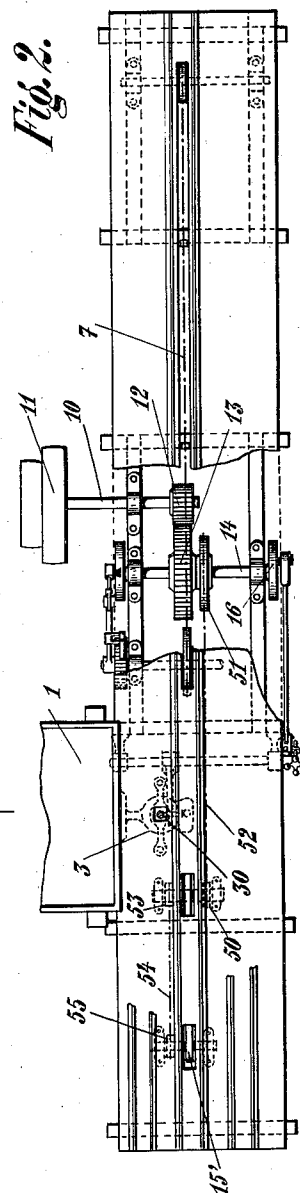
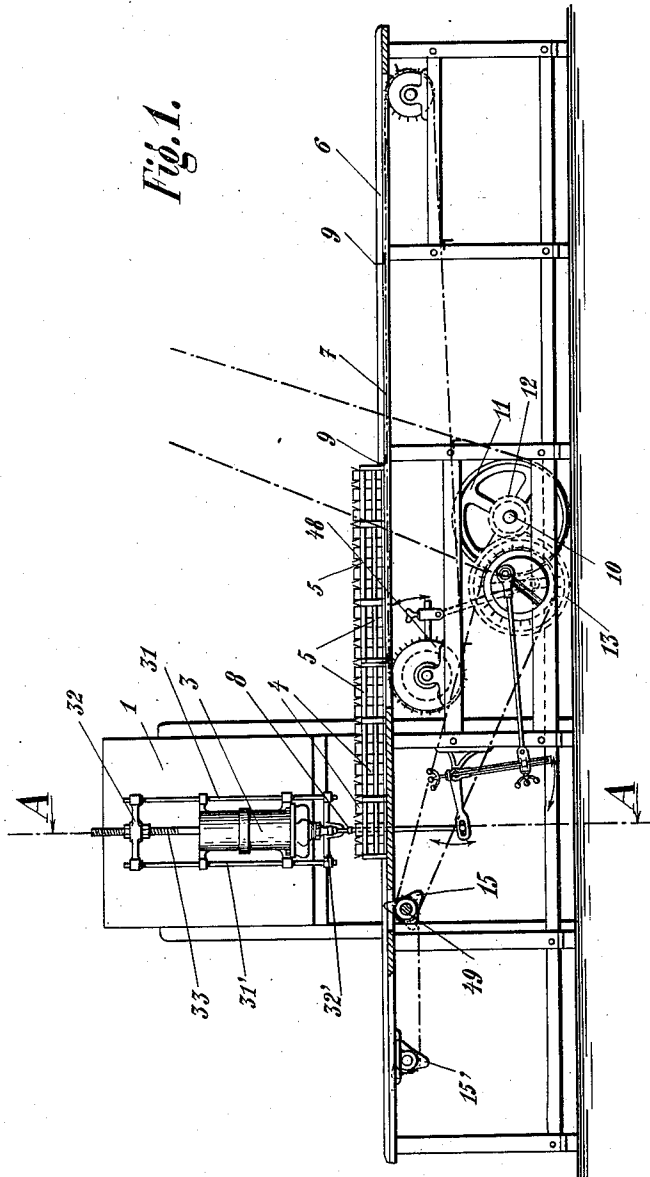


R. BALHORN.
SOAP FILLING MACHINE.
APPLICATION FILED NOV. 25, 1910.

1,028,658.

Patented June 4, 1912

2 SHEETS—SHEET 1.



Witnesses:

H. K. Kiepert, Lusk.
W. H. Kiepert, Schneider.

Inventor:

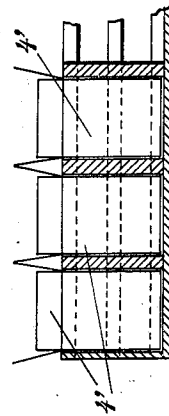
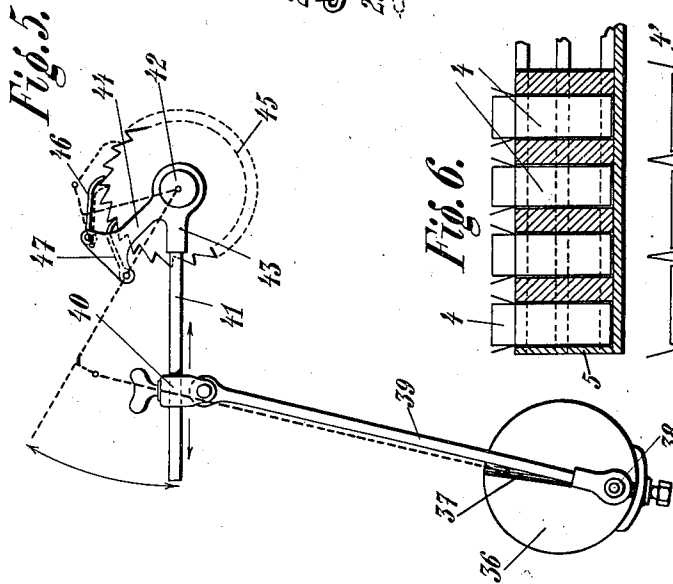
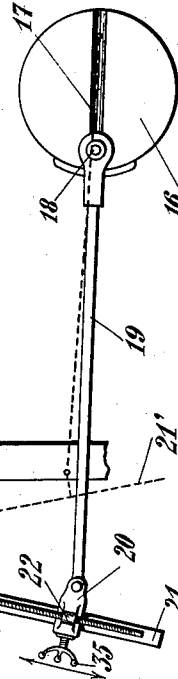
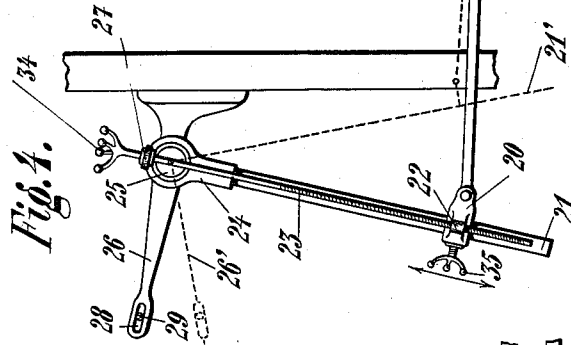
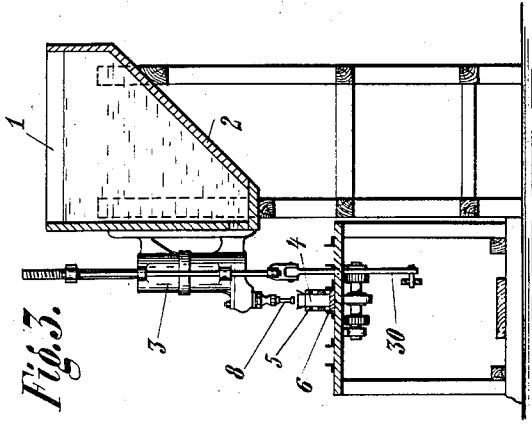
Rudolph Balhorn

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2 SHEETS-SHEET 2.



Witnesses:

W. L. Lushig.
W. H. Schmidt.

Inventor:

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UNITED STATES PATENT OFFICE.

RUDOLPH BALHORN, OF BRESLAU, GERMANY.

SOAP-FILLING MACHINE.

1,028,658.

Specification of Letters Patent.

Patented June 4, 1912.

Application filed November 25, 1910. Serial No. 594,151.

To all whom it may concern:

Be it known that I, RUDOLPH BALHORN, a subject of the German Emperor, and residing at Breslau, Germany, have invented certain new and useful Improvements in Soap-Filling Machines, of which the following is a specification.

The present invention relates to improvements in machines for filling-in liquid soap into suitable receptacles, such as paper bags, paste-board boxes, and the like, and it consists in the construction, arrangement and coöperation of parts to be hereinafter described in detail with reference to the accompanying drawings, in which—

Figure 1 represents a front elevation, partly in section, of the machine, Fig. 2 shows a plan view thereof, Fig. 3 a cross-section on line A—A of Fig. 1; Figs. 4 and 5 illustrate special movements for actuating driving mechanisms, and Figs. 6 and 7 represent sections through different forms of trays with soap receptacles.

The devices, now in use, for automatically running-in hot liquid soap into paper or the like containers, meet with but little success, in view of the fact that the finished soap product presents a dead, dull, lusterless appearance, loses its natural structure, and does not show the clearly discernible, mother of pearl like crystallization by which the hand-made product is readily recognized. I have found that this is due to faulty construction and operation of the various devices now known. If, for instance, the filling device works at increased, generally hydraulic, pressure, worms or the like (when it is immaterial whether the discharge of the soap or the admission of it takes place under pressure) it will be found that the natural fluxing formation of the soap, a chemically and technically finished product in the last stage of crystallization with perfect fluxion and veinage, will be interfered with and the already obtaining crystallization will be undone.

According to the present invention there is used a pump, or a plurality of them, into which the hot liquid soap enters by its natural fall and the sucking action of the pump only. Such pumps, it is true, are already used for recanting spirits and the like, but their use in handling hot liquid soap is new, and not obvious, in view of the fact that so far all mechanical means for this purpose have operated more or less unsatisfactorily,

and this was blamed rather on their use, as such, than on their faulty construction. Furthermore, it is essential that the air inclosed in the run-in soap escape quickly and completely. Shaking devices with reciprocating or swing motion did not prove a success, since we have to deal with a viscous mass, which does not readily respond to outer mechanical impulses. I use for this purpose a shaking or hammering device which strikes the bottom of the receptacles quick and forcible blows. Lastly, provision had to be made to rapidly dispose of a charge, and I have provided for this purpose for automatic, intermittent advance of the receptacles to below the mouth of the pump.

