No. 827,306. PATENTED JULY 31, 1906.

E. HÉRISSÉ.

CAKE DEPOSITING MACHINE.

APPLICATION FILED SEPT. 8, 1905.

7 SHEETS—SHEET 1.

Fig. 1.

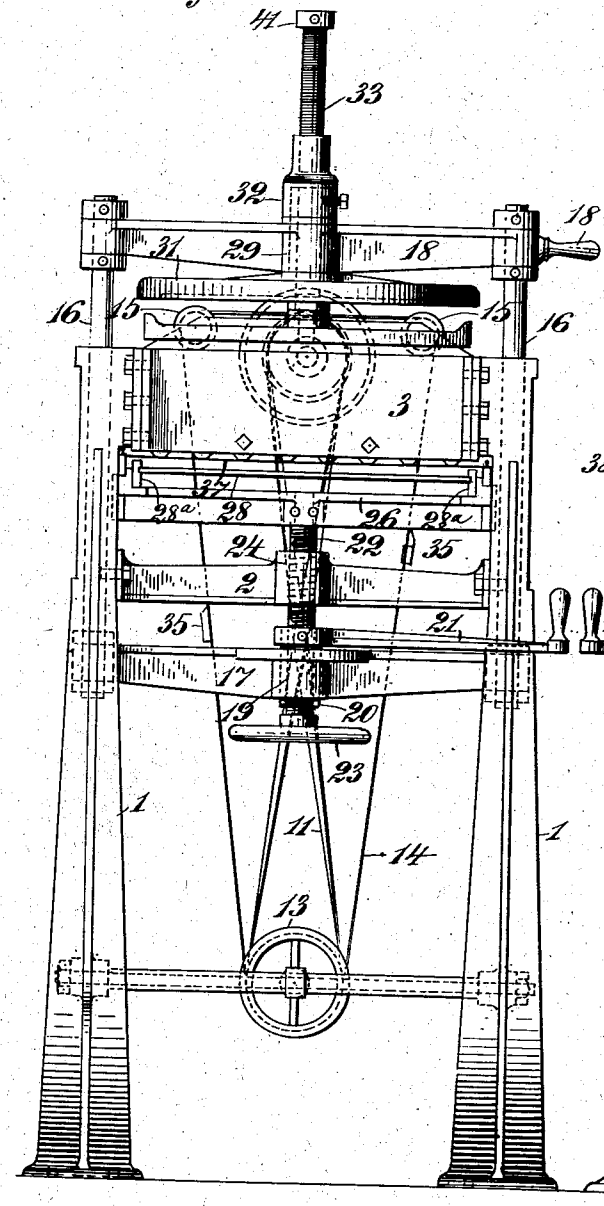
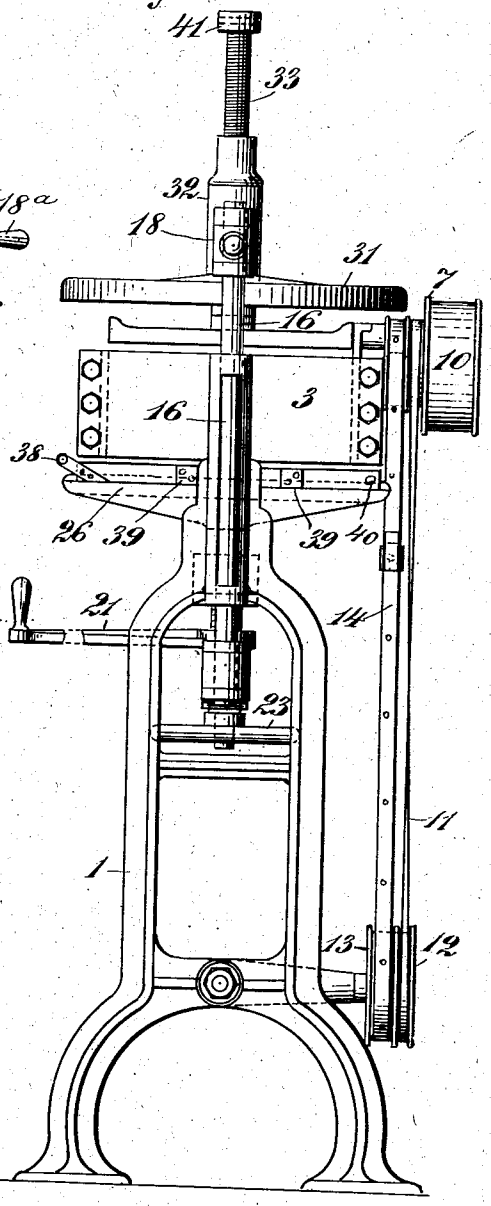


Fig. 2.



Witnesses

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No. 827,306. PATENTED JULY 31, 1906.

