

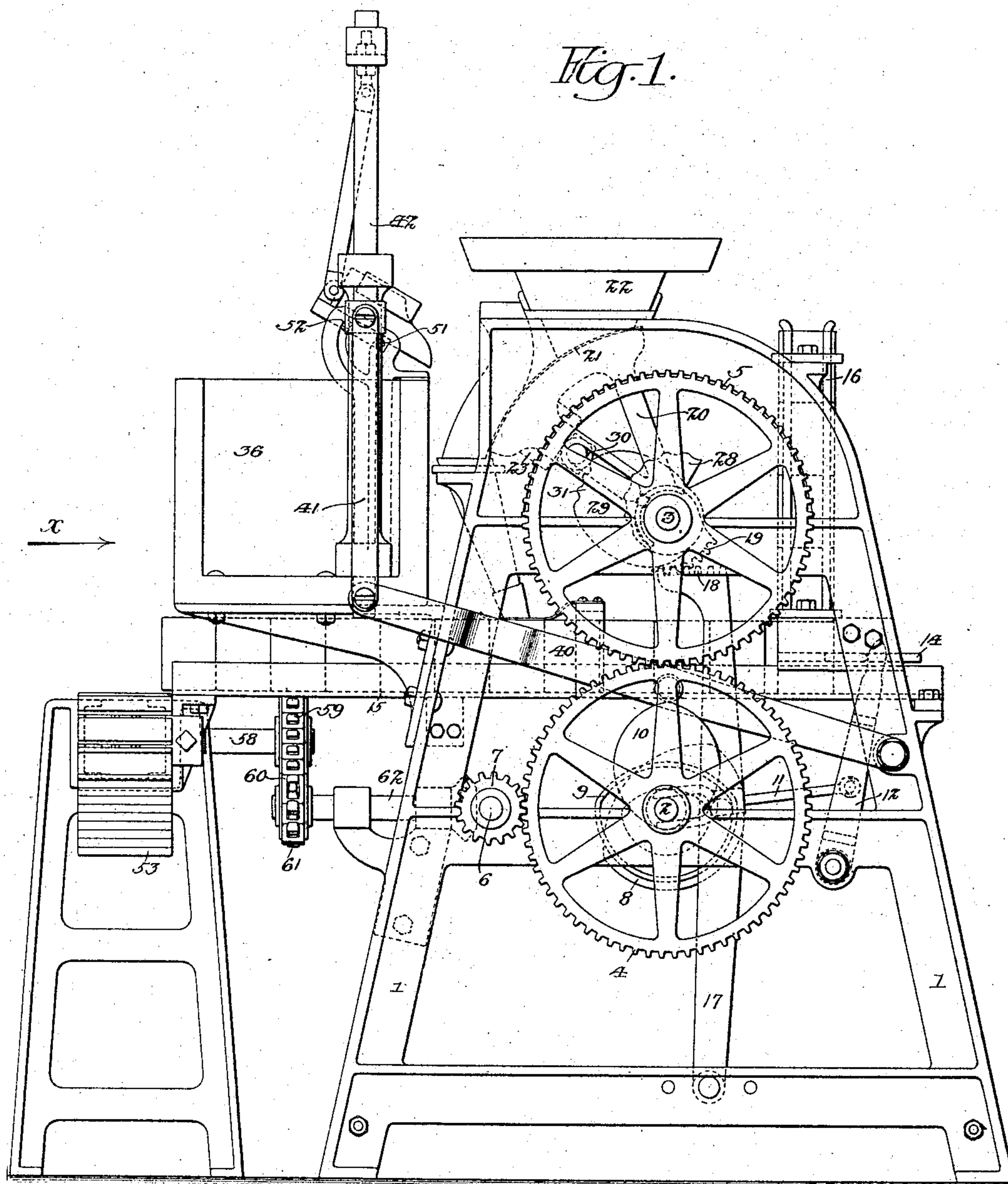
No. 765,552.

PATENTED JULY 19, 1904.

