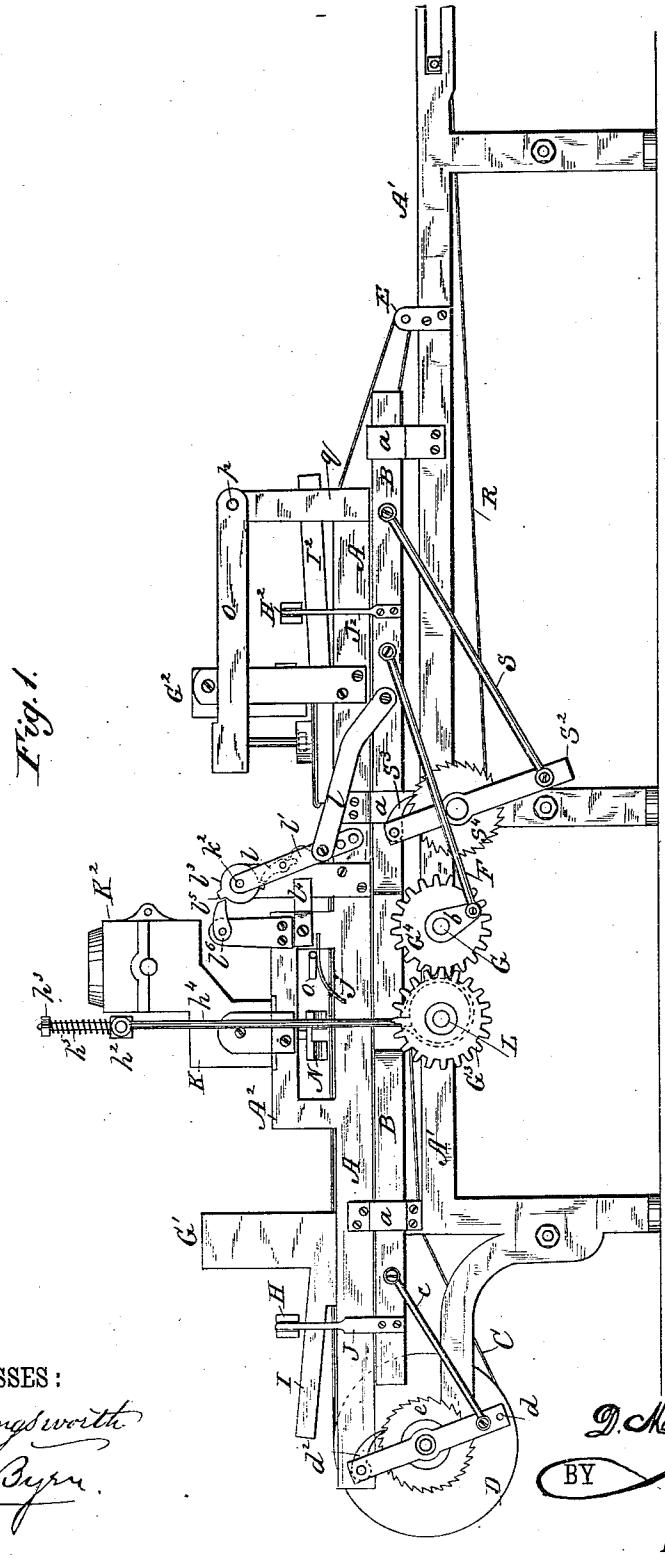
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D. M. HOLMES.

MACHINE FOR JELLYING AND DECORATING CAKES.

No. 259,542. Patented June 13, 1882.

Fig. 1.



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INVENTOR:

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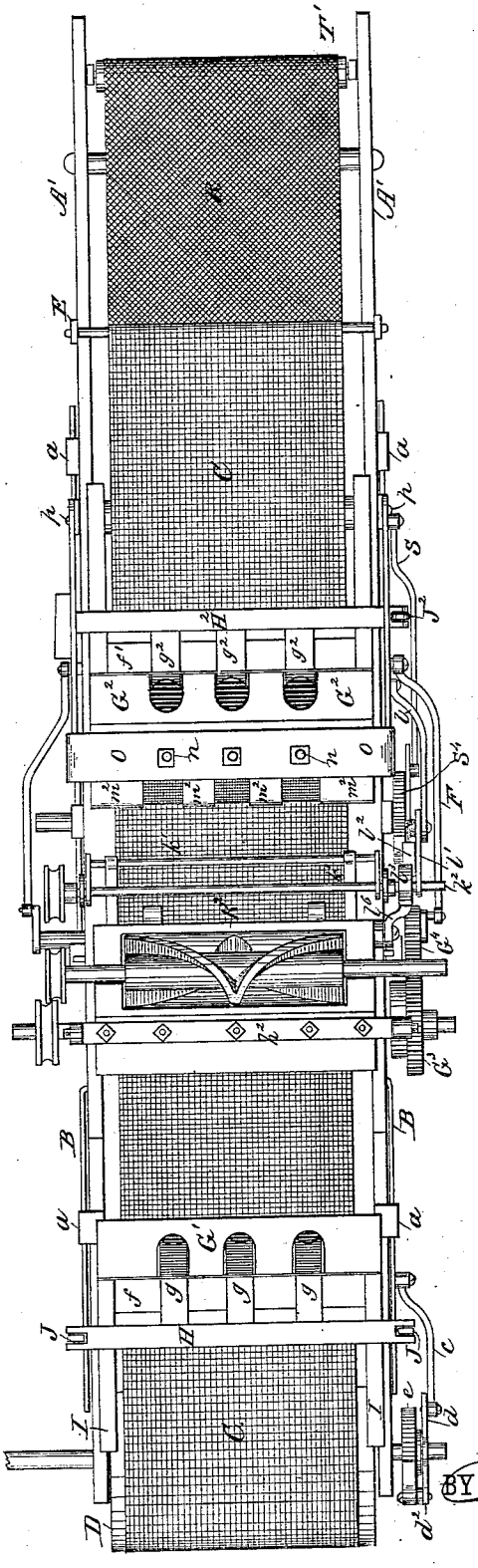
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Fig. 2.



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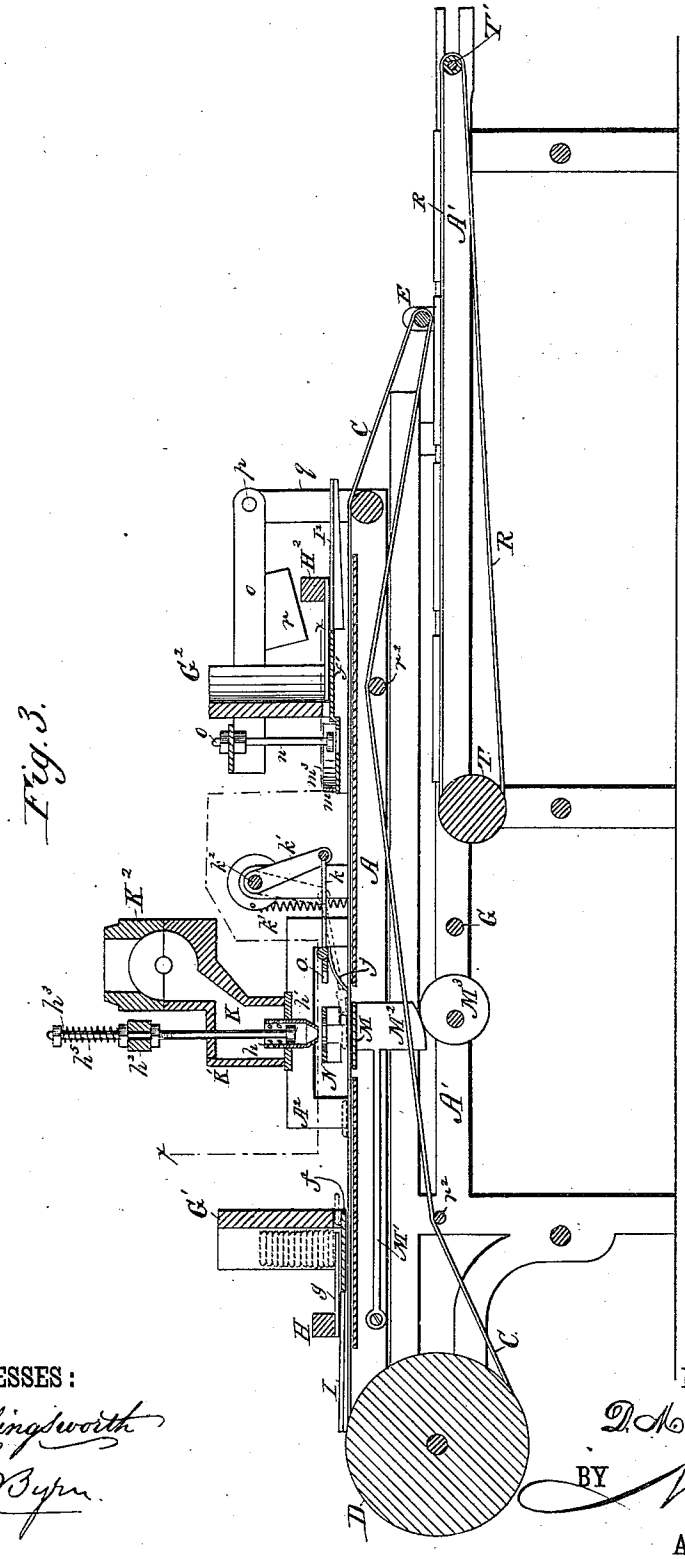
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Fig. 3.