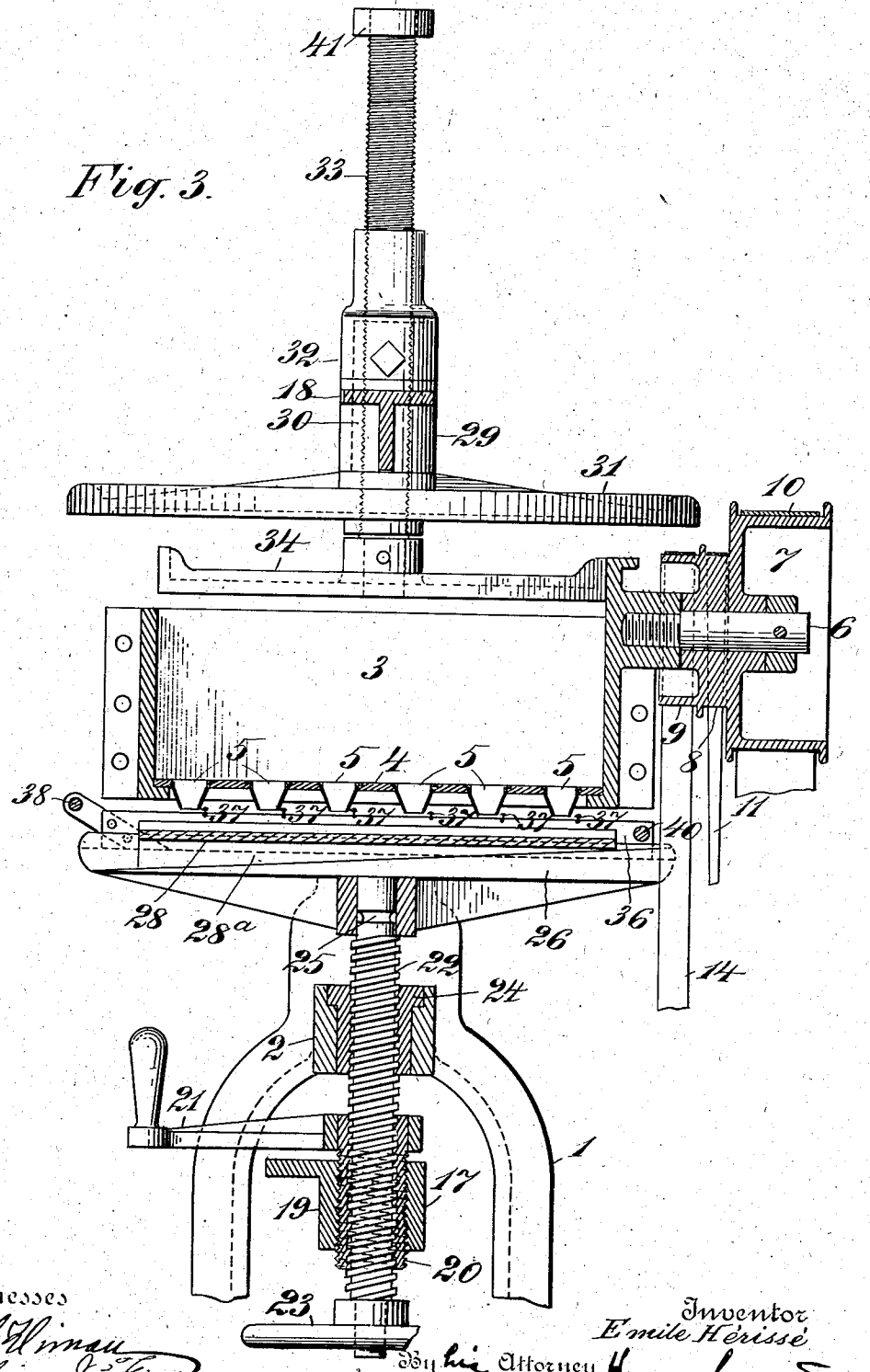
E. HÉRISSÉ.

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7 SHEETS—SHEET 2.

Fig. 3.



Witnesses

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Fig. 4.

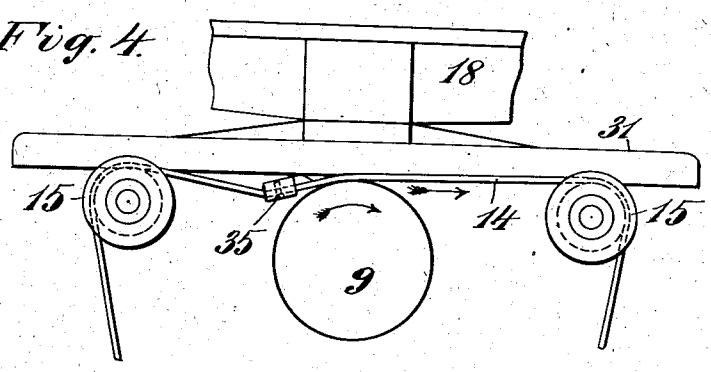


Fig. 5.

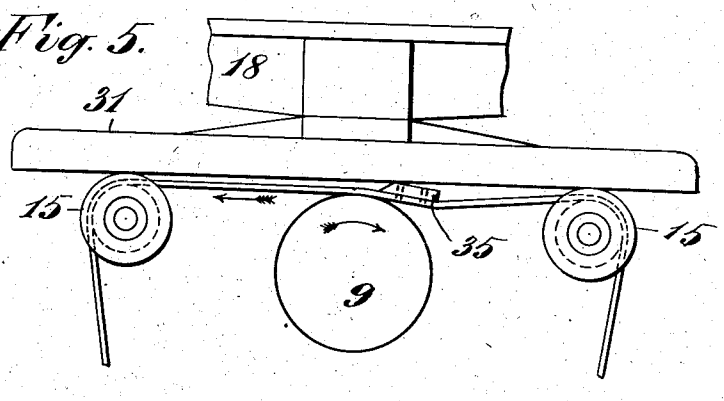


Fig. 16.

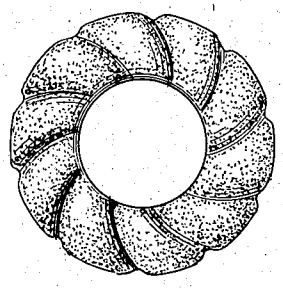


Fig. 17.

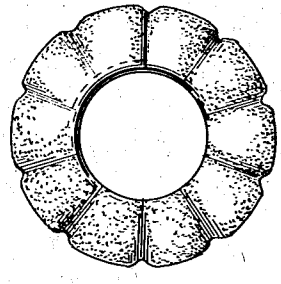
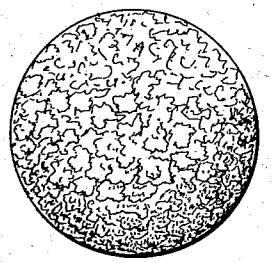


Fig. 18.



Witnesses

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No. 827,306. PATENTED JULY 31, 1906.

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7 SHEETS—SHEET 4.

Fig. 6.

