(No Model.)

T. H. HAMILTON.

CAN SOLDERING MACHINE.

No. 464,459. Patented Dec. 1, 1891.

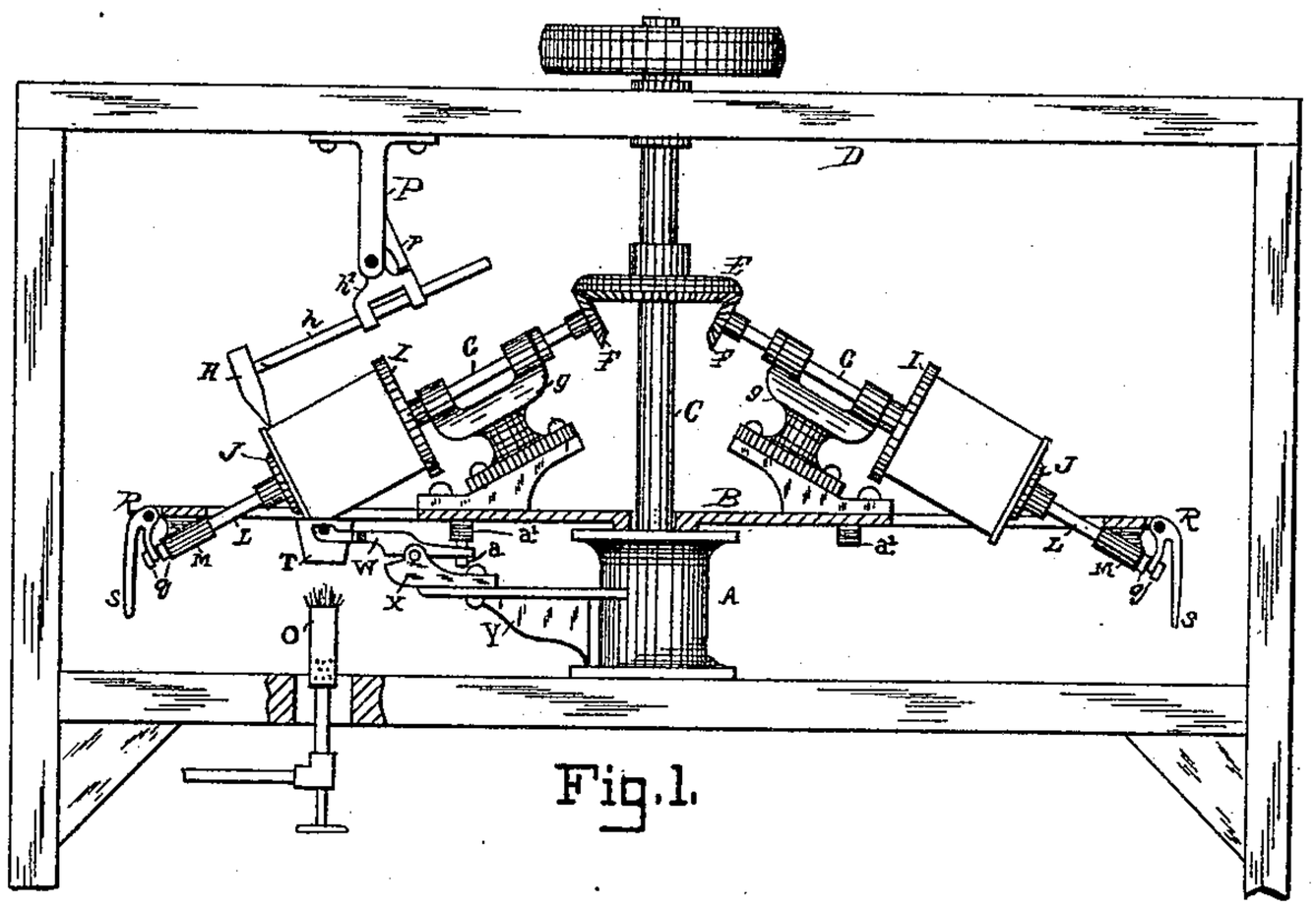


Fig. 1.

