(No Model.)

2 Sheets—Sheet 1.

H. MILLER.

MACHINE FOR SOLDERING HANDLES ON CAN TOPS.

No. 265,849. Patented Oct. 10, 1882.

Fig 1.

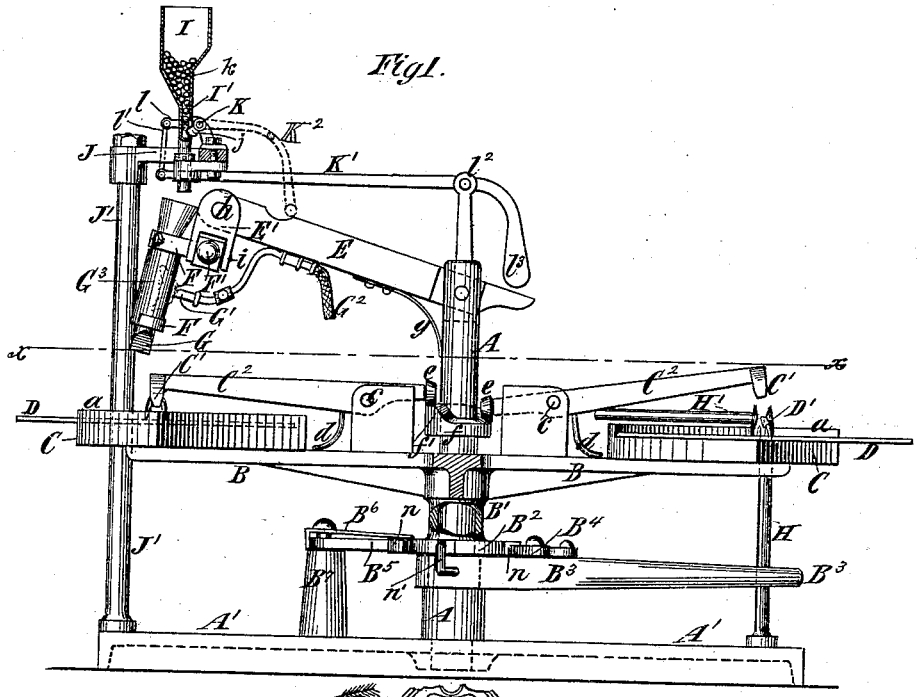
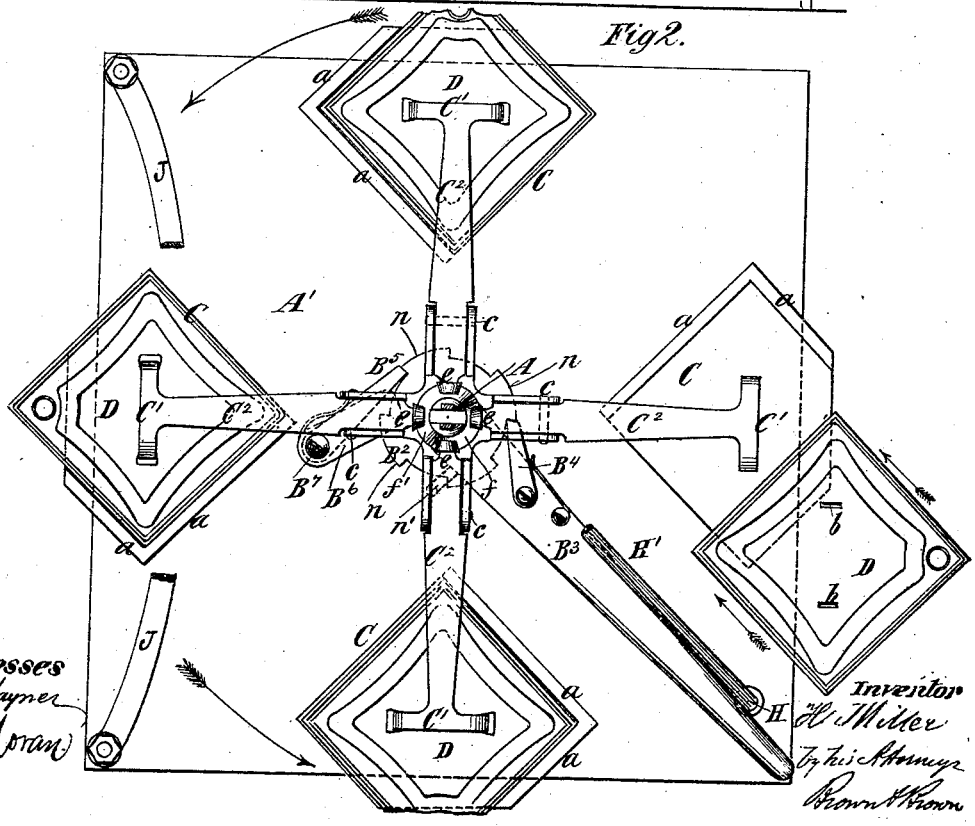


