(No Model.)

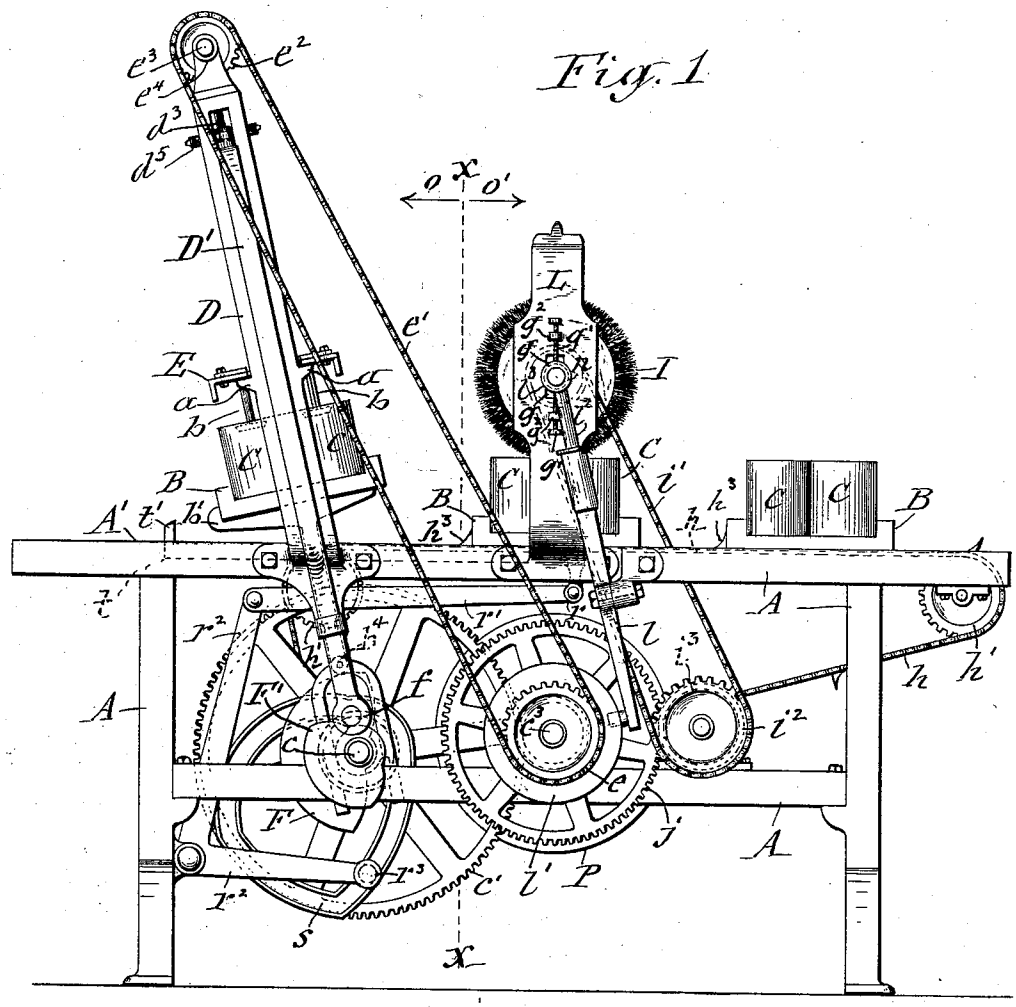
3 Sheets—Sheet 1.

F. A. ODIN.

CAN CLEANER.

No. 605,677. Patented June 14, 1898.

Fig. 1



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(No Model.)

