(No Model.) 3 Sheets—Sheet 1.

J. B. HODAPP.

CAN FILLING MACHINE.

No. 391,795. Patented Oct. 30, 1888.

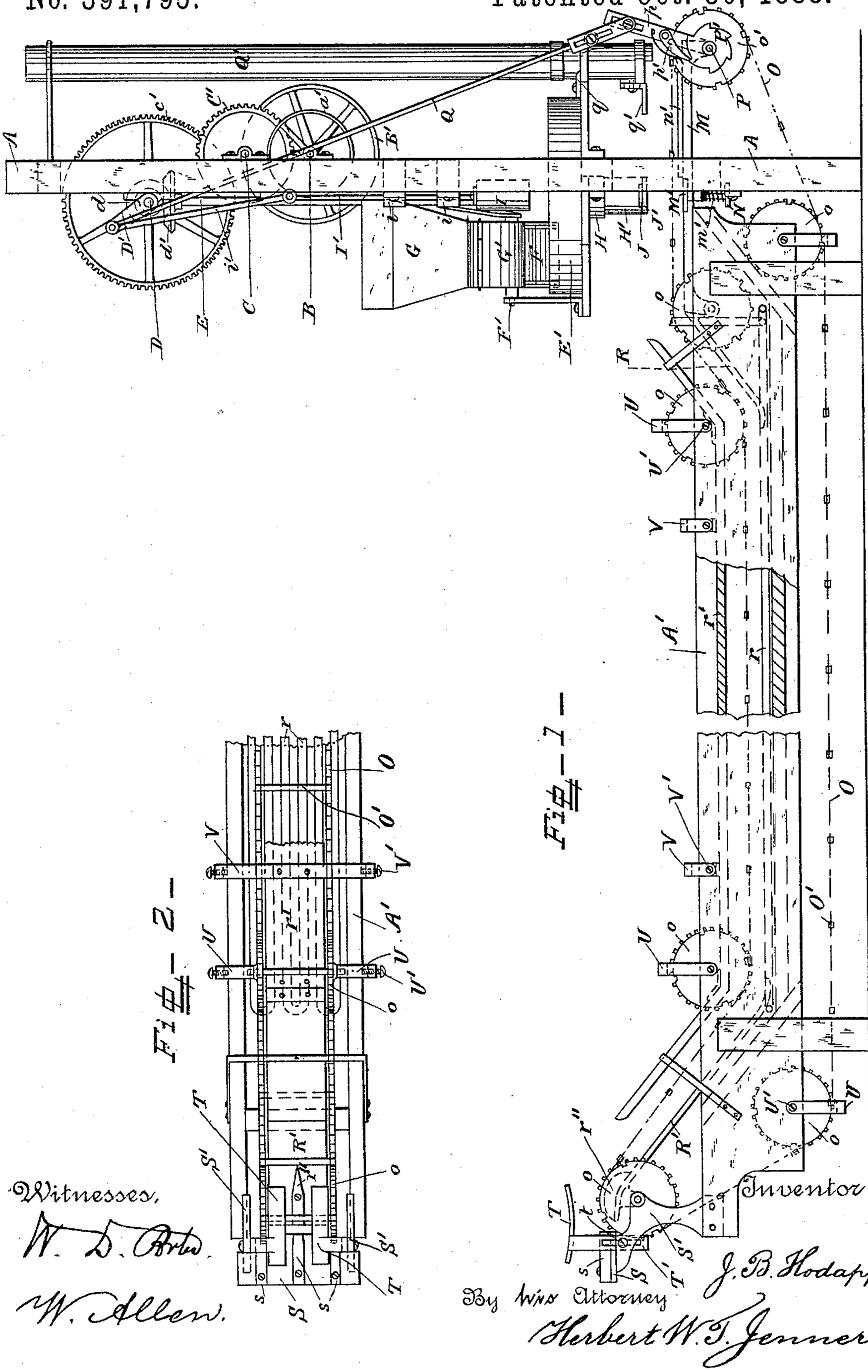

Fig. 2.

Fig. 1.

Witnesses,

W. D. Orton.

W. Allen.

Inventor.

J. B. Hodapp.

By his Attorney

Herbert W. J. Jenner.