Fig 2.



Witnesses
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Ed L Moran

Inventor
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(No Model.) 2 Sheets—Sheet 2.

H. MILLER.

MACHINE FOR SOLDERING HANDLES ON CAN TOPS.

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Fig3.

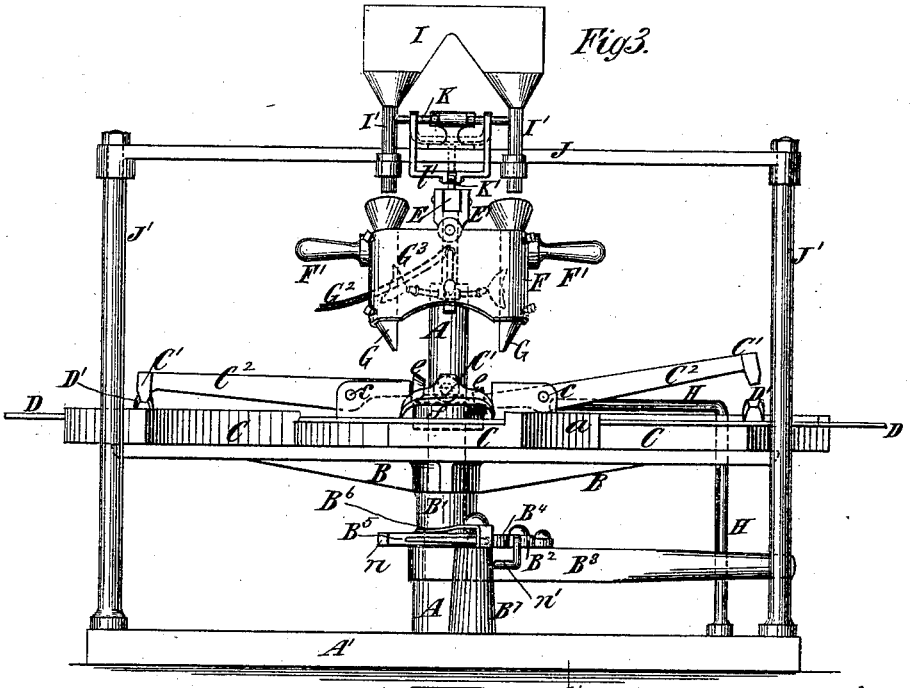

Fig4.

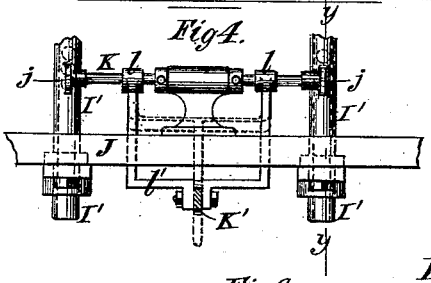

Fig5.

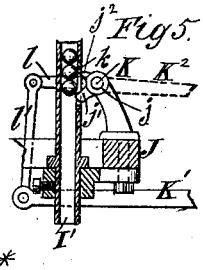

Fig8.

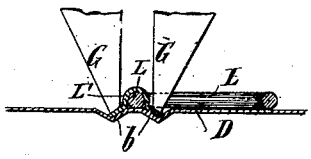

Fig6.