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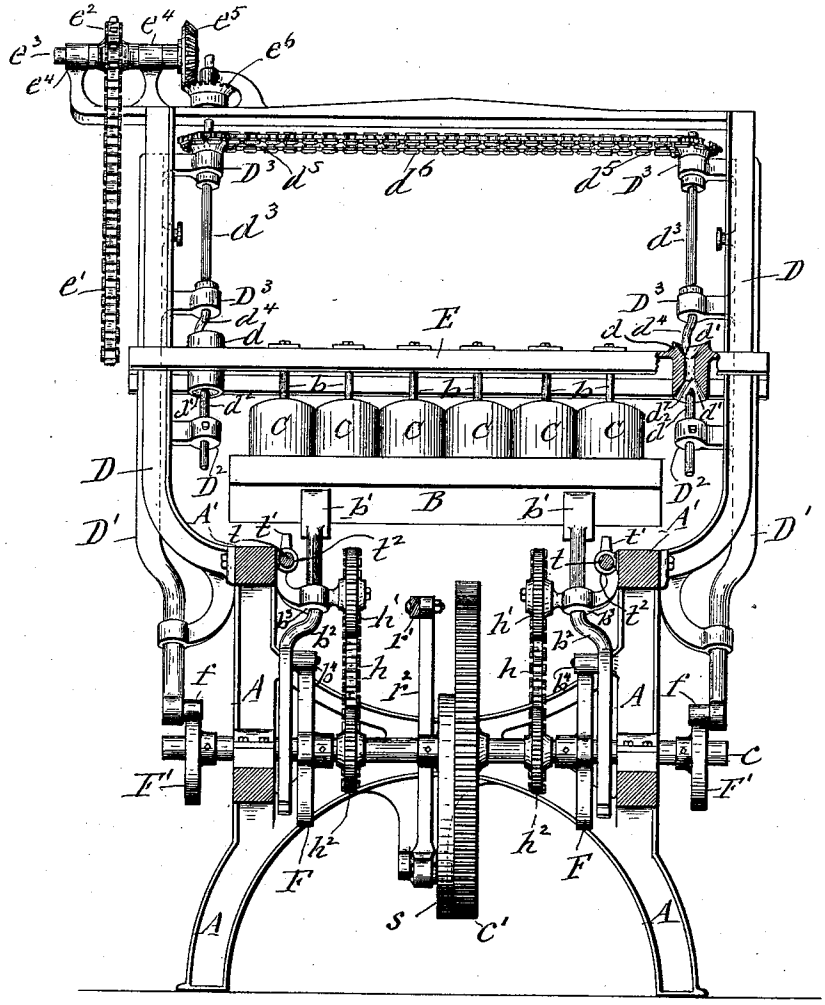


Fig. 2

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(No Model.) 3 Sheets—Sheet 3.

F. A. ODIN.

CAN CLEANER.