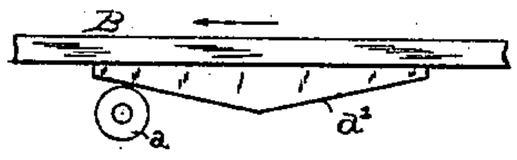


Fig. 3.

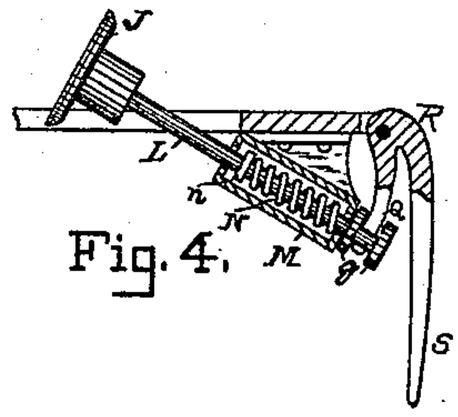
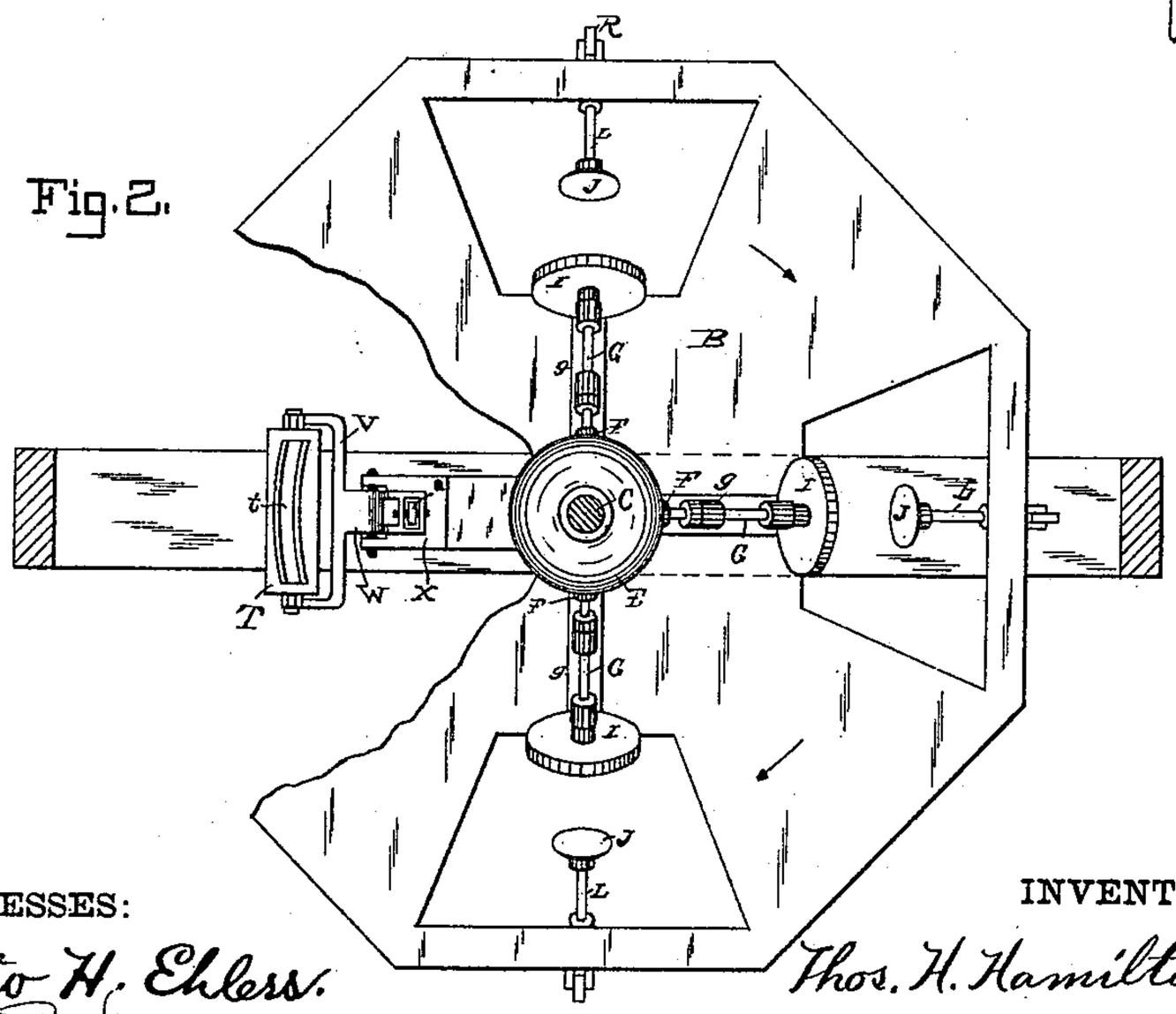


Fig. 4.