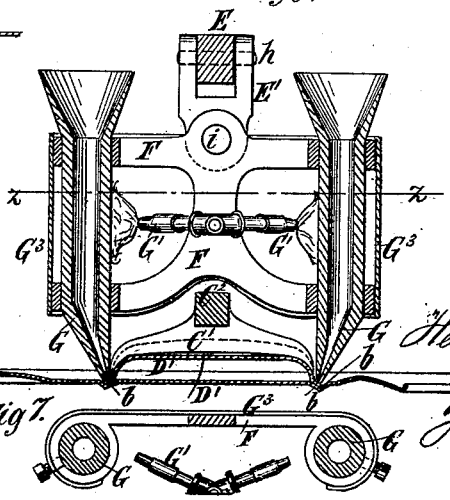

Fig5*

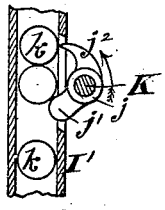

Fig7.

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UNITED STATES PATENT OFFICE.

HERMAN MILLER, OF NEW YORK, N. Y.

MACHINE FOR SOLDERING HANDLES ON CAN-TOPS.

SPECIFICATION forming part of Letters Patent No. 265,849, dated October 10, 1882.

Application filed June 9, 1882. (No model.)

To all whom it may concern:

Be it known that I, HERMAN MILLER, of the city of New York, in the county and State of New York, have invented a certain new and Improved Machine for Soldering Handles on Can-Tops, of which the following is a specification.

Cans for containing kerosene-oil and other substances are frequently provided with handles which are soldered to their tops, and which are composed of a handle stamped or struck up from sheet metal and soldered to the can-top at both ends, or of a wire loop which is attached to the can-top by a clip of sheet metal bent so as to embrace one side of the loop and soldered to the can-top on both sides of the wire.

The object of my invention is to provide a machine wherein the soldering-irons are so supported that they may be readily brought down upon the ends of the handles as the can-tops are brought in proper position, and which will enable the operation of soldering to be done effectively and more expeditiously and cheaply than heretofore.

My invention relates to that class of soldering-machines in which the articles to be soldered are placed upon a rotary series of tables or platforms, and are by the rotation of said series of tables or platforms successively brought under a soldering-iron or soldering-irons, which are lowered upon the articles for performing the soldering operation.

My invention consists in certain novel details of construction and combinations of parts hereinafter described and claimed.

In the accompanying drawings, Figure 1 represents a vertical section of a machine embodying my invention. Fig. 2 represents a horizontal section on the dotted line *x x*, Fig. 1. Fig. 3 represents a front elevation of the machine. Fig. 4 represents a rear elevation, upon a larger scale, of the devices for feeding shot or pellets of solder. Fig. 5 represents a vertical section upon the dotted line *y y*, Fig. 4. Fig. 5* represents certain details of the machine on a larger scale, and hereinafter to be described. Fig. 6 represents a sectional elevation of the soldering-irons, their holder, and a can-top on the same scale as Fig. 4. Fig. 7 represents a horizontal section on the dotted line *z z*, Fig. 6, and Fig. 8 is a diagram illustrative of a modification of my invention.

Similar letters of reference designate corresponding parts in all the figures.

A designates a post or stationary fixed spindle, and B designates a spider or frame, which may be provided with any desired number of arms, (four being here represented,) and which has a sleeve or hub, B′, adapted to rotate freely upon said post or spindle. The sleeve or hub B′ has upon it a ratchet-wheel, B^2, having four projections, *n*, and by means of a hand-lever, B^3, fulcrumed loosely on said post or spindle, and a pawl, B^4, connected with said lever and engaging with said wheel, the spider or frame may be rotated step by step.

