLDERING MACHINE.

No. 411,070.

Patented Sept. 17, 1889.



Attest
Walter Donaldson
F. L. Middleton

Inventor
John Solter
by *Ellis Spear*
Atty.

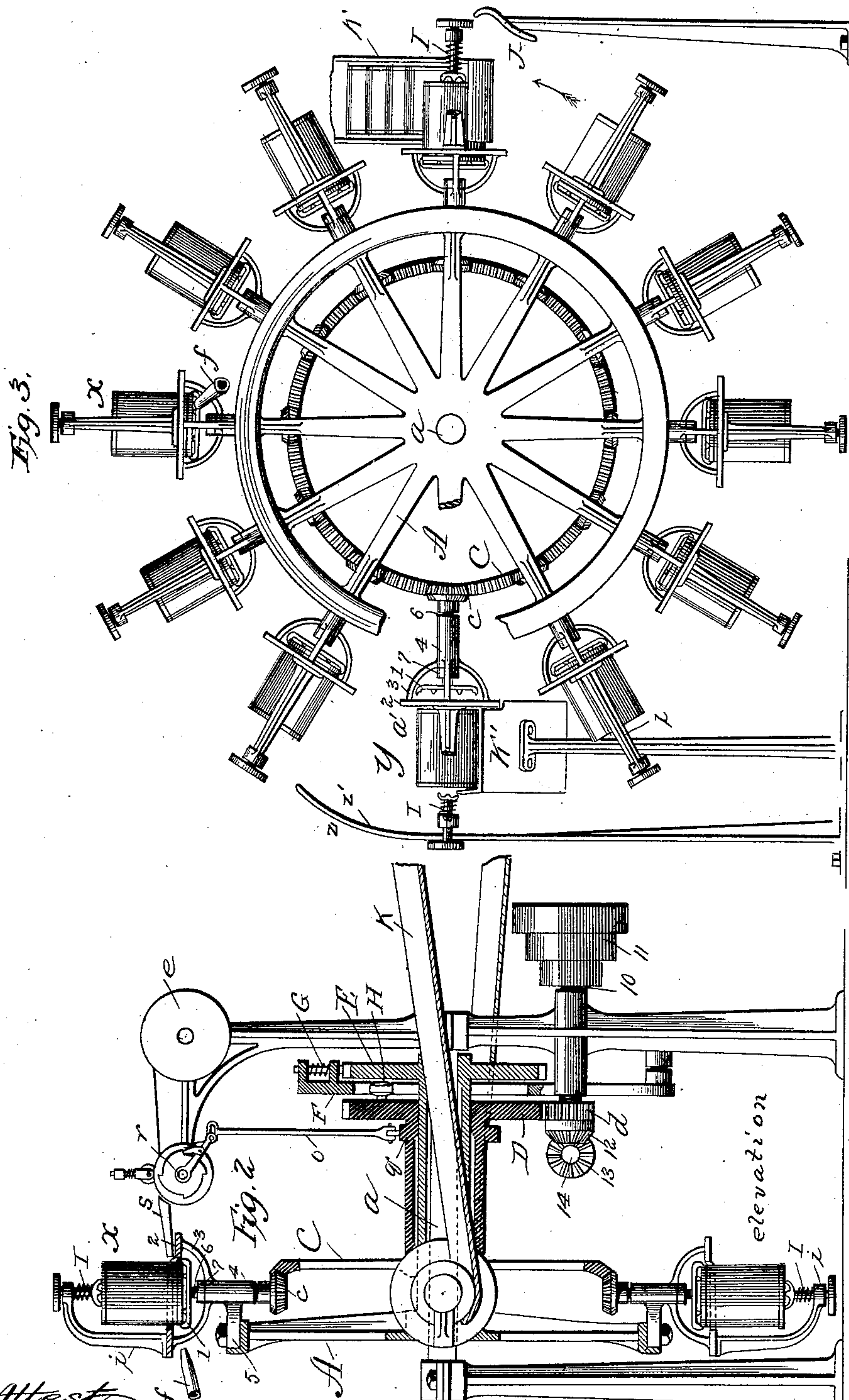
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Inventor
John Solter
by Eli Spear Atty.

UNITED STATES PATENT OFFICE.

JOHN SOLTER, OF BALTIMORE, MARYLAND, ASSIGNOR OF ONE-HALF TO
GEORGE L. KREBS, OF SAME PLACE.

CAN-SOLDERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 411,070, dated September 17, 1889.

Application filed May 27, 1889. Serial No. 312,262. (No model.)

To all whom it may concern:

Be it known that I, JOHN SOLTER, of Baltimore, in the State of Maryland, have invented a new and useful Improvement in Can-Soldering Machines; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention is an improvement in can-soldering machinery; and it consists in the combination, with the two vertical can-carriers having can holding and releasing devices and soldering devices, of a conveyer between said carriers, by which the can is conveyed from one carrier to the other, so that first one head is soldered and then the other.

The invention also includes a special form of can-seat, which permits the accurate feeding of the solder to the head-seam and the relative arrangement of flame-tube and solder-tube; also, the details of construction form a part of my invention.

In the drawings, Figure 1 is a plan sectional view of the two carriers, with conveying devices for the cans in plan. Fig. 2 is a side elevation of one of the carriers, partly in section. Fig. 3 is a front view of the same, and Fig. 4 is a detail view of a can-seat.

In the drawings the two carriers are shown at A B, consisting of vertical wheels, revoluble intermittingly upon horizontal supports *a b*.