Fig. 2.



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CAN-SOLDERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 464,459, dated December 1, 1891.

Application filed October 22, 1890. Serial No. 368,891. (No model.)

To all whom it may concern:

Be it known that I, THOMAS H. HAMILTON, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Can-Soldering Machines, of which the following is a specification.

My invention relates to an improvement in that class of machines for soldering the end seams of cans, and has for its object the production of a machine in which the cans have only a circumferential and rotary movement and the solder-trough oscillates, whereby a greater durability of parts is gained and less motion lost than with the constructions heretofore in vogue. I attain these objects by the mechanism which will be more fully described hereinafter, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 represents an elevation of the complete structure, shown partly in section; Fig. 2, a top or plan view with a portion of the rotary table broken away to disclose the construction of the solder-trough and auxiliaries; Fig. 3, a detail view showing the form of the cams for elevating the solder-trough; Fig. 4, a detail view of the outer or sliding portion of the can clamp or holder.

The reference-letter A indicates the main casting or supporting-standard, above which the table B is intermittingly rotated by an attendant, said table having its bearing in said casting, but turning loosely around the drive-shaft C, which extends through it, and also finds its bearing in said casting at its lower end, being suitably mounted in the frame-work D at its upper end. A bevel gear-wheel E is keyed on the shaft C and meshes with the bevel-pinions F on the inner ends of the four radially-extending shafts G, which are mounted in suitably-inclined standards *g*, erected from the table B, and are arranged obliquely, being provided on their lower ends with the clamping-disks I, which will be of the necessary form to properly center the can. The clamp for the opposite end of the can consists of a disk or head J on the end of a short shaft or rod L, which runs through a cylindrical box or socket M, bolted to the under side of the table and containing a coil-spring N, which surrounds said rod and engages a projection *n* on the same, fitting at its opposite end against the end wall of the socket, whereby the action of said spring is to press the head J up against the lower end of the can, and thus clamps the latter in position, so that it will revolve.

On the lower end of the rod L, which projects beyond the socket M, a pair of collars *q* are formed, and the forked end Q of a bell-crank lever R straddles the rod between these collars, and said lever is pivoted at the edge of the table, being provided with a handle S, by means of which it is manipulated. It will be evident that by pulling out upon this handle the rod L will be drawn back and the can relieved from the clamp.

The table will of course be provided with openings, through which the cans project, and beneath the table, in line with these openings, the molten-solder holder T is arranged, the same consisting of a rectangular trough having in its top an arc-shaped slot or opening *t* and mounted in the forked end V of a lever W, which has its fulcrum in a base or standard X, supported by a bracket Y, projecting from the main casting A. A burner O will be arranged beneath the trough in any suitable manner.

The inner end of the lever W is provided with a friction-roller *a*, and on the under side of the table beneath each can-holder a raised track or cam *a'* is arranged so that as the table revolves and the cans come around over the solder-trough said raised tracks or cams will strike the roller *a* and depress the inner end of the lever to raise the trough and bring it to a position where the lower end seam of the can will take solder through the arc-shaped slot.

A soldering-iron H is suspended over the trough, being secured to the end of a rod *h*, which is supported in a holder *h'*, depending from a hanger P, and pivotally connected thereto. A lug or stop *p* projects from said hanger and engages the inner end of the rod *h* to limit the downward movement of the iron when the can passes from beneath the same.