B^5 designates a pawl which engages with the ratchet-wheel B^2 and stops the wheel after it and the frame or spider have made the desired movement. When it is desired to turn the frame or spider B the hand-lever B^3 is moved backward to cause the pawl B^4 to take a new hold on the wheel B^2. As the lever is moved backward a projection, *n′*, on the side thereof strikes the pawl B^5 and raises or moves it entirely out of engagement with the projections *n* of the wheel B^2, and at the same time the pawl B^4 engages with another projection *n* of said wheel. Upon the reverse movement of the lever the projection *n′* holds the pawl B^5 away from the wheel sufficiently long to allow one of the projections *n* to pass under the said pawl, and the wheel can then move a quarter of a turn, or until another projection *n* strikes the pawl B^5.

In order to prevent the wheel B^2 from being moved by frictional contact with the lever B^3, I provide a brake, which, as here represented, consists of a spring, B^6, bearing upon said wheel and secured to the same post, B^7, as the pawl B^5.

Any other mechanism suitably arranged for giving the desired step-by-step motion to the spider or frame may be employed in lieu of that here shown.

Upon the end of each arm of the frame or spider B is fixed a plate or carrier, C, which is of proper size to receive the can-tops D upon it, and which is provided on two sides with flanges *a*, which project above its upper surface and form guards which insure the can-

tops being placed in proper position if they are shoved up against the guards.

The form of the handle and the manner in which it is to be combined with the can-top D are best shown in Fig. 6.

D′ designates the handle, the two ends of which are bent downward and outward on an incline, and in the can-top D are formed indentations *b*, corresponding in shape to the inclined ends of the handle D′. The can-tops D are placed upon the carriers or plates C when they reach the position of the one represented at the right hand in Fig. 2, and the series of carriers are intended to rotate in the direction of the arrows, Fig. 2. The can-top is placed upon the carrier, and the handle D′ is placed upon the can-top, with its ends in the depressions or indentations *b* in proper position to be soldered.

Above each carrier C is a presser, C′, which is adapted to fit the contour of the handle D′, as shown in Fig. 6, and the several pressers are attached to or formed on the ends of arms C^2, which are pivoted at *c* to and above the several arms of the spider or frame B, so that the pressers may rise and fall in vertical planes to move them toward and from the handles on the can-tops below them. Springs *d* are applied to the several arms, C^2, so as to hold the presser C′ normally out of contact with the handles D′, and the several arms are provided at their inner ends with rollers, *e*, which run upon a circular track or way, *f*, rigidly secured to the post or stationary spindle A. The springs *d* hold the pressers C′ out of contact with the handles D′ for half, or thereabout, of the rotation of the frame B; but as the carriers approach the position of the one shown at the left of Fig. 2 the roller *e* upon the arm C^2 of the presser of that carrier strikes a cam, *f′*, in the track or way *f*, and the said arm is tilted, so as to bring its presser C′ down upon the handle D′ of the can-top below it, and thus hold said handle securely in place on the can-top.

To the top of the post or spindle A is fulcrumed an arm or beam, E, which, as shown in Figs. 1 and 2, projects toward the left of the machine, and which is maintained normally in an elevated position by a spring, *g*; but I would here remark that a weight suitably applied may be used instead of the spring *g*, and other weights in lieu of the springs *d*, before referred to.

At the outer end of the arm or beam E is a piece or block, E′, which is connected to said arm or beam by a bolt or pivot, *h*, so that it can swing readily in a vertical plane toward and from or radially to the post or spindle A, and to said piece or block E′ a frame, F, is secured by a bolt or pivot, *i*, extending at right angles to the pivot *h*, so that the said frame F may be swung in a vertical plane tangential to the radial arm or beam E. Thus I form a species of universal joint which enables the frame F to be readily manipulated.

In the frame F are secured two soldering-irons, G, which are most clearly shown in Figs. 6 and 7, and which are here represented as hollow, and the arm or beam E, the piece or block E′, and the frame F constitute a holder for the soldering-irons, which provides for their adjustment lengthwise of and transversely to the handles. The frame F is provided with handles F′, projecting from its sides, and by means of these handles the holder of the soldering-irons G may be brought down and adjusted so that the points of the hollow irons will rest directly on the tips or ends of the handle D′, which rests in the depressions or indentations *b* in the can-top D, as best shown in Fig. 6. When the handles F′ are released the holder of the soldering-irons is raised by the spring *g*, so as to carry the points of the irons away from the handle, and the frame or spider B is given a partial rotation to carry the can-top on which the handle has been soldered away from the soldering-irons and to bring another can-top under the soldering-irons. As the can-top on which the handle has been soldered moves away from the soldering-irons the roller *e* on the arm C^2 of the presser C′ drops off the cam *f′* on the track *f*, and the presser is raised by the spring *d*, so as to relieve the handle of pressure.