C. S. BUCKLIN.
CAN FILLING MACHINE.
APPLICATION FILED JAN. 7, 1904.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses:

Hamilton D. Turner
Frank L. A. Graham

Inventor:
Charles S. Bucklin,
by his Attorneys,
Howson & Howson

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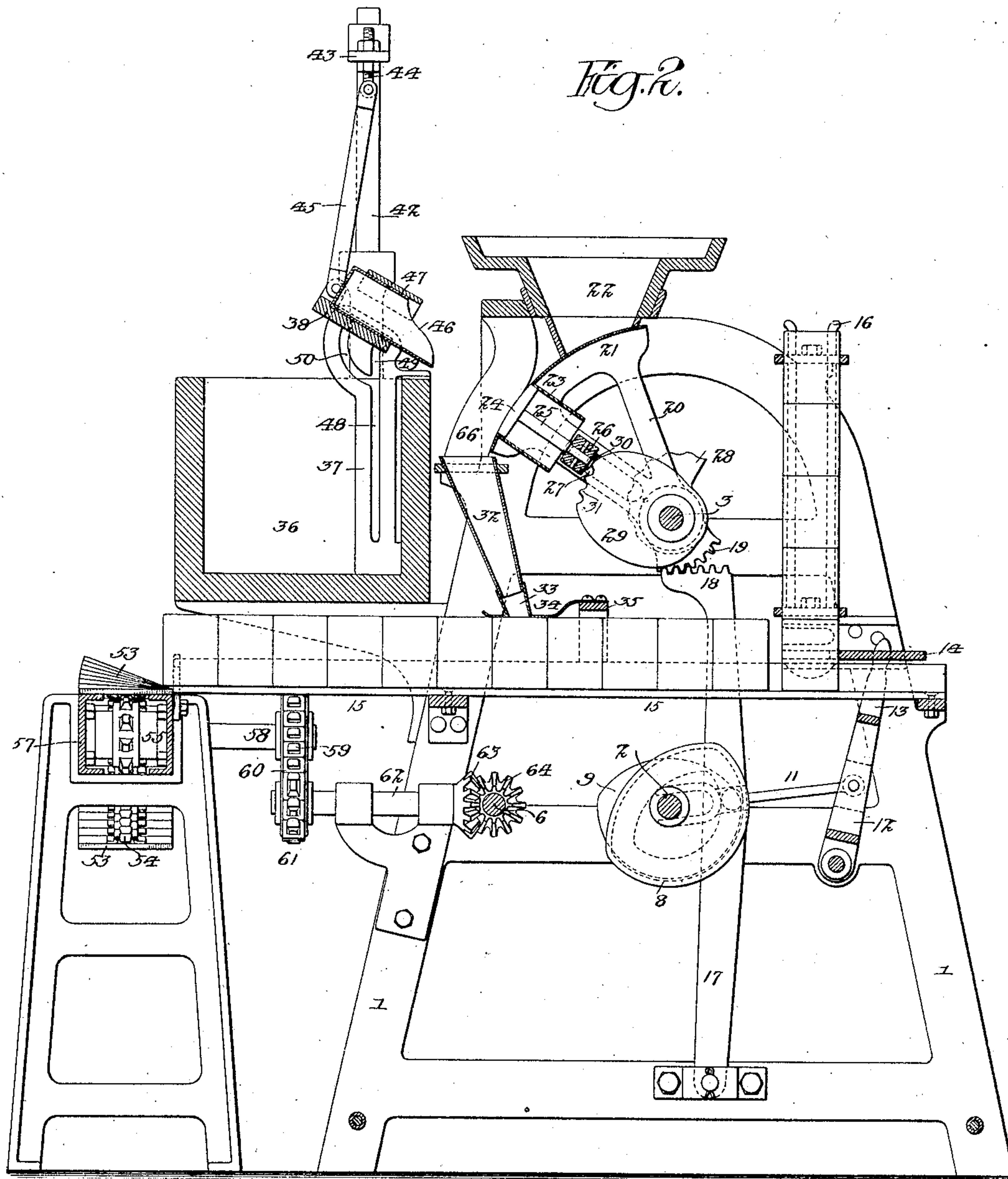
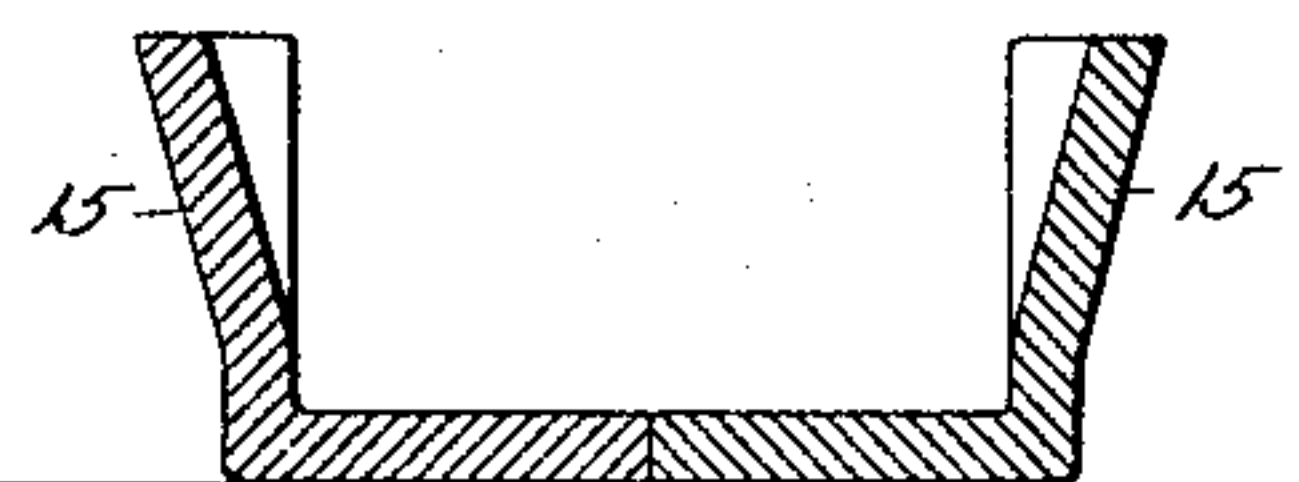


