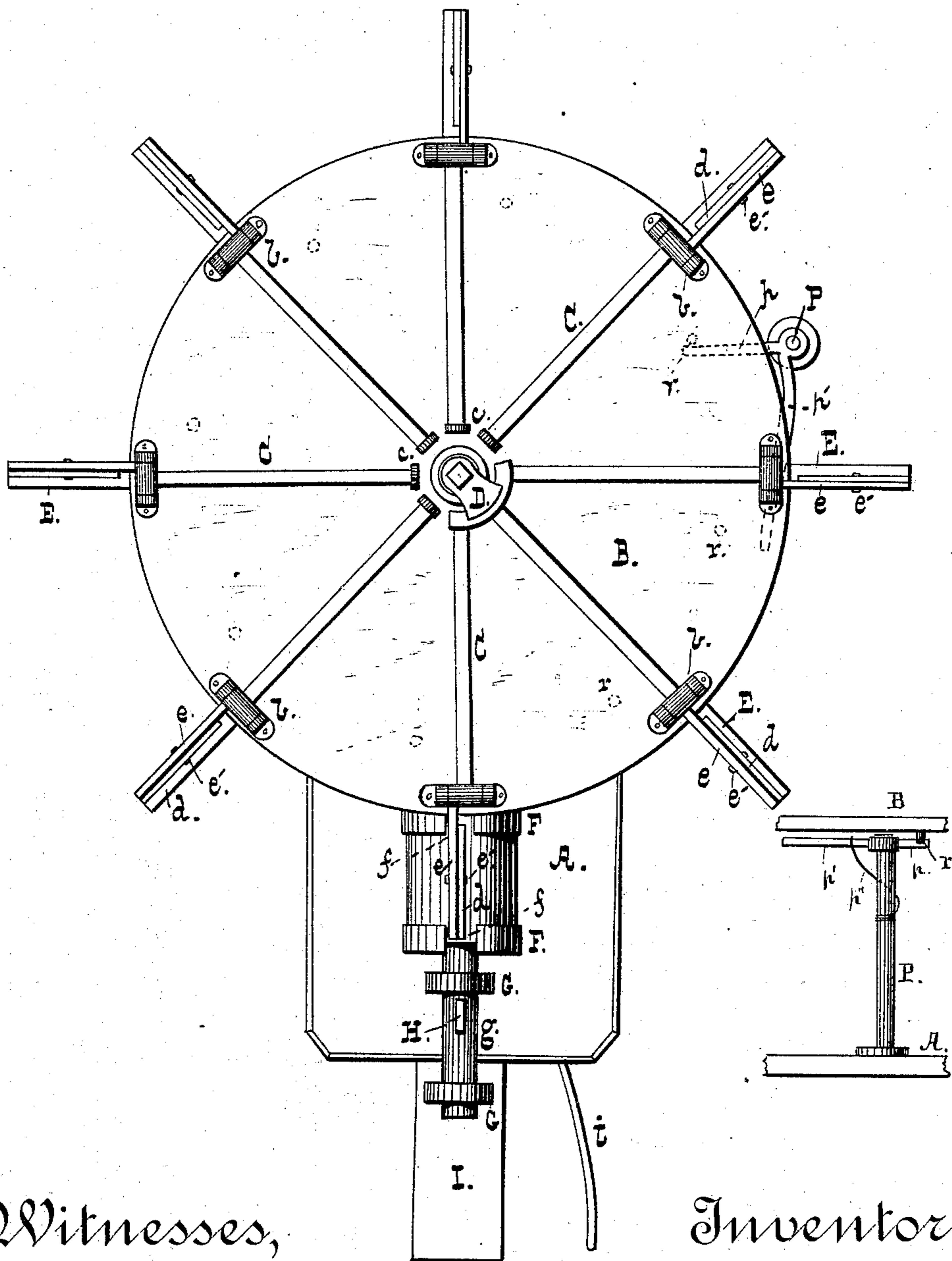


2 Sheets—Sheet 1.

No. 238,174.

Patented Feb. 22, 1881.

Fig. 1.



