(No Model.) 3 Sheets—Sheet 1.

V. BARKER.

CAN FILLING MACHINE.

No. 263,096. Patented Aug. 22, 1882.

Fig. 1.

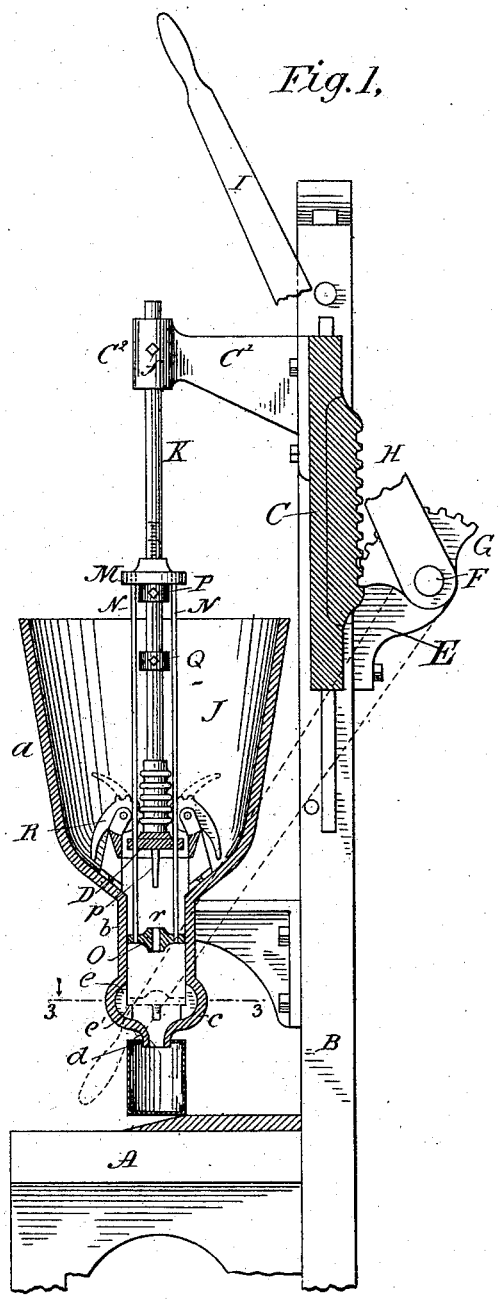


Fig. 2.

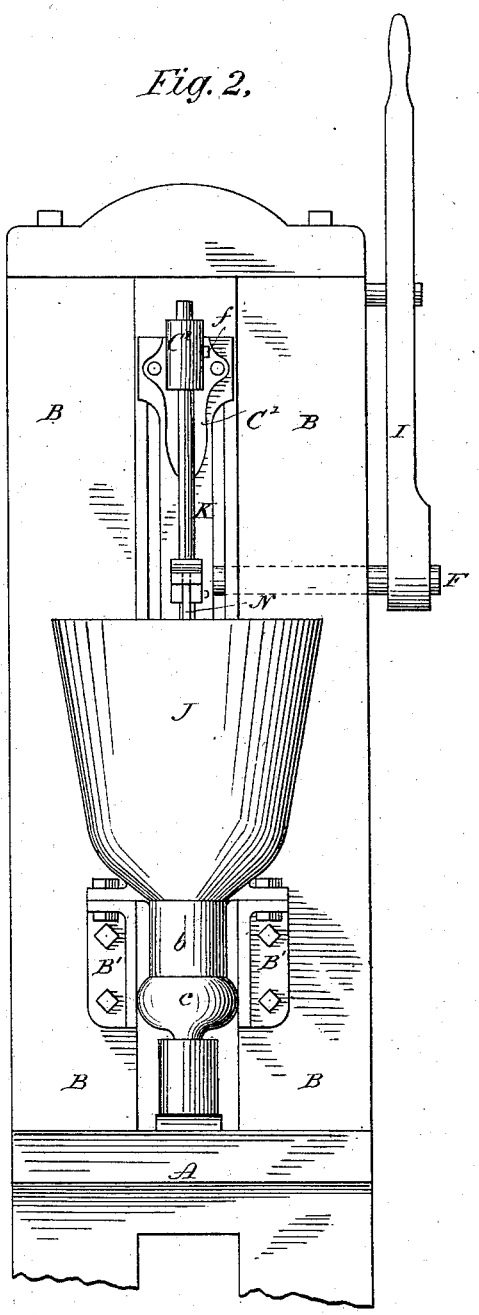
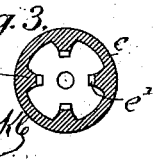
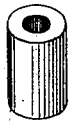


Fig. 3.





