No. 791,611. PATENTED JUNE 6, 1905.

J. M. DEMERATH.

MACHINE FOR FORMING DROP CANDIES.

APPLICATION FILED NOV. 24, 1902.

4 SHEETS—SHEET 1.

Fig. 1.

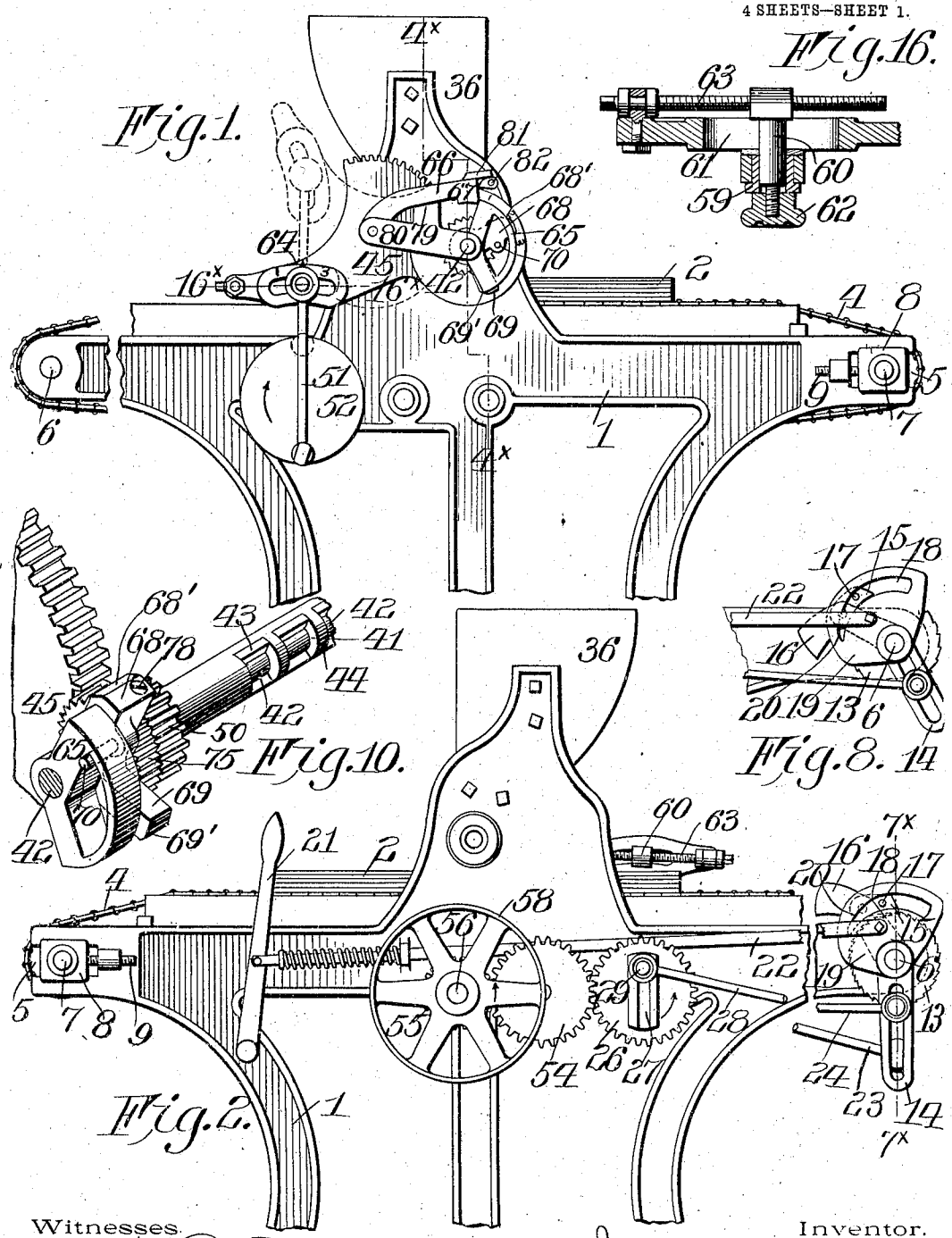


Fig. 16.

Fig. 10.

Fig. 8.

Fig. 2.

Witnesses.

Walter B. Payne.

G. Willard Rich.

Inventor.

Joseph M. Demerath

by Frederick W. Church

his Attorney

PHOTO-LITHOGRAPHED BY SACKETT & WILHELMS LITHO. & PTG. CO. NEW YORK.

No. 791,611. PATENTED JUNE 6, 1905.

J. M. DEMERATH.

MACHINE FOR FORMING DROP CANDIES.

APPLICATION FILED NOV. 24, 1902.