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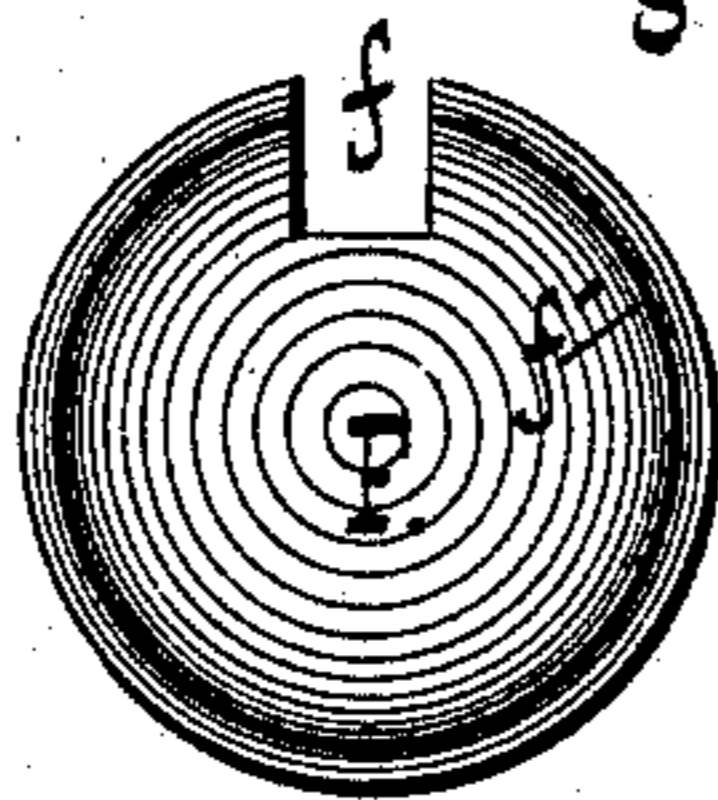
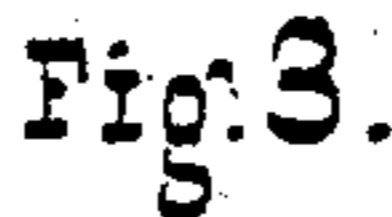
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

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CAN-SOLDERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 238,174, dated February 22, 1881.

Application filed January 3, 1881. (No model.)

To all whom it may concern:

Be it known that I, JOHN SOLTER, 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 plan view of the machine; Fig. 2, a side elevation of a part of the same, partly in sectional view; and Fig. 3 is a front elevation of one of the dies.

My invention has reference to machines for soldering the side or longitudinal seam of ordinary provision-cans; and it consists, generically, in the combination, in a machine of that class, of a device for gaging the diameters of the cans with a series of clamps revolving about a fixed axis and arranged to be brought *seriatim* to a position in which they secure the overlapping edges of the wall-blanks of the cans.

Specifically my invention consists in certain details of construction and combinations of parts, as hereinafter fully set forth and claimed.

In the accompanying drawings, A is a table or support, to which is secured an upright, B', about which revolves a table or frame, B, carrying a number of clamps. Near the edge of the table are pivoted, in bearings *b*, a series of levers, C, carrying on their inner ends revolving disks *c*. To the outer arms, *e*, of the levers C are secured, at *e'*, the clamping-plates *d*, arranged to descend upon the plates or bars E, that are bolted to the under side of the table and project therefrom below the plates *d*. The inner ends of the levers C are normally thrown upward by springs *c'*.

D is a segment, secured to the center post, D', and having beveled edges, as shown. It is so arranged that as the table B revolves the rollers or disks *c* pass under it, whereby the inner ends of the levers are depressed and the clamps are released. The post D' is movable within the support B', and is actuated by a lever, *i*, secured to its lower end.

To the table A is bolted the gaging device, consisting of a frame, J, having bearings G G, in which reciprocate the shafts *g g*, having dies F F. The construction of the dies is

clearly shown in Fig. 3. They are each provided with a slot, *f*, and an annular depression, *f'*, which is accurately of the size of the can to be soldered.

H H are levers, which pass through slots in the shafts *g g* and are pivoted in the frame J. Their lower ends are attached to arms *l l*, which are connected together and attached to a bar, *o*, which reciprocates vertically in guides O. The lower end of the bar *o* is connected by means of a rod or wire, *m*, with a treadle, I. A spring, N, is attached to the device in such manner that its effect is to cause the dies to approach each other. It is shown as connecting the junction of the bars *l* with the table A; but it may be otherwise arranged—as, for instance, coiled about the rod *o*, and having its bearings between the lower bar of the guides O and a collar or pin on the rod; or it might be under the treadle or coiled around the shaft *g*, between the lever H and outer guide, G.