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MACHINE FOR JELLYING AND DECORATING CAKES.

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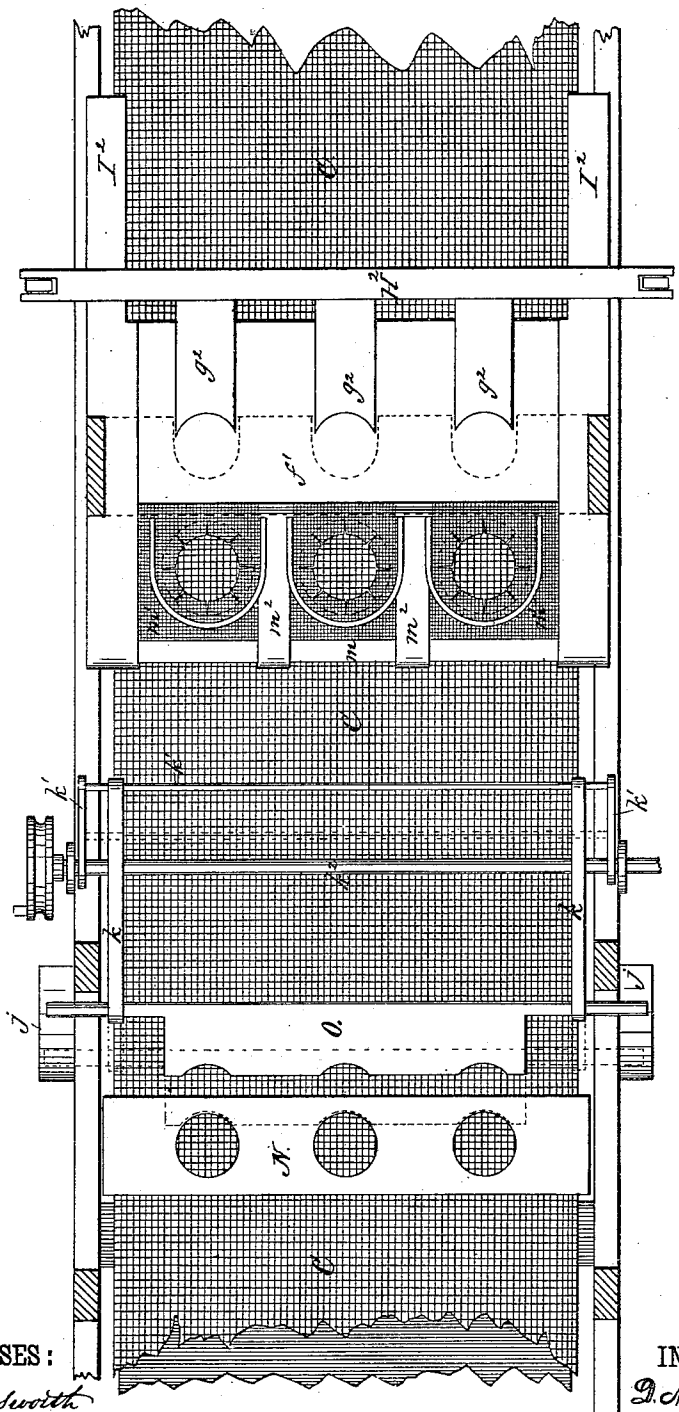


Fig. 4.