4 SHEETS—SHEET 2.

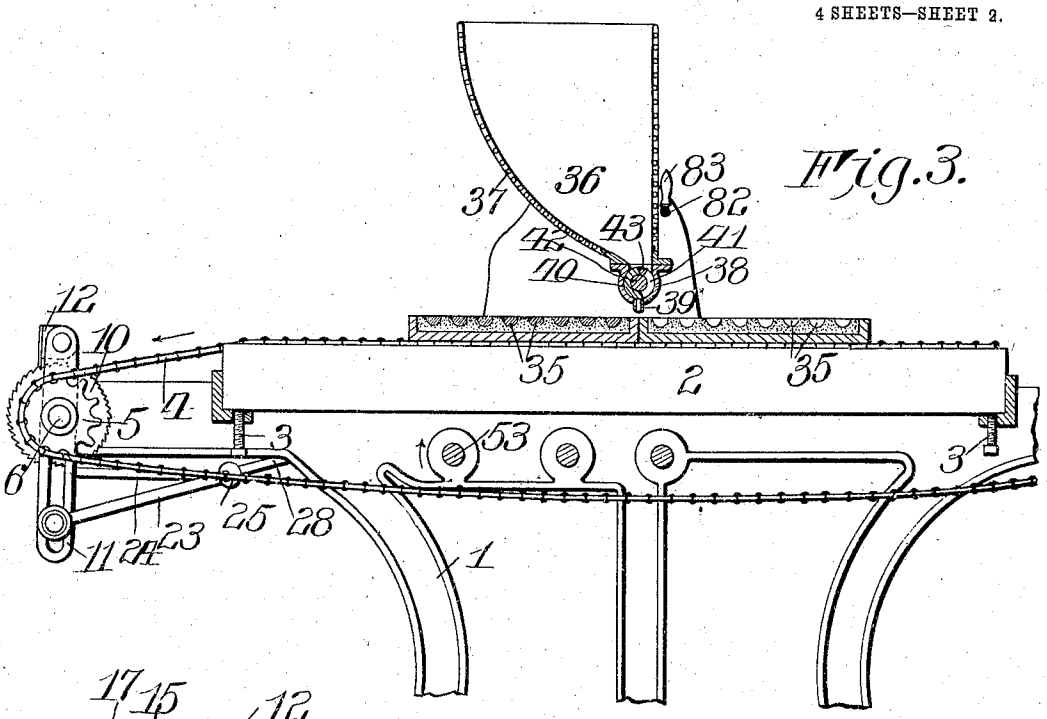


Fig. 3.

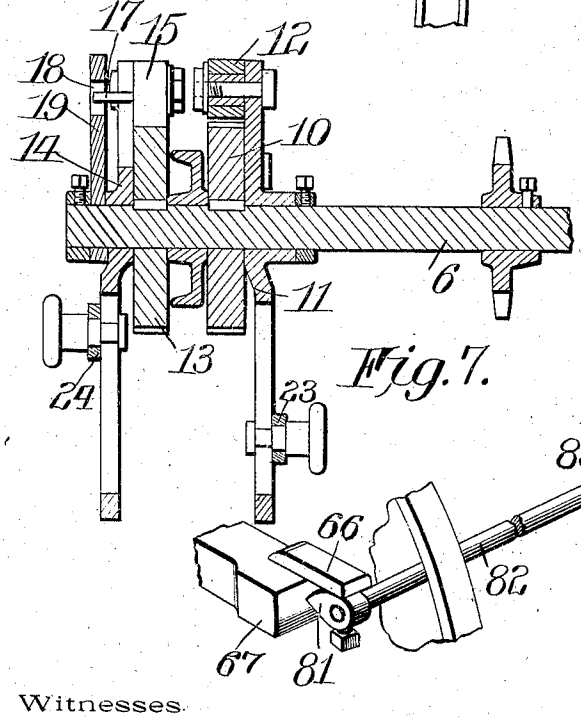


Fig. 7.

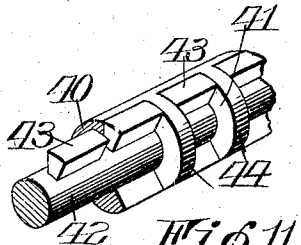


Fig. 11.

Fig. 9.

Witnesses.

Walter B. Payne

Willard Rich.

Inventor.

Joseph M. Demerath

by Frederick W. Church

his Attorney

PHOTO LITHOGRAPHED BY SACKETT & WILHELMS LITHO. & PTG. CO. NEW YORK.

No. 791,611. PATENTED JUNE 6, 1905.

J. M. DEMERATH.

MACHINE FOR FORMING DROP CANDIES.

APPLICATION FILED NOV. 24, 1902.