(No Model.) 3 Sheets—Sheet 2.

J. B. HODAPP.

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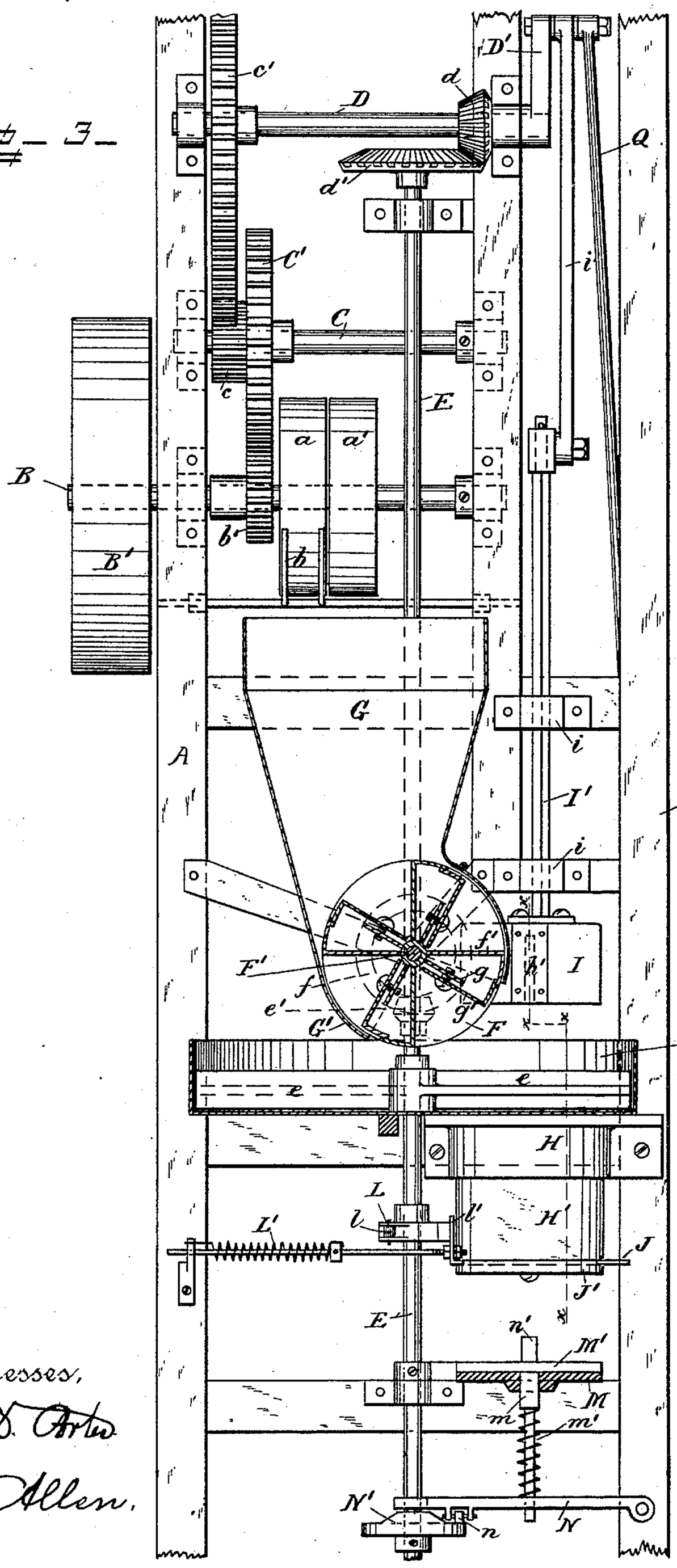
Fig. 3.



Witnesses,
W. D. Orton
W. Allen.

Inventor,
J. B. Hodapp
by Herbert W. J. Jenner.
Att'y.

(No Model.) 3 Sheets—Sheet 3.

J. B. HODAPP.

CAN FILLING MACHINE.

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Fig. 4.