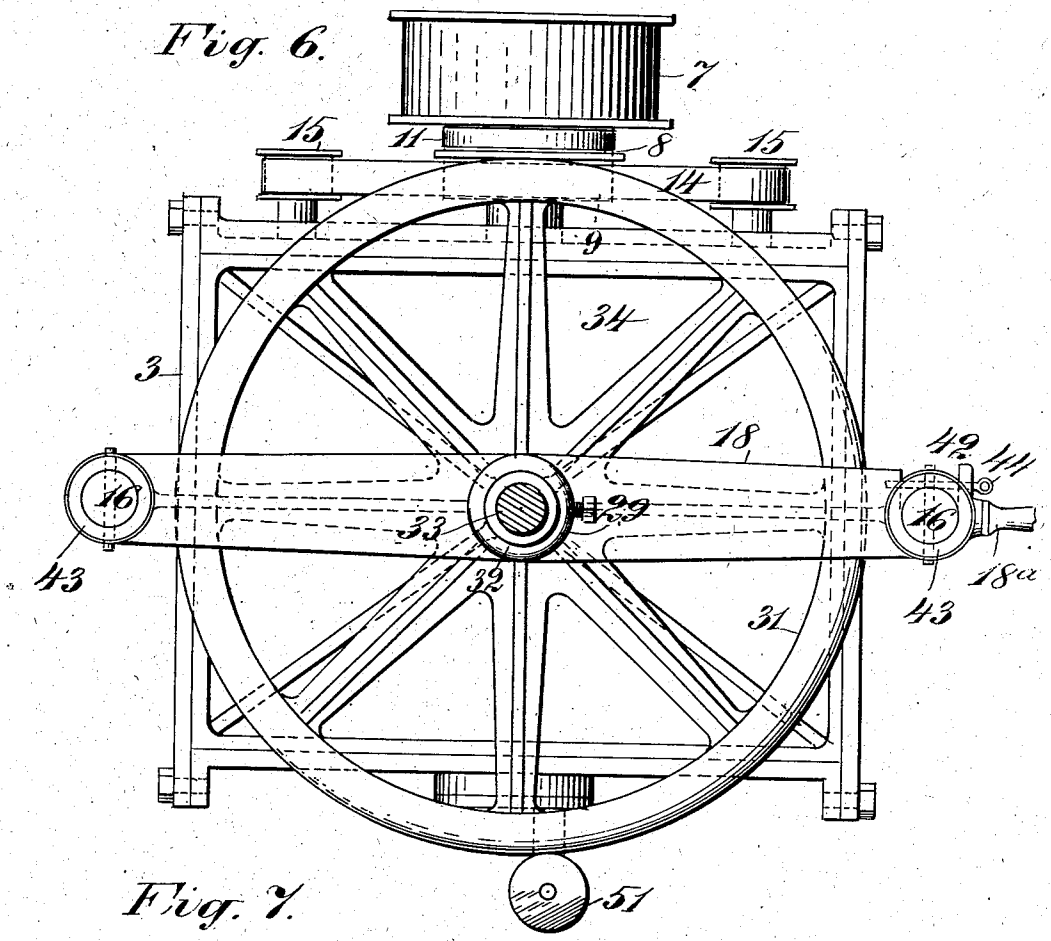
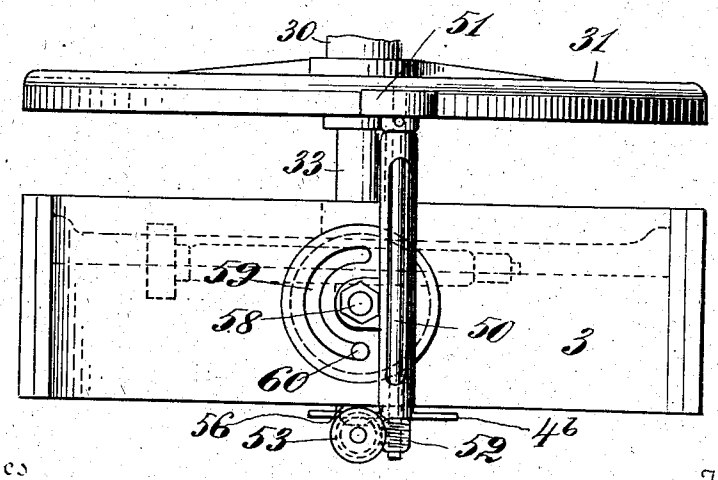


Fig. 7.



Witnesses

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No. 827,306. PATENTED JULY 31, 1906.

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CAKE DEPOSITING MACHINE.

APPLICATION FILED SEPT. 8, 1905.

7 SHEETS—SHEET 5.

Fig. 8.