4 SHEETS—SHEET 3.

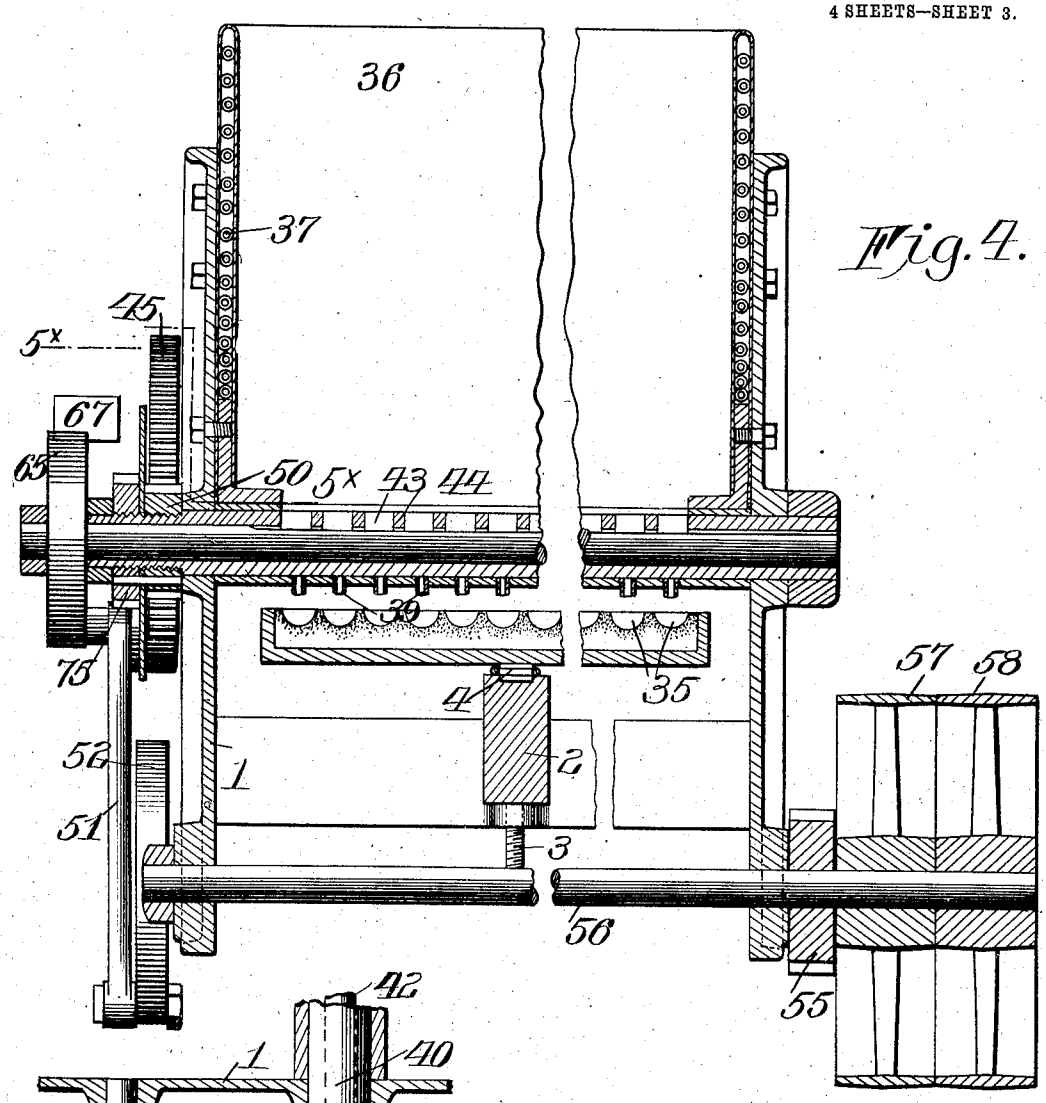


Fig. 4.

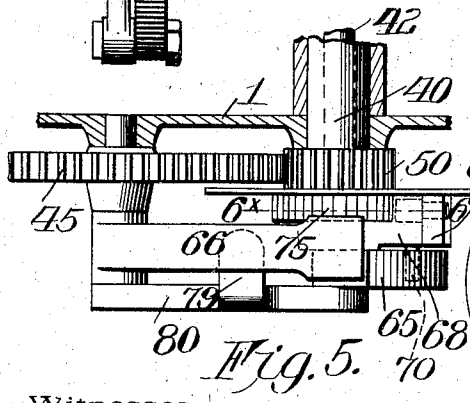


Fig. 5.

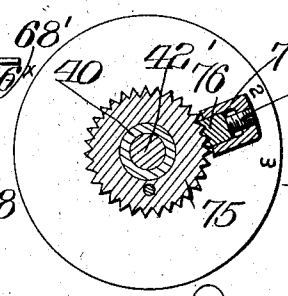


Fig. 6.

Witnesses.

Walter B. Payne.

G. Willard Rich.

Inventor.

Joseph M. Demerath

by Frederick P. Church

his Attorney

PHOTO-LITHOGRAPHED BY SACKETT & WILHELMS LITHO. & PTG. CO. NEW YORK.

No. 791,611. PATENTED JUNE 6, 1905.

J. M. DEMERATH.

MACHINE FOR FORMING DROP CANDIES.

APPLICATION FILED NOV. 24, 1902.

4 SHEETS—SHEET 4.

Fig. 12.

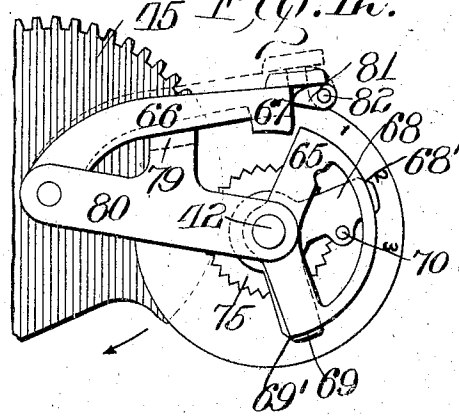


Fig. 13.