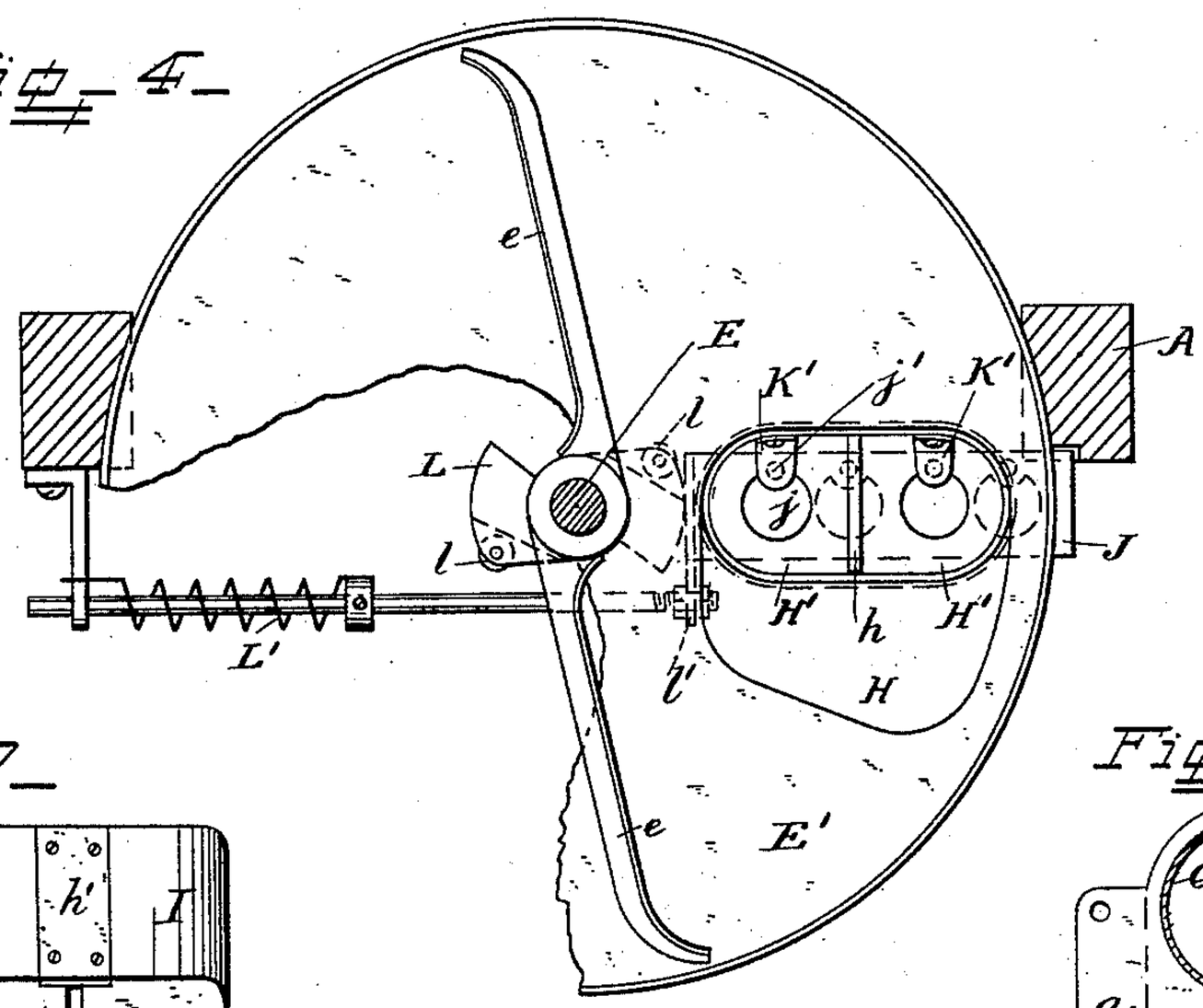


Fig. 7.

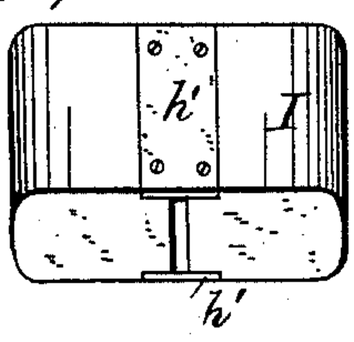


Fig. 6.

