H. H. OESTREICHER & A. J. CLARK.

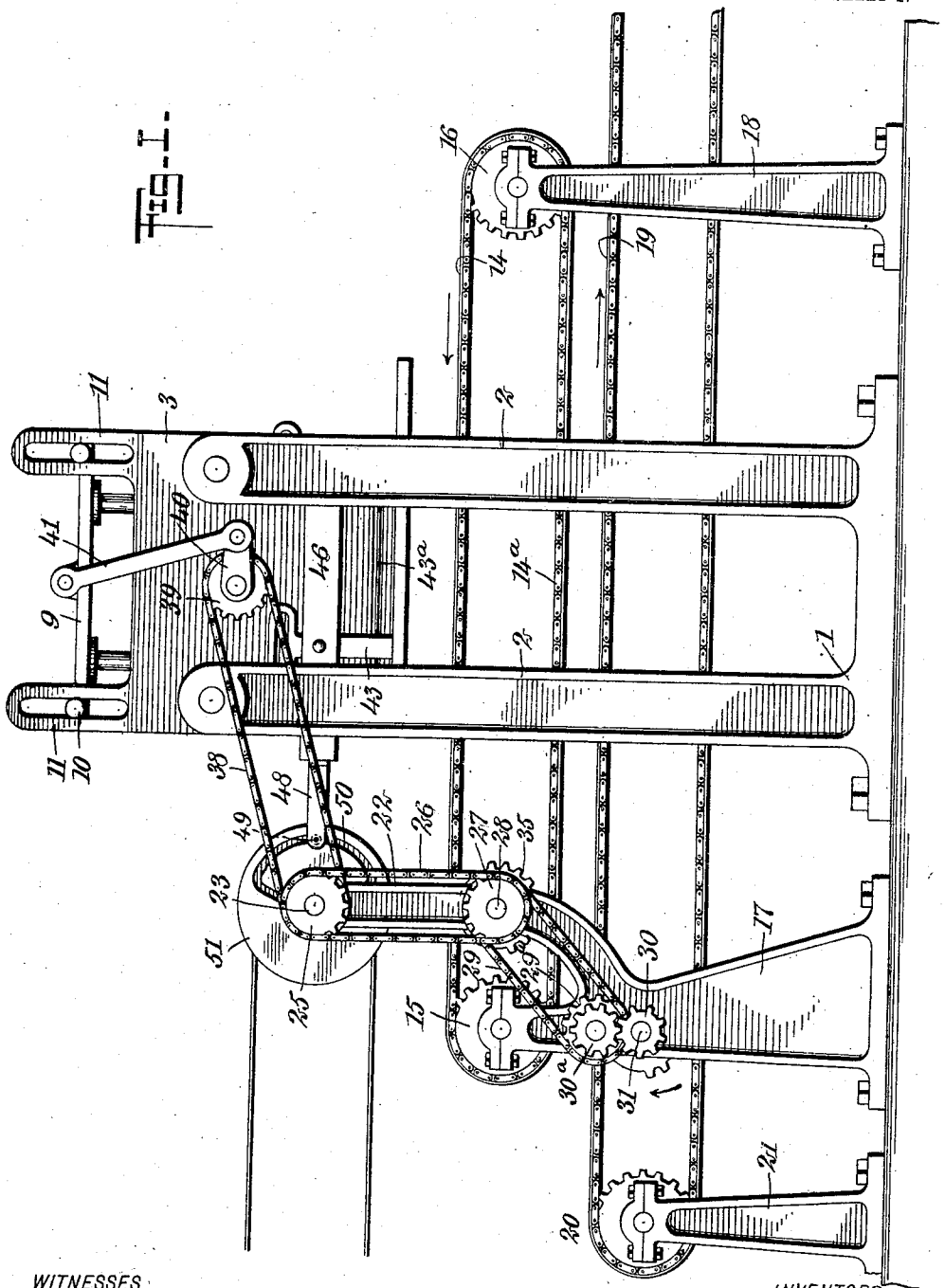
CRACKER SANDWICH MACHINE.

APPLICATION FILED APR. 7, 1908.

915,469.

Patented Mar. 16, 1909.

