

(No Model.)

3 Sheets—Sheet 1.

E. DE CEW & A. E. CARPENTER.

MACHINE FOR SOLDERING CAPS ON FRUIT CANS.

No. 407,773.

Patented July 30, 1889.

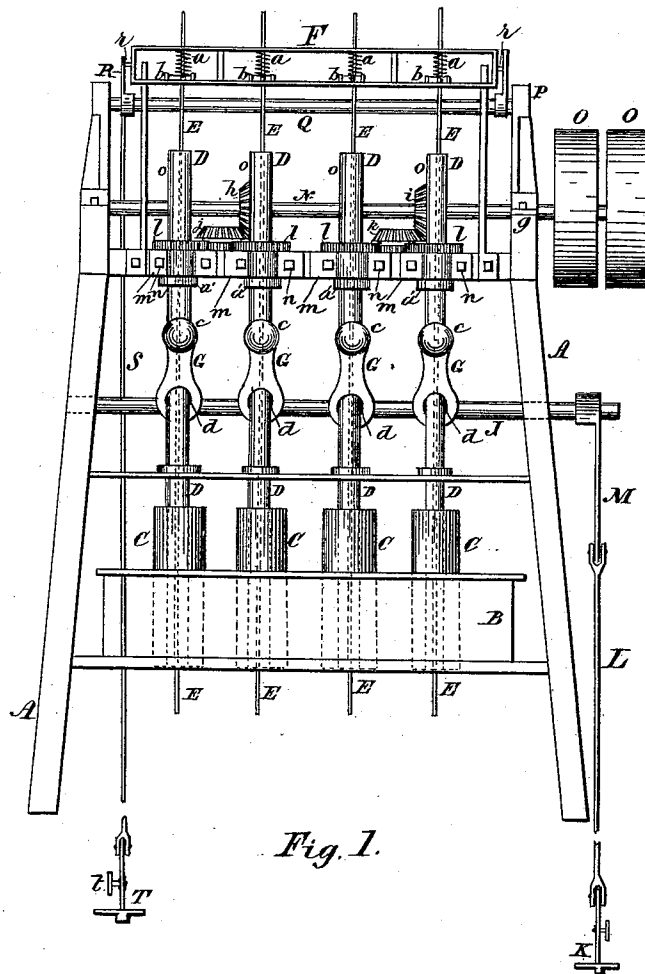


Fig. 1.

Witnesses.

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L. B. Byrnes

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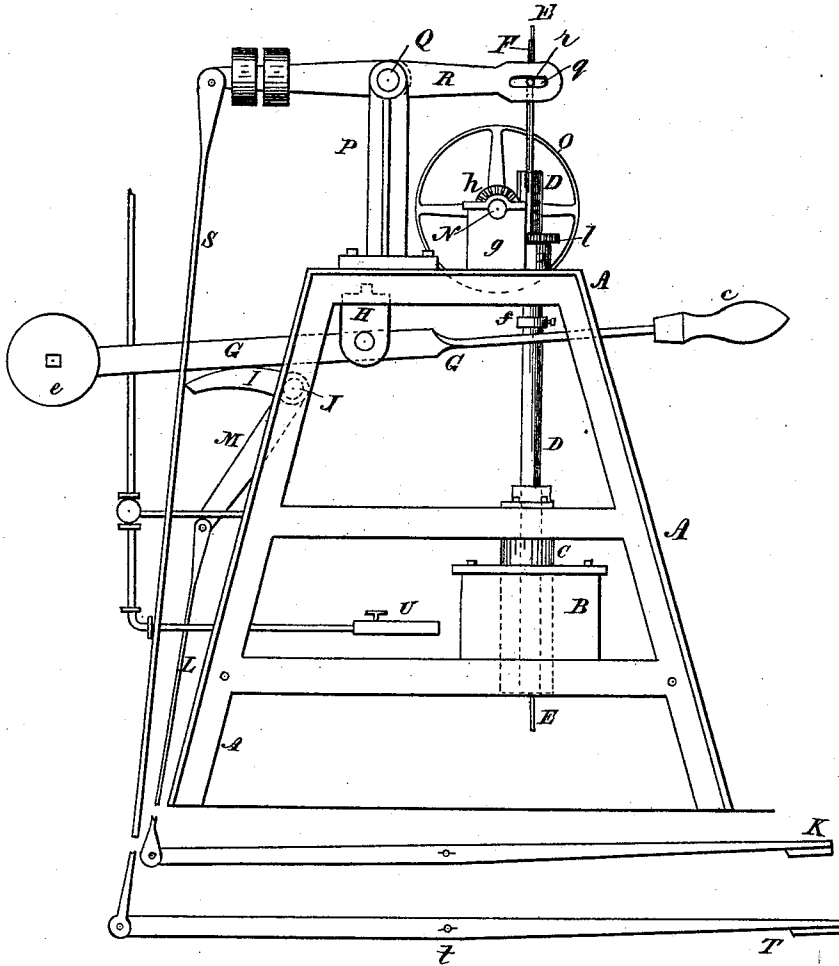


Fig. 2.

