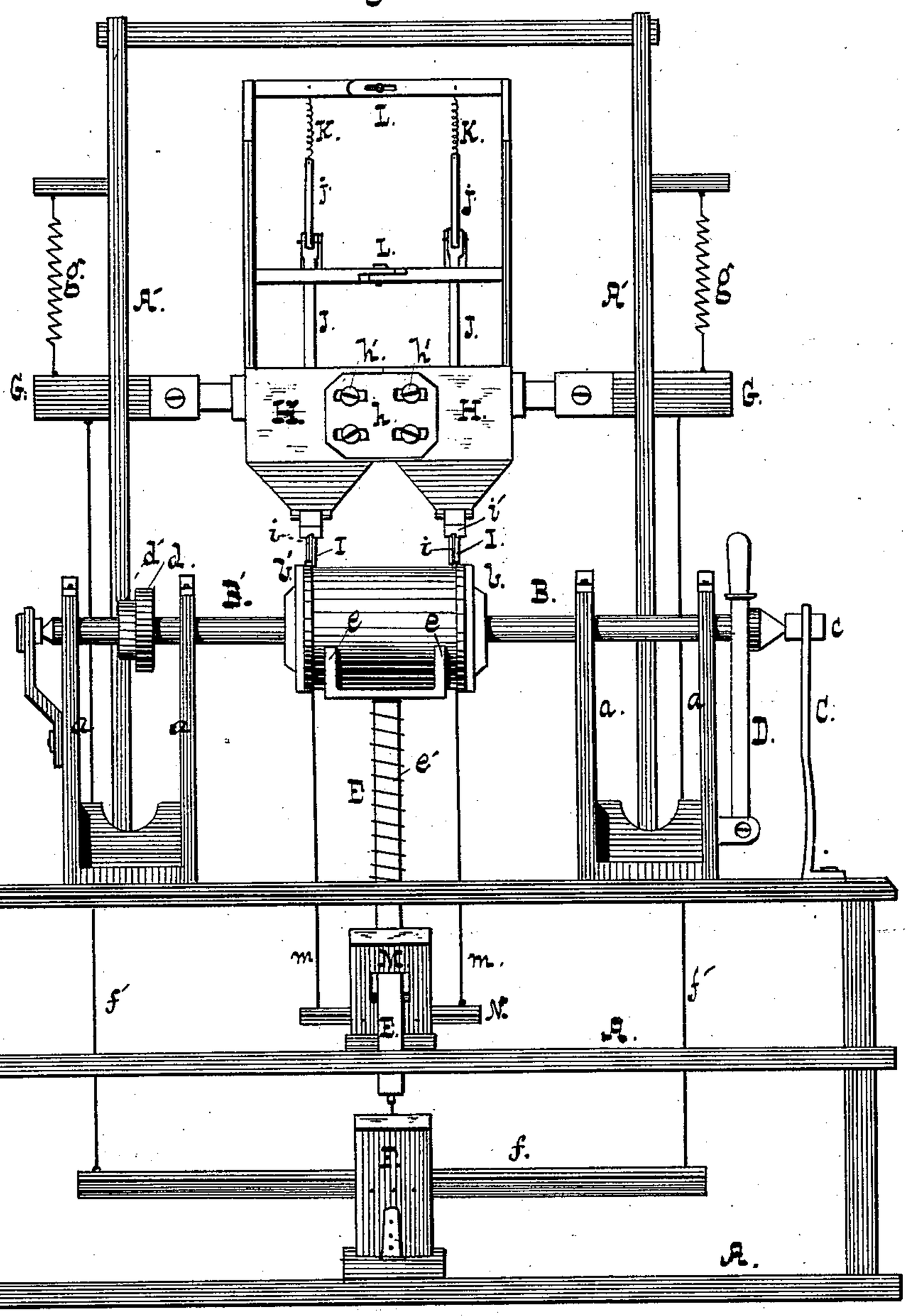
(No Model.) 3 Sheets—Sheet 1.