4 SHEETS—SHEET 1.



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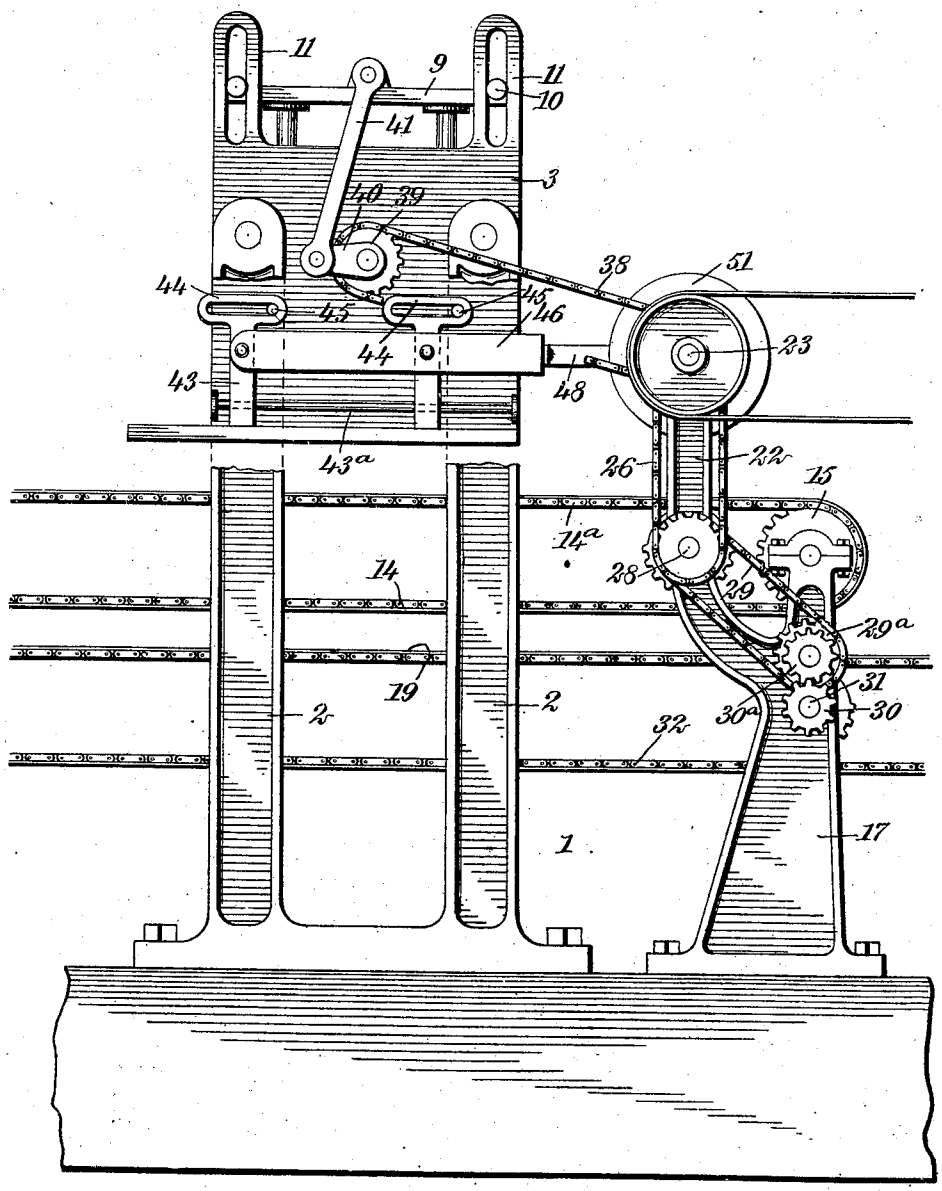

Fig. 2.