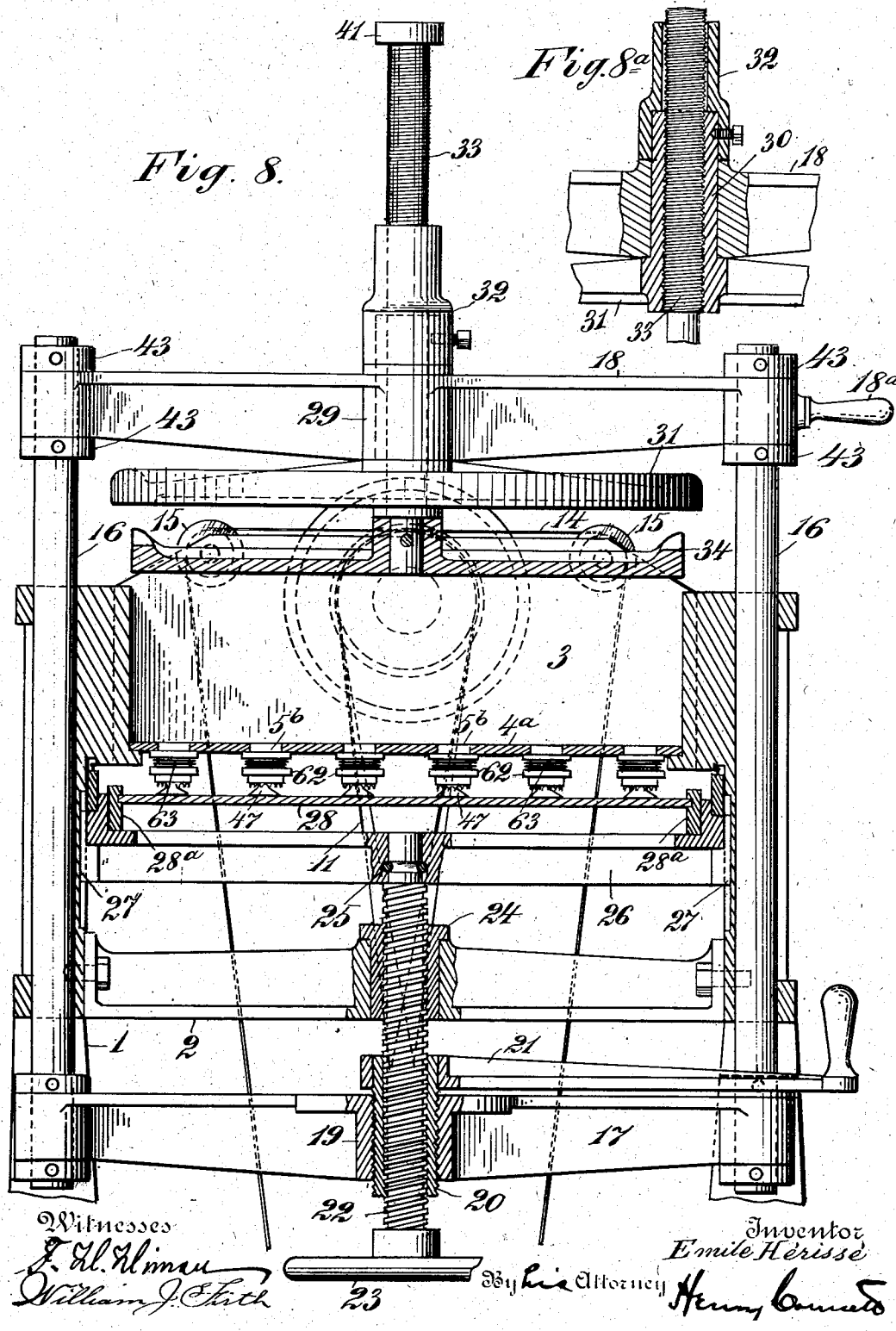


Fig. 8a.

Witnesses

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No. 827,306. PATENTED JULY 31, 1906.

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CAKE DEPOSITING MACHINE.

APPLICATION FILED SEPT. 8, 1905.

7 SHEETS—SHEET 6.

Fig. 9.

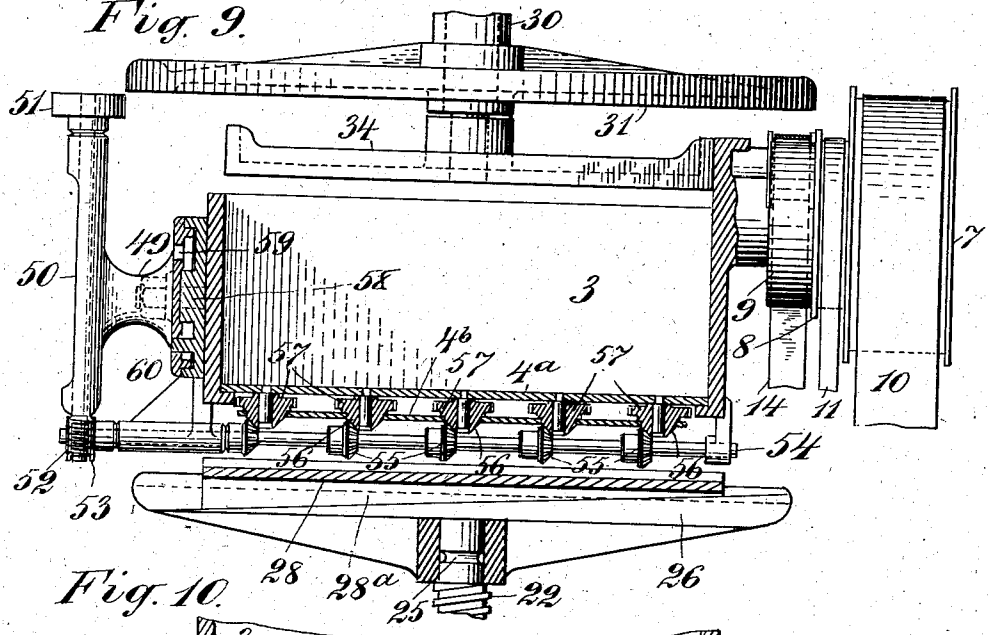


Fig. 10.

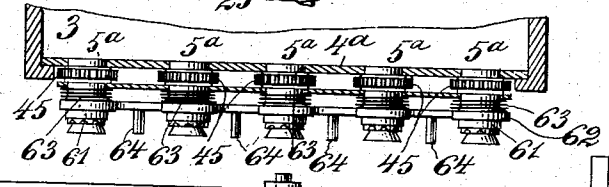
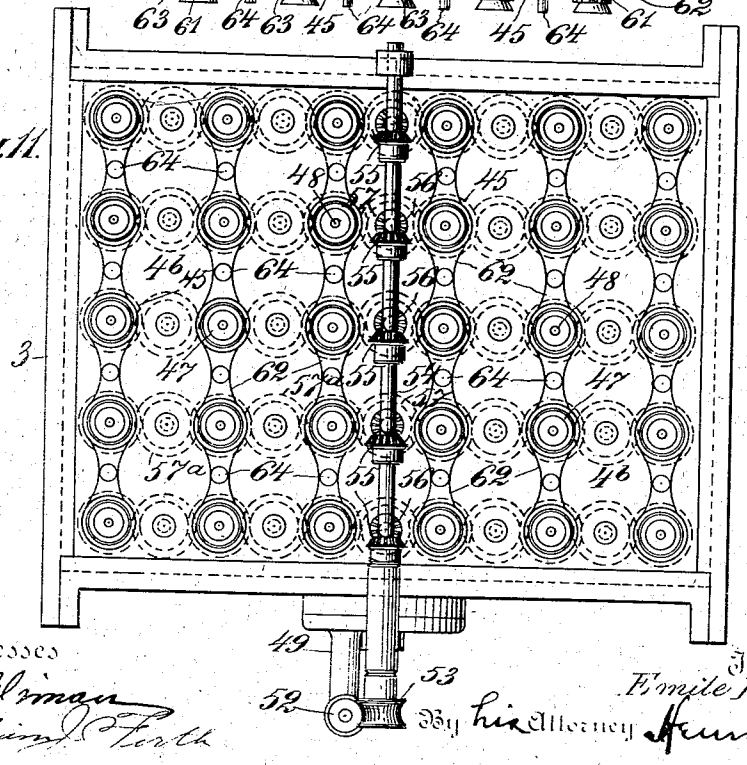


Fig. 11.