WITNESSES

Wm. A. Kirkus

Jos. S. Latimer

INVENTOR.

Volney Barker

By his Attorney

F. C. Somes.

(No Model.) 3 Sheets—Sheet 2.

V. BARKER.

CAN FILLING MACHINE.

No. 263,096. Patented Aug. 22, 1882.

Fig. 4.

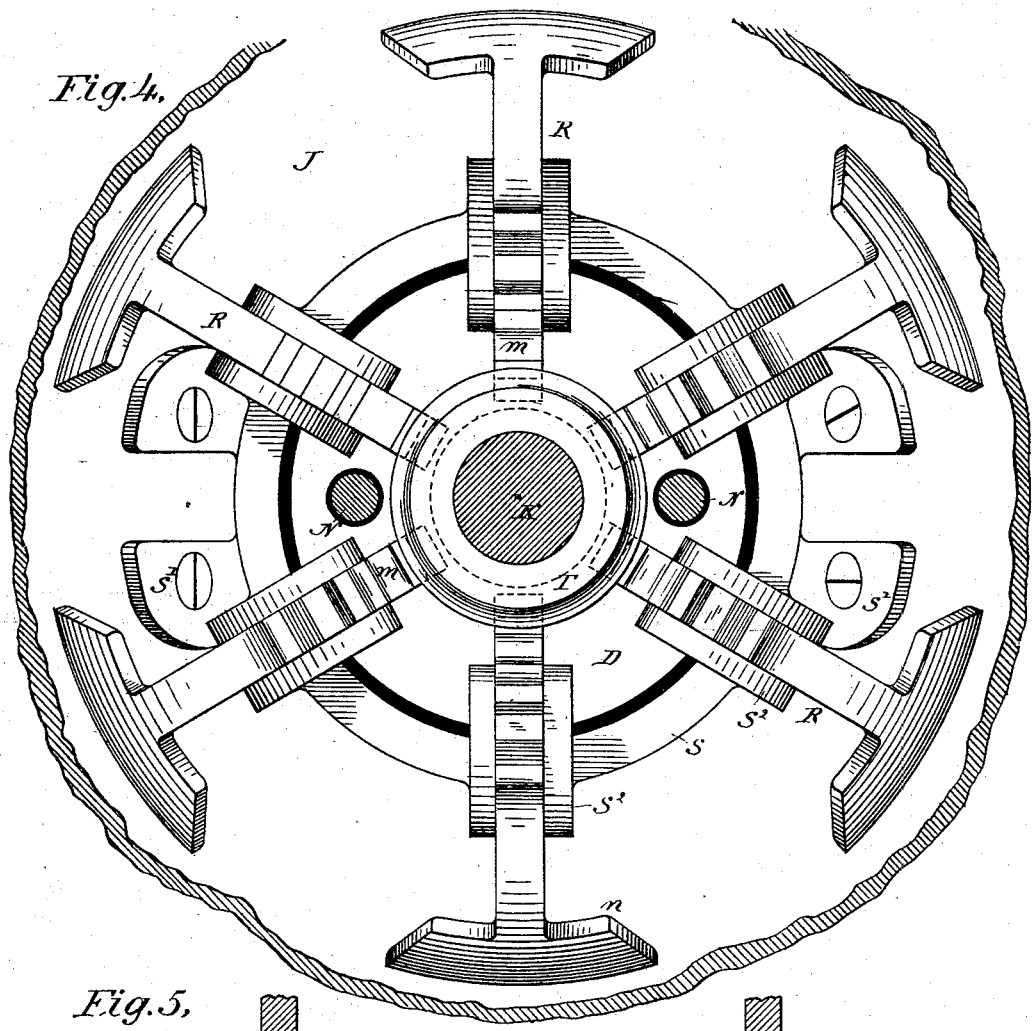
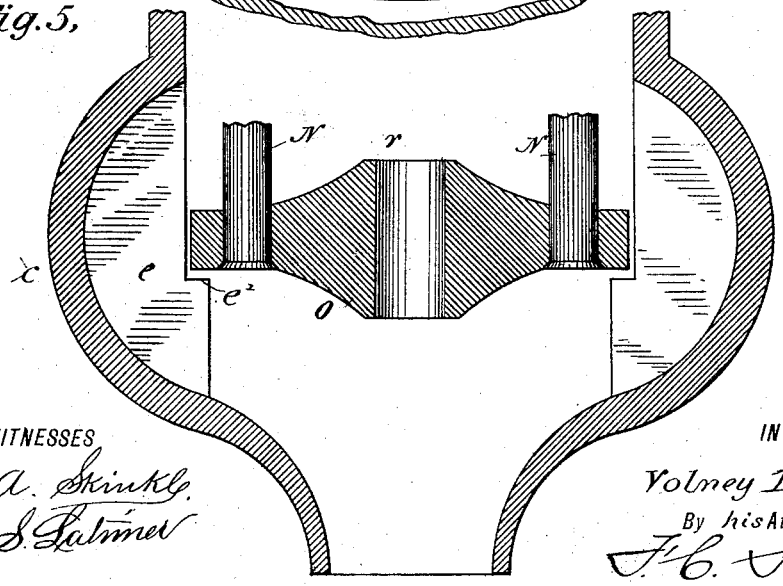