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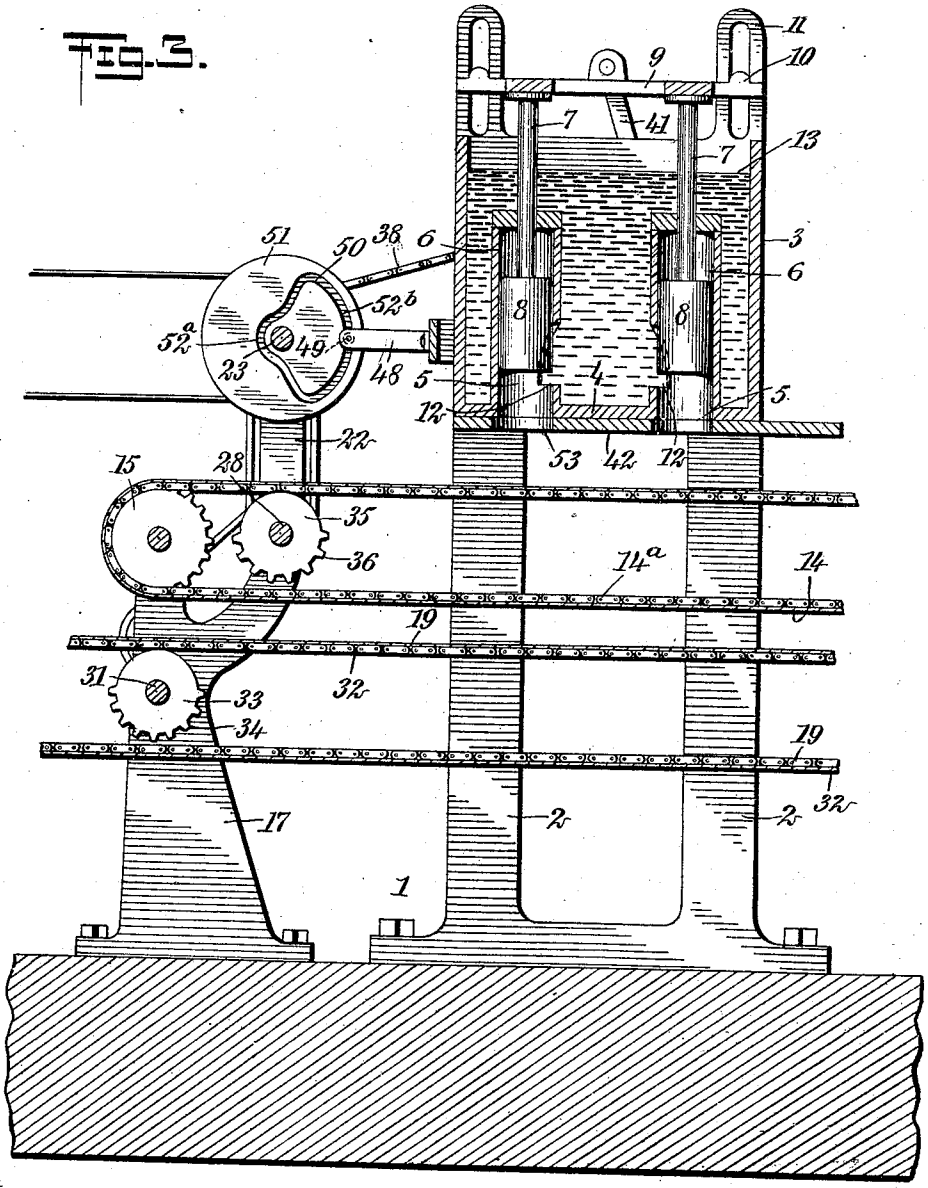
4 SHEETS—SHEET 3.

FIG. 3.