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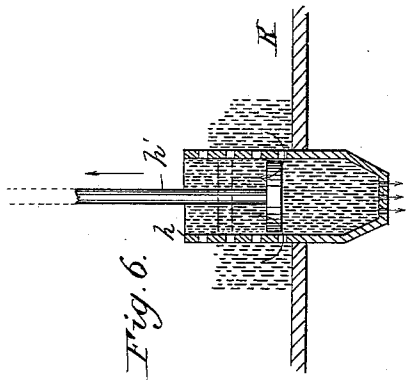


Fig. 6.

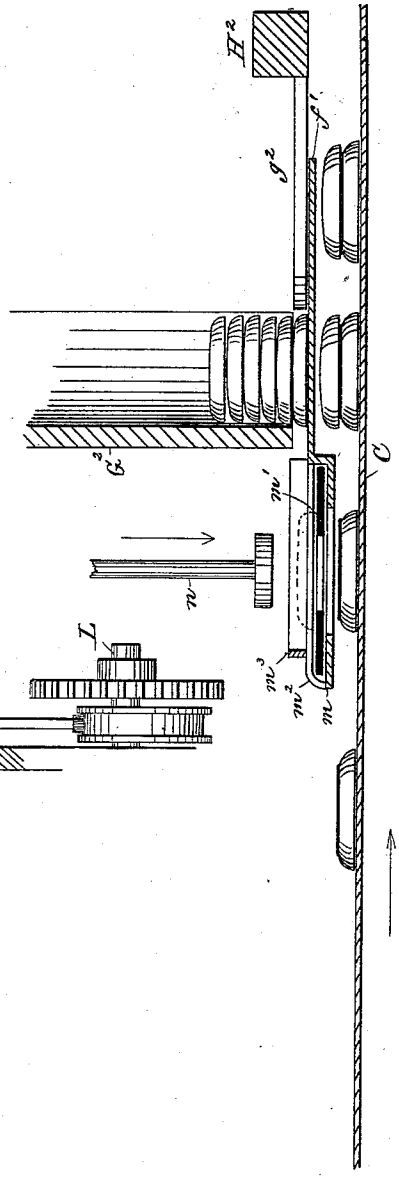


Fig. 7.

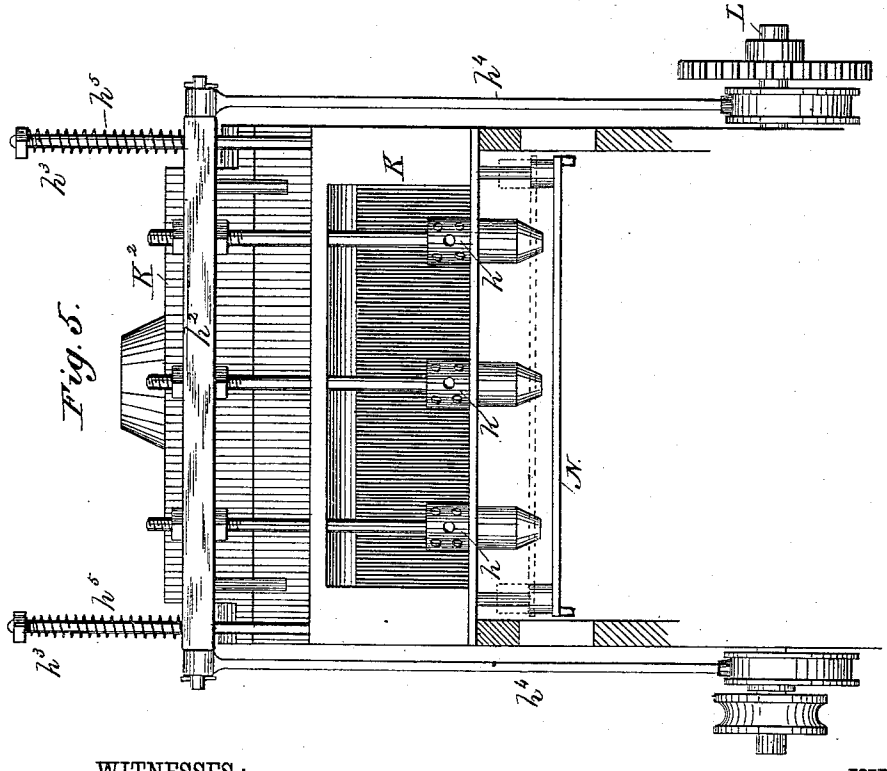


Fig. 5.

