

W. MUNN.
FILLING MACHINE.
APPLICATION FILED MAR. 8, 1915.

1,233,261.

Patented July 10, 1917.
3 SHEETS—SHEET 1.

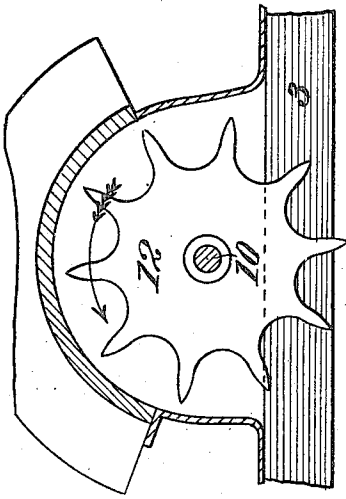
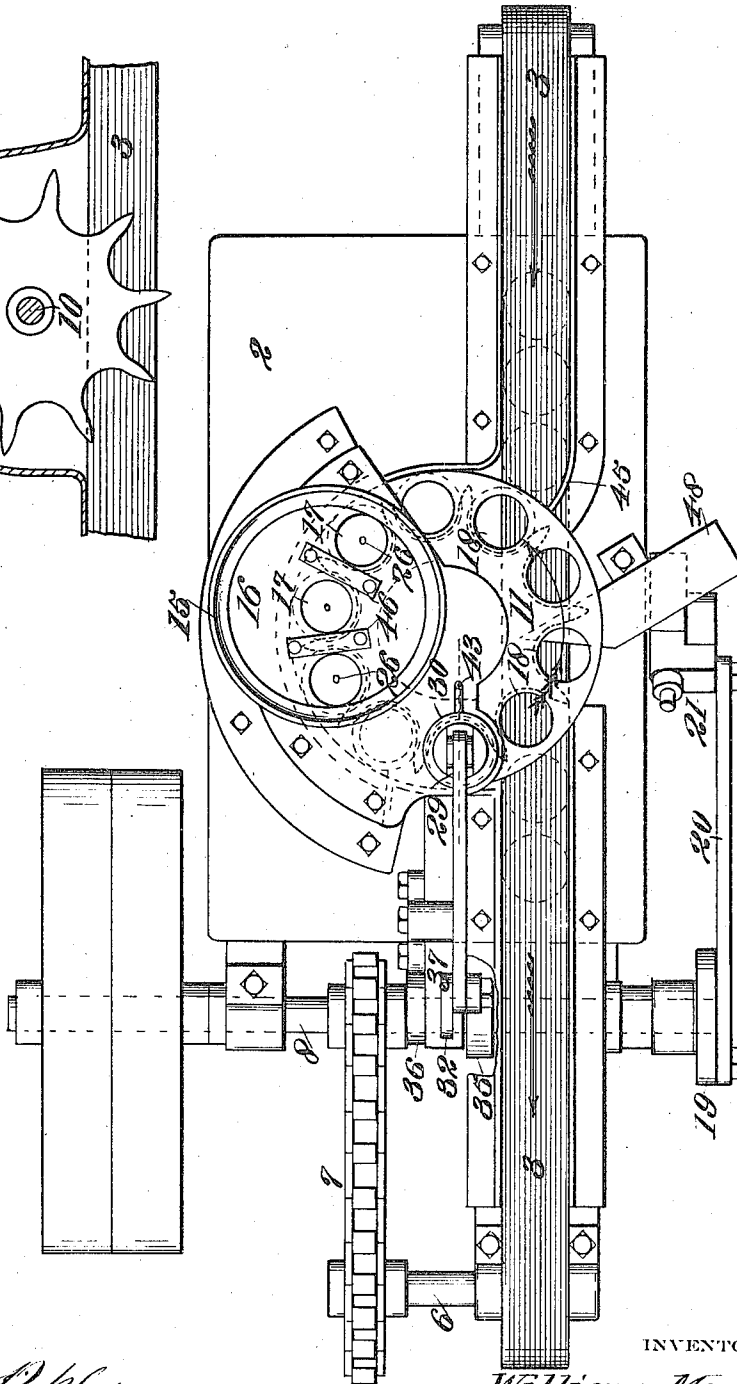


Fig. 2.