J. O'LOUGHLIN.

Can Soldering Machine.

No. 235,004. **Patented Nov. 30, 1880.**

Fig. 1.



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(No Model.)

3 Sheets—Sheet 2.

J. O'LOUGHLIN.

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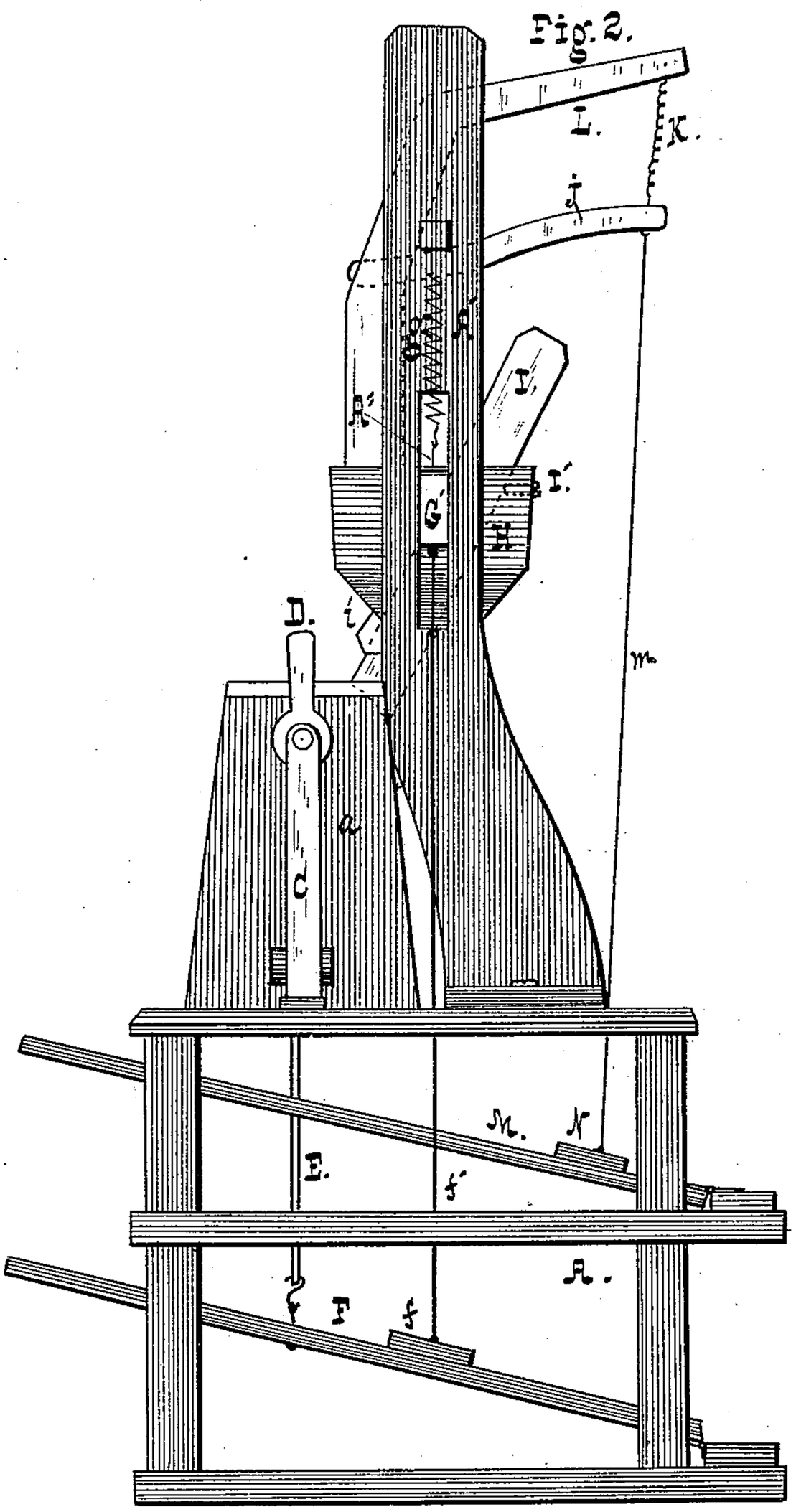
Fig. 2.