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Fig. 3

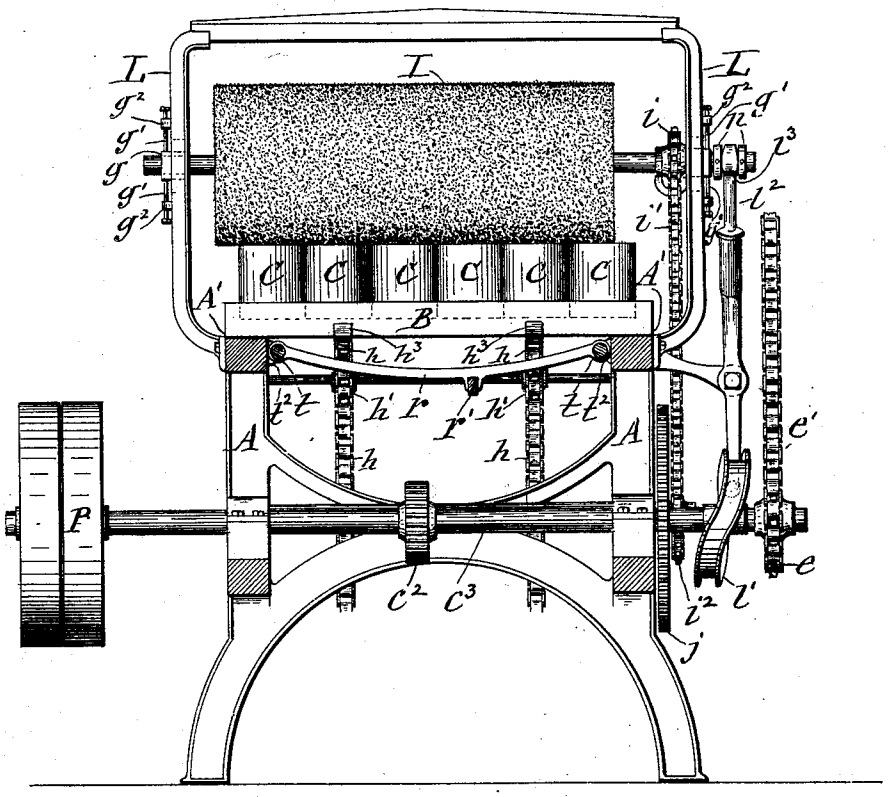


Fig. 4

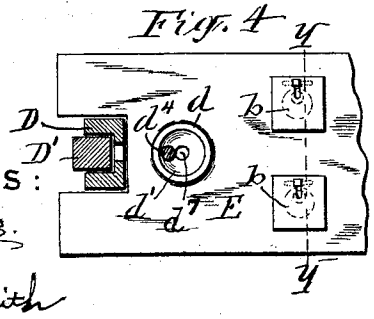
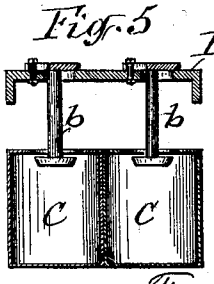


Fig. 5



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UNITED STATES PATENT OFFICE.

FRANK A. ODIN, OF BRIDGETON, NEW JERSEY.

CAN-CLEANER.

SPECIFICATION forming part of Letters Patent No. 605,677, dated June 14, 1898.

Application filed November 17, 1897. Serial No. 658,796. (No model.)

To all whom it may concern:

Be it known that I, FRANK A. ODIN, of Bridgeton, in the county of Cumberland, in the State of New Jersey, have invented new and useful Improvements in Can-Cleaners, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to a machine designed to receive cans filled with the substance to be canned and to clean the tops of said cans preparatory to soldering the caps thereon; and the invention consists in a novel construction and combination of mechanisms which, first, force down into the can the substance which may protrude through the open top thereof, and, secondly, brushes the top of the can, so as to effectually clean the same, as hereinafter more fully described, and set forth in the claims.

In the annexed drawings, Figure 1 is a side elevation of a machine embodying my invention. Figs. 2 and 3 are vertical transverse sections on line X X in Fig. 1, viewed, respectively, in the directions of the arrows *o* and *o'*. Fig. 4 is an enlarged plan view of one of the end portions of the plunger-supporting bar or plate, and Fig. 5 is a transverse section on line Y Y in Fig. 4.

Similar letters of reference indicate corresponding parts.

A represents the main supporting-frame, which may be of any suitable shape to support the mechanisms of the machine. Said frame is formed or provided with parallel horizontal ways A' A' for supporting the trays B B, which carry the cans C C, received from the filling-machine and usually having a portion of their contents protruding through the open tops of the can.

Near the receiving end of the ways A' A' are guides D D, secured to the frame A and rising therefrom with an inclination toward the direction of the aforesaid ways. On brackets *a a*, projecting from said guides, are seated the ends of a plate or bar E, from which depend plungers *b b*, which are inclined corresponding to the inclination of the guides D and are secured adjustably on said plate or bar, as shown in Fig. 4 of the drawings, to permit said plungers to properly enter the open tops of the cans carried on the tray B.

The bar E has a lateral and longitudinal play on the guides D for the purpose hereinafter explained.