Fig. 1



WITNESSES:

Charles Pickles
Thos. Kestberg

INVENTOR

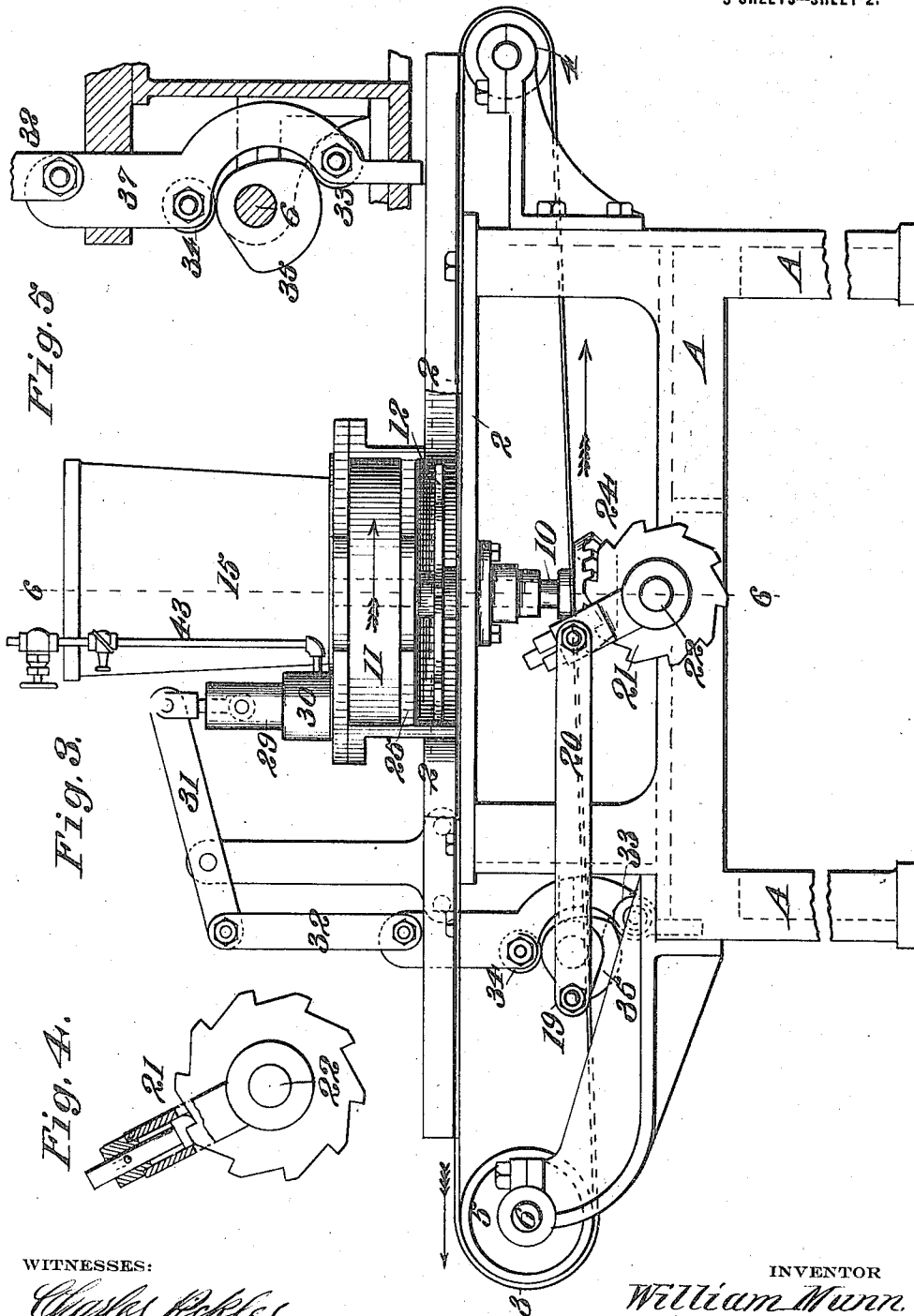
William Munn.

BY *G. H. Strong.*

ATTORNEY

1,233,261.

Patented July 10, 1917.
3 SHEETS—SHEET 2.



WITNESSES:

Charles Peckles
Thas Eastberg

INVENTOR

William Munn

BY *E. H. Strong*

ATTORNEY

W. MUNN.
FILLING MACHINE.
APPLICATION FILED MAR. 8, 1915.

1,233,261.

