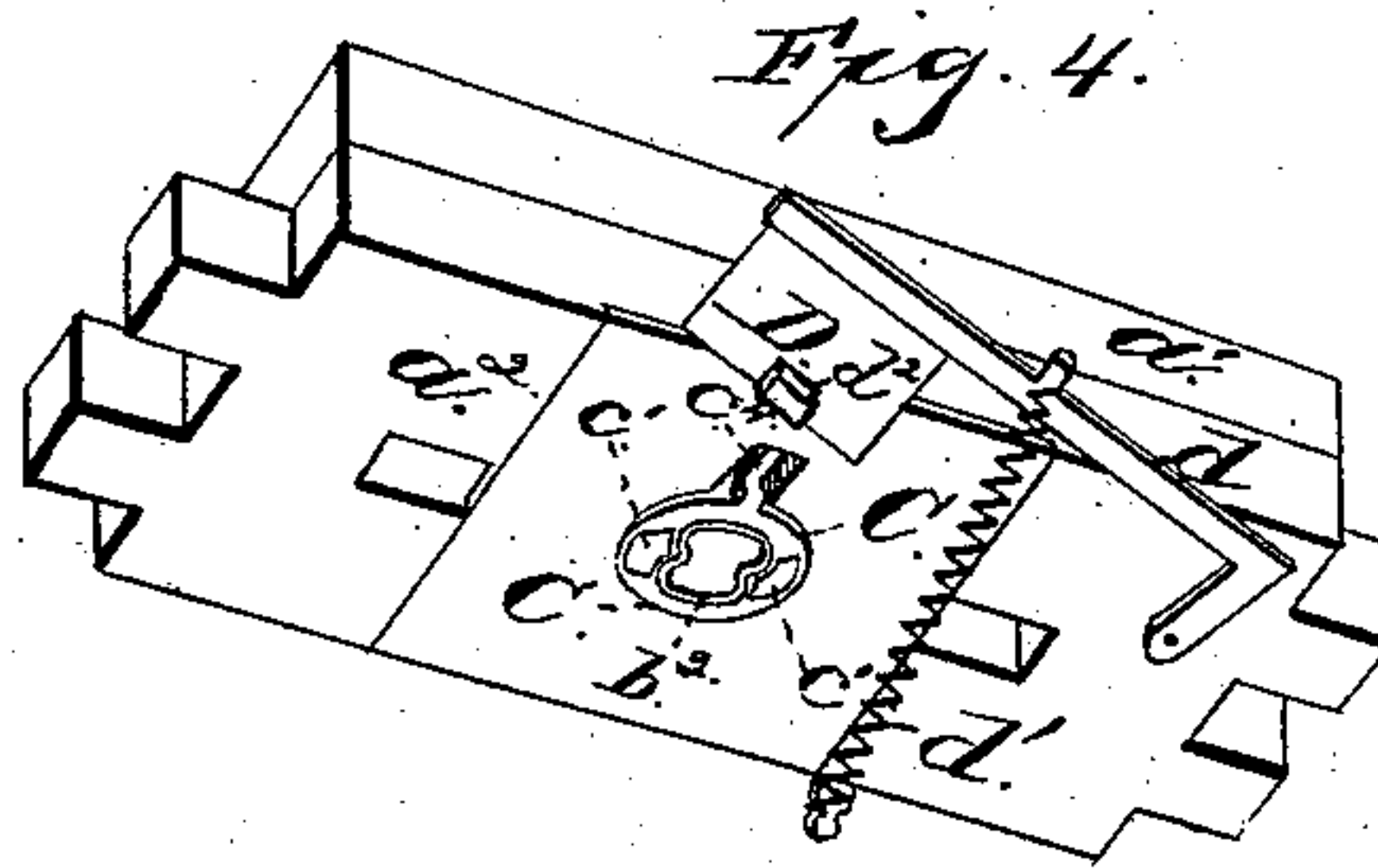


2 Sheets—Sheet 1.

CAN FILLING MACHINE.

Patented Dec. 11, 1883.



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UNITED STATES PATENT OFFICE.

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CAN-FILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 289,807, dated December 11, 1883.

Application filed September 29, 1883. (No model.)

To all whom it may concern:

Be it known that we, GEORGE W. BROWN and HARRY LAMBERT, citizens of the United States, residing at Salem, in the county of Salem and State of New Jersey, have invented certain new and useful Improvements in Can-Filling Machines; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

Our invention relates to improved machines for filling cans or other receptacles; and it consists in the construction, combination, and arrangement hereinafter described and claimed.

