F. G. SALERNO.

DEPOSITING MACHINE.

APPLICATION FILED FEB. 15, 1918.

1,315,744.

Patented Sept. 9, 1919.

2 SHEETS—SHEET 1.

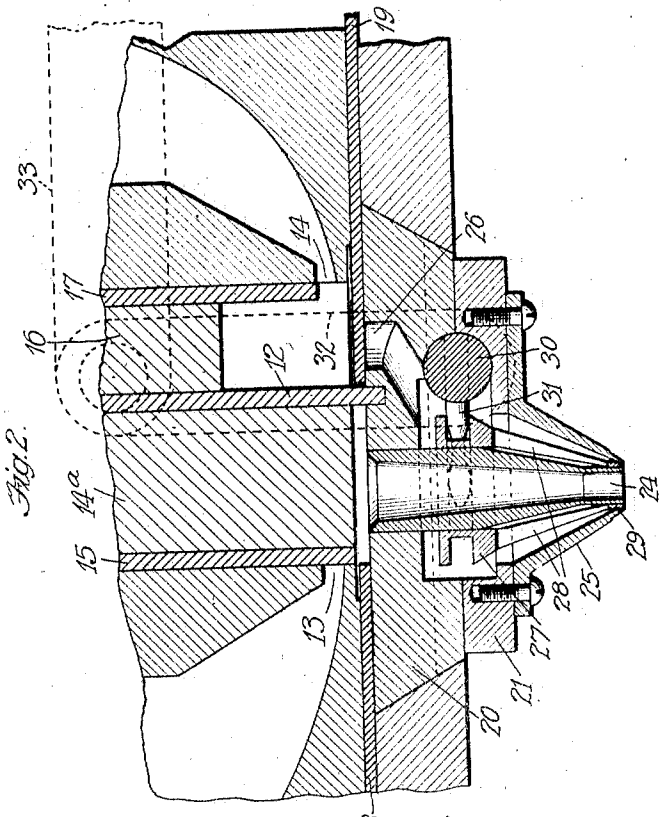

Fig. 2.

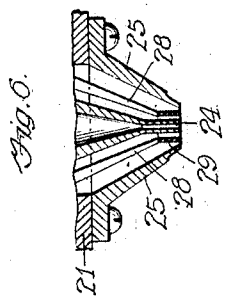

Fig. 6.

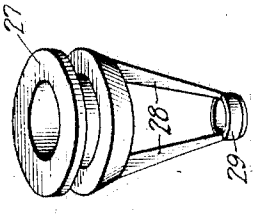

Fig. 5.

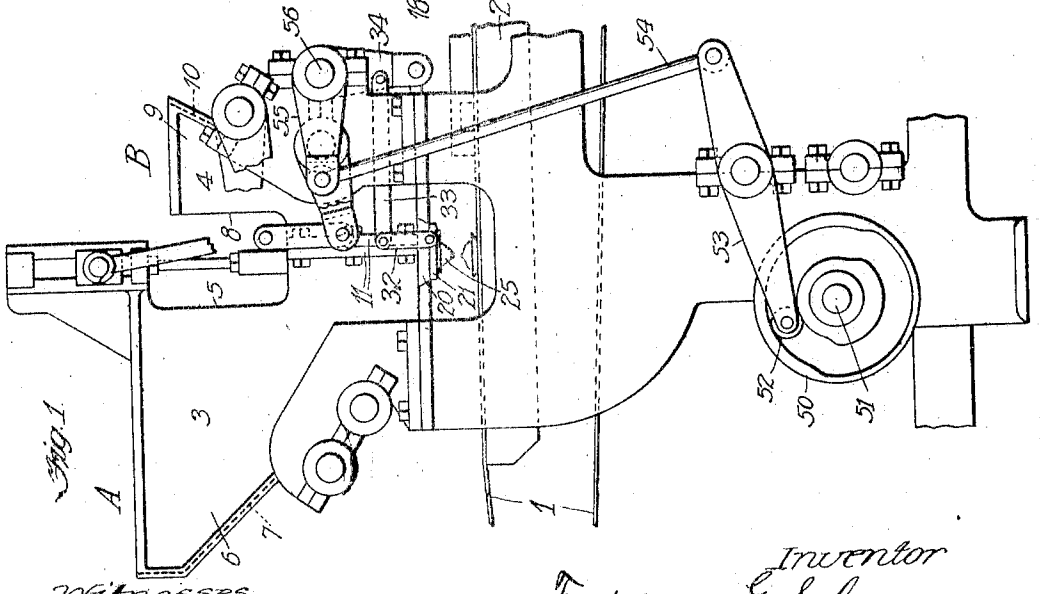

Fig. 1.