Patented July 10, 1917.

3 SHEETS—SHEET 3.

Fig. 6

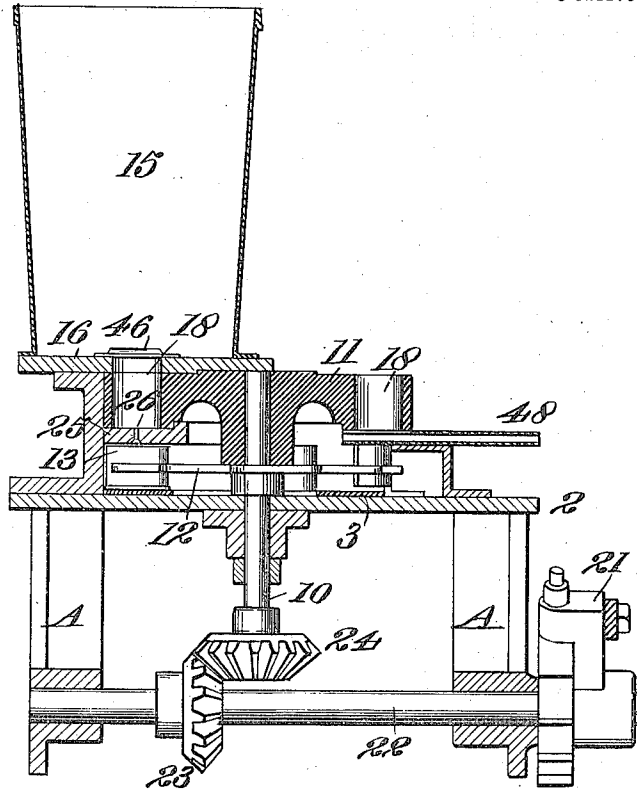


Fig. 7.

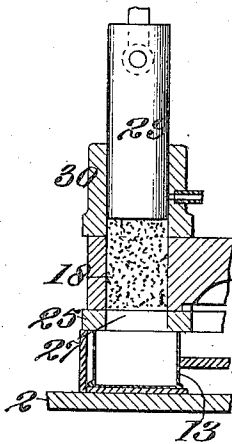


Fig. 8.

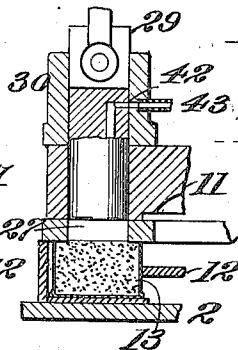


Fig. 9.

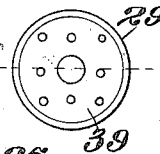
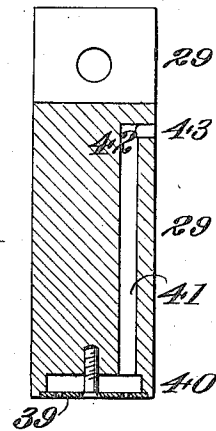


Fig. 10.



WITNESSES:

Charles Pickles
Thos Eastberg

INVENTOR

William Munn.

BY *G. H. Strong.*

ATTORNEY

UNITED STATES PATENT OFFICE.

WILLIAM MUNN, OF ALAMEDA, CALIFORNIA.

FILLING-MACHINE.

1,233,261.

Specification of Letters Patent.

Patented July 10, 1917.

Application filed March 8, 1915. Serial No. 12,716.

To all whom it may concern:

Be it known that I, WILLIAM MUNN, a citizen of the United States, residing at Alameda, in the county of Alameda and State of California, have invented new and useful Improvements in Filling-Machines, of which the following is a specification.

This invention relates to filling machines, and pertains especially to machines adapted to fill cans and other receptacles with sticky or plastic material, although manifestly it will be adapted to the handling of other materials and various forms of receptacles.

The objects and advantages will be apparent hereinafter.

The invention consists of the parts and the combination and construction of parts as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is a plan view.

Fig. 2 is a horizontal section and plan view on line 2—2 of Fig. 3, immediately below the charging wheel.

Fig. 3 is a front elevation with parts broken away.

Fig. 4 is a detail view of the ratchet mechanism.

Fig. 5 is a detail view of the cam mechanism for operating the charging plunger.