Fig. 5.



WITNESSES

Wm A. Skinkle.

Jos. S. Palmer

INVENTOR

Volney Barker

By his Attorney

F. C. Somes.

(No Model.) 3 Sheets—Sheet 3.

V. BARKER.

CAN FILLING MACHINE.

No. 263,096. Patented Aug. 22, 1882.

Fig. 6,

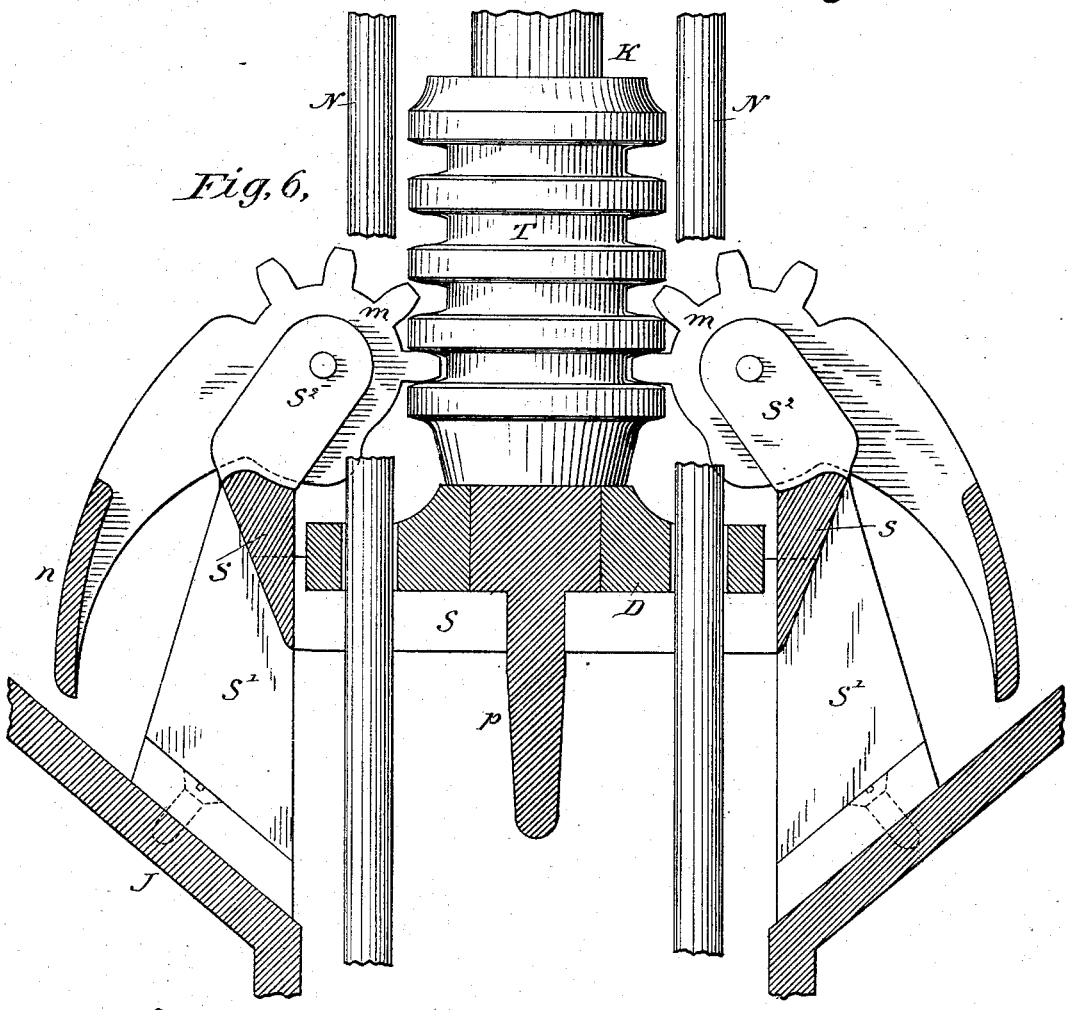


Fig. 8,

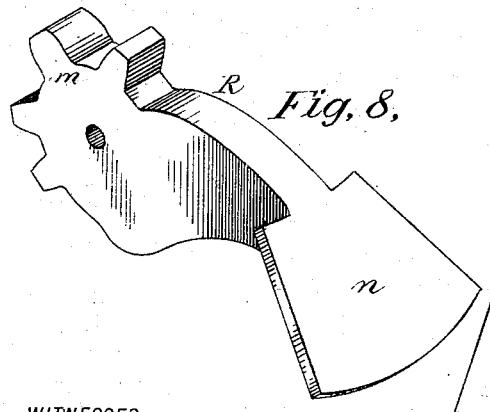
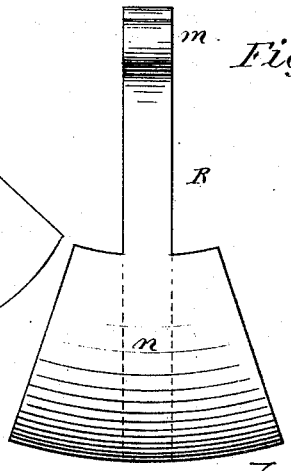


Fig. 7,



WITNESSES

Wm A Skinkle
Jos. S. Palmer

INVENTOR

Volney Barker,

By his Attorney

F. C. Somes.

UNITED STATES PATENT OFFICE.

VOLNEY BARKER, OF PORTLAND, MAINE.

CAN-FILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 263,096, dated August 22, 1882.

Application filed April 24, 1882. (No model.)

To all whom it may concern:

Be it known that I, VOLNEY BARKER, a citizen of the United States of America, residing at Portland, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Can-Filling Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This machine is designed principally for use in canning green corn; but it may also be used in canning other articles.

The object of the invention is to provide a machine which will secure a measured quantity of corn to each can, and which may be so adjusted as to vary said quantity as circumstances may require.

Figure 1 is a side elevation, partly in section, of this improved machine. Fig. 2 is a front view thereof. Fig. 3 is a horizontal section of the bulge of the tunnel-tube on line 3 3 of Fig. 1. Fig. 4 is an enlarged plan view of the feeding mechanism within the tunnel. Fig. 5 is an enlarged vertical section of the bulge of the tunnel-tube, showing the follower therein. Fig. 6 is an enlarged sectional elevation of the mechanism for forcing the corn into the tunnel-tube. Fig. 7 is a top view of one of the levers or paddles for forcing the corn into said tube. Fig. 8 is a perspective view of one of said levers.