Beneath the bar E are shoes b', which are inclined correspondingly and are rigidly attached at right angles to the upper ends of pitmen b^2, sliding in guides b^3, attached to the frame A. The lower ends of said pitmen have pivoted to them rollers b^4, by which they ride on cams F F, attached to a shaft *c*, which receives rotary motion by a gear-wheel c', meshing with a pinion c^2 on the shaft c^3, to which the driving-pulley P is attached. The rotation of said cans causes the shoes b' to be lifted intermittently and lift the overlying tray B sufficiently to cause the plungers *b b* to press into the cans the substance which may protrude through the open tops thereof. During this operation the plungers receive a lateral movement, so as to cause the substance to be more evenly pressed into the cans and prevent the substance from adhering to the plungers. For this purpose the bar E has fastened to it tubular hubs *d d*, which are formed with conical sockets d' d' in their upper and lower ends. On the guides D D are slides D' D', extending lengthwise thereof and provided with arms D^2 beneath the bar E and with arms D^3 D^3 above said bar.

In each of the lower arms D^2 is fastened an upward-projecting pin d^2, and in the upper arms D^3 D^3 are journaled vertical shafts d^3, the lower ends of which are cranked, as shown at d^4. Said shafts are caused to rotate in unison by means of sprocket-wheels d^5, attached thereto and connected by a sprocket-chain d^6. Said motion is derived from a sprocket-wheel *e*, attached to the driving-shaft c^3 and connected by a sprocket-chain e' to a sprocket-wheel e^2, fastened to a shaft e^3, which is journaled in suitable bearings e^4 on the top of one of the guides D. A bevel-gear e^5 on the shaft e^3 meshes with a bevel-pinion e^6, which is connected to the adjacent vertical shaft d^3 by groove and feather (not shown) to allow said shaft to move longitudinally in the hub of the pinion e^6.

The slides D' are caused to rise and fall intermittently by means of rollers *f*, pivoted to the lower ends of the slides and riding on cams F', attached to the shaft *c*. Said movement is timed with the movement of the hereinbe-

fore-described tray-lifting mechanisms, so that the slides are caused to rise as the tray B descends, and vice versa. In the upward movement of the slides, and while the tray is lowered to its normal position, the pins d^2 enter the lower sockets d' and into the axial orifices d^7 of said sockets, and thereby adjust the bar E to its requisite position for sustaining the plungers $b\ b$ central over the cans C C on the tray B. The tray is then lifted to cause the plungers to press the protruding substances into the cans, and simultaneously with this action the slides D′ descend and cause the cranked ends d^4 of the revolving shafts d^3 to enter into the upper sockets d', and by wabbling around in said sockets the bar E receives the desired lateral movement.

In the operation of lifting the tray B the cans are tilted to one side by the inclined lifting-shoes b', and said tilting causes the liquids which may be on the tops of the cans to flow off from said tops.

Beyond the aforesaid plungers is a rotary cylindrical brush I, which is axially at right angles to the ways A′ and has its shaft journaled in boxes $g\ g$, which are adjustably supported on standards L L by means of set-screws $g'\ g'$, passing through screw-threaded lugs $g^2\ g^2$ on the standards, which are mounted on the sides of the frame A. Said set-screws allow the brush to be raised or lowered to compensate for the wear of the brush and to support the brush in its requisite position for brushing the tops of the cans, which are conveyed from under the plungers $b\ b$ to the brush by means of sprocket-chains $h\ h$, extending along the sides of the ways A′ A′ and running on sprocket-wheels $h'\ h'$, journaled in bearings on the frame A. Said chains receive longitudinal movement from sprocket-wheels $h^2\ h^2$, secured to the shaft c. By means of lugs $h^3\ h^3$, attached to said chains and engaging the tray, the latter is caused to move with the chains.