Witnesses
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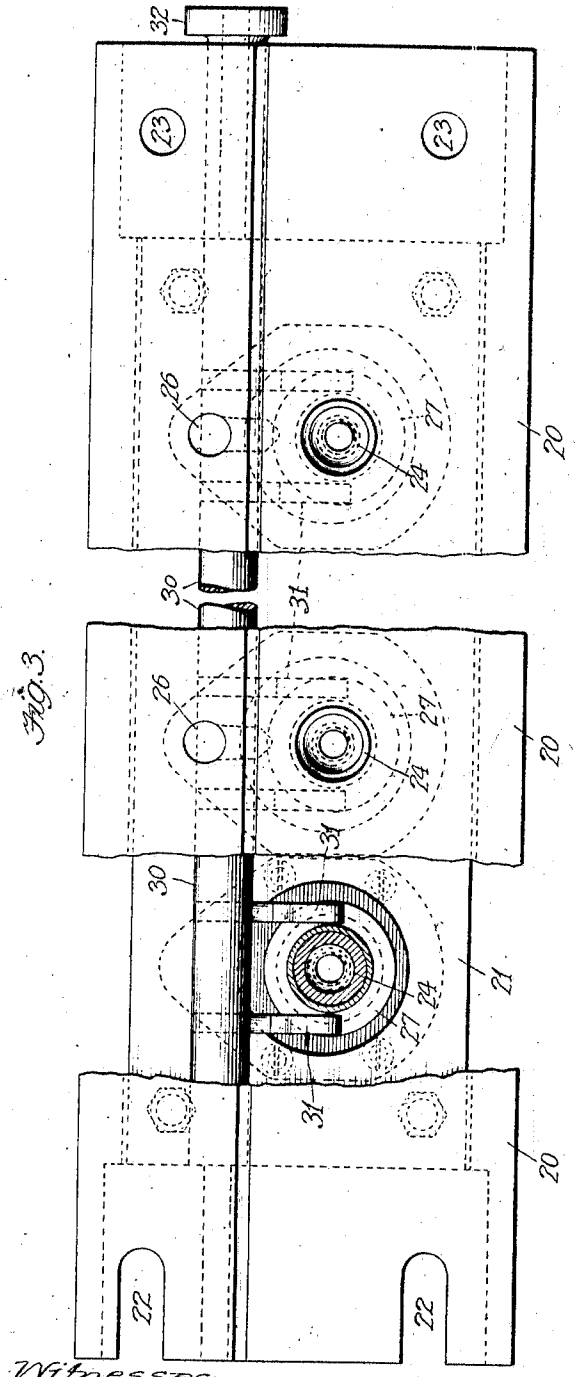

Fig. 3.