H designates a vertical rod erected on the base A′ of the machine, and which is adapted to serve as a stop for the hand-lever B^3, so that the latter can only be operated to make a quarter-rotation of the frame or spider B, and the upper part, H′, of this rod is bent or turned inward, so as to project in the path of the handles D′ as the can-tops D pass under it, and forms a stop against which said handles strike, and by which the can-tops are thrown off their carriers C.

The soldering-irons G may be heated by gas-jets G′, attached to the frame F, and supplied with gas by a flexible tube, G^2; or they may be heated in any other suitable way; and in order to protect the workman who operates the soldering-irons from the heat of the gas-flames, and to protect the gas-flames from currents of air, I arrange a shield, G^3, at the front of the frame F, as best shown in Figs. 6 and 7.

In this example of my invention the solder is supplied to the irons G in the form of shot or pellets, and I will now describe the means employed for supplying such shot or pellets.

Above the soldering-irons G is a hopper, I, which may be considered as a double hopper, in that it has two outlet-tubes, I′, and the hollow soldering-irons G are immediately below these outlet-tubes, and are made slightly flaring at the upper ends, so as to form hoppers or funnels to catch the shot or pellets as they fall from said tubes. The outlet-tubes I′ are held in a bracket, J, which is supported on a post, J′, erected on the base-plate A′, and thereby the hopper I is supported.

Behind the outlet-tubes I′ is arranged a horizontal shaft, K, (best shown in Figs. 3, 4, and 5,) and opposite the tubes I′ the shaft is

provided with cams or dogs *j*, which project through slots in the tubes into the path of the shot or pellets *k*, as seen in Fig. 5. The construction of the cam or dog *j* and its relation to the solder-tube I′, wherein it works, are most clearly shown in Fig. 5*. The cam or dog is provided with a lower projection, *j′*, which may be of almost any form, so long as it can project far enough into the tube to arrest the fall of the pellets *k*, and an upper projection, j^2, which is pointed or sharp enough to indent itself readily into a pellet. In the position shown in Fig. 5* the projection *j′* holds all the pellets against falling, while the upper projection, j^2, is for the time being inoperative. When the rock-shaft K is turned in the direction of the arrow the projection *j′* is withdrawn from under the lowest pellet; but before it is entirely withdrawn the sharp upper projection, j^2, strikes, and is pressed or indented into the next to the lowest pellet, and it holds all the pellets except the lowest from falling, while the lowest is allowed to fall. When the rock-shaft K is turned in the reverse direction to that indicated by the arrow in Fig. 5* the projection *j′* is moved into the tube I′ far enough to hold the pellets before the upper projection, j^2, releases the pellet into which it was indented, and which is now the lowest. As soon as the projection j^2 is withdrawn from the said pellet it falls and rests on the lower projection, *j′*, and all the pellets follow it downward. The shaft K has an arm, *l*, projecting forward from it, as shown in Fig. 1, and the arm is connected by a link, *l′*, with a lever, K′, fulcrumed at l^2 in the top of the post A, and having a weighted tail, l^3, which hangs in the way of the projecting end of the beam E. When the beam E descends its projecting end acts on the tail l^3 of the lever K′, and thereby oscillates the shaft K, and causes the cams or dogs to release the lower shot or pellet, *k*, in each tube, which are allowed to fall into the soldering-irons, and likewise cause the cams to bite upon the second shot or pellet, and so hold them and all above them from falling. When the arm or beam E rises its end leaves the tail of the lever K′ and the latter falls, thereby turning the shaft K in the reverse direction and causing the projections *j′* of the cams or dogs *j* to enter the tubes I′ and arrest the pellets in each tube. It will therefore be seen that each time the soldering-irons are lowered they each receive a shot or pellet, which is melted and retained therein, because of the smallness of the hole at the point of the iron, until the latter is brought into contact with the handle D′.