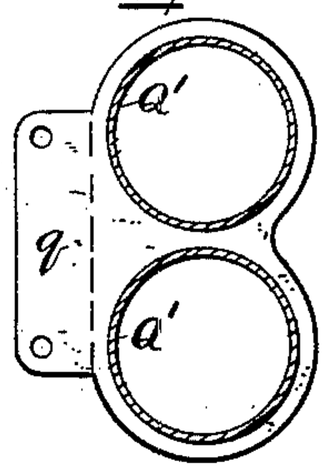
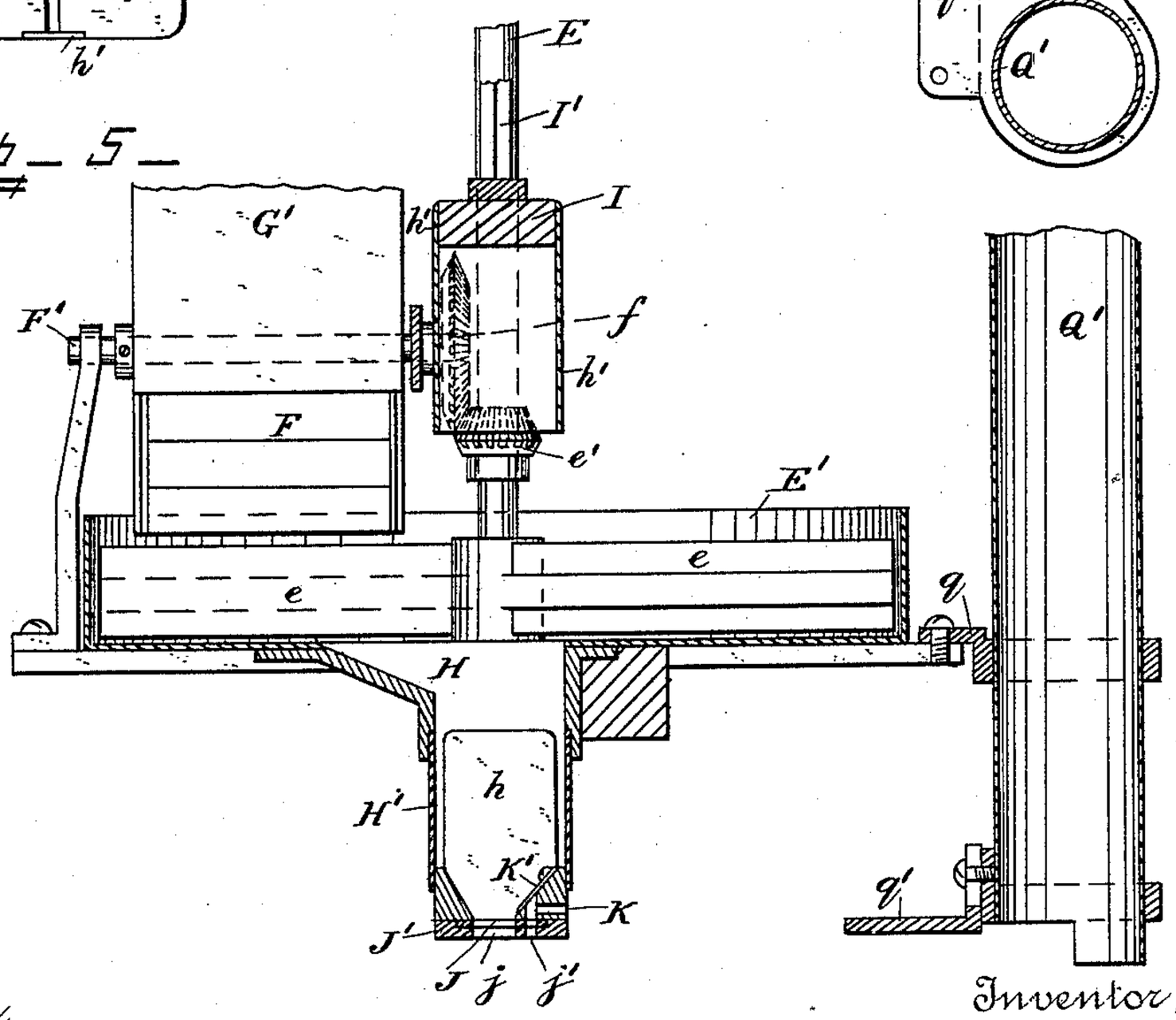


Fig. 5.