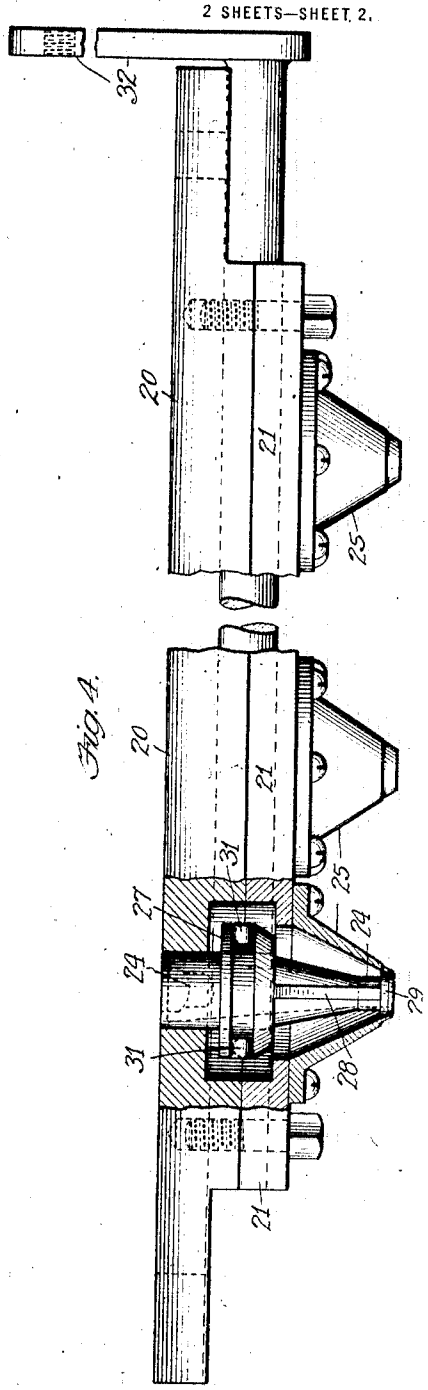

Fig. 4.

Witnesses
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UNITED STATES PATENT OFFICE.

FERDINANDO G. SALERNO, OF CHICAGO, ILLINOIS.

DEPOSITING-MACHINE.

1,315,744. Specification of Letters Patent. Patented Sept. 9, 1919.

Application filed February 15, 1918. Serial No. 217,402.

To all whom it may concern:

Be it known that I, FERDINANDO G. SALERNO, a citizen of the United States, and resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Depositing-Machines, of which the following is a specification.

My present invention is intended to be applied to and form a part of a depositing machine of the general construction shown in my pending application No. 834,780, filed April 27th, 1914, and more particularly relates to modifications and improvements connected with the nozzles of the depositing mechanism of the machine. It has been found that with some forms of concentric double nozzles heretofore employed, especially those in which the annular opening between the nozzles is restricted, small lumps, or coagulated or hardened fragments of the confection, or undissolved particles of the material being used will sometimes lodge between the nozzles and interfere with the free and uniform passage of the confection, making it necessary to clean the nozzles while the machine stands idle to obtain a perfect product. The object of the present invention is to provide automatic cleaning mechanism including members operating in the annular space between each pair of concentric nozzles for the purpose of dislodging any obstruction which might otherwise lodge therein, thereby keeping the orifices free and unobstructed. My invention consists in the combination and organization of coöperating parts constituting such mechanism, the essential elements of which are particularly pointed out in the appended claims.

Of the drawings Figure 1 is a side view of a portion of the hoppers and adjacent portions of a depositing machine to which my invention is applied; Fig. 2 is a cross section of the nozzle bar on a larger scale taken centrally through one of the double depositing nozzles and longitudinally of the machine; Fig. 3 is a plan view of the nozzle bar, the top member being partly broken away to disclose underlying parts of the structure; Fig. 4 is a vertical section taken longitudinally of the nozzle-bar, partly broken away to show the cleaning member in elevation; Fig. 5 is a perspective of the cleaning member detached; and Fig. 6 an enlarged fragmentary section showing a modified form of the cleaner ring.

The same reference characters indicate the same parts in all the figures of the drawings.

It will be unnecessary for an understanding of my present invention to describe the general construction of the depositing machine to which is applied or of which it forms a part, further than to state that it includes an endless belt 1 arranged to be shifted with a step-by-step movement over the surface of an oscillating table 2 which is intermittently lifted to a position adjacent the depositing nozzles while deposits of the two kinds of confection are being deposited through the double nozzles on rows of cakes fed into alinement with the nozzles, and then lowered as the flow is broken, after which the row acted upon is carried forward by the movement of the belt and another row fed into position to receive deposits when the belt is next lifted. The two hoppers A and B may conveniently be constructed of the two castings 3 and 4, the casting 3 being formed with a back wall 5 and side walls 6 to which is secured a sheet metal plate 7 to make up the larger or marshmallow hopper A, and the casting 4 being formed with a back wall 8 and side walls 9 to which is secured a sheet metal plate 10 to make up the smaller or jelly hopper B. The lower parts of the side walls of the two castings meet to form a tight joint, and externally are formed with meeting vertical flanges 11 by which they are bolted together, but the back walls are offset or separated from each other to leave a rectangular space lying between such walls and the extended portions of the side walls, which space is divided by a partition plate 12 into two piston chambers for the reception of the rectangular pistons or plungers of the forcing mechanism. The partition plate 12 is seated in grooves formed in the casting 4 and is also seated in a groove in the nozzle bar later to be described, and which is arranged at the bottom of the piston chambers. The bases of the castings are suitably secured to the frame of the machine, and the hoppers A and B respectively communicate with the adjacent forcing chambers through long inlet ports 13 and 14 respectively opening into the associated forcing chambers near the bottom of each. The larger forcing chamber is closed at its top