Witnesses

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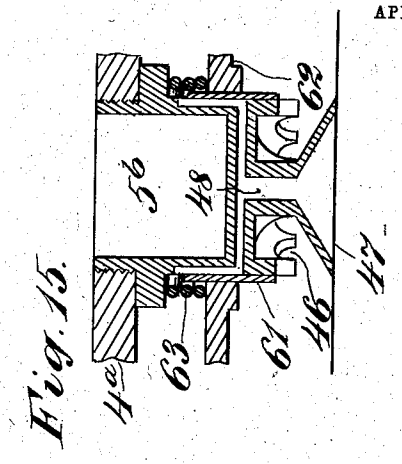
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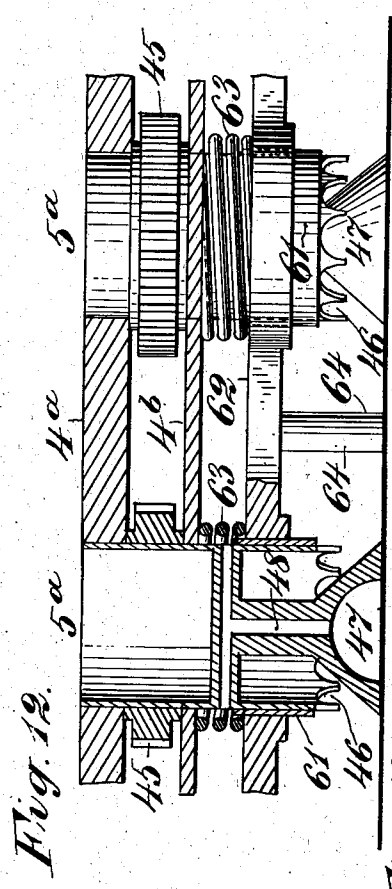
E. HÉRISSÉ.

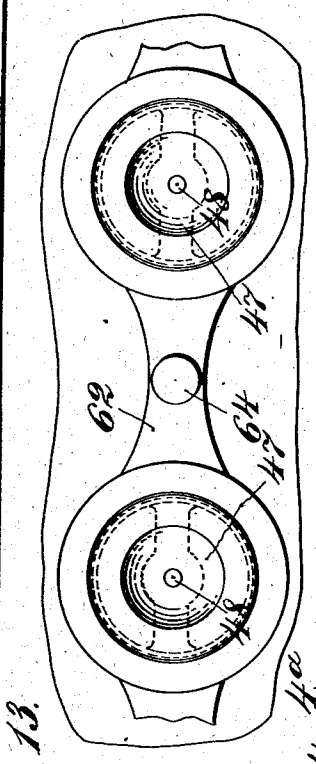
CAKE DEPOSITING MACHINE.

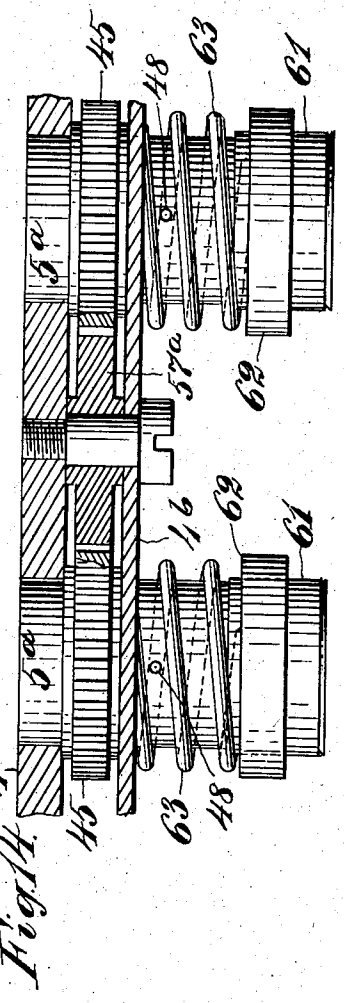
APPLICATION FILED SEPT. 8, 1905.

7 SHEETS—SHEET 7.









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UNITED STATES PATENT OFFICE.

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CAKE-DEPOSITING MACHINE.

No. 827,306. Specification of Letters Patent. Patented July 31, 1906.

Application filed September 8, 1905. Serial No. 277,624.

To all whom it may concern:

Be it known that I, EMILE HÉRISSÉ, a citizen of the United States, residing in the borough of Manhattan, in the city, county, and State of New York, have invented certain new and useful Improvements in Cake-Depositing Machines, of which the following is a specification.

This invention relates to the class of machines employed for depositing at the same time a plurality of cakes from dough forced by pressure from a dough box or receptacle and to give to the cake the desired form or shape; and the present invention includes novel features in the general construction of the machine, a novel automatic cut-off for the dough, and a novel form of rotating nozzle for giving a spiral or twisted form to the cake.

In the accompanying drawings, which serve to illustrate an embodiment of the invention, Figure 1 is a front elevation of the machine, and Fig. 2 a side elevation of the same as seen from the right in Fig. 1. Fig. 3 is a vertical axial section of the upper part of the machine on a larger scale than Figs. 1 and 2. Figs. 4 and 5 are illustrative detail views showing the operation of the belts. Fig. 6 is a plan, and Fig. 7 a front elevation, illustrating the mechanism for driving when rotating dropping-nozzles are employed. Fig. 8 is a vertical section of the upper part of the machine, the sectional plane being at right angles to that of Fig. 3. This view shows stationary nozzles provided with automatic cut-offs. Fig. 8ª is a sectional detail. Fig. 9 is a section similar to Fig. 3, but showing the gearing for rotating the nozzles. Fig. 10 is a sectional view showing said nozzles in elevation. Fig. 11 is an under side plan view of the die-plate and rotative nozzles. Figs. 12, 13, and 14 are detail views, on a larger scale, illustrating the rotative nozzle and automatic cut-off. Fig. 15 is a sectional detail of the stationary nozzle of Fig. 8. Figs. 16, 17, and 18 illustrate forms of cakes that may be made by the machine.

It may be explained before describing the structure of the machine that by changing the die-plate and nozzles at the bottom of the dough-box the machine is capable of producing cakes of two types—namely, a plain cake or macaroon and a twisted or spiral form of cake, produced by rotation of the nozzle. Varieties of these types may also be produced.