I may dispense with the lever K′, the arm *l*, and link *l′*, and attach a tail-piece or lever, K^2, to the shaft K, as shown in dotted lines in Fig. 1. This tail-piece or lever would then rest on the beam E, and the shot would be released and fall into the soldering-irons when the beam E rises instead of when it descends.

If necessary, a reservoir for acid or flux might be arranged so as to deliver a drop of acid or flux upon the handle as the soldering-iron comes in contact with it; or the flux might be delivered into the irons with the shot or pellets.

Instead of making the soldering-irons hollow, I may make them solid and deliver the solder otherwise than through them, and I may employ solder in other forms instead of shot or pellets.

Although the rotary series of carriers or supports for the can-tops is very desirable in connection with the means shown for holding or supporting the irons, a stationary plate or bed for the can-tops might be used, from which they are removed and replaced by others as soon as the handles are soldered to them.

Where a stationary bed or support for the can tops is used I may employ a presser, C′, suitably arranged, and this presser may be actuated to cause it to hold the handle by the holder of the soldering-irons in its descent.

In Fig. 8 I have represented a form of handle which is sometimes used, and which consists of a loop of wire, L, secured to the can-top D by a clip or piece, L′, of sheet metal, which is bent so as to embrace the wire, and is soldered at its two ends in depressions or indentations *b* in the can-top D. In this case the irons G should be arranged nearer together, as shown. Even if a single soldering-iron provided with two points were used it might properly be considered as two irons.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with a rotary series of platforms or tables, C, of the post A, the beam E, the piece E′, pivoted at *h* to said beam, so as to swing toward and from the post, the frame F, pivoted at *i*, so as to swing in a plane transversely to that in which the piece E′ swings, a soldering iron or irons carried in said frame, and means for heating the iron or irons, all adapted to operate substantially as described, and for the purpose set forth.

2. The combination, with a rotary series of platforms or tables, C, of the post A, the beam E, the piece E′, pivoted to said beam at *h*, the frame F, pivoted to said piece E′ at *i*, one or more hollow irons, G, in said frame, means for heating said iron or irons, a hopper for solder pellets, and devices actuated by the rising and falling movements of the beam E to deliver pellets one by one into said iron or irons, substantially as described.

3. The combination, with a rotary series of platforms or tables, C, of the post A, the beam E, the piece E′, fulcrumed to said beam at *h*, the frame F, pivoted to said piece E′ at *i*, and carrying one or more soldering-irons, means for heating said iron or irons, the pressers C′, levers C^2, carrying said pressers, and fulcrumed at *c*, the stationary track or way *f* and cam *f′*, and the springs *g*, all substantially as described.

4. The combination, with the post A and frame or spider B, of the ratchet-wheel B^2, the lever B^3, provided with a pawl, B^4, and projec-

tion n', and the pawl B^5, adapted to be thrown out of engagement with the ratchet-wheel by the projection n' striking against it, substantially as and for the purpose described.

5. The combination, with the rotary series of platforms or tables C, the post A, and the beam E, of the hollow soldering-irons G, carried by said beam, the hopper I for solder pellets, the solder-tubes I′, the rock-shaft K, provided with the cams j, having the lower projection, j', and the sharp upper projection, j^2, and connections through which said rock-shaft is operated by said beam in its rising and falling movements, substantially as described.

6. The combination of the tube I′ and the rock-shaft K, having fixed upon it the cam j, provided with the lower projection, j', and the sharp upper projection, j^2, substantially as described.

7. The combination of the hollow irons G, the holder E E′ F therefor, the hopper I for solder pellets, the outlet-tubes I′, the shaft K, lever K′, arm l, link l', and cams or dogs j, provided with the lower projections, j', and the sharp upper projections, j^2, substantially as described.

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Witnesses:
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