In the drawings, Figure 1 is a rear elevation of our machine. Fig. 2 is a side view of same. Fig. 3 is a perspective view of same. Fig. 4 is a perspective view of the hopper-supporting cross-bar, cut-off, &c.; and Figs. 5, 6, 7, 8, and 9 are detail views of the connecting-sleeve hereinafter described, Fig. 5 being a side elevation, Fig. 6 a top plan, Fig. 9 a bottom plan view, of said connecting-sleeve, and Figs. 7 and 8 are sectional views on, respectively, lines *xx* and *yy*, Fig. 6. Fig. 10 is a detached sectional view, and Fig. 11 shows one of the adjustable can-stops.

The framing of our machine is composed of standards *A A*, mounted on a suitable base, as *A'*, and the cross-beams *a a' a'' a'''*, arranged, as shown, between the standards *A A* and one above the other. The cross-beams *a' a''* are arranged close together and support the feed-cylinder *B*. This cylinder is arranged between the bars *a* and *a'* and extends through the latter and bar *a''*, as indicated in dotted lines, Fig. 1. It is provided with hopper *B'*, extended to the rear, as shown, and is composed of the body *b*, the conical portion *b'*, and the lower portion, *b''*, which extends through the bars *a' a''*, as shown. This portion *b''* is bent in slightly to correspond to the inner formation of the cylindrical connecting-sleeve, presently described, and its lower end rests flush with the lower end of bar *a''*, as shown. The opening through the bar *a''* is made larger than the portion *b''* of the cylinder, so as to receive the connecting-sleeve *C*, which is placed up therein,

as shown. This sleeve is preferably made in the tapered form shown, and is formed on its inner sides with vertical ribs or projections *c*, which fit the indentations in the side of the cylinder *b''* and prevent the sleeve from turning. Openings *c'* are formed in the connecting-sleeve beginning on the lower edge of the same, close to the periphery, and extending up and out opening at their upper ends on the sides of the connecting-sleeve. Any number desired of these openings may be employed. We prefer to use two, as shown. The object of these openings is to permit the air to escape from the cans in the process of filling the same, as will be described. Lugs *c''* are extended from the sides of this connecting-sleeve in position to receive the tension of springs *c'''*, whereby the gravity of said connecting-sleeve is aided in the operation of the device, as will be described. A lug, *c''*, is projected from the lower edge of the connecting-sleeve rearward, and is bent to form the inclined or beveled face *c'''*, which is engaged by the cut-off, hereinafter described.

The cut-off *D* has its shank *d* pivoted on the under side of cross-bar *a''* to one side of the opening of the discharge-cylinder *b''* and moves over said opening, as shown, where it is held, when not pushed back, by the coil retracting-spring *d'* connecting the shank of the cut-off and the forward part of bar *a''*, as shown.

A cross-head, *E*, is arranged above the cross-bar *a* and slides vertically on the guide-rods *ee*, extended from the said cross-bar *a* up to the head-beam *A''* of the framing.

The plunger *E'* is secured to the under side of the cross-head *E*, and is arranged vertically over the hopper or receptacle *B'*, than which it is made of slightly smaller diameter. This plunger is forced down into the feed-cylinder by the mechanism hereinafter described, and compresses the articles being packed into the cans, as will be understood. Slots *A'''* are formed through the standards *A A*, and provide passages for the balancing-arms *F*. These arms are provided on their outer ends with weights *F'*, secured adjustably thereon by means of a set-screw, *F''*. A short rod, *F'''*, is projected upward from the arm *F*, and has its upper end pivoted to the standard within the upper end of the slot *A'''*. The inner ends of these arms are curved upward, as shown, and

pivoted to the upper end of strap F^4 , which connects them with the cross-head E, as shown. One or both these arms may be used at will, their purpose being to elevate the cross-head and plunger and hold same, normally, above the feed-cylinder, as shown. Slots A^4 A^4 are cut through the standards near their lower ends. The supplemental arms G are pivoted in these slots, and are provided on their outer ends with adjustable weights. Rods G' connect the inner ends of these arms G and the cross-head E, passing through the cross-bars a a' a^2 a^3 , as shown.

The foot-lever H is arranged midway the bars A A. It has its rear end pivoted on a short post, H' , projected from the base A' , and it is connected with the supplemental arms G by straps H^2 , as shown. It will be seen that as the lever is depressed the plunger is forced down into the feed-cylinder by the connections before described, and will be quickly elevated when such pressure is removed.

The bar a^3 serves as a bench for the cans being filled. It is provided with the stop I, which serves as a gage in placing the cans in position, and is secured to the bar a^3 by means of a set-screw, I' , as shown, or other suitable means, whereby it may be adjusted to serve as a stop-gage in the placing of cans of different diameters. This bar or bench is supported, not in the standards A A, but by threaded studs J, mounted on lugs J' , below the said bench and passed up through the same, as shown. Nuts J^2 are turned on said studs above and below the bench, and permit its vertical adjustment to and from the bar a^2 to suit cans of different heights.