Fig. 6 is a vertical transverse section on line 6—6 of Fig. 3.

Fig. 7 is a detail section of the charging cylinder plunger elevated.

Fig. 8 is a detail section of the charging cylinder with the plunger down.

Fig. 9 is a bottom view of the charging plunger.

Fig. 10 is an enlarged vertical section of the charging plunger.

A is a suitable frame-work having a bed 2 which is traversed by the endless conveyer belt 3. The belt 3 is supported on end pulleys 4—5; pulley 5 being fast on shaft 6, which is driven through the sprocket chain 7 from the drive shaft 8.

Mounted adjacent to the conveyer 3 is a vertical turret shaft 10 carrying the turret or measuring device 11 and the star wheel conveyer 12; turret 11 being sufficiently elevated above the bed of the table 2 to accommodate the cans 13, which latter are conveyed from the belt by the star wheel 12 around beneath the filling devices and then returned on to the belt, as indicated in Fig. 1.

15 is a stationary hopper with a bottom 16 having one or more openings 17 adapted to register with corresponding charging and measuring openings 18 in the turret 11. As here shown, there are three of these charging openings in the bottom of the hopper, so positioned that each time the turret comes to rest, three openings 18 in the turret will register with these three openings 17 in the hopper; it being understood that the turret and star wheel and cans during the filling operation of the cans are given a step by step movement in unison, through appropriate drive connections with the drive shaft 8. As here shown, this intermittent movement of the turret and cans is accomplished through a crank 19 on shaft 8, link 20 and pawl and ratchet mechanism 21 acting on the shaft 22, and the miter gears 23—24 and shaft 10. 25 is a fixed bottom plate disposed immediately beneath a portion of the turret and extending from a point ahead of the first of the charging openings 17 to a point a little beyond where the material is delivered from a pocket 18, and is adapted to support the material in the pockets while the turret is traversing the hopper and until the point of delivery is reached. This plate has three small bleed ports or air openings 26 corresponding to and in line with the charging openings 17 in the bottom of the hopper; these ports 26 being for the purpose of letting any air escape that might otherwise be trapped by the material falling into the pockets 18 from above. Plate 25 also has another opening 27 which is approximately the same size as the can and is beyond the hopper, and is the last step of the turret before the can is returned to the conveyer belt.

In line with and above the opening 27 is a filling plunger 29, which is reciprocable in suitable guides 30, by means of a walking beam 31, links 32, cam rollers 33—34 and respective cams 35—36 on shaft 8. The rollers 34 are mounted on respective slides 37 which slide in suitable guides in the frame and are connected to the link 32; the lower roller 33 being hit by the cam 35 to elevate the plunger 29, and the roller 34 being hit by the cam 36 to force the plunger 29 downward. The motion of the plunger takes place during the period of rest of the turret and cans, and at the time that a can to be filled is in line beneath the opening 27 and a charge chamber 18 under it.

Plunger 29 has a perforated plate 39 on its bottom behind which an air chamber 40 in the plunger is formed, which chamber 40 connects with an air duct 41 and an inlet port 42; port 42 being adapted to register at the moment the plunger reaches its lowest point, with an air tube 43, which latter may be connected with any suitable source of air pressure supply. Preferably this air pressure is not very strong, but merely enough to admit air into the top of the can after the material has been compressed so as to free the material from the end of the plunger and prevent the latter being drawn upward and out of the can when the plunger is retracted.

The operation of the apparatus is as follows:

The cans are fed on to the belt and directed by suitable guide ways 45 into the star wheel or spider 12; the belt being operated continuously and the star wheel and filling mechanism intermittently. Step by step the cans are moved around with and beneath the turret charging device 11, in line with pockets 18 and brought into register with the successive openings 17 in the bottom of the hopper; the latter being charged with material to be canned.