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3 Sheets—Sheet 3.

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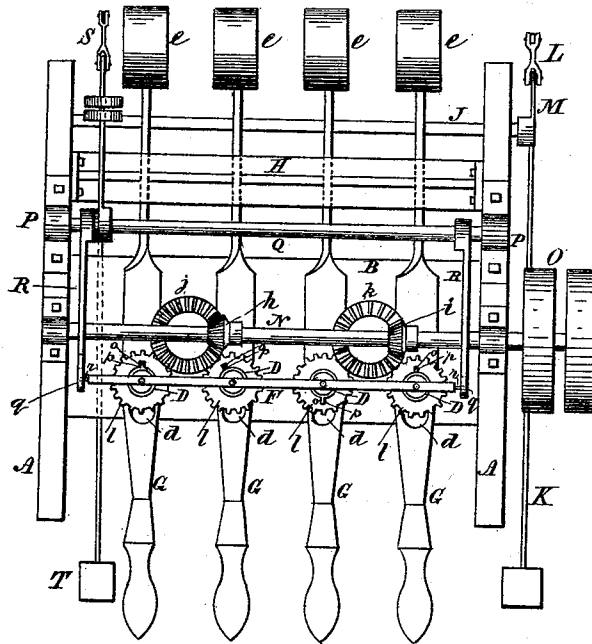


Fig. 3.

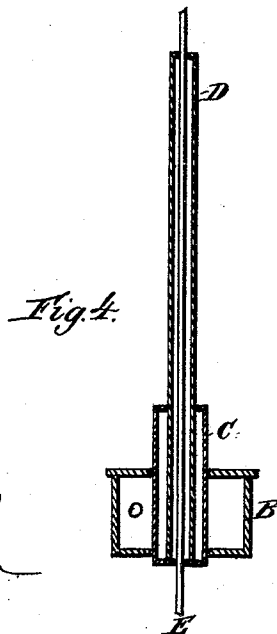


Fig. 4.

Witnesses
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UNITED STATES PATENT OFFICE.

EGERTON DE CEW AND ALBERT EDWARD CARPENTER, OF HAMILTON,
ONTARIO, CANADA.

MACHINE FOR SOLDERING CAPS ON FRUIT-CANS.

SPECIFICATION forming part of Letters Patent No. 407,773, dated July 30, 1889.

Application filed October 8, 1888. Serial No. 287,586. (No model.) Patented in Canada October 12, 1888, No. 29,983.

To all whom it may concern:

Be it known that we, EGERTON DE CEW and ALBERT EDWARD CARPENTER, both of the city of Hamilton, in the county of Wentworth, in the Province of Ontario, Dominion of Canada, have jointly invented certain new and useful Improvements in Machines for Soldering Caps on Fruit-Cans, (for which we obtained Letters Patent in Canada, No. 29,983, dated October 12, 1888;) and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same.

This invention has for its objects to provide novel mechanism for soldering caps on cans; to provide novel means for raising and lowering the soldering-irons; to provide novel means for holding the caps in proper position on the cans before, during, and after the soldering operation, and to provide novel means for adjusting parts to any unevenness in the height of the cans.

The objects of our invention we accomplish by the construction and combination of devices hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 represents a front elevation of the machine. Fig. 2 is a side elevation. Fig. 3 is a top or plan view, and Fig. 4 is a vertical sectional view of the fire-box, soldering-iron, spindle, and rod.

A is a cast-iron frame, of pyramidal form, for securing all the parts thereto.

B is an oblong fire-box lined with fire-brick, and provided with circular openings at top and bottom to allow the soldering-irons C to pass through, and front openings for gas-jets.

D are the hollow spindles attached to the soldering-irons.

E are the rods passing through the spindles and soldering-irons, and at top through the frame F.

a is a spiral spring surrounding each rod E, for adjusting the length of the rod to any unevenness in the height of the cans.

b is a square collar surrounding each rod E, (under the spring a,) and adjusted by a set-screw to prevent the rods from revolving

with the irons, which if they did would throw the caps off the cans.

G G G G are the balance-levers, each provided at the front end with a handle c and a slot d, through which the spindles D pass, and at the rear end with a counterbalancing-weight e. The said levers are pivoted to lugs on the under side of the cross-brace H.

