

No. 688,059.

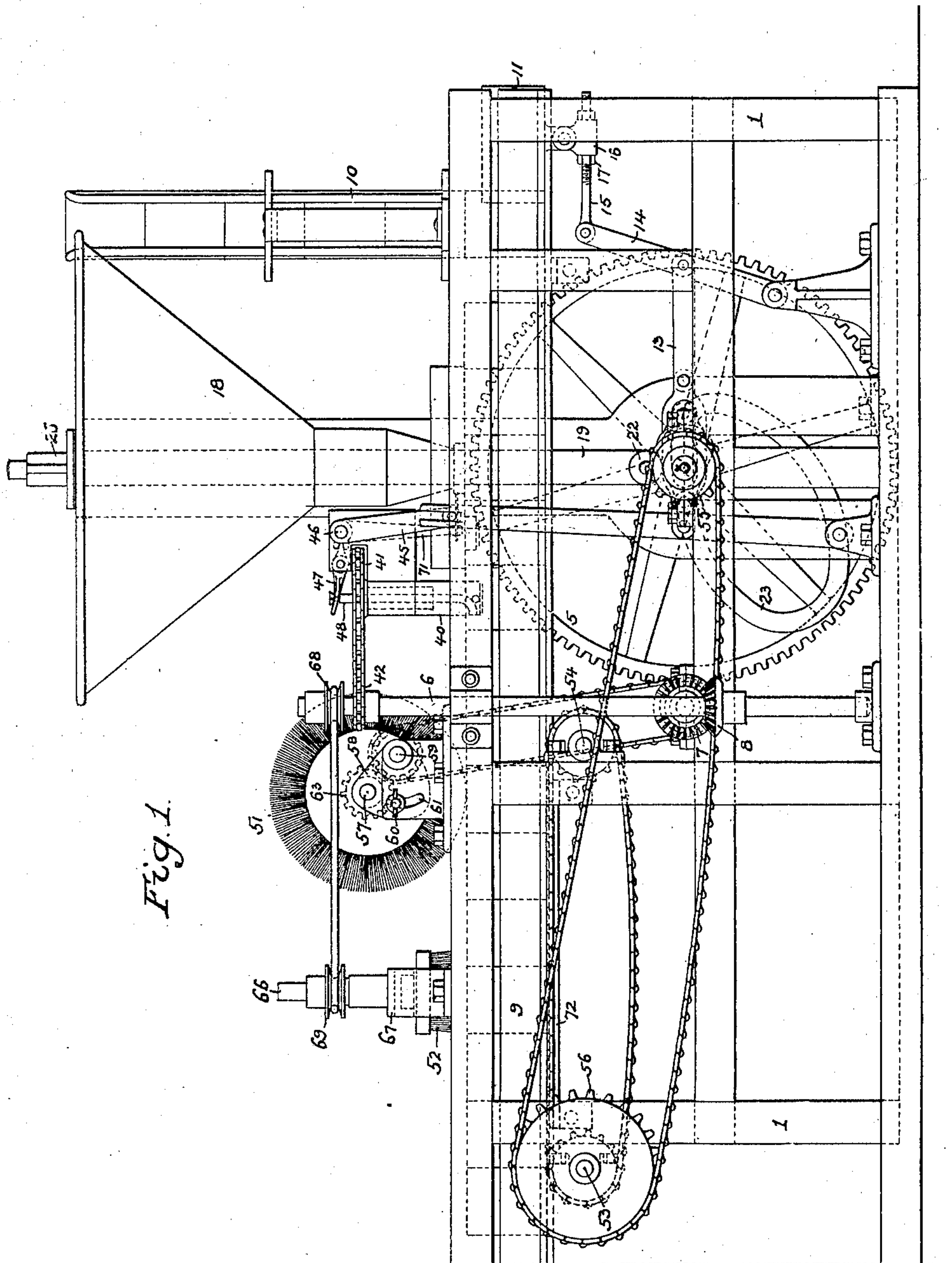
Patented Dec. 3, 1901.

C. S. BUCKLIN.
CAN FILLING MACHINE.

(Application filed Feb. 7, 1901.)

(No Model.)

2 Sheets—Sheet 1.



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Fig. 3.