The general construction will now be described by reference especially to Figs. 1 to 8. 1 designates the main frame, having in it a fixed transverse bar 2 and having fixed in it also, above said bar, the dough-box 3, which will usually be rectangular. In the bottom of the dough-box, Fig. 3, is mounted removably a die-plate 4, having in it a plurality of molding or shaping nozzles 5 for the cakes. In Figs. 1, 2, and 3 the machine is shown as adapted for molding plain circular cakes, and this will serve for illustrating the main operative features of the machine whether the cakes to be produced are simple or fancy. Mounted on the side of the dough-box 3 or on the adjacent frame, Fig. 3, is a stud-journal 6, on which rotate three pulleys 7, 8, and 9. These pulleys may be cast in one piece. They are driven from any source of power by a belt 10 on the pulley 7. On the pulley 8 is a cross-belt 11, which takes over a pulley 12, rotating on a stud-journal in the frame below. This pulley 12 is connected to or integral with a similar pulley 13, over which and the pulley 9 above passes a belt 14. This belt passes also (see Figs. 1 and 8) over two guide-pulleys 15, situated at either side of the pulley 9 and about on the same level. The belts 11 and 14 are rather loose slip-belts, the cross-belt being a little the tighter of the two. Obviously this is essential, as one of them is a cross-belt. Referring particularly to Figs. 6 and 8, which are on a rather large scale, 16 designates two rods slidable up and down in bearings in the frame, and 17 is a transverse bar connecting these arms below, while 18 is a similar bar connecting them above. In a boss 19 at the center of the bar 17 is an internal screw-thread, through which screws an upright sleeve 20, which is also screw-threaded internally, and to this sleeve is fixed a lever 21, by which the upright sleeve may be turned part way round. A screw 22, provided with a hand-wheel 23 at its lower end, extends up through a nut 24 in the bar 2 and is collared at 25 in a frame 26, which may slide up and down in guides 27 in the main frame. This sliding frame carries a horizontally-slidable tray or cake-table 28, which will be more minutely described hereinafter. In the center of the bar 18 is a boss 29, in which is jour-

naled the sleeve-like boss 30 (see Fig. 8ª) of a friction-wheel 31, which is collared in its bearing above by a set-collar 32. An upright screw 33 screws through the boss 30 of the wheel 31, and to the lower end of this screw is secured the pressure-plate or follower 34, which fits in the dough-box and presses out the dough from same.

It will be noted that normally the rim of the wheel 31, which is flat on the under side, occupies a position a little above the belt 14, where the latter passes horizontally over the pulley 9, and that the lever 21, Fig. 8, is at the right-hand side. Now by swinging said lever out to the front the sleeve 20 by its rotation within the nut-boss 19 and on the screw 22, which latter does not then rotate, the bar 17, rods 16, bar 18, and wheel 31 are drawn down until the rim of the latter bears frictionally on the belt 14 and presses the belt forcibly into contact with the rim of the rotating pulley 9. The belt 14 now rotates the wheel 31, and as the latter is collared in the bar 18 and the screw 33 cannot turn the said screw and the follower 34, secured to it, are driven down and the dough forced out from the dough-box through the cake-nozzles 5; but the extent of downward movement of the follower at each operation is limited by means now to be described with especial reference to Figs. 4 and 5. On the belt 14 are secured at points desired a stop block or blocks 35, and as the belt travels along eventually when the follower shall have descended far enough to force out the proper amount of dough for one set or batch of cakes the block 35 will reach the point seen in Fig. 4 and cannot pass between the belt and the wheel 31. Hence the belt and wheel will cease moving. The operator now swings the lever 21 back to its normal position, and thus elevates the wheel 31 again to the position seen in Fig. 5, the follower also being lifted to the same extent. Now the belt 14 is quite loose, and as the cross-belt 11 is the tighter it will drive the lower idler-pulleys 12 and 13 in a direction to cause the latter to run the belt 14 back until a block 35 thereon comes to the position seen in Fig. 5, when the belt 14 can move no farther in that direction. There may be two blocks 35 on the belt 14—one to stop the rotation of the wheel 31 and the other to arrest the movement backward of the belt at the proper point. These blocks may be set at any points on the belt desired, so as to cause the follower 34 to descend to a greater or lesser extent to suit the size of the cakes being dropped or formed.

The cake-table 28 and its appurtenances will now be described. This table may be a simple horizontal board secured to runners 28ª, beveled or inclined on their lower bearing edges, as seen in Fig. 3, and resting on similar inclined bearings or ways formed on the frame 26, so that when the table is drawn out by the operator or attendant it will fall away from the nozzles 5. Before drawing out the table, however, the dough is cut free from the nozzles, and in the use of the simple form of cake-nozzles employed in the form above described this is effected by the following-described means: A cutting-frame 36 is mounted to slide horizontally in the frame 26, and this cutting-frame has cross-wires 37, one for each row of cake-nozzles, the wires being so disposed as to play when the frame 36 is drawn out across the discharging ends of the nozzles. The cutting-frame has a handle 38 to draw it out by and stops 39 (seen in Fig. 2) to engage a fixed part of the main frame and limit the movement in both directions. It has a connecting-bar 40 also, and this bar may be so disposed as to impinge on the inner end of the cake-table and start the latter out when the cutting-frame is operated. As the use of wires like wires 37 is not new in cutting off soft molded substances, these latter have not been illustrated in detail herein.

Each time the machine is operated as above described the follower will be advanced to a predetermined extent, and finally by repeated operations it will reach the bottom of the dough-box and force out all of the dough. To prevent the follower from descending too far, however, there is a stop-collar 41 on the upper part of the follower-screw 33.

The follower may be run back by rotating the wheel 31, and when it is raised out of the dough-box the latter may be filled by swinging aside all the parts carried by the bar 18—that is, the follower and its screw and the wheel 31. This is permitted by making the bar turn on one of the upright rods 16 (that one at the left, as seen in Fig. 1) and having an open bearing 42 (seen at the right in Fig. 6) at its other end to engage the other rod 16. The bar 18 is embraced by collars 43 on the rods and may have a handle 18ª and a locking-pin 44.

By holding fast the lever 21 and operating with the hand-wheel 23 the screw 22 may be employed to adjust the frame 26 up or down to suit the kind of cake-nozzles to be employed.