Fig. 2.

Witnesses:-

Hamilton D. Turner
Frank L. Graham.



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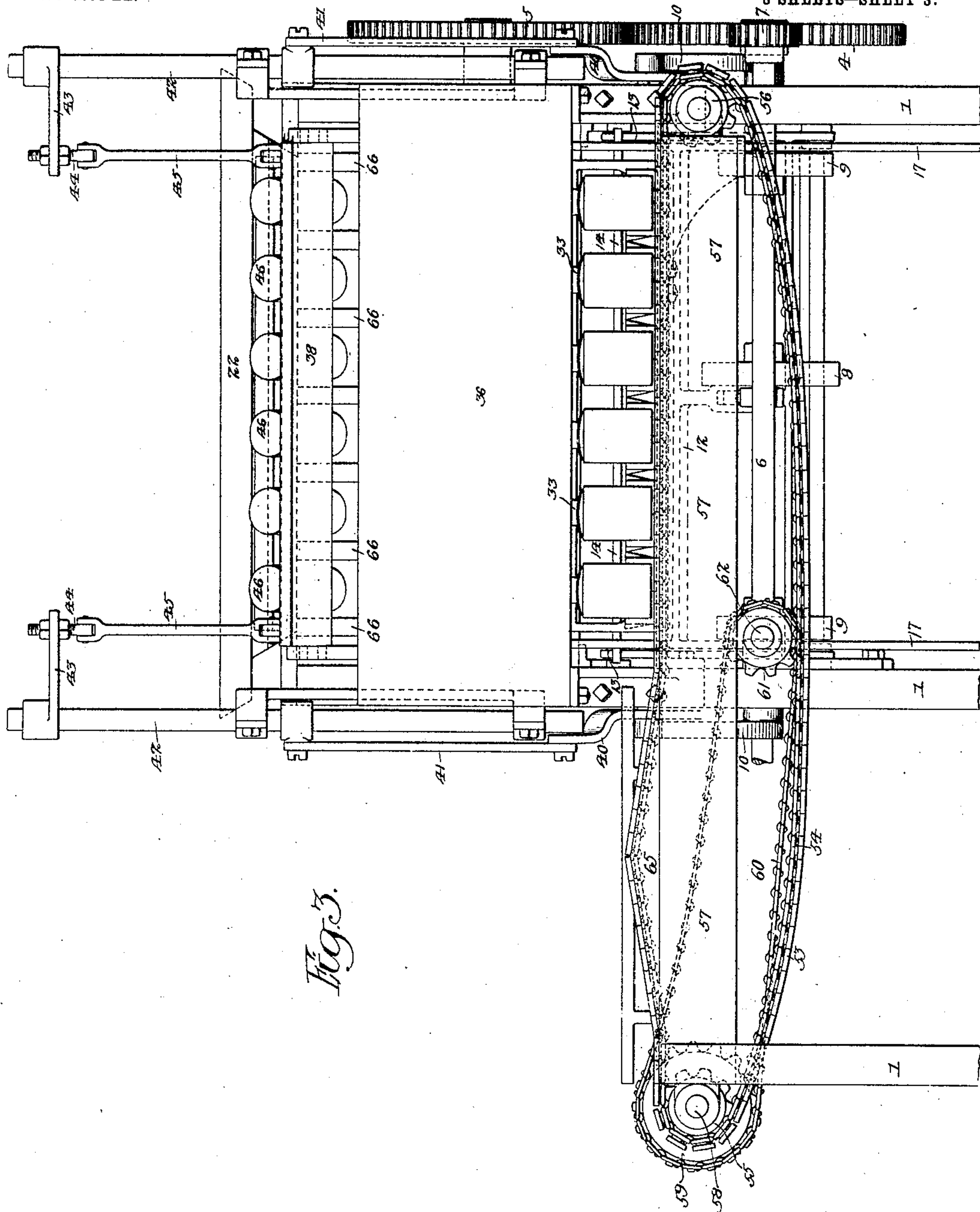