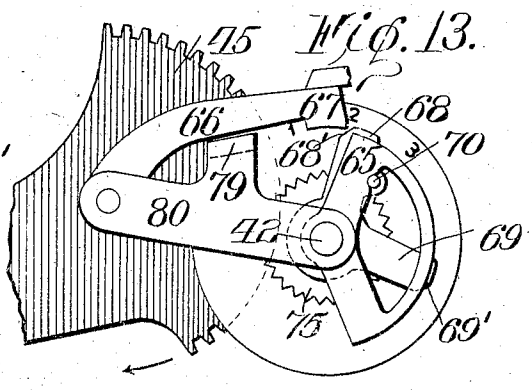


Fig. 14.

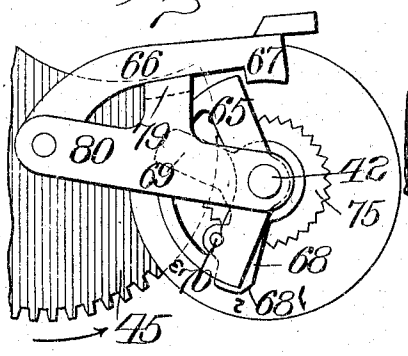


Fig. 15.

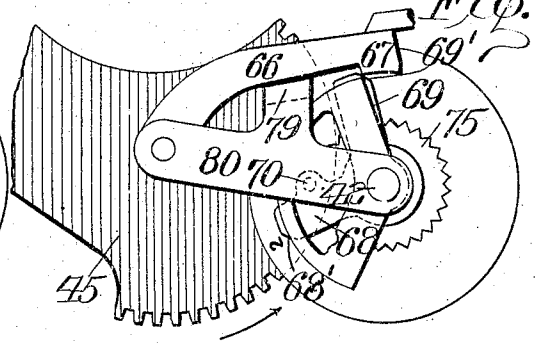


Fig. 12a.

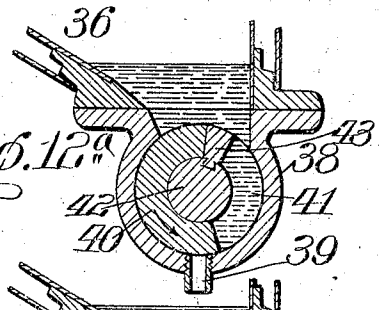


Fig. 13a.

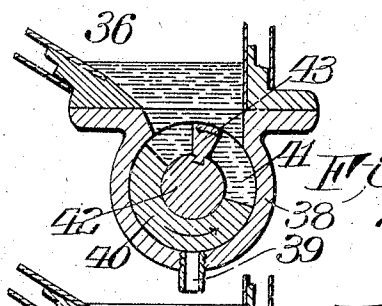


Fig. 14a.

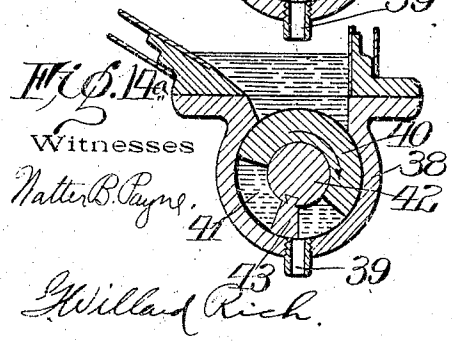
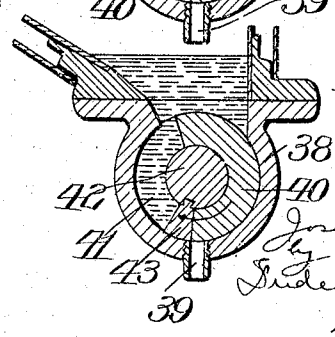


Fig. 15a.



Witnesses

Walter B. Payne.

L. Willard Rich.

Inventor.

Joseph M. Demerath

by Frederick W. Church

his Attorney

PHOTO LITHOGRAPHED BY SACKETT & WILHELMS LITHO. & PTG. CO. NEW YORK.

No. 791,611. Patented June 6, 1905.

UNITED STATES PATENT OFFICE.

JOSEPH M. DEMERATH, OF ROCHESTER, NEW YORK, ASSIGNOR TO RACINE MACHINERY MANUFACTURING COMPANY, OF RACINE, WISCONSIN, A CORPORATION OF WISCONSIN.

MACHINE FOR FORMING DROP-CANDIES.

SPECIFICATION forming part of Letters Patent No. 791,611, dated June 6, 1905.

Application filed November 24, 1902. Serial No. 132,562.

To all whom it may concern:

Be it known that I, JOSEPH M. DEMERATH, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Machines for Forming Drop-Candies; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the reference-numerals marked thereon.

My present invention relates to devices employed in the manufacture of confectionery; and it has for its object to provide a machine adapted particularly for forming drop-candies, such as are generally known as "cream-candies," and it embodies a receptacle and suitable valve mechanism operating therein whereby a quantity of the candy stock is selected from the mass and formed into drops of the desired size and deposited in molds arranged in suitable trays operated automatically beneath said mechanism.

My invention has for its further object to provide means for varying the size of the drops as desired and mechanism for controlling the movement of the conveying devices, whereby the trays may be properly positioned to bring the molds therein into the proper position beneath the dropping mechanism.