Witnesses.

W. D. Porter.

W. Allen.

Inventor,

J. B. Hodapp.

By his Attorney

Herbert W. J. Jenner.

UNITED STATES PATENT OFFICE.

JOHN B. HODAPP, OF MANKATO, MINNESOTA.

CAN-FILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 391,795, dated October 30, 1888.

Application filed March 17, 1888. Serial No. 267,532. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. HODAPP, a citizen of the United States, residing at Mankato, in the county of Blue Earth and State of Minnesota, have invented certain new and useful Improvements in Can-Filling Machines; and I do hereby 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.

This invention relates to can-filling machines; and it consists in the novel construction and combination of the parts, as hereinafter fully described and claimed.

In the drawings, Figure 1 is a side view of the complete machine. Fig. 2 is a plan view of the gage-plate and the end of the dipping-trough. Fig. 3 is a front view showing the hopper and can-table in section. Fig. 4 is a plan view of a portion of the feed pan and the feed mechanism under it. Fig. 5 is a vertical cross-section on line *x x* in Fig. 3. Fig. 6 is a cross-section through the receptacles for the cans, and Fig. 7 is a perspective view of the plunger.

A is the frame of the machine, and A′ is the dipping-trough. Fast and loose driving-belt pulleys *a a′* are secured upon the shaft B, which is journaled in the frame A, and a belt-shifter, *b*, is provided for stopping and starting the machine.

B′ is the fly-wheel, and *b′* is a pinion, both of which are secured to shaft B.

C is a shaft, also journaled in the frame and provided with the toothed wheel C′, gearing into pinion *b′*, and provided also with the pinion *c*.

D is a shaft journaled in the upper part of the frame and provided with the toothed wheel *c′*, gearing into pinion *c*. The crank D′ and beveled pinion *d* are also secured upon shaft D.

E is a vertical shaft provided at the top with the beveled wheel *d′*, gearing into pinion *d*.

E′ is the feed-pan, secured to the frame, and *e* are revolving arms secured upon shaft E within the pan. A small beveled wheel, *e′*, is secured upon the shaft E for driving the feed-cylinder F, which is secured upon the shaft F′, which has also the beveled wheel *f* secured upon it and gearing into the said wheel *e′*.

G is the feed-hopper, and G′ is the feed-cylinder casing at the lower part of the hopper.

The feed-cylinder F has fixed flanged arms *f′* and straight arms *g*. Loose flanged arms *g′* are provided and adjustably secured to the said straight arms by screws. The flanges of arms *g′* slide under the flanges of the fixed arms, and the amount of material fed from the hopper may be varied by means of the screws, which cause the loose flanged arms to approach or recede from the fixed arms, and thereby vary the size of the intervening pockets for material in the feed-cylinder.

H is the throat-piece, into which the material from the feed-cylinder is swept by the revolving arms *e*, and H′ are the fillers, secured to the under side of the throat-piece and separated from each other by the partition *h*, which projects upwardly from the bottom of the fillers and is not connected to their sides.

I is a plunger provided with the square plunger-rod I′, sliding in the guides *i*, and operated through the connecting-rod *i′* by the crank D′. The plunger has a central hole, into which the partition *h* may enter when the plunger descends, and *h′* are plates which strengthen the plunger and slide in the narrow spaces between the ends of the partition and the sides of the fillers.

J is the feed-slide, and J′ is the cover-plate at the bottom of the fillers, which supports the slide in close contact with the base of the fillers. The base of the fillers, the slide, and its cover-plate are each provided with similar holes, *j* and *j′*, which register when material is being forced out of the fillers into the cans by the plunger. Of these holes, *j* is a segment of a circle and is for the passage of material, and *j′* is a small round air-hole.

K is a cross-hole which is formed laterally through the side of each filler into the air-hole *j′*, and K′ is a valve which closes the top end of hole *j′* inside each filler. The valves K′ prevent the material passing downward through holes *j′* when the plunger descends and permit the escape of air from the cans through the holes K. When the plunger ascends, the valves K′ admit air from the cross-holes K to the under side of the plunger, so that the contents of the can are not sucked up again.