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(No Model.) 3 Sheets—Sheet 3.

J. O'LOUGHLIN.

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Fig. 3.

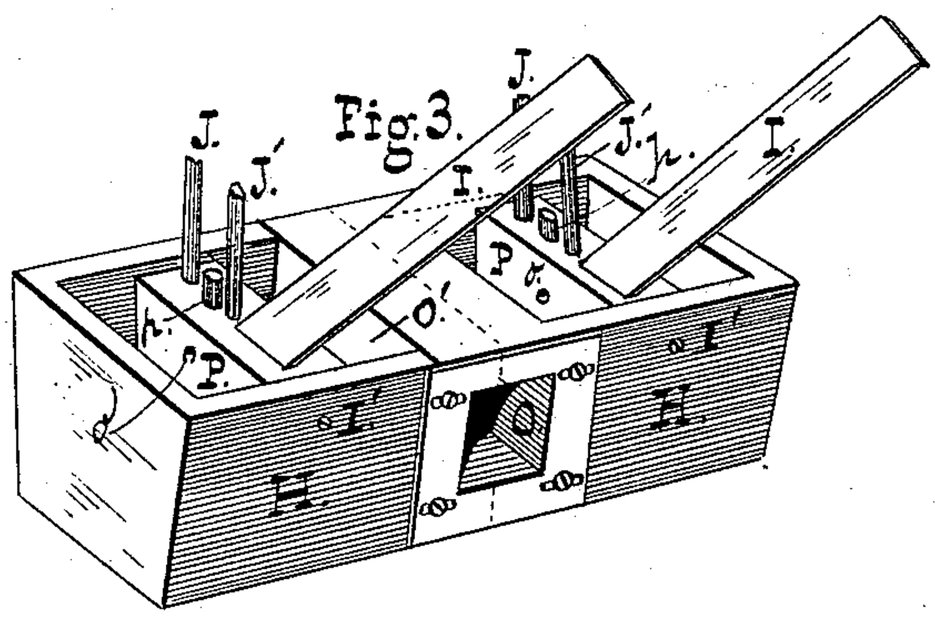
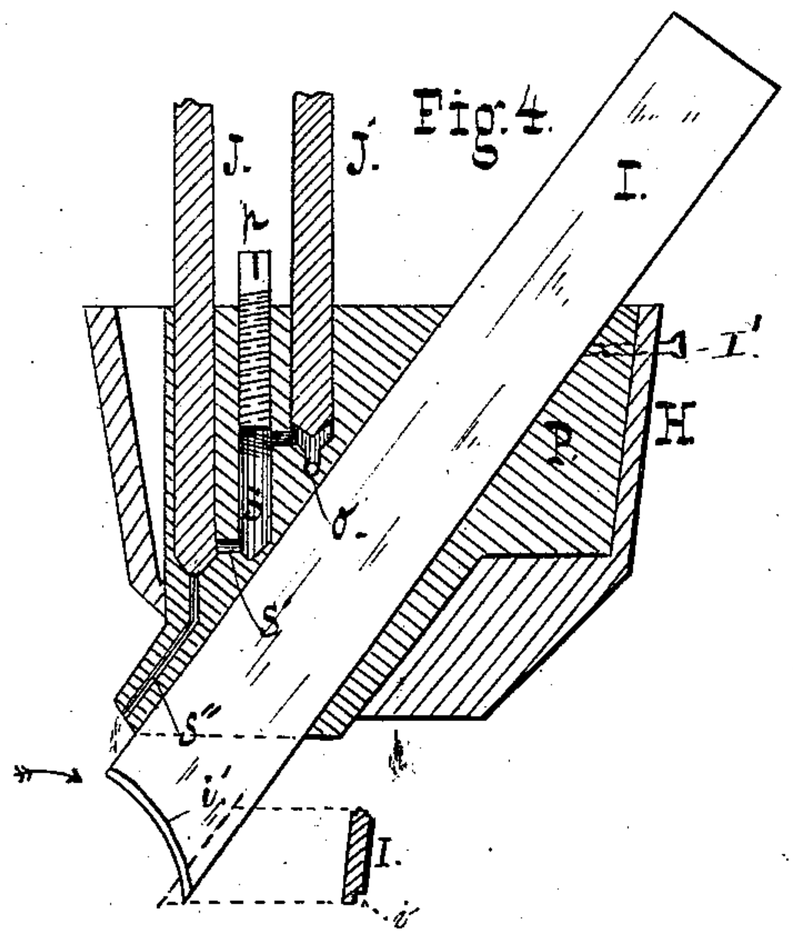