In actual practice where these machines are now in use, the material operated upon is a pasty mass of about the consistency of deviled ham. As the charging member or turret 11 comes to rest, three pockets 18 are brought into register with the hopper openings 17. Gravity causes the material in the hopper to press down into and fill the pockets 18 beneath; the air vents 26 in the bottom plate 25 preventing any trapped air from operating against the proper filling of the pockets. During this preliminary charging of the pockets 18 the plastic mass is supported on the bottom plate 25. In the succeeding steps of the turret or charging member the material is further forced down through the dragging action of the turret beneath, by means of the radial inclined deflecting plates 46, arranged in the bottom of the hopper between the openings 17. These deflecting plates and the successive passage of the turret beneath the several openings 17 causes the pockets as they leave the hopper to be completely filled. The filled pocket is then moved along the plate 25 until it stops over the opening 27 in plate 25 where the material thus being left unsupported may be dropped by gravity and under the charging action of plunger 29, into the can beneath. The air passing through ports 41—42 serves to free the face of the plunger from the sticky mass beneath and prevents pulling up the mass when the plunger is retracted. In the next step the filled can is deposited on the belt and carried off to any suitable point of delivery.

The turret in its continued rotation has its underside adapted to scrape against a tubular scraper 48, which cleans off any of the material tending to stick to the turret and to discharge it through the tube at a point outside of the machine.

It is manifest that various changes in details of construction may be made in the machine, without departing from the principle of the invention.

While I have described the device in its particular use for filling cans, it will be manifest that any other suitable or appropriate receptacle according to the nature of the article packaged, or the desired style of the finished package, may be used.

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

1. A filling machine comprising in combination a constantly traveling endless carrier, a turret adjacent to the carrier having a step by step movement, said turret having charging openings, a device rotating in step with the turret for moving receptacles from the carrier and positioning them beneath the turret in registry with the charging openings and returning the receptacles to the carrier, and means for delivering the material to be charged first to the charging openings and thence to the receptacles.

2. A filling machine comprising in combination a constantly traveling endless carrier, a revolving turret with charging openings extending over the carrier and spaced therefrom to accommodate receptacles on the carrier, means for removing receptacles from the carrier and returning them thereto and in the interim causing the receptacles to travel in step with the turret, a stationary plate forming a temporary bottom for the charging openings, a hopper above the turret and having a bottom with one or more openings registerable with the charging openings in the turret, said plate having air vents registerable with the discharge openings in the bottom of the hopper, and means for positively expelling the contents of a charging opening into a receptacle.

3. In a can filling machine, the combination of a charging turret having charging openings, means for conveying cans in unison with the turret and in line with and beneath the charging openings, and plunger means to deliver the material from the charging openings into the cans, said plunger being provided with auxiliary pressure forming means for preventing the withdrawal of the material from the cans.

4. In a can filling machine, the combination of revolving turret member having a charging opening, a plate over which the turret moves and which plate forms a bottom for the opening, said plate having a perforation adapted to aline with the charg-

ing opening at the moment of filling the opening so as to release any air which might otherwise be trapped, and means for delivering the charge in the charging opening into
5 a can.

5. In a can filling machine, a charging member having open ended charging pockets, and a plunger operating in the successive pockets, said plunger having air
10 pressure supply means to free the plunger from accumulations as it is retracted from a pocket.

6. In a can filling machine, a charging member having open ended charging pockets, a plate forming a temporary bottom for
15 certain of the pockets, a plunger operating in the successive pockets, said plunger having its end which enters the pockets perforated with an air chamber formed behind
20 said perforations, and an air outlet through the plunger from said air chamber.

7. In a can filling machine, a charging member having open ended charging pockets, a plate forming a temporary bottom for
25 certain of the pockets, a plunger operating in successive pockets, said plunger having its end which enters the pockets perforated with an air chamber formed behind said
30 perforations, and an air outlet through the plunger from said air chamber, and a source

of air supply with which said air outlet in the plunger intermittently registers.

8. In a can filling machine, the combination with a revolving turret having charging openings, of a scraper and conveyer
35 comprising a tubular member open at the ends with the inner end in scraping contact with the under-side of the turret and arranged to deliver automatically the scrapings through the other end of the tube. 40

9. In a machine of the class described, the combination with can carrying means, of a charging turret, a supply hopper above said
45 turret, and deflecting plates in said hopper inclined relatively to the bottom of the hopper and positioned between the discharge openings thereof for feeding material from
the hopper to the charging turret.

10. In a can filling machine, the combination with a moving turret having charging
50 openings, of a supply hopper above said turret, and deflecting plates in said hopper adjacent the charging openings in the turret.

In testimony whereof I have hereunto set
my hand in the presence of two subscribing
witnesses. 55

WILLIAM MUNN.

Witnesses:

LEONARD DREYFUS,
JAMES T. GRAHAM.