From the foregoing description, taken in connection with the accompanying drawings, the operation of my machine will be apparent, and may be briefly stated as follows: When power is applied to the drive-shaft, the several can-holders will be revolved through the medium of their respective bevel-pinions, and hence when a can has been clamped in position by drawing back the lower head or disk J, as previously described, and then fitting the can in the upper rotary head I and releasing the handle S said can will of course be revolved in the usual manner. The attendant will then start the table revolving and clamp a can in the next holder as it comes around, &c.; but in the meantime the first can will have passed around over the solder-trough, when the latter will be thrown up to the proper position, as previously explained, and while the table is held stationary during the release of one can and insertion of another the preceding can is rotating through the arc-shaped slot in the solder-trough and takes solder into its seam. As this process takes place, the soldering-iron suspended above will have been elevated by the can coming in contact with it, and thus bears against the can in its end seam by its own weight and acts upon the solder which has been taken up until the can passes on by means of the further revolution of the table, and then the solder will have ample time to chill before the can reaches the starting-point, where it is released.

The advantage of having a solder-receptacle vertically movable and arranging the revoluble can-holding disks on the rotary table, as shown—that is, in rigid or fixed inclined bearings, so that each can will have only a rotary movement, and will remain in the inclined position until removed from the machine—is that the molten solder which flows in the end seam of the can will not be disturbed while it is chilling and hardening by the further movement of the combined parts. A tilting movement of the can-holder is found to jar the can while the solder is yet soft, and these jars often disturb or displace the soft solder, and thus give rise to leaks in the cans. The combination and arrangement here shown are different therefore from those machines wherein the can-holders have a tilting movement.

It is evident that my machine might be varied in many slight ways which might suggest themselves to a skilled mechanic, and hence I do not wish to confine myself to the precise construction herein shown, but consider myself entitled to all such slight variations as come within the spirit and scope of my invention.

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

1. In a can-soldering machine, the combination, with an intermittingly-revoluble table, of a series of rotary clamps rigidly secured thereto in an inclined position, and a solder-receptacle vertically movable relatively to the table and clamps, and means for continuously rotating the clamps on their axes and intermittingly moving the solder-receptacle, substantially as described.

2. In a can-soldering machine, the combination, with a revoluble table having openings therein, a rotary clamp rigidly secured to the table at each opening in an inclined position, a vertically-movable solder-receptacle below the table, and means for continuously rotating the clamps on their axes and intermittingly moving the solder-receptacle, substantially as described.

3. In a can-soldering machine, the combination, with a revoluble table having openings therein, an inclined standard on top of the table, and a box or socket on the under side of the table, at each opening, in an axial line with each other, a shaft in the standard and a spring-actuated rod in the socket, clamping-disks on the adjacent ends of the shaft and rod, a vertically-movable solder-receptacle below the table under the openings, and means for rotating the clamping-disks on their axes and for moving the solder-receptacle, substantially as described.

4. In a can-soldering machine, the combination, with a revoluble table, of rotary clamps rigidly secured thereto in an inclined position, a cam or raised track secured to the table for each clamp, a lever pivoted in a fixed position relative to the axis of the revolving table, one end of which is adapted to be operated or engaged by said tracks, and a solder-receptacle connected with and operated by the opposite end of the lever, substantially as described.

5. In a can-soldering machine, the combination, with a revoluble table provided with clamps, a solder-receptacle, a vertically-movable iron suspended above the table in the track of the cans, said iron being disconnected from the operating mechanism and adapted to be moved by contact with the cans, and a stop for limiting the downward movement of the iron, substantially as described.

6. In a can-soldering machine, the combination of a vertically-movable molten-solder receptacle, a pivoted soldering-iron located above the same, a rotary table or carrier moving between said solder-receptacle and the iron, and rotary can-holding clamps, each mounted in a rigid inclined position on said table or carrier, and adapted to hold a can in such a position that it will pass between the solder-receptacle and the iron suspended above and take solder into its end seam from said receptacle, while at the same time it strikes the soldering-iron and raises the same, so that it engages the seam of the can by its own weight, as set forth.

7. In a can-soldering machine, the combination, with a series of disk-like can-holding clamps revoluble in the same plane around a common center, and each clamp having its

axis inclined to said plane of revolution and rotatable upon said axis, and a solder-receptacle adapted to be moved vertically into and ont of said plane of revolution, whereby the cans held between the clamps may be successively provided with solder, substantially as described.

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

THOMAS H. HAMILTON.

Witnesses:
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