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN O'LOUGHLIN, OF BALTIMORE, MARYLAND.

CAN-SOLDERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 235,004, dated November 30, 1880.

Application filed August 27, 1880. (No model.)

To all whom it may concern:

Be it known that I, JOHN O'LOUGHLIN, of Baltimore city, State of Maryland, have invented certain new and useful Improvements in Can-Soldering Machines; and I hereby declare the same to be fully, clearly, and exactly described as follows, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation of the device. Fig. 2 is a side elevation of the same. Fig. 3 is a perspective view of the solder-receptacle and its immediate adjuncts, and Fig. 4 is a transverse sectional view of the same.

My invention relates to machines for soldering the heads to the bodies of cylindrical cans, such as are commonly used for packing fruits, vegetables, &c.; and it has for its object to so combine a rotary can-holder with the soldering device proper that the heads are simultaneously soldered in place.

My invention therein consists in certain combinations of parts and details of construction not here necessary to be enumerated, as they are made the subject of the claims hereto annexed.

Proceeding to a description of the device, and referring to the accompanying drawings, A is the main frame of the machine, carrying uprights *a a a a*, in which are bearings for the shaft B B′. The part B′ carries a disk or plate, *b′*, on its end, and is furnished with pulleys *d d′* for a driving-belt, in lieu of which latter, however, a crank may be used. The part B of the shaft has also a disk, *b*, similar to that on the other part, B′, and is susceptible of an endwise motion through its bearings, being normally thrown inward by means of a spring, C, which carries the end bearing, *c*.

A lever, D, pivoted to one of the uprights, serves to retract the part B of the shaft, when desired.

Both ends of the shaft are tapered, as shown, so as to revolve against their end bearings with the minimum friction.

The plates *b b′* are designed to clamp the heads against the body of the can and cause it to revolve with the shafts.

E is a rod, carrying at its upper end a pair of yokes, *e e*, in which the can-body rests, as shown, and it is normally thrust upward by means of a spring, *e′*, but is susceptible of being drawn down as the treadle F is depressed.

A′ A′ are uprights rising from the main frame A, and they are slotted as shown at A″. Within the slots slide bars G G, to which is secured the solder-vessel H H. Springs *g g* serve to lift the latter, while rods *f′*, connecting the bars G with a transverse piece, *f*, secured to the treadle F, admit of its being drawn down.

It will thus be seen that the yokes *e* and solder-vessel H rise and fall simultaneously.

Inasmuch as the description of the remaining parts of the device will consist wholly of detail, the operation of the parts already described may well be set forth here.

The can-body having been formed in the usual manner, and the heads having been placed thereon, the lever D is retracted, and the can is laid upon the yokes *e*, the part B′ of the shaft being caused meanwhile to revolve by power communicated through the medium of a belt or the pulley *d* or *d′*, or in any other convenient way. The lever D is then released, and the part B of the shaft is impelled by the spring C toward the can, which latter is clamped between the plates *b b′* and instantly commences to revolve. The treadle F is then depressed, withdrawing the yokes *e* and bringing the solder-vessel H H downward until its irons I I are in contact with the seams, when a charge of solder is applied in a manner about to be described. The seams being thus soldered the treadle F is released, and the solder-vessel rises together with the yokes *e*. The part B of the shaft is then retracted by means of the handle D, and the completed can is removed to give place to the next.

