L. DAUM.

BOTTLE FILLING AND CORKING MACHINE.

APPLICATION FILED MAR. 23, 1918.

1,307,898.

Patented June 24, 1919.

4 SHEETS—SHEET 1.

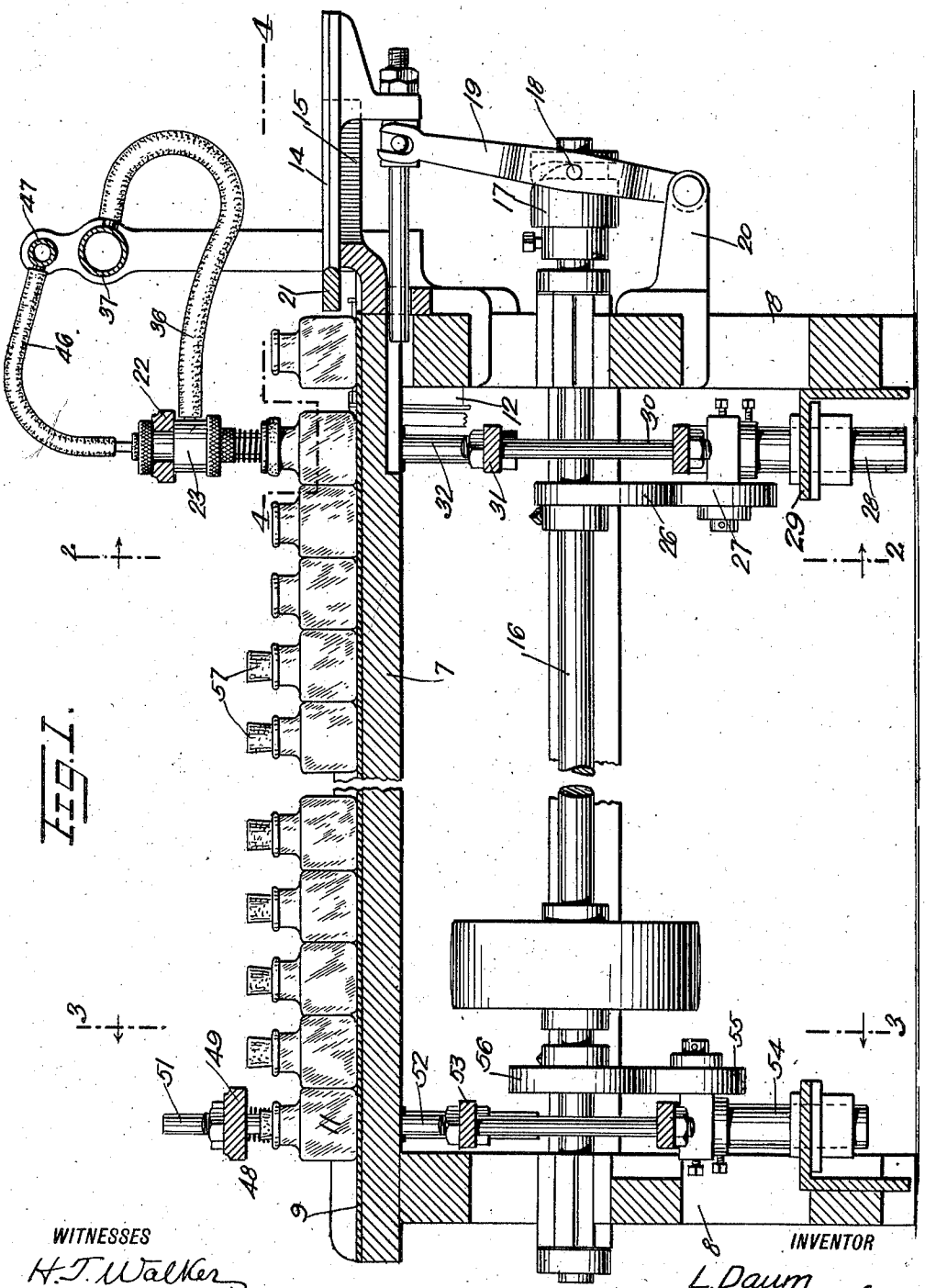


Fig. 1.