To impart to the cake formed a spiral or twisted form—such, for example, as that seen in Fig. 16—the nozzles are slowly rotated part way round as the cakes are being dropped, and an automatic cut-off for the dough is employed. This form of nozzle and its operative mechanism will now be described with especial reference to Figs. 6 to 14. The rotative nozzle 5ª is clearly illustrated in Figs. 12, 13, and 14. The die-plate forming the bottom of the dough-box is composed of the main upper plate 4ª and a lower plate 4ᵇ, in which are rotatively mounted the upright tubular bodies of the nozzles 5ª. On this

body is secured a gear-wheel 45, and at its lower end said body has notches or recesses 46 of any desired form. Suspended rigidly in the axis of said tubular body is a cone 47, which projects below the edge of the body and up through said cone, and its support is an air-passage 48. To impart a slow partial rotation to the nozzle while the cake is being dropped, the driving mechanism now to be described will be employed. Mounted on the side of the dough-box 3, Figs. 7 and 9, is a bracket 49, having in it an elongated bearing for an upright shaft 50. This shaft carries at its upper end a small friction-wheel 51 in such a position as to bear frictionally on the rim of the wheel 31 when the latter is depressed, and at its lower end a worm or screw 52, which gears with a worm-wheel 53 on a cross-shaft 54, extending across under the dough-box. The shaft 54 has bearings on the said box and carries bevel gear-wheels 55, which gear with similar wheels 56, that have rotative bearings on studs in the main die-plate 4^b, and integral with the respective wheels 56 are spur-wheels 57, which are intermediate and gear with the spur-wheels 45 on the rows of nozzles 5^a on either side of the shaft 54. There are similar intermediate spur-wheels 57^a between the other spur-wheels 45, one of said wheels 57^a being shown in Fig. 14. In Fig. 11 these intermediate wheels are indicated by dotted circles, being behind the plate 4^b. By means of this gearing rotary motion is simultaneously imparted to all of the nozzles from the shaft 54. In Fig. 11 thirty nozzles are shown. In order to throw the wheel 51 out of gear and use the nozzles without rotation—as, for example, to produce a cake like that seen in Fig. 17—the bracket 49 may be turned about its securing axis or pivot 58 to the position seen in dotted lines in Fig. 7. The bracket-plate has in it a semicircular slot 59, with which engages a fixed stud 60. This device forms a limiting-stop. Fig. 9 shows this supporting and stop device of the bracket in section.

The automatic cut-off device for the dough at each nozzle 5^a will now be explained with especial reference to Figs. 8, 11, 12, 13, and 14. Embracing slidably the lower or delivery end of the tubular nozzle 5^a is a tubular cut-off 61, and these several cut-offs are connected in a row of nozzles by a yoke 62. The cut-offs may be pressed or moved down until their lower ends are coincident with the bases of the cones 47 of the nozzles 5^a, as seen in Fig. 14, by springs 63, disposed between the plate 4^b above and the yokes 62 below, and when so moved down they cut off the dough emerging from the nozzle about the cone 47 and under the notched edge of the nozzle. In the operation of the device the attendant moves upward the cake-table 28 by means of the screw 22, and this plate impinges on pendent studs 64 on the yoke 62 and presses upward the cut-offs 61, compressing the springs 63, as seen in Fig. 12. The dough is now free to flow out, and when the descent of the follower 34 is arrested the attendant lowers the cake-table again and permits the cut-offs 61 to act and cut off the dough. Fig. 15 is a sectional view designed merely to illustrate the application of this form of cut-off to a nozzle 5^b, which is non-rotative, but in other respects substantially the same as that shown in Figs. 12 and 14.

Obviously many forms of nozzles may be used with a machine of this general construction, and in some of the views a plain ordinary nozzle 5 is shown—Fig. 3, for example—capable of producing a plain cake; but the nozzle herein claimed specifically is the rotary nozzle.

One feature in the operation of this invention may be explained. The sleeve 20 may be made to fit so snugly on the screw 22 that the latter can be turned for lowering or raising the cake-table by means of the lever 21. This is a matter of manipulation, and in the operation of the machine the screw 22 may be allowed to rotate or be held against rotation by the wheel 23 or otherwise, as occasion may require.

The follower 34 fits rather snugly in the dough box or receptacle, and by lifting said follower after each cake-depositing operation suction is produced in the dough-receptacle. This is very important, especially when working with rather thin dough, as it prevents the dough from flowing out through the nozzle by gravity or from residual elastic pressure in the mass after the dough cut-off has operated, and in so doing it effects not only a clean and permanent cut-off, but secures absolute uniformity in the weight or bulk of the cakes produced.

This machine has been described as employed for dropping cakes from dough, but its use is not limited in any respect to this. It may be used for making articles from any plastic material.

Having thus described my invention, I claim—

1. A machine for the purpose specified, having a dough-receptacle provided with a cake nozzle or nozzles, a follower to force the dough from said receptacle through said nozzles, a screw-stem on said follower for advancing the latter, a rotatable sleeve-nut on said screw-stem, a movable frame in which said nut is rotatably collared, means for rotating said nut, and means for putting said nut into operative relations with its rotating means through the movement of the frame in which the nut is collared.

2. A machine for the purpose specified, having a main frame, a dough-receptacle mounted in the same and provided with a cake nozzle or nozzles, a follower to force out the dough

from the receptacle through said nozzles, said follower being provided with a screw-stem for advancing the follower, a friction-wheel having a sleeve-nut which screws onto said stem, a movable frame in which said sleeve-nut is rotatively collared, a moving belt for driving said friction-wheel, and screw means for operating said moving frame and putting the friction-wheel into contact with said moving belt for rotating the said wheel and nut.

3. A machine for the purpose specified, having a main frame, a dough-receptacle mounted therein and provided with a cake nozzle or nozzles, a follower for pressing the dough from said receptacle through said nozzles, said follower being provided with a screw-stem for advancing it, a sliding frame in the main frame, and provided with a transverse bar 18 through which said screw-stem passes, and a sleeve-nut on the stem and collared rotatively in the said bar 18, said bar being hinged at one end so that it may be swung out to one side together with the follower and other parts it carries.

4. A machine for the purpose specified, having a main frame, a dough-receptacle mounted in said frame, a sliding frame mounted in the main frame, a screw-operated follower carried by said sliding frame and adapted to press the dough from the dough-receptacle, means for operating said sliding frame, said means comprising a nut 24 in the main frame, a screw 22 which screws through said nut, a screw-sleeve 20 on the screw, and screwing through a threaded boss on the said sliding frame, and an operating-lever 21, fixed to said sleeve 20, as set forth.