by a rectangular piston 14ª and a thinner rectangular supply valve 15 governing the port 13, and the smaller forcing chamber is closed by a corresponding piston 16 and supply valve 17. A rectangular plate 18 forming a shut-off valve is arranged to reciprocate horizontally in a slideway formed in the casting 3, and a similar shut-off valve 19 is provided in the casting 4. As in the case of the nozzle bar described in my prior application, the nozzle-bar or nozzle-carrying member of my present novel mechanism is seated in a dove-tailed recess formed at the bottom of the two castings 3 and 4, such seat being formed partly in one casting and partly in the other.

By suitable connections unnecessary to be described the main plunger or piston of each forcing mechanism is caused to descend gradually from uppermost position, the supply valve at the time closing the supply port, and the shut-off valve being in outermost position. After the piston reaches lowermost position and as soon as it begins its upward stroke the confection is sucked back into each of the group of nozzles to which it is connected and which will hereinafter be described in detail, the supply valve remaining momentarily closed and the shut-off valve open, after which the shut-off valve quickly shifts to inner or closed position and the supply valve uncovers the inlet port. The upward movement of the main piston or plunger now draws a charge of confection into the forcing chamber, and the supply valve returns to close the inlet port in advance of the downward forcing stroke of the main piston, the shut-off valve also shifting to open or outer position.

The cleaning mechanism which constitutes my present invention will now be described. For convenience of manufacture the nozzle bar preferably is formed of an upper bar 20 fitting the dovetail seat at the bottom of the castings 3 and 4 and a lower bar 21 bolted thereto, the upper bar being formed with slots 22 at one end and bolt holes 23 at the other whereby it may be bolted to the hopper structure. The upper bar is equipped with a series of depending nozzles 24 which by means of the shut-off valve 18 are intermittently placed in free communication with the larger or marshmallow forcing chamber, as above described. The lower bar has secured to it a corresponding series of nozzles 25 concentrically surrounding the nozzles 24, and the lower and upper bars have their meeting faces longitudinally recessed around the nozzles 24 to form spaces between the nozzles 24 and 25, which spaces connect with passages 26 formed in the upper bar 20 and terminating in ports which are governed by the shut-off valve 19 of the jelly or chocolate forcing mechanism.

The cleaner members consist each of a reciprocating grooved sleeve 27 surrounding a cylindrical section of the associated nozzle 24 and connected by a pair of depending arms 28 with a ring 29 which surrounds the cylindrical lowermost portion of the nozzle 24. These cleaner members are supported and reciprocated in unison through a rock shaft 30 journaled in a bearing formed one-half in the upper bar 20 and one-half in the lower bar 21 and equipped with pairs of pins 31—31 which engage opposite sides of the groove in the sleeve 27 of the cleaner members, the two bars being recessed above and below the pins sufficiently to permit the movement given them by the rocking of the shaft.

The shaft 30 may conveniently be oscillated by means of a rock arm 32 which by a link 33 is connected to a second rock arm 34 by means of which the shut-off valve 19 is also operated. The rock arm 34 constitutes a part of the connections described in my prior application before mentioned for operating said shut-off valve, such connections including a grooved cam 50 fixed to a rotating shaft 51 and arranged to coöperate with a roller 52 carried by a rocking lever 53, which lever, through a pivoted connecting rod 54 rocks a crank 55 fast on a rock shaft 56, which shaft at one end carries the rock arm 34 above mentioned and at its opposite end a similar arm, the two arms being pivoted to the opposite ends of the shut-off valve.