I I represent the four lifting-arms, each keyed on a cross bar or shaft J, immediately under each balance-lever G. When the arms I are raised, the forward ends of the levers G are depressed and irons are permitted to fall slowly by their own weight. The levers G are operated by means of a foot-lever K, connected to said shaft J by means of a connecting-rod L, pivoted to a collar-bar M, affixed to the shaft.

f is a collar attached to each of the four spindles D above the levers G, and as the said spindles pass through the slot in the levers when the latter come in contact with the said collar the irons C are elevated when necessary by the operator.

The devices for revolving the soldering-irons may be described as follows:

N is a shaft journaled on standards g, attached to the top of the frame A, and on which are keyed two bevel-gears h i, which engage with two intermediate combined bevel-gear and pinions j k, the pinion portions of which mesh into a pinion l, keyed on each of the four spindles D, to which the irons C are attached. The said pinions l have each a collar a' on the under side surrounding the spindles, and are secured in place to a cross-bar by journal-clips m, fastened by screw-bolts n thereto. Each spindle D has a feather o on the side engaging with a corresponding recess p in each pinion l, by which means the said spindles are allowed to slide vertically in the pinions l, while they retain their relative positions.

O O are pulleys on the outer end of said shaft N for driving the bevel-gear and pinions.

P P are standards attached to the top of the machine, which carry a shaft Q, on which is pivoted at each end an arm R, provided with a slot q, through which passes the spin-

the ends *r* of the frame *F*. The said frame *F* is thus allowed to move slightly vertically to afford more space at the bottom for inserting the cans for soldering. The left slotted arm *R* is elongated and has pivoted to its rear end a connecting-rod *S*, the lower end of which is pivoted to a foot-lever *T*, whose fulcrum is at the central point *t*. Pressure on the said left lever *T* causes the rod *E* to be pressed down on the caps until after soldering.

U U are the gas-burners for heating the soldering-irons; but any other device for applying heat may be used, if found more convenient than gas.

The operation of the device is as follows: The soldering-irons are heated by gas or its equivalent, and a tray full of cans with loose caps is placed under the irons *C*, which are then revolved by power, as specified. The rods *E* are pressed down on the caps of the fruit-cans by the left lever *T*, the soldering-irons *C* allowed to descend on the caps by pressing the right foot on the lever *K*, and the gearing is set in motion to revolve the said irons. As the irons are revolving, each one is touched with a stick of solder and a proper quantity being melted is caused to flow evenly around each cap. When sufficiently heated, the irons are caused to rise by the weighted ends of the counterbalance-levers *G*, pressure being removed from the treadle *K*. When the cans are cooled, the wire rods *E* are removed from the caps by being elevated by the lever *T*.

It will be observed that the drawings show only four soldering-irons; but any number can be used to operate in the same manner.

It will readily be seen that the advantages of this machine are as follows: The great rapidity with which the work can be accomplished and the ease with which one operator can attend to four or more soldering-irons, doing the work in a neat, clean, and workmanlike manner, with a great saving of fuel and hand labor.

Having thus described our device and its advantages, what we claim as our invention, and desire to secure by Letters Patent, is—

1. The combination of a series of weighted levers *G*, pivoted to a frame, the soldering-irons *C*, the spindles *D* of the soldering-irons passing through the levers and provided with collars *f*, and a series of lifting-arms operating under the levers, substantially as described.

2. The combination, with the soldering-irons *C* and their spindles *D*, of a series of weighted levers *G*, having the apertures *d*, and a series of lifting-arms *I* on the shaft *J*, and collars *f* on the spindles *D*, substantially as and for the purpose specified.

3. In combination with the spindles *D*, soldering-irons *C*, and rods *E*, the slightly-movable frame *F*, means for moving the frame vertically, springs *a*, and collars *b*, substantially as and for the purpose specified.

4. The combination of the shaft *Q*, the slotted arms *R*, the movable frame *F*, the rods *E*, the connecting-rod *S*, the lever *T*, the springs *a*, and the collars *b*, substantially as described.

5. The combination of the levers *G*, having the apertures *d*, the spindles *D*, having the collars *f*, the soldering-irons *C*, the shaft *J*, the arm *M*, the connecting-lever *L*, the foot-lever *K*, and the arms *I*, substantially as described.

6. The combination, with a series of revolving soldering-irons, of the spindles *E*, frame *F*, arms *R*, connecting-rod *S*, the lever *T*, the springs *a*, and the collars *b*, substantially as and for the purpose specified.

7. The hollow spindles *D*, having the collars *f* and feathers *o*, in combination with the pinions *l*, having recesses *p*, in which the feathers move vertically with the spindles, the levers *G*, having apertures *d*, the rods *E*, extending through the spindles, and the soldering-irons *C* on the spindles, substantially as described.

Dated at Hamilton, Ontario, this 22d day of August, A. D. 1888.

EGERTON DE CEW.

ALBERT EDWARD CARPENTER.

In presence of—

ALEX. MCCULLY,
WM. BRUCE.