L is a cam provided with rollers *l*, which bear against the plate *l'*, secured to the end of the feed-slide. These rollers roll upon the plate *l'* and hold the feed-slide so that it closes the holes *j j'* of the feeders during the greater part of the revolution of the cam L, which is secured upon the vertical shaft E.

L' is a spring, which pulls open the feed-slide directly the cam leaves the plate *l'*. The synchronous motion of the feed-cylinder and the revolving arms alternates with the descent of the plunger, and the feed-slide is opened in time to allow the plunger to force the material out of the fillers into the cans. The continued revolution of the cam L closes the feed-slide when the downstroke of the plunger is completed.

M is the can-table, secured to the framing A, and M' is a vertically-rising plate normally supported in a recess in the top of the table and flush with its surface. This plate is provided with the stem *m*, and *m'* is a spring surrounding the stem and bearing against the lever N, which is pivoted to the frame A at one end. A roller, *n*, is journaled at the other end of the lever, and N' is a face-cam secured on the vertical shaft E. The roller *n* is raised by the cam just before the feed-slide is opened, so that the cans which are standing on the said plate are pressed tightly against the under side of the cover-plate J'. A guide, *n'*, is secured to the top of table M, for keeping each pair of cans at the proper distance apart until they pass onto the plate M'.

O is an endless carrier, consisting of two side chains united by cross-bars O', for moving the cans along. This carrier is supported by the carrier-wheels *o*, journaled upon shafts at the front end of the can-table and at the necessary points in the dipping-trough to make the cans pass through it. The carrier is moved by the carrier-wheels *o'*, secured upon the shaft P, journaled at the rear end of the can-table. This shaft P is provided with the ratchet-wheel P' for turning it, and *p* is a slotted arm pivoted on the shaft P, and provided with the spring-pawl *p'* for operating the ratchet.

Q is an adjustable connecting-rod, which operates the arm *p* from the crank D'.

Q' are the receptacles for the cans, supported above the rear end of the can-table by the brackets *q*, and *q'* are adjustable guides bolted to the lower ends of the said receptacles for straightening the tops of the cans as they pass from under the receptacles.

The motion of the carrier is adjusted so that two empty cans are delivered upon the vertically-rising plate M', and are held between it and the plate J' just before each descent of the plunger in the fillers and the opening of the feed-slide.

The carrier O passes through the dipping-trough A' and returns underneath it to the rear end of the machine. R and R' are guide-plates secured, respectively, at the receiving and delivery ends of the trough for supporting the cans as they descend and ascend. A coil of steam-pipes, *r*, is provided in the bottom of the trough for the cans to pass over, and *r'* is a plate supported within the trough for keeping the tops of the cans straight. The trough is partly filled with water or other liquid in which it may be desired to dip the cans, and this liquid is kept boiling by the steam-pipes *r*, so that the contents of the cans are heated and steam is formed in them, which drives out all the air. When the cans come up out of the trough, they are ready to be capped, by which operation they are made air-tight, and their contents thereby preserved from decay.

S is the gage-plate, supported by brackets S' at the delivery end of the trough. This plate is provided with the strips *s*, for spacing the cans as they pass onto it from the guide-plate R', which is also provided with the tapering guide-strip *r''* at its upper end.

T are curved adjustable guides for evening the tops of the cans as they pass over the gage-plate. These guides are provided with slotted arms T' and are secured to the brackets S' by the bolts *t*.

The shafts which carry the carrier-wheels *o* are journaled in loop-brackets U, which are secured to the sides of the trough by the set-screws U', so that the position of the said wheels can easily be varied. In a similar manner the brackets V, which carry the guide-plate *r'*, are held to the trough by set-screws V', so that the height of the plate may be regulated.

What I claim is—

1. In a can-filling machine, the combination, with the feed-hopper and the feed-cylinder casing at the lower part of the hopper, of the revoluble feed-cylinder provided with fixed flanged arms and straight arms, and with loose flanged arms connected to the said straight arms by screws, thereby forming adjustable pockets for the material, substantially as set forth.