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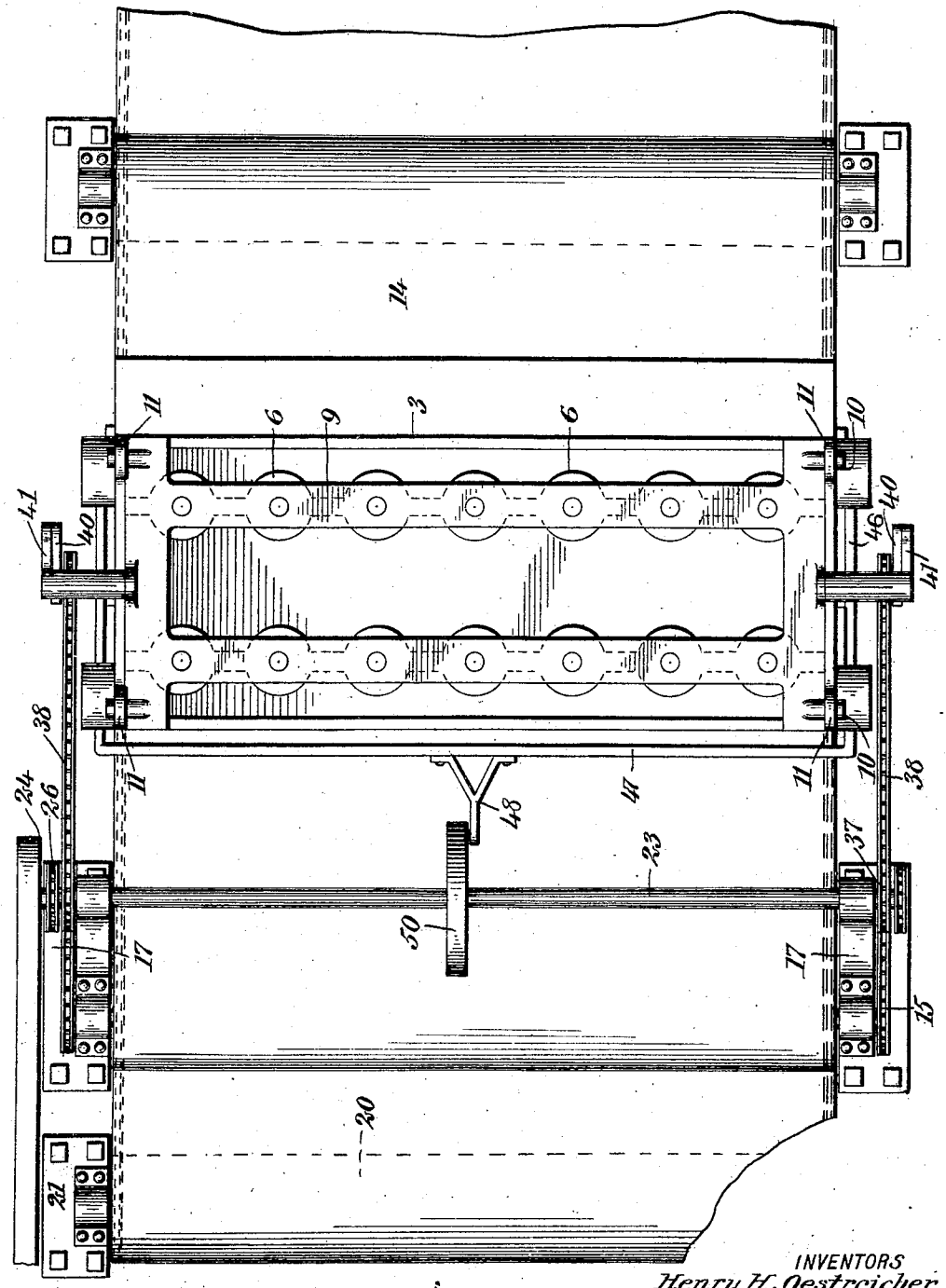

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FIG. 4.

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HENRY HEROLD OESTREICHER AND ARTHUR JAMES CLARK, OF NEW YORK, N. Y.

CRACKER-SANDWICH MACHINE.

No. 915,469. Specification of Letters Patent. Patented March 16, 1909.

Application filed April 7, 1908. Serial No. 425,612.

To all whom it may concern:

Be it known that we, HENRY H. OESTREICHER, a subject of the Emperor of Austria-Hungary, and ARTHUR J. CLARK, a citizen of the United States, and both residents of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Cracker-Sandwich Machine, of which the following is a full, clear, and exact description.

This invention relates to depositing the filler for making cracker or cake sandwiches, and it relates especially to such machines as are to operate upon a heavy, sticky filler substance, such as marshmallow. In the practical operation of such machines, on account of the sticky, pasty nature of the marshmallow, it is difficult to form the fillers or portions for the sandwiches from the mass of marshmallow in the feed reservoir.

The object of this invention is to provide improved means for forming the portions or fillers from the mass in the reservoir and ejecting the fillers upon the crackers.