WITNESSES

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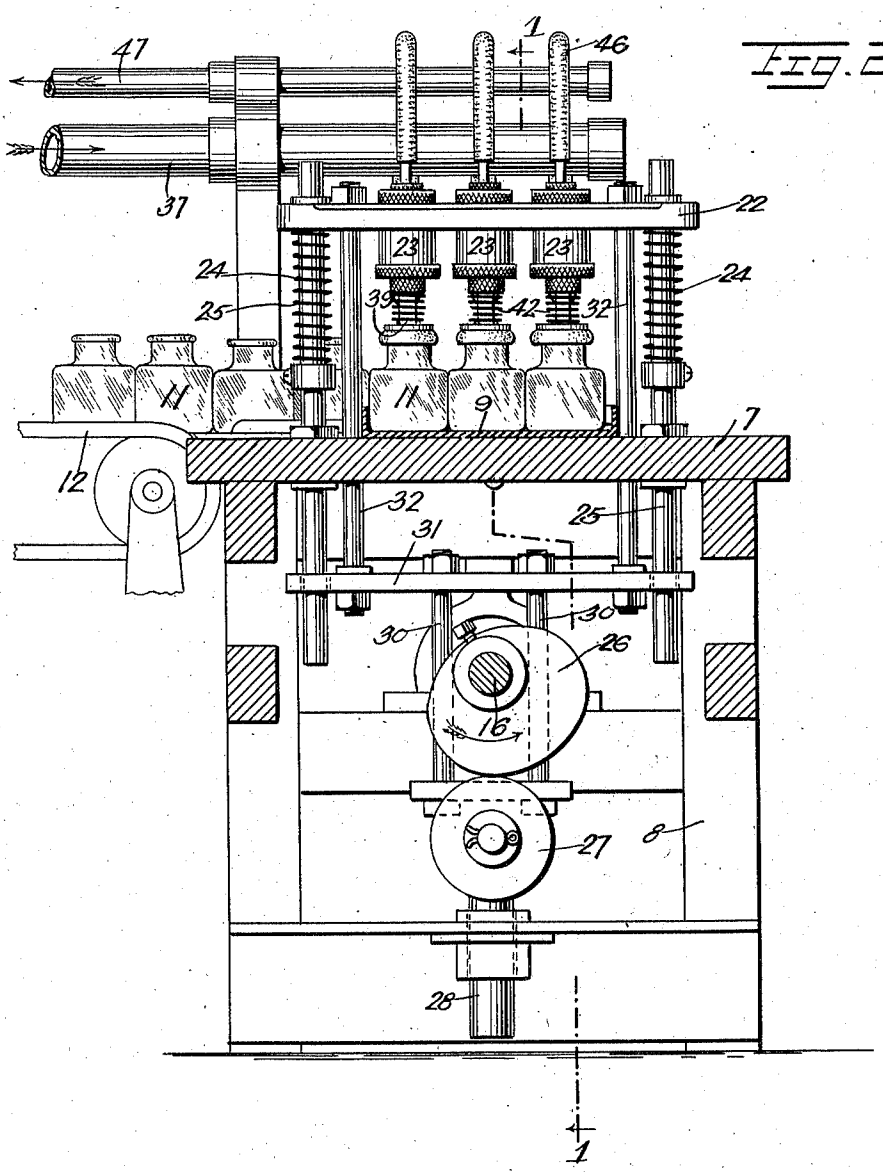
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4 SHEETS—SHEET 2.

Fig. 2.



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4 SHEETS—SHEET 3.

Fig. 3.