2. In a can-filling machine, the combination, with the feed-hopper and the feed-cylinder casing at the lower part of the hopper, of the revoluble feed-cylinder journaled in the said casing and provided with adjustable pockets for the material, the stationary feed-pan beneath the feed-cylinder, the arms revolving in the pan, the throat-piece secured to the bottom of the pan, and the fillers secured to the said throat-piece, so that the material may be swept into them by the said arms, substantially as set forth.

3. In a can-filling machine, the combination of the fillers for receiving material from the feed-pan, separated by a flat upwardly-projecting central partition disconnected from the sides of the fillers, with a reciprocating plunger fitting within said fillers and provided with a central hole wholly surrounding the said partition when the plunger is depressed, substantially as set forth.

4. In a can filling machine, the combination of a can-filler provided with an upwardly-opening air-valve at its base, a reciprocating

plunger working within the filler, and a reciprocating feed-slide supported beneath the filler and provided with separate openings for discharging material into the can during the descent of the plunger and for admitting air to the filler during the ascent of the plunger, substantially as set forth.

5. In a can-filling machine, the combination, with a can-filler provided with an upwardly-opening air-valve at its base, of a reciprocating plunger working within the filler, a reciprocating feed-slide beneath the filler, and a guide-plate for supporting the slide, separate registering openings being provided in the said filler, slide, and plate for the passage of material and air between the filler and the can, and a cross-hole in the side of the filler beneath the valve connecting with the said air-opening and permitting the escape of air from the can during the descent of the plunger, substantially as set forth.

6. In a can-filling machine, the combination, with the stationary can-table, of the fillers supported above the table, a vertically-rising plate supported in a recess in the table for pressing the cans against the plate at the bottom of the fillers, the receptacles for the cans supported over the rear end of the table, a traveling carrier for moving the cans along the table, the adjustable guides for straightening the tops of the cans as they are drawn from under the receptacles, and a guide secured to the table for keeping each pair of cans the proper distance apart as they pass onto the said rising plate, substantially as set forth.

7. In a can-filling machine, the combination, with a stationary can-table, of the fillers supported above the table, a reciprocating plunger working within the fillers, a vertically-rising plate supported in a recess in the top of the table, a traveling carrier for moving the cans along the table, the carrier-wheels secured upon a revoluble shaft at the rear end of the can-table, a ratchet-wheel secured upon the said shaft, an arm provided with a pawl for turning the ratchet-wheel, and a continuously-revolving crank operatively connected to the plunger and to the said arm, so that the cans are passed onto the rising plate during the upstroke of the plunger and are removed therefrom after the plunger has completed its downstroke in the fillers, substantially as set forth.

8. A can filling and dipping machine comprising the can-table, filling apparatus supported over the table, the dipping-trough, the slanting guide-plates below the cans at the ends of the trough, the plate in the trough for evening the tops of the cans, the steam heating-coil in the trough, the endless carrier passing over the can-table, through the trough, and returning underneath them, the carrier-guiding wheels, and the intermittently-rotating carrier-driving wheels journaled at the rear of the can-table and operatively connected with the driving mechanism of the filling apparatus, substantially as and for the purposes set forth.

9. In a can-filling machine, the combination of the can-table, the dipping-trough, an endless carrier for passing the cans over the table and through the trough, the carrier-guide wheels, the intermittently-rotating wheels journaled at the rear end of the can-table for driving the carrier, and the gage-plate provided with guide-strip and secured to the end of the trough, substantially as and for the purpose set forth.

10. The combination, with the gage-plate provided with guide-strips and secured by brackets to the end of the dipping-trough, of the curved adjustable guides for evening the tops of the cans, provided with slotted arms, and the bolts securing them to the said brackets, substantially as and for the purposes set forth.

11. The combination, with a can filling machine provided with a can-table along which the cans are drawn, and with filling apparatus over the table for delivering material to the cans, of a dipping-trough through which the cans pass direct from the can-table, and an endless carrier operatively connected to the driving-shaft of the can-filling machine, and drawing the cans over the said table and through the dipping-trough, substantially as set forth.

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

JOHN B. HODAPP.

Witnesses:
GEO. H. CLARK,
FRANK J. LEONARD.