The invention consists in the construction and combination of parts to be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of a machine constructed according to our invention; in this view a portion of an endless belt is broken away; Fig. 2 is a side elevation showing the opposite side of the machine from that which is shown in Fig. 1, portions of the endless belts being broken away; Fig. 3 is a vertical section through a part of the machine and viewing it from the same side as Fig. 1, certain parts being broken away; and Fig. 4 is a plan of the machine, certain parts being broken away.

Referring more particularly to the parts, and especially to Figs. 1 to 3, 1 represents the frame of the device, which comprises four standards 2 which support a box or reservoir 3 at their upper ends. This box is formed with a bottom 4 having a plurality of openings 5 formed therein in two rows, as indicated in Fig. 3, the openings in the two rows being in alinement transversely of the box as shown. Within the reservoir or box at these openings feed cylinders 6 are provided, which are of the same diameter as the openings. These cylinders are closed at their upper ends, and are provided with plungers 7 having enlarged heads 8 which reciprocate within the cylinders, as will be readily understood. In order to reciprocate these plungers simultaneously, their upper ends are all attached to a cross head 9 in the form of a horizontal plate, and this cross head is formed at its ends with guide pins 10 which extend into the slots formed in guides 11 which extend up from the sides of the box as shown.

We provide means to be described hereinafter, for reciprocating the cross head 9. The sides of the cylinders 6 near the lower ends thereof, are provided with feed openings 12 through which portions of the plastic confection 13 within the box may pass.

Between the standards 2 an endless belt 14 is placed, the ends of the same passing around guide pulleys 15 and 16 supported on pedestals or bearing brackets 17 and 18 as shown, and beneath the belt 14 a similar belt 19 is provided, which is driven in the direction of the arrow shown in Fig. 1. At the rear side of the machine this belt 19 passes around a guide pulley 20 mounted in suitable pedestals 21 as shown, and similar means for guiding the belt at its other end, is provided, though not shown. It should be stated, however, that the belt is extended to a distance so as to provide a large expanse or area of belt from which the finished sandwiches may be removed by attendants. The belt 19 may be considered as the delivery belt of the machine, for it delivers the finished product.

The pedestals 17 have elevated extensions 22 which support a horizontal driving shaft 23, the said driving shaft having a pulley 24 at one end thereof to receive a driving belt, as indicated in Fig. 4. On the shaft 23 a sprocket wheel 25 is provided, which is connected by a sprocket chain 26 with a similar sprocket wheel 27, the said sprocket wheel 27 being carried rigidly by a shaft 28 which is mounted between the extensions or arms 22 near the middle point thereof as shown. This shaft 28 is disposed between the runs of the belt 14 as indicated. The shaft 28 is further provided with sprocket wheels which are connected by sprocket chains 29 with sprocket wheels 29^a; these sprocket wheels 29^a are rigid with idle gears 30^a which mesh with gear wheels 30 carried upon a transverse shaft 31 supported in the pedestals 17

and disposed between the runs of the belt 19. Running parallel with the belt 19 and passing around sprocket wheels rigid with the guide pulleys thereof, there are provided sprocket chains 32, and on the shaft 31 there are provided mutilated sprocket wheels or segments 33, as indicated in Fig. 3. The sprocket wheels 33 have teeth 34 on a part of the circumference thereof, and the upper run of the sprocket chains 32 lie near the upper faces of the sprocket wheels, so that with each rotation of the shaft 31 the belt will be advanced. The advancing movement only takes place when the teeth are in contact with the chain so that by this means a step-by-step or interrupted movement is produced. A similar arrangement is adopted for advancing the belt 14, for which purpose the shaft 28 is provided with mutilated sprocket wheels 35 having teeth 36 which may mesh with the sprocket chain 14[a], as indicated. In this way a step-by-step advancing movement is given to the belt 14. The shaft 23 is further provided with a sprocket wheel 37 over which runs a sprocket chain 38; the other end of this chain runs around a sprocket wheel 39 rotatably mounted on the end of the box or reservoir 3. Rigid with this sprocket wheel 39 there is provided a crank 40, and this crank is connected by means of a pitman or connecting rod 41 with the aforesaid cross head 9. From this arrangement, as the machinery is driven, the cross head 9 is continuously reciprocated up and down.