Such is in general terms the operation of the machine.

Referring, now, to certain details of construction, forming important points of my invention, H H is the solder-vessel, made in two separable compartments, as shown, being connected by means of plates *h*, (see Fig. 1,) having slots through which the securing-screws *h′* pass, the design being to admit of the adjustment of the solder-vessels to or from each other, so as to bring their irons over the seams of the cans; but a slight range of adjustment is necessary, as the difference in length between the stand-

ard one and three pound cans (practically the ultimate desired range) is but about seven-eighths of an inch.

The side arms of the solder-vessel slide in sockets in the arms G, where they are secured by set-screws, as shown. All the connections of the solder-vessel, as at L L, are made to admit of adjustment in a manner clearly shown in the drawings.

Between the solder-vessels is a chamber, O′, having an opening, O, for the burner, which is preferably a Bunsen gas or gasoline jet, so as to give a sootless non-luminous flame. The burner is not shown, and any suitable form of burner may be used.

On either side of the chamber O′ are the chambers proper, which contain the molten solder. In each chamber is a piece, P, through which the iron I, of copper, is inserted.

Above the vessel H are pivoted levers *j*, operating, respectively, as levers of the first and second order with respect to the plungers J J′, to which they are connected, and which reciprocate in the pieces P. The levers are normally lifted by springs K, attached to the arms L, whereby the rear plungers, J′, are also lifted, allowing the molten solder to flow through holes *o* and fill the chambers S and tube S′. This amount of solder constitutes the charge which is applied to each head-seam, which charge may be regulated at will by means of a screw-plug, *p*, which is raised or lowered, as desired, in the chamber S.

As the lever *j* is depressed through the medium of the rods *m*, bar N, and treadle M, the plunger J′ is depressed, closing the communication between the solder-chamber and the charge-chamber S, and simultaneously the plunger J is lifted, allowing the solder to flow out of the discharge vent, duct, or tube S″ upon the front edge of the iron I, which latter is grooved, as at *i*, Fig. 1, to form a little gutter to conduct the solder to the point of the iron where it is in contact with the can. The curved face of the iron is flanged (see *i′*) to fit the flange of the can-head, and the can revolves in the direction of the arrow, carrying the solder under the iron. The latter is secured by a set-screw, I′, and is fed downward as it wears away.

To supplement the foregoing description of the operation of the device it is only necessary to add that as the solder-vessels are drawn down by the lever F to the can-seams the lever M is depressed, causing the charge of solder to flow. When the lever is released the plunger J′ ascends and allows the charge-chamber to be refilled.

It is obvious that the lever *j* might be connected with any stationary or oppositely-moving part of the machine by cords or otherwise, so as to automatically open the discharge-orifice of the solder-chamber as the vessels descend; but I do not believe such to be desirable, as the operator who places the cans on the yoke and removes them when completed has both hands free pending the descent of the solder-vessel, and it is preferred that he shall intelligently operate the solder-discharge rather than rely on the machine to do it.

It is obvious that instead of causing the soldering-irons to descend into contact with the seams, the motion may be reversed, the can being made to rise to meet the irons; but the described construction and mode of operation is to be preferred.

What I claim is—

1. In a machine for soldering cans, a revolving can-holder, in combination with a pair of soldering-irons and a vessel for holding the molten solder, mounted above the irons and adapted to deliver the solder to the head-seams, as set forth.

2. In combination with the revolving can-holder, the solder-vessel mounted above the can-holder and provided with a pair of irons arranged beneath the discharge-vents of the solder-vessel, as set forth.

3. In combination with the revolving can-holder and soldering-irons, the yoke *e*, and mechanism for retracting the same and for bringing the irons in contact with the seams, as set forth.