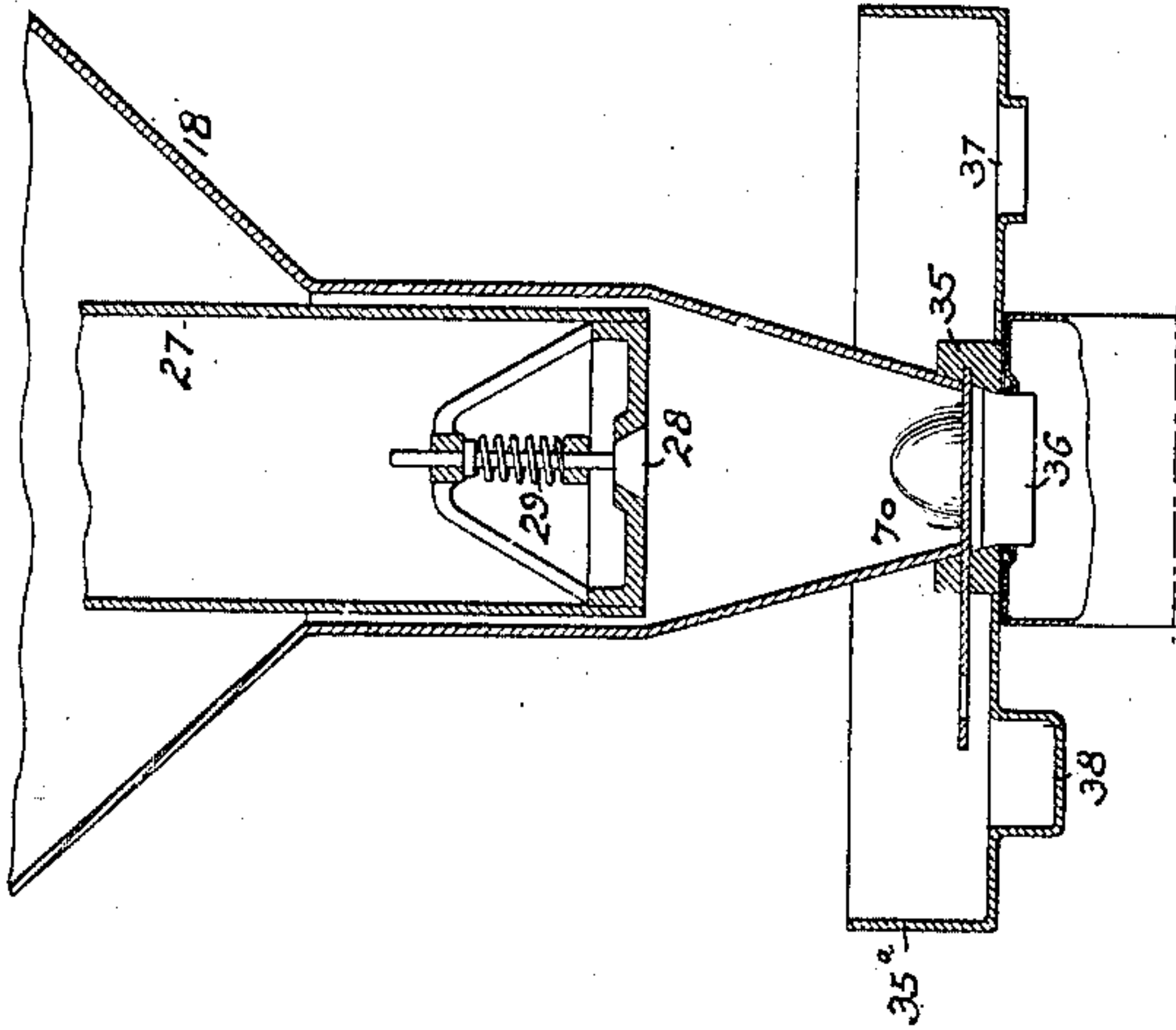


Fig. 4.