The can-seats *a' b'* are radially arranged, and comprise the seats proper, which support the cans and the rings or plates 2, beneath which the flame plays against the head-seam. The ring is held by arms 3, projecting from a sleeve 4, which is secured to the wheel by a bracket 5. The sleeve affords a bearing for the spindle 6 of the can-seat, which spindle is held by a collar 7 and has upon its other end a beveled pinion *c*. Each pinion meshes with a beveled master-wheel C on a sleeve 9, which at its rear end has a gear D, meshing with a pinion *d* on the shaft 10. This shaft is driven from any suitable source of power through the pulley 11. By this master-wheel and the pinions the can-seats are geared, as in patent to Boyden, No. 237,238. For moving the table step by step I employ substantially the same mechanism as that shown in my patent, No. 397,758, consisting of the

ratchet E on the sleeve of the wheel, which ratchet is driven by a loop and pawl F G, operated by a stud H on the face of the gear-wheel.

The can-holders consist of spring-pins I, working through the ends of curved brackets *i*. These brackets extend from the front edges of the rings, so that the other side of the seat is entirely free for the feeding and discharge of the cans. Each of the spring-pins has a button on its end, and its inner bearing end is formed so that it will not indent or damage the can-head when in contact therewith.

The feed-conveyer K consists of an inclined trough extending from the rear side of the first machine to a point immediately in front of the right-hand can-seat, the upcurved end of the trough being arranged so that the can will be in line with the can-seat, which at this point assumes a horizontal position.

The above-described arrangement of the can-holder-supporting bracket at the front prevents the same from striking the conveyer as it passes by it.

A cam-plate J is arranged to act upon the spring-pin through its button, and as the can-seat approaches the horizontal right-hand station the pin is retracted, and thus passes up across the side of the conveyer until the horizontal position is reached, when it passes from engagement with the cam-plate and then is forced inward by its spring to act upon the can and press the same to its seat and hold it to be carried to the heating and soldering devices. When this can leaves the can-rest at the end of the conveyer, another can moves by gravity into place ready for the next can-seat.

The can is soldered at station *x* by automatic devices similar to those shown in my patent aforesaid, consisting, briefly, of the flame-tube *f*, the solder-tube *s*, the drum, and ratchet-feeding device *r*, operated from a cam *q* by a rod *o*. The solder is drawn from a reel *e*. The partially-soldered can is discharged at station Y, diametrically opposite the feeding-station, and consequently also horizontal. The discharge is effected by the retraction of the spring-pin at a point *z* a little above the discharge-station by a cam-

plate z' . The can drops from its seat by its own weight into a conveyer K' , also consisting of an inclined trough. The spring-pin is held retracted by the cam during its passage
 5 by the horizontal station. This trough conveys the can to the second carrier, which in construction and operation is exactly similar to the one above described. The can is fed to the right-hand horizontal can-seat of this
 10 carrier, and thus the can is reversed in position with respect to the seat, the head, which was engaged by the holder in the first carrier, being now within the seat and in position to be acted upon by the soldering devices of the
 15 second carrier, which are arranged in the same relative position to the second carrier as those first named to the first carrier. From this feed-station the can is carried upward to the soldering-station, and then downward to
 20 the final discharge-station W , whence it may be conveyed to any point desired.

The carriers, with their driving mechanism, are preferably arranged reversely to each other.

25 Any suitable cooling-tubes are used.

The second carrier may be driven from the shaft 10 by pinions 12 13, counter-shaft 14, and pinions 15 16 17, as shown by dotted lines, Fig. 1; but any other manner of driving the
 30 carriers may be employed.

In order to allow the accurate feeding of the solder to the seam, and at the same time provide a ring for retaining the heat at the seam, and also to allow the use of a station-
 35 ary solder-tube extending near the seam, I form the ring with a depressed portion where the solder is fed, the upper surface of the ring here being in the same plane or a little below the seam, while the rest of the ring is
 40 slightly above. The solder-tube extends close to the seam, as in Fig. 4, and said tube is not struck by the ring as it passes by. The surface of this part of the ring might be curved slightly. The flame-tube f is arranged oppo-
 45 site the solder-tube and below the ring.

I do not wish to confine myself to the precise conveyer shown.

I claim—

1. In combination, the two vertical can-carriers with separate can holding and releasing
 50 devices for each can, and a conveyer between

them for transferring the cans from one carrier to the other and inverting them in relation to their can-seats, substantially as described. 55

2. In combination, a series of can-seats on a movable support with can-holders and means for releasing the cans when they are approximately in a horizontal position, a second series of can-seats with automatic can-
 60 gripping devices, and a conveyer for transferring the cans in approximately a horizontal position from one series of seats to the other and inverting them in relation to the can-seats, substantially as described. 65

3. In combination, the two vertical wheels, the conveyer between them arranged to receive the can in a horizontal position from one wheel and convey and hold it in line with the can-seats of the other wheel, and cause it
 70 to be inverted in relation thereto, and separate automatic gripping and releasing devices for each of the cans, substantially as described.

4. In combination, a vertical table in which
 75 a feed-station and a discharge-station are arranged approximately opposite, a second vertical table having a feed-station positioned in relation thereto similar to that of the first feed-station to the first wheel, and a conveyer
 80 between the discharge-station of the first wheel and the feed-station in the second wheel for transferring the can in an inverted position to the second table, substantially as described. 85

5. In a can-seat, the ring having a depressed portion to allow feeding of solder to the seam, substantially as described.

6. In combination, the can-seat, the ring, the flame-tube below said ring, and the solder-
 90 tube arranged opposite and above the ring, said ring having a depressed portion to allow the feeding of solder, substantially as described.

In testimony whereof I have signed my name
 95 to this specification in the presence of two subscribing witnesses.

JOHN SOLTER.

Witnesses:

FELIX R. SULLIVAN,
 GEO. E. SAVILLE.