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UNITED STATES PATENT OFFICE.

DANIEL M. HOLMES, OF CINCINNATI, OHIO.

MACHINE FOR JELLYING AND DECORATING CAKES.

SPECIFICATION forming part of Letters Patent No. 259,542, dated June 13, 1882.

Application filed January 25, 1882. (No model.)

To all whom it may concern:

Be it known that I, DANIEL M. HOLMES, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and Improved Machine for Jellying and Decorating Cakes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation. Fig. 2 is a plan view. Fig. 3 is a vertical longitudinal section. Fig. 4 is a partial plan view with the devices above the line *x x*, Fig. 3, removed. Fig. 5 is a face view of the paste-box and its attachment, the detachable plate of said box being removed. Fig. 6 is an enlarged detail view of one of the pockets and plungers. Fig. 7 is an enlarged sectional detail of the devices for putting one cake on another with a layer of jelly between.

The object of my invention is to provide a self-acting machine which shall apply a layer of jelly between two cakes or a dressing of icing to the top of a single cake to ornament it.

The principal features of the invention consist, first, in the peculiar construction and arrangement of devices for feeding a row of cakes to the main belt; secondly, in the peculiar construction and arrangement of devices for feeding the jelly, paste, or dressing to the cakes, whereby a definite quantity of paste is discharged and the supply in the paste-box then positively cut off. The third general feature consists of a set of cake-holding channels or tubes and lateral push-plates in connection with a table having a series of holes larger than the cakes, but with elastic margins that make the holes smaller than the cakes, and over which holes the second push-plates force the cakes and are then pushed through these elastic-edged holes by plungers onto the tops of the rows of cake that come from the paste or jelly feeding devices.

In the drawings, A A′ represent the main frame of the machine, which is formed with an upper level, A, and a lower level, A′, Figs. 1 and 3, and is supported upon suitable legs. In bearings *a a*, Figs. 1 and 2, are arranged upon each side of the machine the horizontal longitudinal sliding bars B.

C is the main feed-belt, which at the feed end of the machine passes around a large roller or drum, D, and at the other end is strained around a small rod, E, located on the lower level of the frame-work and close to the pan-belt. The slide-bar B is reciprocated by a pitman-rod, F, Fig. 1, on each side, which is connected by a crank, *b*, to the main drive-shaft G, which is suitably connected with any prime mover. At the feed end of the machine one of these slide-bars B is connected by a pitman, *c*, to a swinging lever, *d*, fulcrumed upon the extended journal of the drum D, and in the opposite end of this swinging lever is arranged a pawl, d^2, that engages with a ratchet-wheel, *e*, rigidly keyed to the shaft of said drum D, so that as the slide B reciprocates a rotary intermittent motion is given to the drum and a corresponding intermittent feed is given to the belt.

Just above the belt, at its feed end, is fixed a series of vertical receptacles, forming cake-holders G′, which may be formed in one piece or be in the nature of separate tubes. These cake-holders are supported at their sides upon the frame A in fixed relation to the frame, and preferably have their sides open, as shown, so as to facilitate the insertion of cakes by hand, and which cakes stand in these holders in vertical stacks, the series of which stacks extend transversely to the belt. At the bottoms of these holders is a table or support, *f*, which is removed from the bottom of the cake-holders just the thickness of a cake. For each one of the cake-holders is a horizontal push-plate, *g*, Figs. 2 and 3, whose function is to push the bottom one of the cakes in each stack out laterally over the table *f* and onto the belt. These push-plates are all attached to a cross-head, H, moving on guides I, and which cross-head is connected to arms J, attached to the slide-bars B B, so that when the slide-bars move forward it carries the push-plates, and the latter discharge from the bottoms of the cake-holders a series of cakes that are delivered upon the belt in a transverse row, and which row of cakes are by a given number of movements of the belt brought to a position beneath the decorating devices, which I will now proceed to describe.