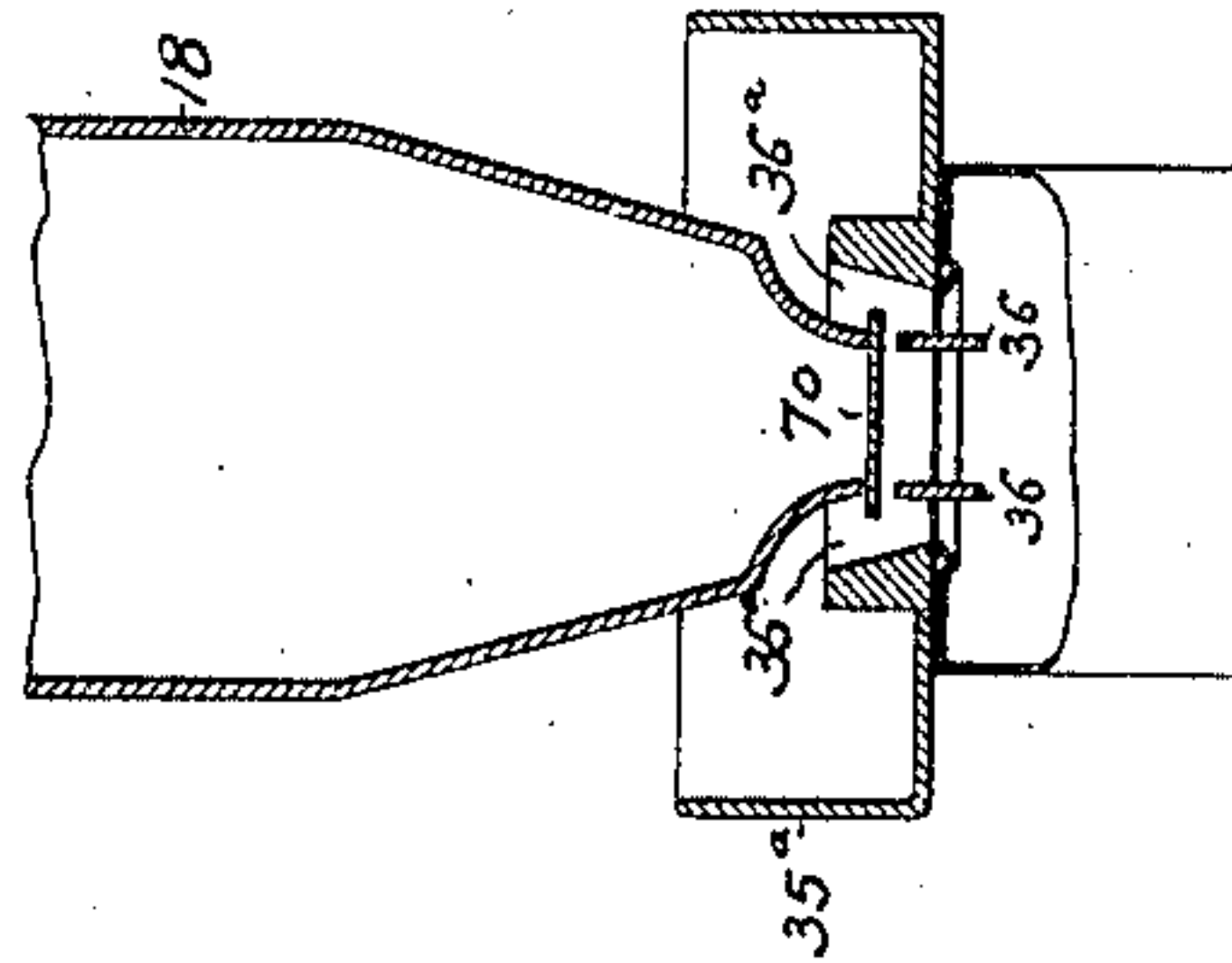
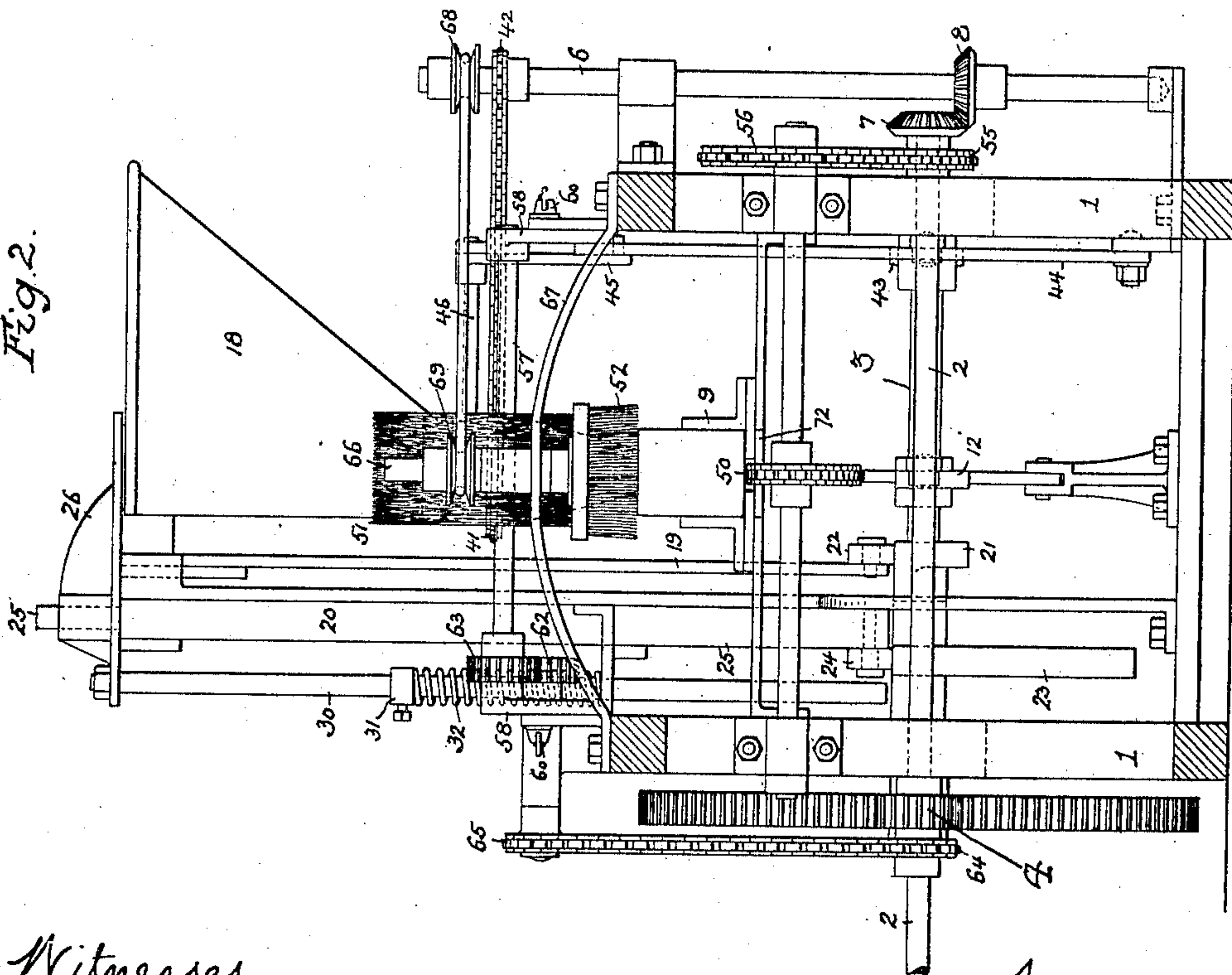