In the operation of the machine the hopper or feed-receptacle is filled with the material to be packed. The can or receptacle is placed on the bench a^3 , which has been first adjusted to suit the size of said receptacle, as before described. The top edge of the can will rest against the lug d^2 , depending from the forward edge of the cut-off. The can and cut-off are then pushed quickly back, and the cut-off clears the discharge-opening, and the can or receptacle rests thereunder, being guided by stop I, as before described. The connecting-sleeve C drops by its gravity, aided by the springs c^6 , onto the can, forming a direct and complete communication between the discharge-cylinder b^2 and the can, the openings c' providing means for the escape of air from the can. The plunger is then depressed in the manner described, and forces the material in the feed-hopper into the can. The pressure being removed, the weighted arms draw the plunger up. The can is then removed and the cut-off is drawn back by its retracting-spring, strikes beveled face c^5 of lug c^4 , forces connecting-sleeve C up, and passes under and closes the mouth of the feed-receptacle.

The straps H^2 are secured to weighted arms G by means of pins h , adjustable into a series of holes, h' , formed in the said arms G, so as

to regulate the length of the plunger's stroke.

The cut-off D is supported by and moves on guides D' , supported, as shown, on the cross-bar a^2 .

In order to assist gravity in overcoming the inertia of weights F' F' and G^2 G^2 a retracting-spring, K, is used, one end of which is fastened to lever H, just back of the point where straps H^2 join the lever, the other end being fastened to the lower rear side of a^3 .

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

1. The combination, in a can-filling machine, of the feed-cylinder, the plunger or piston movable into the said cylinder, the arms G, pivoted and having their outer ends weighted and their inner ends connected with the plunger, the foot-lever, and strap connecting the foot-lever and the arms G, substantially as and for the purposes specified.

2. In a can-filling machine, substantially as described and shown, the combination, with the feed-cylinder, the plunger, and means for depressing the plunger, of the counterbalancing-arms F, pivoted to the framing above the plunger, and having their inner ends connected with the plunger and their outer ends provided with weights, substantially as set forth.

3. The combination, in a can-filling machine, of the necessary framing, the feed-hopper, the plunger, the cross-head, the weighted arms F, pivoted at F^3 and connected with the cross-head, weighted arms G, rods G' , connecting said arms and the cross-head, the straps H^2 , having one end adjustably secured to the arms G and their opposite ends secured to the tread-lever, and the tread-lever, all substantially as and for the purposes specified.

4. The combination, in a can-filling machine, of the feed-hopper and a can-platform, a^3 , arranged, as shown, and adjustable to and from the discharge-opening of said hopper, substantially as described, whereby the distance between said platform and discharge-opening may be varied in order to properly support cans of different heights, substantially as and for the purposes specified.

5. In a can-filling machine, the combination, with the feed-hopper, of a connecting-sleeve encircling the discharge end thereof, the said sleeve being detached from the hopper, movable below the same, and provided with air-escape openings, substantially as and for the purposes specified.

6. The combination, in a can-filling machine, of the feed-hopper, the sleeve embracing the discharge end of same, and provided with air-discharge openings, and movable vertically below the said discharge end, a stem or lug extended from the lower end of said sleeve and beveled, as described, and the cut-off pivoted and movable to and from the sleeve and engaging the beveled stem thereof, all substantially as described, and for the purposes specified.

7. The combination, in a can-filling machine, of the feed-hopper, the cross-bar *a*, the head-bar *A*², rods connecting said bars *a* *A*², the cross-head *E*, sliding on said rods *e*, the plunger or piston *E'*, depending from cross-head *E* and operating, through bar *a*, into the feed-hopper, the weighted arms *F*, straps *F'*, arms *G*, rods *G'*, connecting the arms *G* and the cross-head, and the tread-lever, substantially as set forth.

8. In a can-filling machine, the combination of the hopper, the connecting-sleeve encircling the discharge end of and movable below the said hopper, and the cut-off pivoted, as described, and moving in a circular line, engaging and lifting the connecting-sleeve, and closing the discharge end of the hopper in the operation of the device, substantially as specified.

9. In a can-filling machine, the combination, substantially as set forth, of the hopper, the can-platform arranged below and adjust-

able to and from the discharge end of the hopper, as specified, and the gages *I I*, secured on the platform and adjustable, as described, whereby the machine may be adapted for cans of different heights and diameters, all arranged and operating as and for the purposes specified.

10. The combination, in a can-filling machine, of the hopper, the connecting-sleeve encircling the discharge end of the hopper, and provided with air-escape openings, and springs having one end secured to the framing and their opposite ends bearing on the said sleeves, substantially as and for the purposes specified.

In testimony whereof we affix our signatures in presence of two witnesses.

GEORGE W. BROWN.
HARRY LAMBERT.

Witnesses:

W. T. HILLIARD,
J. O. ACTON.