Upon an elevated portion, A^2, of the upper

level, A, of the frame-work is mounted the jelly or paste box K, which is formed with a detachable side plate, K′, Figs. 3 and 5, and which box is kept full of paste from the trough K^2, in which revolves a feeding-cylinder. I may, however, dispense with this feeding-cylinder and extend the walls of the trough up high enough to cause the paste to feed into the box from its own gravity. In the bottom of the paste-box are formed a series of pockets, *h*, Figs. 3 and 5, which extend up into the paste-box as cylinders having open ends and perforated sides, and connect below the paste-box with nozzles that screw onto their lower ends, and which nozzles have openings in their lower ends, through which the jelly or paste is discharged. Within the pockets *h* work a corresponding number of plungers, *h′*, attached to a cross-head, h^2, above, which cross-head is guided by stems h^3. These plungers are raised by eccentric-rods h^4 on each side, which are operated by cams on shaft L, and may be forced down by spiral springs h^5, surrounding the stems h^3. When, however, the eccentric-rods h^4 are jointed to cross-head h^2 the springs are not necessary, as the eccentric-rods then act positively in both directions. As these plungers rise in the pockets above the perforations in the paste-box the paste in the box is (see Figs. 5 and 6) partially forced and partially sucked in through these perforations by the movement of the plungers, and then, when the plungers descend, they force this paste down the pockets and into the discharge-nozzles. It will be seen then that these pockets and plungers act both to feed a definite amount of the paste from the paste-box to the nozzles and then to positively cut off communication between the paste-box and nozzles.

I do not confine myself to the specific form of detached pockets here shown, but may employ a perforated trough in the place thereof, running across the machine, and having a single long plunger working therein, with nozzles or openings in the bottom of the trough, through which the paste is to be forced. In this case the nozzles are located in a detachable bottom plate of the trough.

Just beneath the belt, and immediately beneath the plungers, is a lift-plate, M, Fig. 3, whose function is to raise the belt with its row of cakes and present the latter to the nozzles to receive the jelly-paste. This plate is carried by arms M′, and has feet M^2, that rest above cams M^3, formed on the shaft L, which cams serve to lift the plate at the proper time and which shaft is operated by a gear-wheel, G^3, meshing with the gear-wheel G^4 on the main shaft G.

Above the belt, and near the lower edges of the nozzles, is a loose plate, N, which has a limited loose movement up and down, and has feet at its ends, that rest upon the plate M. This loose plate is formed with a series of openings, that surround each of the nozzles and are of a size a little smaller than the cakes. The function of this plate is to be lifted with the cakes when the latter are presented to the nozzles, and then, when the lift-plate M descends, this loose plate M comes into play to pull the cakes away from the nozzles in case any of them have a tendency to stick.

O, Fig. 4, is an evener-plate or row-straightener, whose function is to straighten the row of cakes just before the cakes are brought against the nozzles, so that all of the cakes will properly register with the said nozzles and receive the paste in proper central position. This row-straightener consists of a plate having curved notches at its edge corresponding in curvature to the cakes and corresponding in number and relation to the plungers. This straightener, it will be seen, in order to be out of the way of the cakes as they pass from the jellying, must descend from a plane above the belt and then advance laterally beneath the nozzles, and for this purpose the ends of this plate are extended and guided by the diagonal guides *j*, Figs. 1, 3, and 4. (See dotted lines, Fig. 3.) Motion is then given to the evener-plate by the following means: The plate is connected by links or arms *k* to a frame, *k′*, Figs. 2, 3, and 4, rocking about its shaft k^2, which frame is strained by a spring, k^3, Fig. 4, so as to hold the evener-plate back from the nozzles and up from the belt. To project the evener-plate forward to its work a link, *l*, Figs. 1 and 2, is attached to the slide-bar B, and at its other end is fastened to an arm, *l′*, hung loosely upon the shaft k^2. This arm carries a pawl, l^2, (see dotted lines, Fig. 1,) that on the forward movement engages with a lug on the boss l^3, which is rigidly keyed on shaft k^2, so that on the movement of the slide B forward or to the left the pawl engages shaft k^2, and by rocking frame *k′* projects the evener or straightener plate N. After this plate has done its work it must quickly recede, and for this purpose the pawl l^2 strikes at the proper time a stop, l^4, Fig. 1, which, by throwing the pawl away from the lug on the boss l^3, allows shaft k^2 and frame *k′*, carrying the evener-plate, to be at once retracted by the force of spring k^3, a stop-lug, l^5, on boss l^3, and a detent, l^6, co-operating to stop this backward movement.