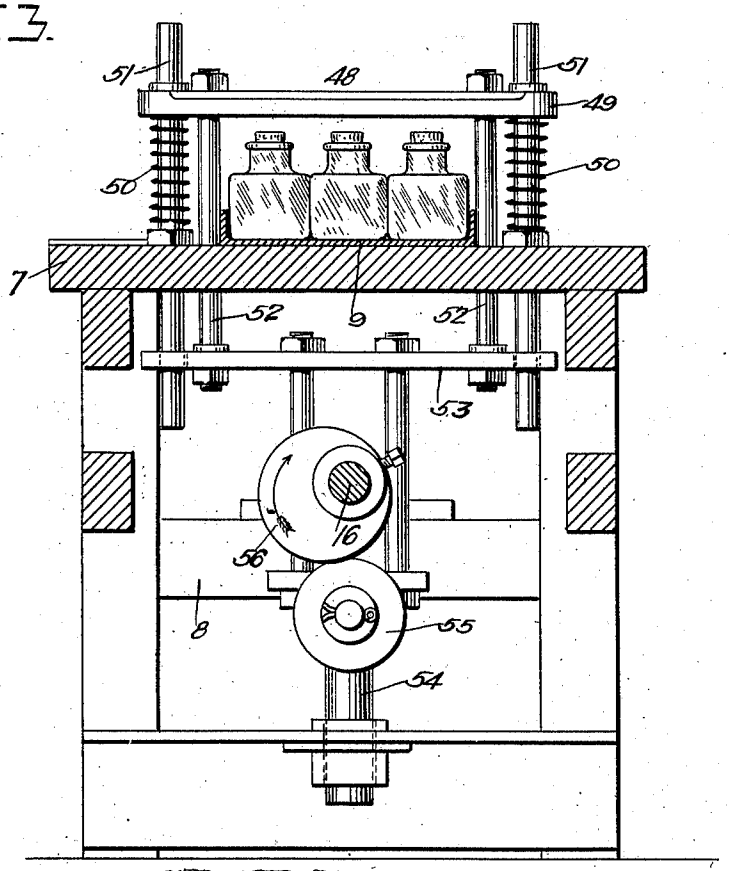
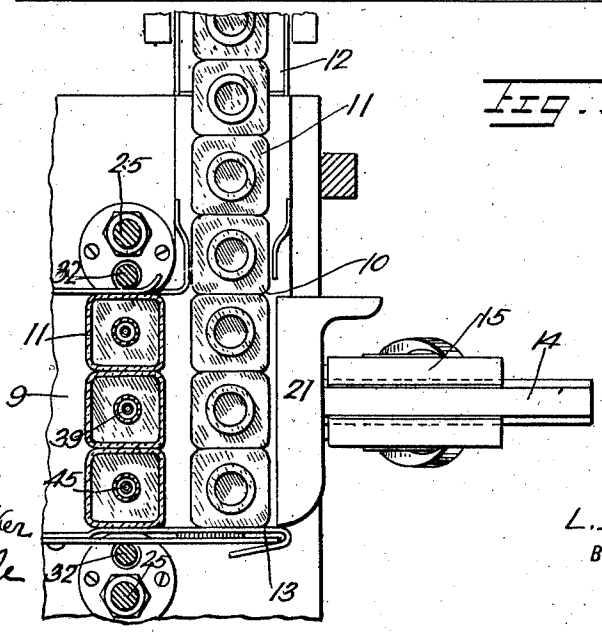


Fig. 4.



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Fig. 5.

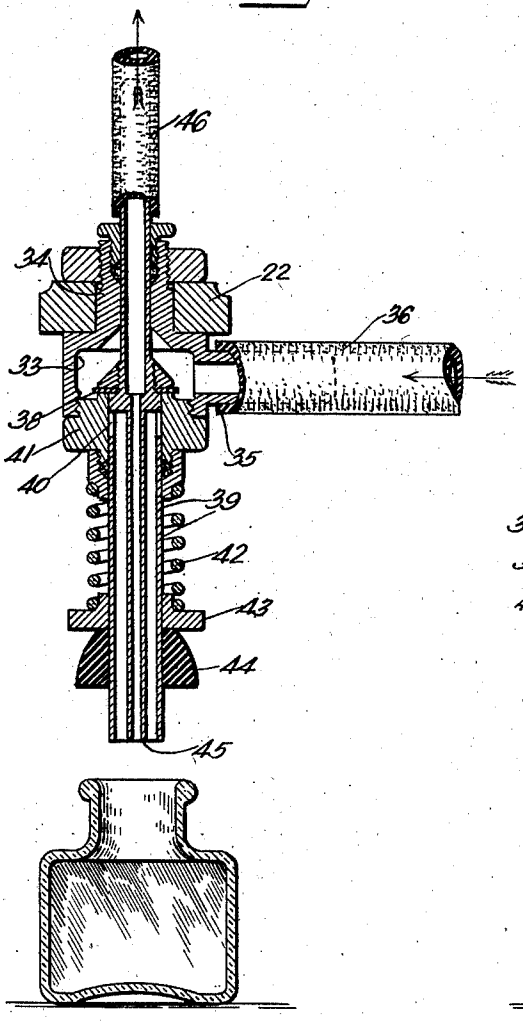
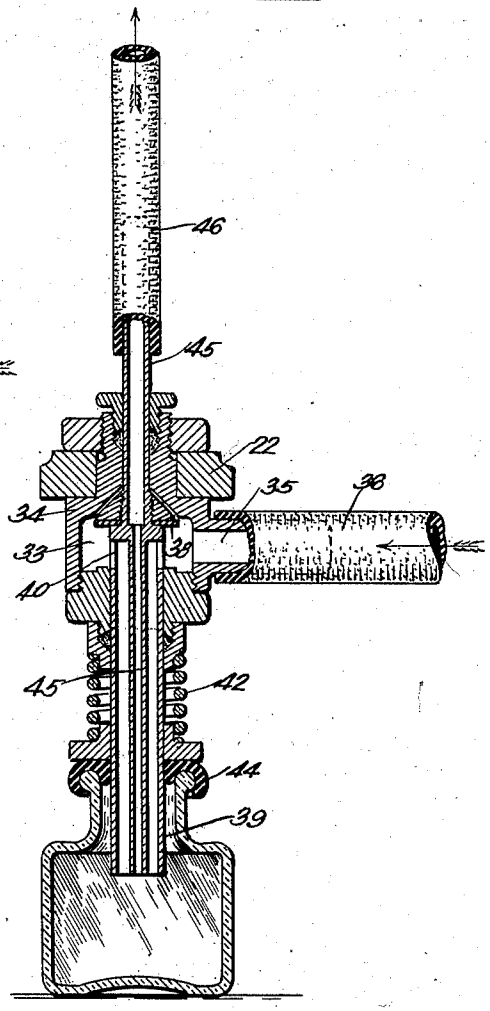