The arrangement and adjustment of the parts is such that during the depositing action of the smaller forcing mechanism the cleaner members are in uppermost position, out of the way of the stream of chocolate or jelly flowing through the annular opening between the outer and inner nozzles. The shut-off valve remains open and the cleaner member in upper position until the upward movement of the main plunger 16 has broken the flow of confection and sucked the material upwardly a short distance in the nozzles, shortly above the position then occupied by the rings 29, upon which the shut-off valve closes and the cleaner members move downwardly to clean out the annular openings between the outer and inner nozzles. When the shut-off valve uncovers the ports 26, the cleaner members are again elevated to permit a succeeding depositing action to take place.

While the operating connections for the shut-off valve above described and already present in the machine of my hereinbefore mentioned pending application have been availed of for reciprocating the cleaner member, it is obvious that if desired the rock shaft 30 may be oscillated by an entirely independent connection, and that it need not move in unison with the shut-off valve, since in order to accomplish the clean-

ing of the nozzles it is only necessary that the cleansing ring shall be reciprocated downwardly from its inactive position and then back again at some time during the intervals between the depositing operations of the forcing mechanism. In fact, it is not essential to the realization of a large measure of utility of my invention that the cleaner member should be reciprocated between every depositing operation, since a reciprocation every alternate operation, or at longer intervals, may be sufficient for practical purposes. Furthermore, while the cleaner ring acts most efficiently in crushing and dislodging obstructions when it substantially fills the annular opening between the nozzles (although a somewhat loose fit is desirable and preferable), yet it will fulfil its functions satisfactorily and successfully when reduced in size so that a considerable clearance is left on each side of the ring, as clearly shown in Fig. 6, which illustrates such a modified construction.

I claim:

1. In a machine of the character described and including an intermittent forcing mechanism provided with depositing nozzles having an annular depositing orifice, cleaner mechanism comprising a sliding member formed with an upper tubular portion and depending arms and a terminal ring arranged within said orifice with said ring disposed above the outlet thereof, and means for reciprocating said member to shift said ring to and from said outlet during the intervals of rest between the operations of the forcing mechanism.

2. In a machine of the character described and including two intermittent forcing mechanisms and concentrically arranged inner and outer depositing nozzles, one forcing mechanism being connected with said inner depositing nozzle and the other with the annular space between said inner nozzle and said outer depositing nozzle, cleaner mechanism comprising a member formed with a sleeved top slidingly engaging said inner nozzle and depending arms and a terminal ring slidingly engaging the lower portion of said inner nozzle above the outlet between the outer and inner nozzles, and means for reciprocating said member to shift said ring to and from said outlet during the intervals of rest between the operations of said last-mentioned depositing mechanism.

3. In a machine of the character described and including two intermittent forcing mechanisms, a series of inner nozzles in communication with one forcing mechanism, said inner nozzles each having a cylindrical external surface adjacent the outlet and a larger cylindrical external surface adjacent its top, a series of outer nozzles concentrically arranged with respect to said inner nozzles, the space between each outer nozzle and its associated inner nozzle communicating with the other forcing mechanism, a series of cleaner members each formed with a tubular top portion engaging the large cylindrical surface of the inner nozzle and with depending spider arms and with a ring at the lower end of said arms arranged within the outlet between each pair of concentric nozzles, and means for reciprocating said series of cleaner members.

4. In a machine of the character described and including two intermittent forcing mechanisms, a nozzle bar structure comprising an upper bar equipped with a series of inner nozzles in communication with one forcing mechanism, a lower bar secured to said upper bar and equipped with a series of outer nozzles concentrically arranged with respect to said inner nozzles, said bars being recessed around said inner nozzles and the recesses communicating with the other forcing mechanism, a series of reciprocating cleaner members respectively arranged between the pairs of concentric nozzles, a rock shaft journaled one-half in said upper bar and one-half in said lower bar and operatively connected with said cleaner members, and means for oscillating said rock shaft.

5. In a machine of the character described and including two intermittent forcing mechanisms, a nozzle bar structure comprising an upper bar equipped with a series of inner nozzles in communication with one forcing mechanism, a lower bar secured to said upper bar and equipped with a series of outer nozzles concentrically arranged with respect to said inner nozzles, said bars being recessed around said inner nozzles and the recesses communicating with the other forcing mechanism, a series of reciprocating cleaner members having upper grooved sleeve portions slidingly engaging the respective inner nozzles, a rock shaft journaled in said nozzle bar structure and equipped with arms engaging said grooved sleeves, and means for oscillating said rock shaft.

FERDINANDO G. SALERNO.