The stand or bench A, either portable or fixed, is provided with two upright standards, B B, between which is a vertically-sliding cross-head, C, guided in ways of the standards. A plunger, D, is connected to the cross-head and moves therewith. The standards B B are provided with rearwardly-extended brackets, E, in which a transverse rock-shaft, F, has its bearings. This shaft is provided with a segmental gear, G, which meshes into a rack, H, on the rear side of the cross-head. The rock-shaft F is provided with a lever, I, whereby the machine is operated by hand; or said shaft may be connected by any suitable mechanism with a steam-engine or other motor. A tunnel, J, for guiding the corn or other material into the cans is arranged in line with the movement of the plunger, and supported by brackets B′, attached to the standards B. As thus described, the parts do not differ materially from those in common use for this purpose. The novel features are embodied in the tunnel and plunger now to be described.

The tunnel J comprises a comparatively large (preferably flaring) body or hopper, *a*, a tube, *b*, of uniform diameter, a bulge, *c*, at the lower end of the tube, and a nozzle, *d*, below the bulge. Within the bulge is a series of vertical partial partitions, *e*, provided with shoulders *e′*, which latter project within the line of the inner circumference of the tube *b*.

The plunger-rod K is adjustable in an eye, C^2, of the horizontal arm C′, attached to the cross-head C, being held therein by a set-screw, *f*. To the lower end of the rod is attached the plunger D, which fits loosely within the tube *b* of the tunnel. A sliding collar, M, is fitted loosely on the plunger-rod. This collar is provided with two ears, from which depend two small rods, N, which pass loosely through holes of the plunger and carry at their lower ends, in advance of the plunger, a follower, O, which also fits the tube of the tunnel. A collar, P, adjustable upon the plunger-rod by means of a set-screw or otherwise, serves as a stop or rest for the loose collar M, and consequently as a support for the follower O. When the plunger-rod is at the upper end of its stroke the plunger is above the upper end of the tube *b* and the follower is within said tube, as shown in Fig. 1. The corn or other material is then free to fall into the tube *b* upon the follower. When the lever I is forced down the plunger and follower descend uniformly, the latter by its own weight, until the follower, striking the stops *e′*, reaches the end of its stroke. Before this occurs the plunger has entered the upper end of the tube and closed the same to the further entrance of corn from the body of the tunnel. The plunger continues to descend after the follower has reached the stops, and the corn, which fills the tube between the plunger and follower, is forced through the bulge *c* between the vertical partitions, passing around the follower into the nozzle *d*, and thence into the can. If the space between the plunger and follower is exactly filled every time, then an even and exact quantity of corn is injected into each can. Sometimes the condition of the corn is such as to require the addition to each can of a certain

quantity of liquid, and in such case the quantity of corn must be somewhat reduced. To vary the quantity of corn it is only necessary to adjust the collar P higher or lower on the rod K, and the space between the plunger and follower is increased or diminished accordingly. To facilitate this adjustment of the collar the rod is graduated, as shown, in such a manner as to indicate in ounces and fractions thereof the quantity of corn which will be injected into the can when the collar is in certain positions on the rod.

To insure the compact filling of the space between the plunger and follower at each stroke, a series of levers, R, each having a toothed segment, *m*, at one end and a wing or paddle, *n*, at the other end, are pivoted around the plunger-rod to ears S^2, attached to a ring, S, which is supported by standards S′, attached to the tunnel just above the mouth of the tube *b*. The toothed ends of these levers intermesh with a toothed or ribbed sleeve, T, which is loose on the plunger-rod K. The plunger on its upstroke, when near its highest point, strikes the sleeve T and raises it, whereby the paddles *n* are thrown down and the corn forced into the tube *b*. When the plunger has nearly reached its downstroke a fixed collar, Q, on the rod K strikes and depresses the toothed sleeve T, and, the paddles *n* being thereby thrown up into the position shown in dotted lines in Fig. 1, more corn is permitted to fall down between and under them, the hopper being kept over half-full by constant feeding. When the plunger descends it does not quite meet the follower, and a small quantity of corn is consequently left on the follower and raised again; but, allowance being made for this surplus, it does not affect the result, as each succeeding stroke pushes the surplus from the preceding stroke into the bulge and leaves the same quantity again.