4. In combination with the vertically-reciprocating solder-vessel having a pair of irons, as set forth, the revolving can-holder mounted in bearings thereunder, and consisting of the two-part shaft having terminal disks, as described.

5. In combination with the revolving can-holder and solder-vessel having two chambers, each provided with its iron, mechanism, substantially as described, for reciprocating the solder-vessel.

6. In a can-soldering machine, a revolving can-holder, a rest for the can, and a vertically-reciprocating soldering device, in combination with mechanism adapted, as described, to withdraw the rest and to bring the soldering device in contact with the seam to be soldered, as set forth.

7. In a can-soldering machine, a revolving can-holder, a solder-vessel mounted above the same and having irons adapted to simultaneously secure the head-seams, and mechanism for delivering a charge of molten solder upon the seams, as set forth.

8. In combination with the revolving can-holder and treadle F, the slotted guides A′, bars G, and reciprocating solder-vessel mounted above the can-holder and having irons adapted to solder the head-seams, as set forth.

9. In combination with the revolving can-holder, a solder-vessel mounted above the can-holder and having a vent for the molten solder, and a soldering-iron grooved to receive the charge and deliver it upon the seam, as set forth.

10. In a machine for simultaneously soldering the head-seams of cans, a solder-vessel

made in two parts, adjustable to or from each other, and each provided with a soldering-iron, as set forth.

11. In combination with the solder-vessel made in two parts, adjustable as described, and each provided with a solder-vent discharging upon a grooved iron, the rotary can-holder, and mechanism for bringing the irons in contact with the head-seams, as set forth.

12. In combination with the shaft B B′, treadle F, guides A′, rods *f′*, and bars G, the solder-vessel H, having irons I, and the yoke *e*, as set forth.

13. The two-part solder-vessel having irons I and mechanism for delivering a charge, in combination with the revolving can-holder and means for reciprocating the solder-vessel, as set forth.

14. In combination with the solder vessel and irons, a pair of charge-chambers having means for adjusting or regulating the charge of molten solder, a revolving can-holder, and means for reciprocating the solder-vessel, as set forth.

15. The vessels H, having chambers S and screw-plugs *p*, in combination with the irons I and means for discharging the solder, as set forth.

16. In combination with the solder vessel and irons, a pair of charge-chambers having vent-tubes and means for regulating the charge, and a revolving can-holder and means for reciprocating the solder-vessel, as set forth.

17. The vessels H, having vent-tubes and screw-plugs *p*, in combination with the irons I and means for discharging the solder, as set forth.

18. The solder-chambers having charge-chambers and vent-tubes and irons, in combination with the plungers for discharging the molten solder, and the revolving can-holder, as set forth.

19. In combination with the revolving can-holder, the solder-vessel having discharge-vents and charge-chambers, the plungers J J′, and mechanism for operating the latter, as set forth.

20. In combination with the revolving can-holder, the solder-vessel having charge-chambers and vent-ducts and irons, the plungers J J′, lever *j*, and treadle *m*, as set forth.

21. In combination with the revolving can-holder, the solder vessel and irons, the charge-chambers and vent-ducts, and a pair of valves normally arranged to open communication between the solder-chambers and charge-chambers and to close the discharge-vents, and means for reversing the said normal position of the valves, as set forth.

22. In combination with the solder-vessel having solder-chambers and discharge-ducts, the plungers J J′, levers *j*, and curved and grooved irons I, as set forth.

23. The soldering-iron herein described, having a groove to receive the charge of molten metal, and a flanged and curved soldering-face, as set forth.

24. In a machine for soldering the heads to the bodies of cylindrical cans, a soldering-iron having its edge curved to conform to the shape of the can, the said curved edge having a flange, whereby the iron is adapted to rest in contact with the walls of the can and the crimped edge of the head, as and for the purpose set forth.

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Witnesses:
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JOHN C. GITTINGER.