Fig. 3.

Witnesses:

Samuel D. Turner

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UNITED STATES PATENT OFFICE.

CHARLES S. BUCKLIN, OF BALTIMORE, MARYLAND.

CAN-FILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 765,552, dated July 19, 1904.

Application filed January 7, 1904. Serial No. 188,093. (No model.)

To all whom it may concern:

Be it known that I, CHARLES S. BUCKLIN, a citizen of the United States, residing in Baltimore, Maryland, have invented certain Improvements in Can-Filling Machines, of which the following is a specification.

My invention consists of certain improvements in the can-filling machine forming the subject of my Letters Patent No. 590,788, dated September 28, 1897, one object of my present invention being to simplify the construction of the machine in some respects and to improve and perfect its operation, and further objects being to supply to each can a proper quantity of syrup or other liquid and to remove any surplus liquid from each can before the capping of the same. These objects I obtain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a can-filling machine constructed in accordance with my present invention. Fig. 2 is a longitudinal section of the same with some of the parts in elevation. Fig. 3 is an end view looking in the direction of the arrow *x*, Fig. 1; and Fig. 4 is a transverse section of part of the machine.

1 represents the fixed frame of the machine, in which are bearings for two shafts 2 and 3, these shafts being geared together by means of spur-wheels 4 and 5 and power being imparted to the shaft 2 from a driving-shaft 6 by means of a spur-pinion 7, which meshes with the spur-wheel 4.

The shaft 2 carries a central cam 8, a pair of cams 9, and a pair of cams 10, the central cam 8 acting, through the medium of a rod 11, upon a swinging frame 12, which is suitably pivoted at its lower end on the fixed frame 1 and has upwardly-projecting arms 13, which engage with openings in a sliding plate 14, mounted in horizontal guides on the fixed frame and serving to feed forwardly in succession along a supporting-table 15 transverse rows of cans, which are delivered to said table from a stack 16 at one end of the same, the bottom row of cans in said stack dropping onto the table 15 when the slide 14 is retracted and being fed forwardly along the table on the next forward movement of said slide.

The feed-table 15 is so formed as to constitute a series of parallel channels side by side, one for each can of each transverse row, as shown in Fig. 3, the side walls of these channels being slightly flared at a point directly below the stack, as shown in Fig. 4, so as to properly center the descending cans each in its respective channel.

The cans 9 act upon levers 17 at the opposite sides of the machine, each of these levers being suitably fulcrumed at its lower end upon the fixed frame and provided at its upper end with a segmental rack 18, which meshes with a corresponding rack 19 on the end member of a frame 20, which is mounted so as to be free to swing around the upper shaft 3, and carries a segmental plate 21, which constitutes a movable bottom for a hopper 22, the latter being suitably mounted on the fixed frame of machine and containing the peas, beans, or other vegetable or fruit with which the cans are to be filled.