To facilitate the escape of the surplus corn from the follower, the top of the follower is made convex. Both the plunger and follower are slightly smaller than the tube to permit ingress of air and prevent the sucking up, on the upstroke, of the corn remaining in the bulge. The follower has a hole through its center, which is made small to prevent the escape of corn through it under the pressure of the levers R. The pin *p* of the plunger passes through the hole *r* of the follower on the extreme downstroke, punching out any matter which fills the hole, and projects nearly or quite to or protrudes from the mouth of the nozzle, thereby forcing a passage through the compressed corn in the bulge. One object of this passage is to give ingress of air on the upstroke, but mainly to afford egress for the air beneath the follower on the succeeding downstroke, which air, if not allowed free exit, would have a tendency to sustain the follower and prevent its moving down rapidly. The under side of the follower is also made conical and serves to guide the corn downward to the nozzle, preventing lodgment thereof in the center. The full stroke of the plunger must be completed each time. A pin, *p*, on the frame serves as a stop for the actuating-lever at the upper end of the stroke, and said handle strikes the bench as a stop at the lower end of the stroke. The slide or cross-head may be operated by a crank and connecting-rod, if desired.

The mechanism for forcing the corn from the hopper into the tube may be used in machines without the measuring devices herein described, and the measuring devices may be employed without the force-feed mechanism.

What is claimed as the invention is—

1. The combination of a tunnel, a plunger within the tunnel, mechanism for supporting and operating the plunger, a follower which moves downward with the plunger in advance thereof, and means for arresting the follower before the stroke of the plunger is completed, substantially as described.

2. The combination of a tunnel, a plunger within the tunnel, mechanism for supporting and operating the plunger, a follower which moves downward with the plunger in advance thereof, mechanism for forcing the material between the plunger and follower, and means for arresting the follower before the stroke of the plunger is completed, substantially as described.

3. The combination of a tunnel the tube of which is provided with a bulge, a plunger within the tunnel, mechanism for supporting and operating the plunger, a follower which moves downward with the plunger in advance thereof, and means for arresting the plunger within the bulge, substantially as described.

4. The combination of a tunnel, a plunger within the tunnel, means for supporting and operating the plunger, and a follower in advance of the plunger and adjustable relatively thereto, substantially as described.

5. The combination of a tunnel, a plunger within the tunnel, means for supporting and operating the plunger, a follower in advance of the plunger, a sliding collar on the plunger-rod, and rods connecting the sliding collar and follower and supporting the latter, substantially as described.

6. The combination of a tunnel, a plunger within the tunnel, means for supporting and operating the plunger, a toothed sleeve upon the plunger-rod, and a series of levers pivoted to suitable supports within the tunnel around the plunger-rod, provided with teeth at their inner ends which intermesh with the teeth of the sleeve, substantially as described.

7. The combination of a tunnel, a plunger within the tunnel, means for supporting and operating the plunger, a loose toothed sleeve upon the plunger-rod, stops for said sleeve upon said rod, and a series of levers pivoted within the tunnel around the plunger-rod, provided with teeth at their inner ends which intermesh with the teeth of the sleeve, substantially as described.

8. A tunnel the tube of which has a bulge

provided with vertical partitions, substantially as described.

9. The combination of a tunnel, a plunger within the tunnel, mechanism for supporting and operating the plunger, and a force-feed mechanism auxiliary to the plunger, arranged within the hopper of the tunnel above the tube thereof, whereby the material to be canned is forced from the tunnel-hopper into the tunnel-tube and there acted upon by the plunger, substantially as described.

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

VOLNEY BARKER.

Witnesses:
JOHN W. THOMPSON,
ALBERT B. CARWELL.