Fig. 6.



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LEONHARD DAUM, OF BROOKLYN, NEW YORK.

BOTTLE FILLING AND CORKING MACHINE.

1,307,898. Specification of Letters Patent. Patented June 24, 1919.

Application filed March 23, 1918. Serial No. 224,290.

To all whom it may concern:

Be it known that I, LEONHARD DAUM, a citizen of the United States, residing at New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Bottle Filling and Corking Machine, of which the following is a full, clear, and exact description.

My invention relates to a machine for automatically filling and corking bottles. An object of the invention is to provide a simple, inexpensive and efficient machine particularly adaptable for filling bottles with liquids under reduced pressure.

With the above and other objects in view, the nature of which will more fully appear as the description proceeds, the invention consists in the novel construction, combination and arrangement of parts as herein fully described, illustrated and claimed.

In the accompanying drawings, forming part of the application, similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a longitudinal vertical section through my machine on line 1—1, Fig. 2;

Fig. 2, a transverse vertical section on line 2—2, Fig. 1;

Fig. 3, a similar section on line 3—3, Fig. 1;

Fig. 4, a horizontal fragmentary section on line 4—4, Fig. 1;

Fig. 5, a vertical section through a filling nozzle; and

Fig. 6, a similar section through the filling nozzle in operative position.

Referring to the drawings, 7 is a table supported on a suitable frame 8. A trough 9 is disposed longitudinally on the table 7. At the feeding end one side of the trough is open, as shown at 10, wherethrough bottles 11 may be fed transversely of the trough by means of a suitable conveyer 12, or any other suitable feeding means. The side of the trough facing the opening 10 is preferably provided with a yielding portion 13, which relieves the bottles from shocks and the conveyer 12 from extra resistance at the time the bottles are retained stationary in the line of feed of the conveyer 12.

A push-bar 14 is mounted to slide longitudinally of the trough in proximity of the feeding end in a suitable guide 15 which is carried by the frame 8. The push-bar 14 is actuated from the main shaft 16 by means of a cam 17 carried by said shaft, and which cam has a bent groove engaged by a pin 18 of an arm 19 pivotally connected at one end to a bracket 20 which is carried by the frame, and with the other end engaging a pin secured to the push-bar 14.

The bottle-feeding means brings the bottles in front of the push-bar 14 which has an enlarged head 21 substantially the width of the trough, and as the push-bar is moved into the trough the bottles alined in front of the head 21 are pushed into the trough under a nozzle carrier 22. The nozzles 23 in the carrier are maintained clear of the bottle by springs 24 provided on uprights 25 serving as guides for the carrier. The nozzle carrier 22 is preferably provided with a longitudinal slot in which the nozzles 23 may be adjusted to compensate for the unevenness that may occur in the bottles to be filled.