The continuity of the segmental plate 21 is interrupted by a series of measuring-receptacles 23, disposed across said plate 21 near the forward end of the same, there being one of these receptacles for each of the cans in a transverse row on the supporting-table of the machine, and each of said receptacles 23 has a movable bottom 24 with stem 25, these stems being carried by a cross-head 26, which extends transversely from one end member of the frame 20 to the other and is guided radially by slots 27, formed in certain arms on said end members of the frame, whereby the movable bottom 24 of each receptacle 23 is free to traverse the latter from the inner to the outer end of the same.

Mounted upon the shaft 3 so as to be adjustable around the same are cam-plates 28, upon which the projecting ends of the cross-head 26 rest when the frame 20 is in its retracted position—that is to say, when the filling-receptacles 23 are directly beneath the lower end or mouth of the hopper 22. The adjustment of the cam-plates 28, therefore, determines the extent to which the movable bottom 24 is permitted to descend in each receptacle, and hence determines the capacity of said receptacle.

As the frame 20 swings forwardly the movable bottom of the same is projected by means of cams 29, secured to the shaft 3, these cams acting upon antifriction-rollers 30 on the cross-head 26 and each cam having at its point of greatest throw a series of notches or corrugations 31, so as to impart to the movable bottom 24 of the receptacle a shaking or jarring motion when said movable bottom has been fully projected, thereby preventing any of the contents of the receptacle from adhering to said movable bottom of the same.

The material ejected from each of the receptacles 23 is received in a funnel or chute 32, whereby it is directed into a nozzle 33 and thence into a can on the table 15, each nozzle 33 being carried by a spring-plate 34, which is mounted at its rear end upon a cross-bar 35 of the fixed frame, as shown in Fig. 2.

In order to supply to each can an amount of syrup or other liquid necessary for the proper packing or preservation of its contents, I mount upon the fixed frame of the machine, in advance of the filling devices, a tub 36, containing a supply of such liquid, and in guides 37, at the opposite ends of said tub, I mount a bar 38, to which a vertical reciprocating motion is imparted by the cams 10 on the shaft 2, these cams acting upon antifriction-rollers on levers 40, suitably mounted on the fixed frame of the machine and having their free ends connected by means of links 41 to rods 42, which are vertically guided in suitable bearings at the opposite ends of the tub 36, the upper ends of said rods having inwardly-projecting brackets 43, which are connected by means of bolts 44 and links 45 to the bar 38. Upon said bar 38 are mounted a series of vessels 46, each having a recessed rear portion with adjustable sliding plate 47, whereby the capacity of the vessel is determined, outward movement of said slide increasing the capacity of the vessel and inward or downward movement decreasing the said capacity.

The guide 37 has formed in it a slot 48, forked at its upper end, one limb, 49, of said fork constituting an upward continuation of the slot 48 and the other limb, 50, of the fork being curved rearwardly and upwardly from said slot 48, as shown in Fig. 2.

The guidance of the bar 38 is effected by means of a pair of pins 51 and 52, Fig. 1, projecting from each end of the bar into the slots of the corresponding guide, and when said bar 38 is in its lowermost position the bar is vertical, the pin 52 being lowermost. The vessel 46 is thereby held in upright position and is filled with liquid from the tub 36.

As the bar 38 is lifted its upper pin 51 enters the slot 49 and travels through the same until it reaches the top of the slot, whereupon further upward movement of the bar 38 is arrested and continued upward movement of the links 45 is caused to tilt the bar and the

vessels 46 thereon, as shown in Fig. 2, the pins 52 of the bar traveling through the curved slots 50 of the guides 37. On the downward movement these operations are reversed, the bar 38 being first restored to vertical position and then forced downwardly into the tub 36, so as to again fill the vessels 46 with liquid. When the vessels 46 are tilted on the upward movement of the bar 38, the liquid contents of the same are discharged into their respective funnels 32 and have the effect of washing from said funnels any granular or solid material which has to be filled into the cans and which might otherwise adhere to the walls of the funnels, this discharge of liquid into the cans through the funnels 32 thereby serving to clear the latter without the necessity of imparting any shaking movement to them.