The brush I receives rotary motion through a sprocket-wheel i, attached to the brush-shaft and connected by a sprocket-chain i' with a sprocket-wheel i^2, which is attached to the side of a pinion i^3, meshing with a gear-wheel j, attached to the driving-shaft c^3. Said brush, sweeping across the top of the cans C C, serves to clean said tops, and this cleaning operation of the brush is rendered more effective by a longitudinal reciprocating motion of the brush, which motion is obtained by means of a lever l, fulcrumed intermediate its ends on the side of the frame A, and has one end engaged with a cam l' on the shaft c^3, which cam imparts oscillatory motion to said lever. The opposite end of this lever has a longitudinally-sliding extension l^2, which terminates with an eye l^3, receiving through it the brush-shaft. At opposite sides of said eye are collars $n\ n$, which cause the oscillating lever to transmit reciprocating motion to the brush.

t represents a reciprocating feeder consisting of bars extending along the sides of the ways A′ and provided at their rear ends with lugs t' for engaging the rear wall of the tray B. Said bars slide in guides t^2 on the frame A and are connected at their front ends to a cross-bar r, to the center of which is connected a pitman r', which is in turn connected to one of the arms of a bell-crank r^2, pivoted to the frame A. The other arm of said bell-crank has pivoted to it a roller r^3, which travels in the groove of a cam s, attached to the shaft c.

What I claim as my invention is—

1. The combination with a carrier designed to receive the can open at the top and filled with the substance to be canned, of a plunger sustained in an inclined position over said carrier, and mechanisms adapted to lift the can in an inclined position to the plunger, as set forth.

2. The combination with the carrier designed to receive the can open at the top and filled with the substance to be canned, of a plunger sustained in an inclined position over said carrier, means imparting lateral movement to the plunger, and mechanisms adapted to lift the can in an inclined position to the plunger, as set forth.

3. The combination of the main supporting-frame formed with horizontal ways, a tray riding on said ways and carrying the filled cans, mechanisms adapted to lift the tray from the ways and simultaneously tilt the tray to support the cans in an inclined position, laterally-movable plungers disposed correspondingly inclined over the tray to enter the open tops of the cans, means for placing the plungers normally central over the cans, and mechanisms releasing the cans from the centering means and imparting lateral movement to the plungers, as set forth.

4. The combination of the main frame formed with horizontal ways, a tray riding on said ways and carrying the filled cans, parallel guides rising from said frame and inclined in the direction of the lengths of the ways, a plate supported at its ends in an inclined position on said guides and movable laterally thereon, conical sockets, respectively, on the top and bottom of said plate, reciprocating slides on the aforesaid guides, pins connected to the slides and entering the lower sockets during the upward movement of the slides and thereby setting the plate into its normal position, rotary shafts supported on the slides and entering the upper sockets during the downward movement of the slides and cranked to impart lateral movement to the plate, plungers attached to said plate, and mechanism lifting and tilting the tray to cause the plungers to enter the open tops of the cans, as set forth.

5. In combination with the main frame, horizontal ways and can-trays riding on said ways, standards mounted on the sides of the main frame, journal-boxes adjustably supported on said standards, a rotary cylindrical brush

disposed axially at right angles to the aforesaid ways and having its shaft mounted in the said journal-boxes, a lever fulcrumed on the side of the main frame and formed with a longitudinally-sliding extension receiving through it the end of the brush-shaft, collars fixed to said shaft at opposite sides of the lever extension, and a rotary cam imparting oscillatory motion to said lever substantially as set forth and shown.

6. The combination with the main frame formed with parallel horizontal ways, plungers over the ways and inclined in the direction of the ways, a reciprocating feeder depositing the can-trays under the plungers, mechanism lifting and tilting the trays to cause the plungers to enter into the open tops of the cans and reseating the trays upon the ways, a rotary brush beyond the plungers, and conveyers moving the tray from under the plungers to the brush, as set forth.

7. The combination with the main frame formed with parallel horizontal ways, plungers disposed over said ways and inclined in the direction of the ways, a reciprocating feeder depositing the tray under the plungers, mechanism lifting and tilting the trays to cause the plungers to enter the cans, a rotary cylindrical brush disposed beyond the plungers and axially parallel with the tray, means for imparting longitudinal reciprocating motion to said brush, and conveyers moving the tray from under the plungers to the brush, as set forth.

In testimony whereof I have hereunto signed my name this 9th day of November, 1897.

FRANK A. ODIN. [L. S.]

Witnesses:
J. J. LAASS,
H. B. SMITH.