5. A machine for the purpose specified, having a main frame, a dough-receptacle mounted in said frame and provided with a cake nozzle or nozzles, a follower, provided with a screw-stem, for pressing the dough from said receptacle and through said nozzles, and means for advancing said follower step by step, said means comprising a friction-wheel 31, provided with a sleeve-nut 30 on said screw-stem and collared against endwise movement, a driving-pulley 7, provided with auxiliary pulleys 8 and 9, connected idler-pulleys 12 and 13, a slip cross-belt 11 on the pulleys 8 and 12, a slip-belt 14 on the pulleys 9 and 13, blocks 35 on the belt 14 to serve as stop devices, and means for pressing the friction-wheel 31 against the belt 14, as set forth.

6. A machine for the purpose specified, having a main frame, a dough-receptacle mounted in said frame and provided with a cake nozzle or nozzles, a follower, provided with a screw-stem, for pressing the dough from said receptacle out through said nozzles, means for advancing said follower, means for receiving and removing the cakes dropped from the nozzles, said means comprising a sliding frame 26, a cake-table 28 mounted slidably on inclined ways thereon, and means for cutting the dough from the nozzles, and means for adjusting or moving said frame 26 in the fixed frame, said means comprising the screw 22, collared in said frame and playing through a nut in the main frame, and the said nut.

7. A machine for the purpose specified, having a main frame, a dough-receptacle mounted in said frame and provided with a cake nozzle or nozzles, a follower, provided with a screw-stem, for pressing the dough out from said receptacle through said nozzles, a friction-wheel provided with a collared sleeve-nut through which the stem of the follower screws, means for driving said friction-wheel, consisting of the main pulley 7, means for driving the same in one direction, the connected idler-pulleys 12 and 13, the pulleys 8 and 9, both connected with and rotating with the pulley 7, the slip cross-belt 11 on the pulleys 8 and 12, the slip-belt 14 on the pulleys 9 and 13, and stop-blocks 35 on the belt 14, and means for moving the rim of the friction-wheel into and out of contact with the moving belt 14 at the point where it passes over the pulley 9, substantially as set forth.

8. A machine for the purpose specified, having a main frame, a dough-receptacle mounted in said frame, a rotatable cake nozzle or nozzles mounted in said receptacle, a follower which forces the dough from the receptacle through said nozzle or nozzles, means for advancing said follower, and means for rotating said nozzle or nozzles, simultaneously with the operative movement of the follower.

9. A machine for the purpose specified, having a main frame, a dough-receptacle mounted in said frame, a rotatable cake nozzle or nozzles mounted in said receptacle, a follower which forces the dough from the receptacle through said nozzle or nozzles, means for advancing said follower, means for rotating said nozzle or nozzles simultaneously with the operative movement of the follower, means for receiving the cakes as dropped and means for cutting the dough from the nozzles.

10. A machine for the purpose specified, having a main frame, a dough-receptacle mounted in said frame, a rotatable cake nozzle or nozzles mounted in said receptacle, a follower which forces the dough from the receptacle through said nozzle or nozzles, means for advancing said follower, means for cutting the dough from the nozzles, and means for rotating the nozzles simultaneously with each other and with the operative movement of the follower, said means comprising gear-wheels connecting the nozzles, an upright shaft 50, a worm 52 on said shaft, a cross-shaft 54 under the dough-receptacle, a worm-wheel 53 on the cross-shaft and gearing with the worm 52, means for simultaneously operating the follower and rotating the shaft 50, and gearing between the cross-shaft

54 and the nozzle-gears for imparting the motion of the cross-shaft to the nozzles.

11. In a machine for the purpose specified, the combination with a dough-receptacle, and means for forcing the dough therefrom, of a nozzle mounted in the bottom of said receptacle, said nozzle consisting of a tubular body with notches or recesses 46 in its lower edge for the delivery of the dough, and a fixed cone 47 at its delivery end, means for receiving the dough expelled through the nozzle, and means for cutting the dough from the nozzle.

12. In a machine for the purpose specified, the combination with the dough-receptacle, means for forcing the dough therefrom, a cake-table underneath the dough-receptacle, means for moving said cake-table up and down, and cake-nozzles in the bottom of the dough-receptacle, of a cut-off for the dough, comprising a sliding tube 61 on each nozzle, a spring behind said tube, a yoke connecting the sliding tubes on adjacent nozzles, and a stud 64 on the said yoke adapted to be impinged upon by the cake-table for retracting the cut-off tubes.

13. A machine for the purpose specified, having a main frame, a dough-receptacle mounted in said frame, a follower for forcing the dough from the receptacle, rotary nozzles in the bottom of said receptacle, a bracket 49 pivotally mounted on the side of the dough-receptacle, an upright shaft 50 rotatively mounted in said bracket, means for advancing the follower and simultaneously rotating the shaft 50, and mechanism between said shaft and the nozzles for driving the latter.

14. In a machine for the purpose specified, the combination with a fixed frame, a dough-receptacle mounted therein, and means for forcing the dough therefrom, of a plurality of rotatively-mounted cake-nozzles in the bottom of said receptacle, each of said nozzles consisting of a tubular body with notches in its lower edge to provide passages for the dough, and a fixed cone mounted in said tubular body, means for rotating said nozzles and for advancing the follower, simultaneously, a movable cake-platform, means for moving the same, and a cut-off device for the dough, consisting of a sliding tube on the body of each nozzle, a spring behind each of said tubes, and a yoke connecting adjacent cut-off tubes, said yoke being provided with a pendent stud for the cake-table to impinge upon.

15. In a machine for the purpose specified, the combination with the main frame, a receptacle for the plastic mass, mounted therein, and a follower which fits therein, of means for advancing the follower step by step to a predetermined distance at each step, and means for retracting the follower to the extent of one step after each advance, said means comprising a screw coupled to the follower for advancing it, a sliding frame provided with a nut through which said screw passes, the driving device, comprising the friction-wheel and rollers, and a lever and screw device adapted to move said sliding frame in both directions to a predetermined extent, thereby operating the follower and its operating-screw.

In witness whereof I have hereunto signed my name, this 6th day of September, 1905, in the presence of two subscribing witnesses.

EMILE HÉRISSÉ.

Witnesses:
HENRY CONNETT,
WILLIAM J. FIRTH.