To these and other ends the invention consists in certain improvements in construction and combinations of parts, all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings, Figure 1 is a side elevation of an apparatus constructed in accordance with my invention. Fig. 2 is a similar view of the opposite or rear side of the machine. Fig. 3 is a longitudinal sectional view. Fig. 4 is a cross-sectional view on the line $4^{\times}$ $4^{\times}$ of Fig. 1. Fig. 5 is a sectional view on the line $5^{\times}$ $5^{\times}$ of Fig. 4. Fig. 6 is a detail sectional view on the line $6^{\times}$ $6^{\times}$ of Fig. 5. Fig. 7 is a sectional view on the line $7^{\times}$ $7^{\times}$ of Fig. 2. Fig. 8 is a detail view of the feed mechanism. Fig. 9 is a detail perspective view of the devices operating the valve controlling or locking mechanism. Fig. 10 is a detached view of the valve and operating parts. Fig. 11 is a detail perspective view of the valve. Figs. 12, 13, 14, and 15 are diagrammatic views illustrating the operation of the various parts of the measuring-valve. Figs. 12^{a}, 13^{a}, 14^{a}, and 15^{a} are diagrammatic views illustrating the valve and the ejector or abutment therein in their relative positions corresponding to the positions of the parts shown in Figs. 12 to 15, inclusive. Fig. 16 is a sectional view on the line $16^{\times}$ $16^{\times}$ of Fig. 1.

Similar reference-numerals in the several figures indicate similar parts.

A dropping-machine constructed in accordance with my invention embodies a frame 1, on which is supported a table 2, vertically adjustable by means of screws 3, and extending over said table are endless chains or belts 4, forming a conveyer and which pass over suitable sprocket-wheels 5 on shafts 6 and 7, arranged at opposite ends of the frame. The latter shaft is supported in the bearings or journal-boxes 8, which are movably mounted on the frame and capable of adjustment by means of screws 9, whereby the shaft 6 may be moved longitudinally in the frame to maintain the desired tension upon the conveyers. The shaft 6 is provided at one end with a ratchet-wheel 10, and also journaled thereon is a lever 11, carrying at its upper end a gravity-operated pawl 12, which is adapted to engage with the ratchet-wheel when the lever is oscillated, as will be further described. A similar ratchet-wheel 13 is also secured to the shaft, and a lever-arm 14, journaled on the latter, is provided with a dog or pawl 15, pivoted at its upper end and having an extended or weighted end 16, whereby the pawl is normally held out of the operative position; but as a means for causing said pawl to engage its ratchet-wheel 13 I provide thereon a pin or projection 17, which extends laterally into a segmental cam-slot 18 in a plate 19, loosely journaled on the shaft 6 and provided at one end with a cam-surface 20, adapted to engage the pin 17 to move the pawl into operative

position when the plate is rotated by means of an operating-handle 21, connected therewith by a rod 22. Each of the levers 11 and 14 is provided with elongated apertures in which are adjustably secured bearings for the driving-rods 23 and 24, which are pivotally connected at a point 25 between said levers and a rotary gear-wheel 26, which latter is provided upon its face with a diametrically-extending channel-block 27, in which the extended end 28 of one of the rods is secured by means of a clamping-nut 29. By this arrangement it will be seen that the length of the reciprocatory motion of the rods 23 and 24 can be adjusted, by means of the nut 29 and the oscillatory movement of the levers 11 and 14, regulated by the positions of the points of attachment of the levers 23 and 24 thereon, relative to the center of the shaft 6. This feature is illustrated in Figs. 2, 7, and 8, in which it will be seen that the movement of the lever 14 is in excess of that of the lever 11, so that if the pawl 15 is caused to engage with the ratchet-wheel through the operation of the handle 21 the shaft 6 will be rotated so as to cause a greater movement in the conveyer than that imparted to it by the action of the pawl 12. This arrangement of the parts permits means for increasing the movement of the conveyer at times to provide for the unequal distance between the proximate rows of molds at the edges of adjacent trays when the latter are arranged end to end upon the conveyer or if it is desired to only fill alternate rows of molds in a tray. Arranged above the table is a suitable receptacle in which is contained the stock or candy material, commonly known as the "cream," and of which it is desired to select a predetermined quantity and to eject the same in the form of drops at regular intervals of time to be received in the molds in the trays (indicated by 35,) resting upon the table and operated beneath the receptacle, as heretofore described.

The receptacle (indicated by 36) is constructed of sheet metal formed with the inner and outer walls, and between them are arranged coils of pipe 37, through which steam may be passed to retain the material in the receptacle at a uniform temperature. Inasmuch as the cream or material to be operated upon is in a viscous state, it is necessary to provide a measuring-valve for selecting a desired quantity of the material and also to provide means for ejecting the material from the valve. To this end I provide the lower end of the receptacle with a valve-casing 38, having its upper end opening into the receptacle and its lower end provided with a plurality of outlet-orifices 39. Operating in the casing 38 is a valve member 40, which is circular in form, having at one side a cut-away portion forming a recess 41, said valve being provided with a central aperture, in which is journaled a bar 42, having thereon a radially-extending wing or abutment 43, operating in the recess 41 and forming an ejector, the operation of which will be presently described. In practice instead of forming the bar with a single longitudinally-extending recess I form a series of smaller recesses, between which are arranged division-walls 44, and between the latter extend the separate portions of the wing or abutment 43, which may be secured to the bar 42 in any suitable manner, the arrangement I have shown being a slot or keyway in which the dovetailed ends of the separate sections are secured.