For applying the second set of cakes upon the layer of jelly delivered to the first set of cakes, there is located at the rear end of the machine a set of cake-holders, G^2, push-plates g^2, cross-head H^2, and guides I^2, corresponding to those at the feed end of the machine, and which cross-head, carrying the push-plates, is operated by arms J^2, fixed to the sliding bars B. These devices serve to feed the second set of cakes to the cakes which have received a dressing of jelly. On a level with the plate *f′*, and next to the jelly-feeding devices, is a table, *m*, which is sustained a very short distance above the main belt, (see Figs. 3, 4, and 7,) and in this table is formed a series of holes corresponding in number to the number

of cakes in a row, and of a size a little larger than a cake, so that a cake will pass through it. On this table is a flexible strip, m', having holes that are slightly smaller than a cake, which holes register with the holes beneath, and which smaller holes in the flexible material have radial slits in their edges, so that while a cake would not drop through this hole of its own weight a slight pressure would be sufficient to force it through. This flexible strip is held in place by metal bands m^2, and between these metal bands are curved guards m^3, that fix the position of the cakes when they are pushed out from the cake-holder and are held above their respective holes through which they are to pass. Now, when a row of cakes have received a surface of jelly, and have reached a position beneath the holes in the flexible strip, the cakes which have been discharged from the second cake-holder rest with their edges on the flexible edges of the elastic strip, and as soon as a slight pressure is applied to the same these second series of cakes pass through the holes and adhere to the jelly on the tops of the cakes below. For thus pressing this second set of cakes through the holes and onto the subjacent cakes any suitable plungers, properly timed, may be used. I have illustrated here a set of plungers, n, carried by a frame, o, jointed at p to standards q, rising from the frame A. This frame o, with the plungers n, is held up by a cam, r, Fig. 3, on the frame which is struck by the cross-head H^2 of the push-plates, and when the push-plates move back after transferring the cakes to the holes in the table the weight of this frame and the plungers forces the cakes through the holes in said table f'. The cakes then pass off the main belt onto the second or pan belt, R, which is moved intermittently by the slide-bars B through pitman S, Figs. 1 and 2, swinging lever S^2, pawl S^3, and ratchet-wheel S^4 on the shaft with roller T, around which said belt is stretched at one end, while a tension-roller, T', holds it at the other. Enough space is left between this belt and the upper one to permit of the insertion of the pans on this lower belt, which pans move with the belt and receive the cakes from the upper belt. To give this space the main belt is passed over transverse guide-rods r^2, and this lower belt is made to travel much slower than the upper belt, so that the rows of cakes will be placed in closer position in the pans than they occupy on the main belt.

In defining my invention more clearly, I would state I do not limit myself to the peculiar mechanical means shown for imparting motion to the various parts, as changes in this respect may be made without departing from my invention. I would also state that the devices at the front end of my machine, and also the devices for feeding and depositing the jelly-paste are not to be confined to their combination with the devices for applying the second cake on top the first, as said preceding devices may be used without the latter for the simple purpose of applying a decoration of icing to the top of the cake, and the jelly-feeding devices may be used for either feeding said icing or for feeding the dough of a cake-machine.

Having thus described my invention, what I claim as new is—

1. The combination of the main belt C, the series of cake-holders G', with subjacent plate f, the bar H, having push-plates g, and the slide-bars A, connected to the bar H, substantially as and for the purpose described.

2. The paste-feeding devices consisting of a paste-box, a series of pockets opening into the paste-box and terminating in nozzles below, and a set of plungers arranged in said pockets, in combination with a feed-belt and a lift-plate arranged beneath the belt, as described, to lift a row of cakes against the nozzles, as and for the purpose described.

3. The combination, with the paste-box having pockets in the bottom of the same, of a set of plungers working in said pockets and arranged, as described, to alternately discharge paste through the nozzles at the bottom of said pockets and then cut off the supply in the box from the nozzles, as shown and described.

4. The combination, with the paste-box, of a receptacle, substantially as described, having an open upper end, and perforations in the side and a plunger fitting within the same and adapted, as described, to draw the paste in through the said perforations when the plunger rises, and to force it out in definite quantity and cut it off from the supply in the box when the plunger descends, as described.

5. The combination, with a feed-belt and means for supplying jelly to the cakes thereon, of a cake-feeding device, a table or plate located above the belt and having holes with flexible margins, and a set of plungers for forcing the cakes through said holes and on top of the jellied surfaces of cakes on the belt below, as described.

DANIEL M. HOLMES.

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CHARLES A. KEBLER.