The operation of the machine is as follows: The can-blanks, being cut to the desired size, are passed under rollers, whereby they are bent into cylindrical shape. One operator depresses the treadle I, causing the dies F F to separate, and the table B is made to revolve, bringing one of the clamps between the dies. The cylinder is then placed between the dies with its lapped joint uppermost and above the plate E. The treadle is then released, when the dies approach each other, and the ends of the cylinder enter the grooves *f'*, whereby the can is accurately gaged to the desired size. The operator then throws the lever *i* to the right, releasing the lever C, and the plate *d* descends and clamps the joint. The treadle I is again depressed, retracting the dies F, and a second clamp is brought between them to secure a second can, and so on. Meanwhile another operator on the opposite side of the table B throws a little powdered rosin on the clamped seam, applies a drop of solder, and runs a heated iron quickly along the seam, securing it. The soldered cans are automatically thrown off into a basket as soon as the clamps are released by means of the segment D. This is effected through the medium of the bent lever *p p'*, which is pivoted upon a

standard, P, at the side of the machine. A spring or weight, p'' , serves to hold the lever normally in the position shown in Fig. 1, and a series of pins, r , is secured to the under side of the table B, which pins strike the arm p as the table revolves, and cause the other arm, p' , to throw the can off from the horn or plate E, and allow it to fall into a suitable receptacle.

It will be seen that most important ends are attained by the use of the machine. The cans are quickly and accurately gaged to a predetermined size, greatly facilitating the attachment of the heads, and are seized by a clamp as soon as gaged and presented in front of the operator who solders the seam. No time is lost at any stage of the progress, as the lever i is knocked aside by the knee or hand of the operator while reaching for the next can-blank, and the clamp instantly descends. The lower clamping-plate, E, being on the same level as the upper edge of the groove f' , the adjustment of the can-blank to the groove is facilitated thereby, as a vertical displacement of the blank is impossible while its lapped joint is resting on the plate E.

The object of actuating the shafts g by the regular mechanism described—namely, the levers H, rods l , treadle I, and rod o —is to insure a positive and predetermined motion of each die with reference to the frame J, which, with the described construction of the machine, is a practical necessity, as the dies must move apart to admit of the entrance between them of the clamping-plates E.

Other mechanism may easily be imagined which will accomplish the same end—as, for instance, a rack attached to each shaft and driven by a pinion journaled in the frame J and actuated by a crank or treadle. The described arrangement is, however, believed to be the simplest and best.

I say above that with the described construction of the machine a positive motion of each die with reference to the frame J is a practical necessity; but I do not wish to be understood as limiting my invention to a machine of the precise described construction, as modifications not necessarily involving such positive motion at once suggest themselves.

It is obvious that a positive motion of both dies with reference to the clamp will answer the desired end, and this might be readily attained by sliding the frame J bodily toward the clamp, while one die only is made to move in the opposite direction.

What I claim is—

1. In a can-soldering machine, the combination, substantially as hereinbefore set forth, of a gaging device adapted to simultaneously gage both ends of the can-body, with a series of clamping devices revolving about a pivot or axis and arranged to be brought *seriatim* to the gaging device and clamp the gaged can-blank for soldering, as set forth.

2. In a can-soldering machine, a pair of

grooved dies, in combination with a series of clamps arranged to revolve about an axis at right angles to the axis of the dies and to clamp the can-blank for soldering, as set forth.

3. In a can-soldering machine, a pair of grooved dies arranged to approach each other and gage the can-blank, in combination with a table or frame carrying a number of clamping devices and revolving about an axis at right angles to that of the dies, as set forth.

4. In combination with a pair of grooved dies, each arranged to approach the other, a series of clamping-plates arranged to revolve about an axis at right angles to that of the dies, and to be brought to a position between the dies, with their clamping-faces on a line with the grooves in the dies, and a second series of clamping-plates arranged to descend upon the first and secure the can-seam, as set forth.

5. In combination with the reciprocating dies and revolving table, the lower clamping-plates arranged to come between the dies while the latter are separated, and the upper clamping-plates carried on the ends of pivoted levers, the inner ends of which are automatically depressed as the clamps approach the dies, whereby the soldered cans are released and the clamps are opened to receive the blanks to be gaged and soldered, as set forth.

6. In combination with the gaging-dies, the revolving table carrying the clamping-plates and pivoted levers, and mechanism, substantially as described, for depressing the inner ends of the levers as the outer ends approach the dies, as set forth.

7. In combination with the clamping device, the grooved and slotted dies mounted upon shafts that reciprocate within suitable bearings, and mechanism for imparting to each die a positive and predetermined motion toward the other, as set forth.

8. In combination with the clamp, the grooved and slotted dies mounted upon shafts that reciprocate within suitable bearings, the levers H, connected arms l , and treadle, as set forth.

9. In combination with the clamp, the dies F, levers H, arms l , treadle I, and rod o , arranged to move in a right line in the bearings O, as set forth.

10. In combination with the gaging device, the revolving table having levers C, clamping-plates d E, segment D, and lever i , as set forth.

11. In combination with the gaging device, the revolving table having levers C, clamping-plates d E, segment D, and mechanism for automatically removing the soldered cans as the clamps are released, as set forth.

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