The valve is adapted to be reciprocated by means of a segmental gear 45, journaled on the frame and meshing with a pinion 50, attached to the valve member 40. This segmental gear is rocked upon its bearing by means of a connecting-rod 51, attached to a crank-disk 52, mounted on the shaft 53, carrying the gear 26, by means of which the shaft is rotated by a coöperating gear-wheel 54, also meshing with a pinion 55 on the driving-shaft 56, which latter is provided with tight and loose pulleys 57 and 58, adapted to receive a driving-belt. By this arrangement it will be seen that as the shaft 53 is revolved the segmental gear 45 will be rotated from the position shown in full lines in Fig. 1 to that shown in dotted lines, and in order that the distance through which the valve member is rotated may be regulated I provide adjustable connections between the end of the rod 51 and the segmental gear. These connections are illustrated in Figs. 1 and 16 and embody a sleeve or bearing 59, in which is carried a pin 60, extending through an elongated aperture 61 in the segmental gear and provided with a head engaging at one side of the latter and at the opposite end with an adjustable hand-nut 62, by means of which the pin may be loosened when it is desired to change the point of connection between the rod 51 and the segmental gear. This arrangement, however, should be relative to an adjustment given to the bar 42, whereby the size of the drops formed by the machine is regulated, as will be further described, and for this purpose I provide at the side of the aperture 61 suitable scale-marks, as shown, and at the rear side of the segmental gear is arranged an adjusting-screw 63, which may be operated to move the pin 60, with its pointer 64, into alinement with any desired division of the scale, as will be understood.

At the outer end of the bar 42 is a segmental arm 65, and pivoted upon the frame is a locking device in the form of a pawl 66, having at its outer end a lip or projection 67, having shoulders at its forward and rear edges adapted to engage with the opposite sides of the segmental arm 65 to lock the bar 42 against its rotary movement to permit an independent movement of the valve member.

When the latter is in its normal position, this independent movement first permits the recess 41 to open to receive the material from the receptacle, and subsequently this movement of the valve member closes the recess to eject its contents. These operations being performed at opposite sides of the valve-casing, it is necessary to permit the valve and the rod therein to be rotated together during a portion of the reciprocatory motion in each direction, and to accomplish this I provide upon the valve member tripping devices embodying outwardly-extending arms 68 and 69, having upon their outer ends cam-surfaces 68′ and 69′, adapted to engage with the forward and rear edges, respectively, of the lip 67 on the locking-pawl to elevate the latter to the position shown in dotted lines in Fig. 12 to release the segmental rocking arm 65. To insure the positive operation or rotation of the bar 42 when the rocking arm is released, I provide upon one of the tripping-arms 68 a pin or stud 70, which engages with the rocking arm to cause a rotation of the parts in one direction, their rotation in the opposite direction being accomplished through the engagement of the forward edges of the recesses in the valve member with the wings or abutments 43.

In order to adjust the valve to form drops of various sizes, the tripping-arms are loosely journaled on the valve member, and adjacent thereto, but rigidly secured to said member, is a wheel 75, having a serrated edge with which engages a notched block 76, slidably mounted in a recessed extension 77, upon the rear side of the tripping-arm 68 and adjustably secured in engagement with the wheel 75 by means of a screw 78. This arrangement permits the bar 42 to be rotated within the valve member and the wing or abutment 43 moved relatively to the forward end of the recess to determine the size of the latter by adjusting the parts to regulate the distance through which the valve member must move before the bar is released.

When in the normal position, the pawl 66 rests upon a finger or projection 79 on a stationary brackt 80, so that the lip or projection 67 thereon lies in the path of the rocking arm; but if an operator desires to prevent the formation of the drops the pawl may be elevated by means of a cam 81, arranged upon the end of a shaft 82, provided with an operating-handle 83, as shown in dotted lines in Figs. 1 and 12.

The operation of the device will now be readily understood. The parts of the valve-operating mechanism being in the position shown in Figs. 1 and 12, the valve member and the wing or abutment operating therein are in the position shown in Fig. 12ª. The rotation of the crank-disk 52 will move the segmental gear 45 into the position shown in dotted lines in Fig. 1, and during the first part of this movement the valve member 40 moves to the position shown in Fig. 13ª, while the bar 42 is locked by means of the pawl 66 and the rocking arm 65. The movement of the valve member revolves the tripping-arm 68, so that its cam-surface 68′ engages the lip 67, moving it to the position shown in Fig. 13, at which time the pin or stud 70, engaging with the arm 65, causes the simultaneous rotation of the bar and valve member to the positions shown in Figs. 14 and 14ª, with the recess between the parts filled with candy material until the latter is brought opposite the outlet-orifices 39. The relative adjustment of the rod 51 and the tripping arms is such that when the valve parts have arrived at the last-described position the segmental gear 45 begins to move in the reverse direction, as indicated by the arrow in Fig. 14. This movement then causes the valve member 40 to be revolved toward the wing or abutment, the bar upon which the latter is mounted being held stationary by the shoulder at the rear side of the lip 67 engaging with the rear side of the rocking arm, as indicated in Fig. 14, in which position the bar is retained until the cam-surface 69′ on the tripping-arm 69 engages the pawl, as shown in Fig. 15, after the candy material has been ejected, when the parts return to their normal position, as indicated in Figs. 12 and 12ª.