To bring the nozzles into engagement with the bottles thereunder, the carrier is moved bodily against the resistance of the springs through the medium of a cam 26 which is constrained to revolve with the main shaft 16. The cam preferably acts on a roller 27 secured to a plunger 28 mounted to reciprocate in a casting 29 supported by the frame 8. The plunger is connected by bolts or stays 30 to a head 31 which is guided by extensions of the uprights 25. The head is also connected by rods 32 to the nozzle carrier 22. These bolts and rods 30 and 32 bind the head and the nozzle carrier rigidly together so that the nozzle carrier is constrained to move with the head.

Each of the nozzles has a liquid chamber 33 (see Figs. 5 and 6) formed in the body portion 34 of the nozzle, which is secured to the nozzle carrier 22. This body portion has a tubular extension 35 which forms the inlet to the chamber 33 and which is connected by a flexible conduit 36 to a supply conduit 37. The outflow from the chamber 33 is controlled by a valve 38 with a tubular stem 39 which has openings 40 in proximity to the valve 38 and is slidably maintained within an extension 41 of the body portion 34 by a spring 42, one end of which abuts against the extension 41 and the other against a collar 43 rigidly secured to the tubular stem 39.

The tubular stem also carries a rubber

washer 44 below the collar 43 which comes into engagement with the mouth of the bottle when the nozzle carrier is drawn toward the bottle. This washer under pressure is deformed, as shown in Fig. 6, thereby forming a perfect closure for the mouth of the bottle when the tubular stem enters the bottle. The engagement of the nozzle with the bottle compresses the spring 42 and, therefore, forces the valve 38 off its seat on the extension 41, thereby bringing the openings 40 into the chamber and allowing the fluid to pass from the chamber through the tubular stem into the bottle.

An inner tube 45 is provided in the tubular stem 39 for an air escape. This tube extends through the valve 38 and out through the body portion 34. This tube 45 above the carrier is connected by a flexible conduit 46 to a conduit 47 which is connected to an exhaust pump to draw the air out of the bottles and thereby facilitate the filling of the bottles with the liquid. The excess liquid which is drawn by the exhaust pump can be easily separated in a settling tank. It will be noted that the filling of the bottles is performed automatically and is controlled by the up-and-down movement of the nozzle carrier.

As the push-bar feeds the bottles to the nozzle carrier, it also forces the bottles filled ahead to the delivery end of the trough 9. A corking device 48 is provided near the delivery end of the trough. It has a transverse beam 49 which is normally maintained clear of the bottles by springs 50 mounted on uprights 51 which guide the beam 49. The beam is connected by bolts 52 to a head 53 which is guided by the extensions of the uprights 51. The head is bolted to a plunger 54 guided in a casting supported by the frame 8 and carrying a roller 55 which bears against a cam 56 constrained to revolve with the shaft 16. The downward motion of the beam 49 of the cam drives the corks 57 into the bottles, the corks being by hand placed into the mouths of the filled bottles on their way from the filling device to the corking device.

The cams 17, 26 and 56 are properly timed so that there may be no interference between the feeding of the bottles in the trough, their filling and their corking. If desired, the filling and the corking devices may be actuated simultaneously, for at that period the push-bar may be retracting or stationary. As shown, the filling and corking devices are operated successively to reduce the power that would be necessary if the two devices were operated simultaneously.

I claim:

1. A bottle-filling and corking machine comprising a trough having a side opening, means for feeding bottles through the side opening, a member mounted to slide in and out of the trough transversely of the opening, means for moving said sliding member intermittently whereby the bottles within the trough are moved intermittently, a filling device disposed above the trough in the path of the moving bottles, means for bringing the filling device into engagement with the bottles, means for corking the bottles in spaced relation to the filling means, and means for actuating said sliding member and said filling and corking means.

2. In a bottle-filling and corking machine, a body portion having a liquid inlet, an outlet from said body portion, a tubular valve controlling said outlet, a flange carried by said tubular valve, a spring on said tubular valve having one end of same on the flange and the other against the body portion, whereby said valve is normally moved into inoperative position, a head for said valve for limiting the movement of same by said spring, a rubber washer on said tubular valve abutting against said flange, and a tubular member in said tubular valve projecting through the head and above the body portion and serving as an air vent.

LEONHARD DAUM.