Fig. 2.



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UNITED STATES PATENT OFFICE.

CHARLES S. BUCKLIN, OF REDBANK, NEW JERSEY.

CAN-FILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 688,059, dated December 3, 1901.

Application filed February 7, 1901. Serial No. 46,400. (No model.)

To all whom it may concern:

Be it known that I, CHARLES S. BUCKLIN, a citizen of the United States, and a resident of Redbank, New Jersey, have invented certain Improvements in Can-Filling Machines, of which the following is a specification.

The objects of my invention are to insure the uniform action of the filling appliances whereby the fruit or vegetables are forced into the can, to prevent the accumulation of air in the can from interfering with the proper filling of the same, and to effectually perform the operations of topping and wiping after the cans have been filled. These objects I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a side view of a can-filling machine constructed in accordance with my invention. Fig. 2 is an end view of the same. Fig. 3 is a longitudinal section of the lower portion of the filling-hopper and parts adjacent thereto, and Fig. 4 is a transverse sectional view of said parts.

The fixed frame 1 of the machine has bearings for a main driving-shaft 2 and for a cam-shaft 3, power being applied to said main shaft in any suitable manner and being transmitted to the cam-shaft through the medium of a spur-pinion 4 and spur-wheel 5 or in any other appropriate manner. A vertical shaft 6, adapted to bearings at one side of the machine, is also driven from the shaft 2 through the medium of bevel-gears 7 and 8.