A machine for forming drop-candies constructed as shown and described is simple and effective in operation, and the arrangement of the parts which I have employed enables them to be readily adjusted to form drops of any desired size, so that various kinds of candy may be formed by a single machine.

I claim as my invention—

1. In a machine of the class described, the combination with a receptacle and an outlet-passage leading therefrom, of a rotary valve having independently-movable parts for closing said passage and means operating in the passage to eject its contents.

2. In a machine of the class described, the combination with a receptacle having a plurality of outlet-passages leading therefrom, of a rotary valve having independently-movable parts for closing said passages and means for ejecting the contents of the passages.

3. In a machine of the class described, the combination with a receptacle having an outlet-passage, of means for measuring the quantity of material flowing into said passage, and a rotary valve having independently-movable parts for closing the latter and means for ejecting the contents of the passage.

4. In a machine of the class described, the combination with a receptacle, of an outlet therefrom, a rotary valve interposed between said receptacle and outlet for carrying material from said receptacle to the outlet, said

valve being composed of relatively movable parts, and means associated with said valve for ejecting the contents thereof into said outlet.

5. In a machine of the class described, the combination with a receptacle, of an outlet leading therefrom, a rotary valve for carrying material from said receptacle to said outlet, said valve being composed of relatively rotatable parts, and means associated with the valve for ejecting the contents thereof into said outlet.

6. In a machine of the class described, the combination with a receptacle, an outlet-passage leading therefrom and a valve member provided with a recess normally communicating with the receptacle, of means for adjusting the size of said recess, operating devices for moving the valve to close the receptacle and means for ejecting the contents of the recess.

7. In a machine of the class described, the combination with a receptacle, an outlet-passage leading therefrom and a valve having a recess normally communicating with the receptacle, of an adjustable abutment arranged in the valve to regulate the size of the recess, devices for rotating the valve to close the receptacle and means for causing a relative movement between the valve and the abutment to discharge the contents of the recess.

8. In a machine of the class described, the combination with a receptacle, an outlet-passage leading therefrom and a valve-casing having a plurality of orifices therein, of a valve having a recess normally opening into the receptacle, an abutment in the valve, devices for revolving the valve to close the receptacle and open the recess to the orifices in the casing and means for causing a relative movement between the abutment and valve to discharge the contents of the recess through said orifices.

9. In a measuring-valve, the combination with a valve-casing, a valve operating therein having a recess, an independently-movable member journaled in the valve and provided with a wing, of means for operating the valve, a lock securing the member during a portion of the operation of the valve and a tripping device for releasing said member.

10. In a measuring-valve, the combination with a valve-casing, a rotary valve member having a recess and a bar journaled in the valve having a wing operating in the recess, of means for oscillating the valve, a lock for securing the bar and a tripping-finger operated by the valve and controlling the lock.

11. In a measuring-valve, the combination with a valve-casing, a rotary valve member having a recess, means for oscillating the valve, a bar carried in the valve having a wing operating in the recess, locking mechanism arresting the movement of the bar, a tripping device for operating the lock and means for oscillating the bar with the valve when said lock is disengaged.

12. In a measuring-valve, the combination with a valve-casing, a valve member having a recess and a bar arranged in said member provided with a wing operating in the recess, of means for oscillating the valve member and bar, a rocker-arm on the latter, a pawl engaging opposite sides of the arm and tripping devices for releasing the arm.

13. In a measuring-valve, the combination with a valve-casing, a valve member therein having a recess and a bar arranged in said member provided with a wing operating in the recess, of means for oscillating the valve and bar, a rocker-arm on the bar, a pawl engaging the arm at the ends of its oscillatory movement and tripping devices carried on the valve member coöperating with the pawl.

14. In a measuring-valve, the combination with a valve member having a recess, a bar arranged in said member having a wing operating in the recess, operating devices for oscillating the valve and bar and means for adjusting said devices, of a rocker-arm on the bar, a pawl engaging therewith to arrest the bar at the ends of its oscillatory movement, tripping devices coöperating with the pawl and means for adjusting them to release the bar relative to the movement of the valve member.

15. In a measuring-valve, the combination with a valve-casing having inlet and outlet passages, a valve arranged therein having a recess and means for oscillating the valve to move the recess alternately into communication with said passages, of a bar arranged in the valve having the wing extending across the recess, connections between the valve and bar to oscillate the latter and a rocker-arm on the bar, a locking device adapted to engage said arm to open and close the recess by an independent operation of the valve when said recess is in communication with the inlet and outlet passages respectively and tripping devices for releasing the lock.

16. In a measuring-valve, the combination with a valve-casing having inlet and outlet passages, a valve member arranged therein having a recess, a second member journaled in the valve having a wing arranged in said recess, devices for oscillating the members to move the recess in the valve member alternately into communication with the passages and means for adjusting said devices to vary the movement of one of the members, of a locking device for arresting the movement of the other member at each end of its oscillatory movement and adjustable tripping devices on the first-mentioned member coöperating with the locking device.