At the end of the table 15 is a transverse conveyer-belt 53 consisting, in the present instance, of slats mounted upon an endless chain 54, said chain being adapted to chain-wheels 55 and 56 at the opposite ends of a transverse table or support 57, on which the upper run of the conveyer-belt has its bearings and is supported.

The shaft 58 of the chain-wheel 55 is provided with another chain-wheel 59, which is driven by means of an endless chain 60 from a chain-wheel 61 on a short longitudinal shaft 62, the latter being provided with a bevel-wheel 63, which meshes with a bevel-pinion 64 on the driving-shaft 6, as shown in Fig. 2.

At one point in its length the table 57 has an inclined cam portion 65, which serves to impart a lateral tilt to the upper run of the conveyer 53 as the latter passes over this portion of the table, the result being that the cans carried by the said conveyer 53 are successively tipped or tilted sidewise, so as to spill or empty therefrom a portion of the liquid contents of the same, thus lowering the level of said liquid contents slightly below the level of the mouth of the can in order to prevent said liquid from interfering with the subsequent capping and soldering operations. The cam portion 65 might be so disposed as to tilt the cans without tilting the conveyer; but the construction shown is preferred.

It will be evident that the capacity of my improved can-filling machine is materially increased as compared with a machine of the type shown in my previous patent, because a series of cans is filled at one time instead of the cans being filled singly. A machine employing a vibrating frame with measuring-receptacles is, moreover, more compact than one employing a rotating frame, as in the patented machine.

In order to laterally confine the material ejected from each of the measuring-receptacles 23 and properly direct the same to its respective funnel or chute 32, separators or guard-strips 66 are interposed between the funnels of the series, as shown in Figs. 2 and

3, these strips conforming to the shape of the segment 21 throughout a portion of their length and extending upwardly from the funnels 32 to a point above that occupied by the receptacles 23 during the time that the contents of the same are being ejected therefrom.

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

1. The combination, in a can-filling machine, of a hopper, a pivoted frame having a segment closing the mouth of said hopper and having one or more filling-receptacles therein, a movable bottom in each of said receptacles, means for imparting to-and-fro vibration to said frame, and means for moving the bottom of each receptacle so as to eject the contents of said receptacle therefrom, substantially as specified.

2. The combination, in a can-filling machine, of a hopper, a frame having a portion closing the mouth of said hopper, and having one or more receptacles therein, a movable bottom in each of said receptacles, a cam acting upon said movable bottom, so as to cause it to eject the contents of the receptacle, means for moving the frame from the receiving to the discharging position, and means for rotating the ejector-cam independently of said movement of the frame, substantially as specified.

3. The combination, in a can-filling machine, of a hopper, a pivoted frame having a portion closing the mouth of said hopper and having one or more measuring-receptacles therein, means for moving said frame from the receiving to the discharging position, a movable bottom in each receptacle, and a cam for acting upon said movable bottom, so as to cause it to eject the contents of the receptacle, said cam having a notched or corrugated portion whereby a shaking movement is imparted

to said movable bottom, substantially as specified.

4. The combination, in a can-filling machine, of a hopper, a frame having a portion closing the mouth of said hopper and having a series of measuring-receptacles therein, a movable bottom in each of said receptacles, a cross-head connecting the movable bottoms of a series of receptacles, means for moving the frame from the filling to the discharging position, and a cam for acting upon said cross-head so as to impart simultaneous ejecting movement to each of the series of movable bottoms of the receptacles, substantially as specified.

5. The combination, in a can-filling machine, of a tub for containing liquid, a bar having a receptacle thereon and having projecting pins at its opposite ends, means for raising and lowering said bar, and guides therefor, having single slots for the guidance of both pins, said slots being forked at their upper ends for the individual guidance of the pins, substantially as specified.

6. The combination, in a can-filling machine, of a table or support along which the cans are fed, a transverse conveyer for receiving the cans as they are delivered from said table, and a support for the upper run of said conveyer, said support having an inclined portion whereby the conveyer is laterally tilted in order to discharge from the cans a portion of their liquid contents, 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:

THOMAS B. McALLISTER,
JOHN J. GALLAGHER.