The main frame of the machine supports a suitable longitudinal trough or channel 9, along which the cans are passed to the filling, topping, and wiping devices, the cans being intermittently delivered from a vertical feeder 10 at one end of the machine by means of a feed-slide 11, which is reciprocated by means of a cam 12 on the shaft 3, said cam acting upon antifriction-rollers on a guided rod 13, which acts upon a lever 14, hung to a suitable standard at the base of the machine and connected by a rod 15 to a block 16, pivoted to a lug on the under side of the feed-slide 11, the rod being threaded and provided with a nut 17 at each end of the block 16, so that the slide can be properly adjusted and the terminals of its throw regulated as de-

sired. A feed-hopper 18 is secured to a slide 19, which is suitably guided vertically in a standard 20 of the machine and has reciprocating movement imparted to it by means of a cam 21 on the shaft 3, said cam acting upon an antifriction-roller 22 at the lower end of said slide 19. Another cam 23 on the shaft 3 acts upon an antifriction-roller 24 at the lower end of a guided bar 25, to the upper end of which is secured a head 26, projecting over the hopper and having a depending plunger 27, which is adapted to fit with reasonable snugness into the cylindrical lower portion of said hopper, the plunger being open at the top and having a bottom provided with an opening which is normally closed by a valve 28, opening downwardly, so that on the rise of the plunger air can be drawn in beneath the same to prevent the formation of a partial vacuum in the hopper below the plunger, the valve being closed by the action of a spring 29 as soon as the plunger reaches the limit of its upward movement, so that no portion of the contents of the hopper can gain access to the interior of the plunger when the latter again descends. The projecting head 26 of the bar 25 carries a depending guided rod 30, with adjustable collar 31, between which and a portion of the fixed frame of the machine intervenes a coiled spring 32, surrounding the rod 30 and serving to check or cushion the descent of the plunger when the support of the cam 23 has been removed from the antifriction-roller 24, it being understood that such descent is effected by the weight of the plunger and its appurtenances, and consequently, while always exerting uniform pressure upon the contents of the hopper, which pressure is sufficient to force said contents into the can under normal conditions of working, no excessive pressure can be imparted to the contents of the hopper such as would tend to cause injury to any part of the mechanism. The amount of pressure to be exerted can be readily regulated by the application of weights to the projecting upper end 25^a of the slide 25. The vertical reciprocating movement imparted to the hopper 18 overcomes the necessity for imparting vertical movement to the cans. Hence the latter can be fed uniformly along the guide trough or channel

9, and disturbance of their contents such as would result from agitation of a filled can is prevented.

The lower portion of the hopper terminates, as usual, in a valved block 35, which rests upon the top of the can and has a central opening through which the charge for the can is forced from the hopper, the block having a projecting pan 35^a, which receives the surplus fluid from the can when the contents have been forced into the same from the hopper by the plunger. The block 35 has guides for the sliding valve 70, whereby the lower end of the hopper may be opened or closed, and on the bottom of the block are longitudinal strips 36, which enter the mouth of the can when the hopper is lowered and which serve to restrict the width of the opening through which the contents of the hopper are forced into the can, so that the air can escape from the upper portion of the can through the opposite portions of the mouth of the can and through side air-passages 36^a, formed in the block 35 outside of the strips 36, these air-passages leading to a point above the normal level of the fluid in the pan 35^a, so that the latter affords no obstacle to the free escape of air from the upper portion of the can through these passages during the time that the can is being filled. The pan 35^a has in the bottom an opening 37, surrounded by a depending flange adapted to enter the mouth of a can which is approaching the nozzle of the filling-hopper, so that the juice escaping into the pan from a can which is being filled can flow into the adjoining empty can, and thus prevent waste. The pan 35^a also has in advance of the filling-nozzle a projection 38, which is adapted to enter the mouth of a freshly-filled can and depress the contents of the same at and near the mouth, so as to bring said contents into the best condition for the subsequent action of the topping device—that is to say, the device whereby the contents of the can are cleared away from the immediate vicinity of the mouth, so as not to interfere with the subsequent application and securing of the cap or cover to said mouth.