17. In a measuring-valve, the combination with a valve-casing, an oscillatory valve member therein having a recess and provided with

a pinion, a segmental gear engaging the latter and means for operating it, of a bar journaled in the valve having a wing arranged in the recess, means for oscillating the bar and a rocker-arm attached thereto, a pawl engaging the arm to arrest the bar at the ends of its movement, arms carried on the valve member coöperating with the pawl and means for adjusting the arms.

18. In a measuring-valve, the combination with a frame, a valve-casing, and an oscillatory valve member therein having a recess and provided with a pinion, a segmental gear journaled on the frame meshing with the pinion, an operating-crank, a connecting-rod thereon attached to the segmental gear and means for adjusting its point of attachment relative to the pivotal center of the segmental gear, of a bar journaled in the valve member, means for oscillating it and a rocking arm thereon, a pawl on the frame engaging said arm, tripping-arms on the valve member adapted to alternately engage the pawl and means for adjusting said tripping-arms to control the movement of the bar relative the valve member.

19. In a machine of the class described, the combination with a frame, a driving-shaft and a valve operated thereby, of a conveyer, connections between the latter and the driving-shaft for operating it intermittently at each operation of the valve and means for increasing the length of travel of the conveyer during its intermittent movement.

20. In a machine of the class described, the combination with a frame, a driving-shaft and a valve connected therewith, of a conveyer moving beneath the valve, means for operating it intermittently and auxiliary feeding devices for increasing the length of travel of the conveyer during a single operation.

21. In a machine of the class described, the combination with a frame, a driving-shaft and a valve connected therewith, of a movable conveyer operating beneath the valve, a ratchet-wheel and means for causing the intermittent movement of the conveyer, a pawl actuated by the driving-shaft and adapted to coöperate with the ratchet-wheel and means for throwing said pawl into operative position to increase the length of the movement through which the conveyer is normally operated.

22. In a conveyer, the combination with a shaft, a ratchet-wheel, an arm having a pawl coöperating therewith and means for operating it, of a second arm having a pawl normally out of engagement with the ratchet-wheel, means for operating the second arm a greater distance than the first, means for moving the pawl thereon into engagement with the ratchet-wheel and conveying devices operated by the shaft.

23. In a conveyer, the combination with a shaft, a ratchet-wheel thereon and a lever having a pawl and coöperating with the ratchet-wheel, of a second lever provided with a pawl normally out of engagement with the ratchet-wheel and a controlling device coöperating with the pawl to move it into engagement with the ratchet-wheel, a driving-shaft and connections between it and the separate levers whereby the second is moved a greater distance than the first and conveying devices operated by the shaft.

24. In a machine of the class described, the combination with a frame having a table mounted thereon, means for adjusting it vertically and an endless conveyer passing around the table, an operating-shaft for the conveyer having a ratchet-wheel and a pivoted lever provided with a pawl engaging the ratchet-wheel, of a driving-shaft, connections between it and the lever, a second lever having a pawl normally out of engagement with the ratchet-wheel, connections between it and the driving-shaft for giving the said arm an increased movement over the first arm and an operating device for moving the pawl into engagement with the ratchet-wheel, a receptacle arranged above the conveyer, a valve therein and connections between the latter and the driving-shaft.

25. In a machine of the class described, the combination with a discharging device in which is comprised two independently partially rotatable oscillatory members located in a common throat, and means for varying the oscillation of said members.

26. In a machine of the class described, the combination with a discharging device in which is comprised two partially-rotatable oscillatory members located in a common throat, and means for varying the oscillation of said members.

27. In a machine of the class described, the combination with a discharging device in which is comprised two rotatable oscillatory members located in a common throat, and means for varying the oscillation of said members.

28. In a machine of the class described, the combination with a discharging device, of a rotary valve therefor comprised of two relatively movable members.

29. In a machine of the class described, the combination with a discharging device, of a rotary valve therefor comprised of independently-rotatable members.

30. In a machine of the class described, the combination with a discharging device, of a rotary valve therefor comprised of two independently-rotatable members located in a common throat.

31. In a machine of the class described, the combination with a receptacle, of a rotary valve for intermittently carrying material from said receptacle to outlets, said valve being composed of relatively movable parts,

and means associated with one of said parts for ejecting the contents of said valve into said outlets.

32. In a machine of the class described, the combination with a receptacle, of a rotatable valve member for carrying material therefrom to outlets, and a second member relatively movable within said valve member for ejecting the contents thereof into said outlets.

33. In a machine of the class described, the combination with a receptacle, of outlets therefor, a valve member interposed between said receptacle and outlets and serving to carry material from said receptacle to said outlets, and a second member relatively rotatable within said valve member for ejecting the contents thereof into said outlets.

34. In a machine of the class described, the combination with a receptacle having outlets, of a valve member for carrying material from said receptacle to said outlets, a second member having independent oscillatory motion within said valve member for ejecting the contents thereof into said outlets, and means for varying the oscillations of said second member.

35. In a machine of the class described, the combination with a receptacle for outlets, of a valve member interposed between said receptacle and outlets and serving to alternately close said receptacle and to carry material from said receptacle to said outlets, a second member having independent oscillatory motion within said valve member for ejecting the contents thereof into said outlets, and means for varying the amount of oscillation of said second member.

JOSEPH M. DEMERATH.

Witnesses:
G. WILLARD RICH,
RUSSELL B. GRIFFITH.