I am well aware that several of the parts used by me are known and used in other combinations and for other purposes, but the particular combination and coöperation for the purposes indicated is new and certainly not obvious even to one skilled in the art, as so far there exists no filling device which will run-in soap into paper or the like receptacles and turn out a product equal in appearance, crystallization and structure to the hand-made article, such as is possible to produce with my improved device.

Referring now to the drawings, the reservoir 1 for the hot liquid soap is provided with a slanting bottom 2, so that the charge runs into the pump 3 by its own weight and the suction of the pump, in which latter a piston is vertically reciprocated. The admission of the soap into the pump and its discharge by the mouthpiece 8 is regulated in suitable manner by valves, not specially shown in the drawing.

The paper bags 4 are arranged successively in frames or trays 5, movable longitudinally of the device in guide rails 6 (Fig. 3) and advanced periodically by means of the endless chain or belt 7 below the mouthpiece 8 of the pump. The frames or trays are carried along by means of brackets 9 secured to the traveling chain. On the main shaft 10 with fast and loose pulley drive 11 is secured the toothed wheel 12 which meshes with the toothed wheel 13 fast on the shaft 14, from which latter in turn are actuated the endless chain 7, the shakers 15, 15' and the pump piston.

The mechanism for driving the pump is shown in Fig. 4. On the shaft 14 is secured the crank disk 16 in whose groove 17 is ad-

justably secured the crank pin 18. The pitman 19 is pivoted to the collar 20, slidable on the rod 21 and carrying the nut 22 for the screw spindle 23. The rod 21 is secured above to the one arm 24 of a bell crank lever, pivoted at 25, whose other arm 26 is provided with a slot 28 in which takes the pin 29 of a rod 30 (Figs. 1 and 3). This rod 30 is pivotally secured to the pump gear, consisting of the two vertical guide members 31, 31' and the two cross members 32, 32'. The bell crank lever also carries the journal 27 for the screw spindle 23 with handle 34.

Upon rotation of the shaft 14, the rod 21 will oscillate from the solid line position into the dotted line position and vice versa and thereby cause the piston rod 33 of the pump to reciprocate vertically. For roughly adjusting the pump lift the crank pin 18 is shifted in its groove 17 and for finer adjustment the handle 34 is turned. The set screw 35 insures the desired position of the loose collar 20 on the rod 21. By rotating the piston rod 33, the piston is adjusted within the casing, which latter is preferably jacketed and heated for preventing the contents from congealing. In this manner the piston can always be made to descend clear to the bottom of the casing to prevent formation of dead spaces in which liquid soap could collect.

For actuating the endless chain 7 with its accessories the crank disk 36 is used, which is keyed on the shaft 14. In a manner similar to that just described with reference to the pump drive the crank pin 38, adjustable in the groove 37, is pivotally connected to the sliding collar 40 by means of the pitman 39. The collar is adjustable on the longer arm 41 of a bell crank lever 43, fast on the shaft 42, and whose other arm 44 carries pawls 46, 47 coöperating with the ratchet wheel 45. Upon rotation of the shaft 14 the bell crank lever 43, 44 is oscillated and intermittently rotates the ratchet wheel 45. On the shaft 42 is secured the pin wheel 48 which takes into the links of the endless chain, causing the latter to advance step by step. The distance of

travel of the chain depends upon the angle of oscillation of the bell crank lever 43, 44. For varying the advance of the chain the pin 38 is adjusted in its groove 37 and the collar 40 on the rod 41. This adjustment is necessary in order to be able to use the same device with differently sized receptacles, as shown in Figs. 6 and 7. For operating the hammering rollers 15, 15' their shafts 49 carry sprocket wheels 50, 53, 55 which are connected to the toothed wheel 51, fast on shaft 14, by means of the driving chains 52 and 54. These hammering devices strike the bottom of the receptacles or the trays violently and in quick succession.

The described machine may be run by hand or power. The endless chain is preferably of such length that the filled receptacles can be run directly into a cooling chamber or the like. Instead of a single pump, as described, it is obvious that a number of them may be used side by side, when the endless chain must be of a width to receive a corresponding number of receptacle trays, placed alongside one another.

What I claim and desire to secure by Letters Patent is:—

In a device of the character described, the combination of a pump for periodically discharging viscous liquid, adjustable means for regulating the extent of the piston travel of said pump, means for admitting the viscous liquid to said discharging means by its own gravity and the suction of the pump only, and means for intermittently feeding trays carrying receptacles up to and away from the discharge opening of said pump, means for regulating the extent of said intermittent feeding movement, and hammering means, striking the filled receptacles from below, the parts all constructed, arranged and coöperating substantially as set forth.

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

RUDOLPH BALHORN.

Witnesses:

SIEGFRIED LUSTIG,
LINN A. KATZ.