The topping device consists of a cylindrical block 40, mounted in a suitable bearing on the fixed frame of the machine, so that it can both rise and fall and turn therein, the turning movement being imparted from the vertical shaft 6 through the medium of a chain applied to sprocket-wheels 41 and 42 and vertical movement being imparted by means of a cam 43 on the shaft 3, said cam acting on a guided slide which is connected to a lever 44, the latter acting upon an arm 45 on a rock-shaft 46, which has another arm engaging with a lever 47, hung to a suitable bearing on the frame and forked, so as to engage with the upper end of a rod 48, which can swing on the lever and is free to move to a limited extent vertically and laterally within the topping-block 40 and is curved at its lower end,

so that it can be projected laterally through an opening or slot in the side of said topping-block, such projection being caused by contact of the curved lower end of the rod with a pin or other suitable bearing within the block. In the operation of the topping device the rotating block is first permitted to descend, so as to enter the open top of the filled can, and as soon as such descent has carried the lower end of the rod 48 below the top of the can the descent of the block is arrested, while the descent of the rod continues, so that its lower end is forced laterally outward from the block in order to clear away the contents of the can from around the sides of the mouth, the reverse operation first withdrawing the lower end of the rod and then lifting both rod and topping-block from the can. After the cans have been subjected to the action of the topping device they pass onto a carrier-belt 50 and are thereby conveyed from the machine, the tops of the cans being in their passage acted upon first by the vertical wiping-brush 51 and then by the horizontal wiping-brush 52. The rock-shaft 46 also has another arm 71 for acting upon the slide which constitutes the valve 70 for opening and closing the mouth of the hopper. The carrier-belt 50 is mounted upon sprocket-wheels on shafts 53 and 54 and motion is imparted to the shaft 53 from the cam-shaft 3 of the machine through the medium of sprocket-wheels 55 and 56 and a suitable connecting-belt. The upper run of the carrier-belt 50 is supported upon a plate 72, secured to the bottom of the runway or channel 9, so as to maintain said upper run of the belt in a horizontal plane, the belt running in a slot in the bottom of the runway and projecting sufficiently above the same to act upon the cans to move them forwardly. The vertically-rotating wiping-brush 51 is carried by the shaft 57, which is mounted in pivoted hangers 58, hung upon a shaft 59, so that said hangers can be raised and lowered to compensate for wear of the material of the brush 51 and cause the latter to bear upon the tops of the cans with any desired degree of pressure, the hangers being secured in position after adjustment by means of thumb-nuts 60, adapted to threaded bolts on the hangers, which bolts pass through slots 61 in fixed brackets at the sides of the machine.

Rotary motion is imparted to the brush 51 from the shaft 59 through the medium of spur-gears 62 and 63, the shaft 59 receiving its motion from the main driving-shaft 2 through the medium of sprocket-wheels 64 and 65 and a suitable connecting chain belt. The horizontally-rotating topping-brush 52 is carried by a vertical shaft 66, which can turn in suitable bearings on a transverse arch 67 on the fixed frame, rotary motion being imparted to said shaft 66 from the vertical shaft 6 through the medium of a belt applied to pulleys 68 and 69.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. The combination in a can-filling machine, of a filling-hopper, a plunger, and a cam for first lifting and then dropping said plunger whereby the descent or active movement of the plunger is due to the weight of the latter, and its appurtenances, and means for checking the descent of the plunger as it approaches the limit of its descent, substantially as specified.

2. The combination in a can-filling machine, of the filling-hopper and its vertical reciprocating plunger, with a cam for first lifting and then permitting the descent of said plunger, whereby said descent is due to the weight of the plunger and its appurtenances, and a spring for checking the descent of the plunger as it approaches the limit of its descent, substantially as specified.

3. The combination in a can-filling machine, of the filling-hopper, and its juice-pan having a bottom outlet-opening, with a nozzle having air-outlets leading to a point above the level of liquid in said pan, substantially as specified.

4. The combination in a can-filling machine, of the filling-hopper and the block at the lower end of the same, having side air-

escape openings and bottom strips for entering the mouth of the can and forming a passage for the material into the can, substantially as specified.

5. The combination in a can-filling machine, of the hopper and its pan, with a projection on the under side of said pan for entering the mouth of the filled can and depressing the contents of the can at and near said mouth, substantially as specified.

6. The combination in a can-filling machine, of the feeding-hopper, the guide-trough having a slot in its bottom, means for intermittently moving the cans in succession along said trough, a belt for carrying the filled cans continuously away from the machine, said belt occupying a slot in the bottom of the trough and projecting sufficiently above the bottom thereof to act upon the cans to move them forwardly, and a plate below said slotted portion of the trough for supporting the upper run of said conveyer-belt in a horizontal plane, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES S. BUCKLIN.

Witnesses:

D. W. WILLGUSS,

JOHN APPLGATE, Jr.