The openings 5 are normally closed by means of a gate or sliding plate 42, which is provided with upwardly extending guide arms 43 at the ends thereof, which lie close to the ends of the box. These guide arms 43 are formed at their upper ends into horizontal guides 44 which receive outwardly projecting pins 45 on the ends of the box. The guide arms 43 are connected to a yoke 46, and this yoke has a bar 47 extending longitudinally of the box on the side thereof near the pedestals 17. This bar 47 is further provided with a rigid arm 48 which projects over toward the shaft 23, and this arm carries a roller 49 which runs in a cam slot 50 in the face of the cam 51, which is rigidly attached to the shaft 23. This cam is formed with a circumferentially disposed part or inner arc 52[a], and a circumferentially disposed part 52[b] or outer arc. These arcs are connected by inclined grooves which complete the cam.

The gate 42 has openings 53 which may aline with the openings 5 aforesaid. When the roller 49 is running in the inner arc 52[a] of the cam, the gate is held closed, but when running in the outer arc the gate is open. The relation of the movement is such that the gate 42 is held closed while the plungers 7 are moved upwardly. In this way a partial vacuum is formed by the plunger heads 8 in the lower ends of the cylinders. This vacuum is broken when the lower ends of the heads 8 become raised above the lower edges of the openings 12. When this occurs, the atmospheric pressure forces portions of the confection 13 through the feed openings 12 into the lower parts of the cylinders. The plungers then begin to eject the confection onto the crackers or cakes which are arranged in rows on the belt 14. These crackers or cakes are arranged in place by attendants standing at the right end of the machine as viewed in Fig. 1. The cakes or crackers having the confection deposited advance toward the left. At this point the attendant will stand, who will place the crackers from the belt 14 upon those lying on the belt 19 so as to form a sandwich. It should be stated that at the right end of the machine, as viewed in Fig. 1, attendants stand to place the crackers upon the belt 19 in rows at marked points on the belt, so that these crackers are delivered in rows at the same time as the rows are delivered from the belt 14. It will be observed that the lower edges of the feed openings 12 are horizontal, so that as the heads 8 move up, the vacuum in the feed cylinders is suddenly broken. The atmospheric pressure therefore operates suddenly to force a portion of the mass of marshmallow into the lower parts of the cylinders. In addition to the guides 44 we provide guide-bars 43[a] on the sides of the reservoir, on which the members 43 slide as the gate moves to and fro.

Having thus described our invention, we claim as new and desire to secure by Letters Patent,—

1. In a machine of the class described, in combination, a reservoir for a pasty confection, a feed cylinder having a feed opening from said reservoir, a reciprocating plunger for producing a partial vacuum in said feed cylinder and adapted to uncover said opening, said feed opening being of great width at the point first uncovered by said plunger, whereby atmospheric pressure is suddenly applied to feed the confection into said cylinder.

2. In a machine of the class described, in combination, a reservoir adapted to receive a pasty confection, a feed cylinder mounted within said reservoir and having a feed opening leading from said reservoir, a plunger reciprocating in said cylinder adapted to uncover said opening, a gate normally closing the lower end of said cylinder during the upward movement of said plunger whereby a partial vacuum is produced within said cylinder, said feed opening being of great width at the lower edge thereof whereby the partial vacuum formed within said cylinder becomes suddenly broken by the upward movement of said plunger.

3. In a machine of the class described, in combination, a reservoir adapted to receive a pasty confection, a plurality of feed cylinders, a plurality of plungers moving in said cylinders, means for reciprocating said plungers, a gate normally closing the lower ends of said cylinders during the upward movement of said plungers, said feed cylinders having openings communicating with the opening of said reservoir disposed above the lower limit of movement of said plungers whereby a partial vacuum is produced within said cylinders during the first part of the upward movement thereof, said openings having their greatest width below whereby the upward movement of said plungers suddenly breaks said vacuum to feed the confection through said openings by suddenly applied atmospheric pressure, and means for opening said gate to discharge the confection.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

HENRY HEROLD OESTREICHER.
ARTHUR JAMES CLARK.

Witnesses:
MORITZ FUHS,
ALFRED STEINER.