(No Model.) 2 Sheets—Sheet 1.

H. DUCSH.

Cake Machine.

No. 239,743. Patented April 5, 1881.

Fig. 1.

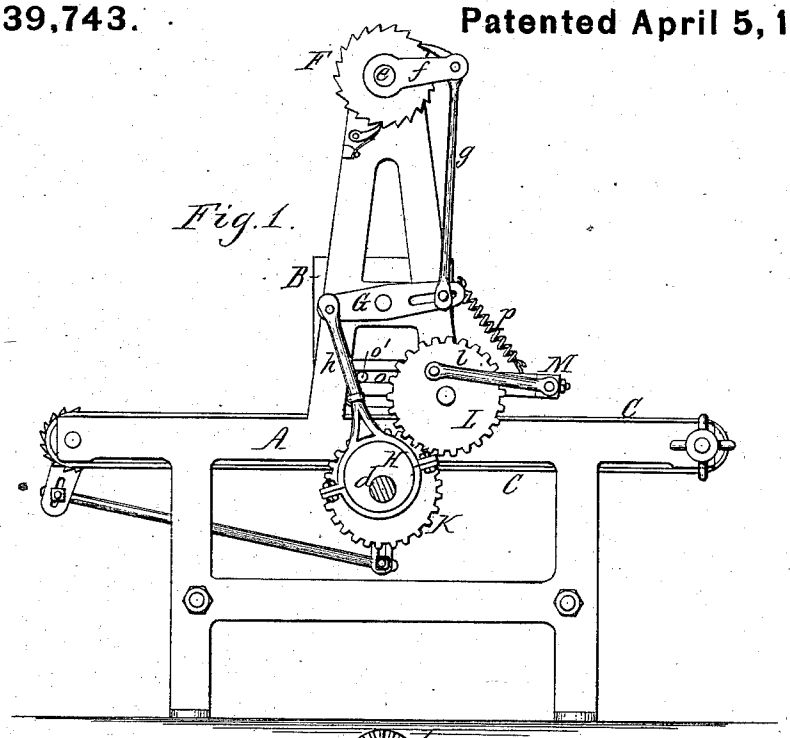
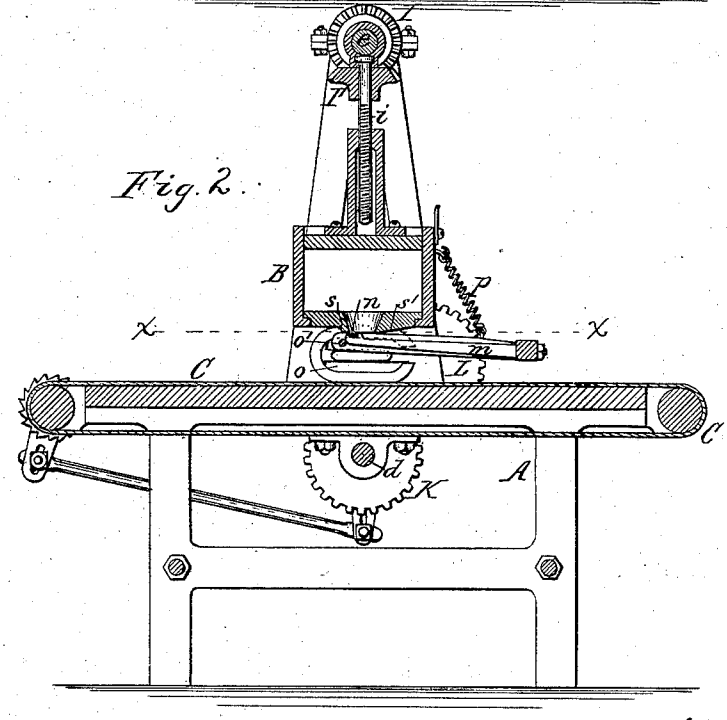


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

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Cake Machine.

No. 239,743. **Patented April 5, 1881.**

Fig. 3.

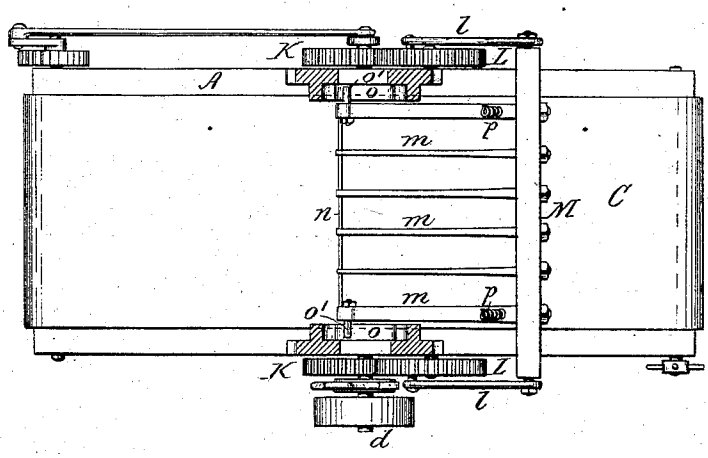
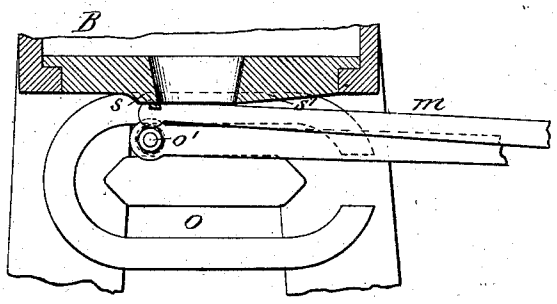


Fig. 4.



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UNITED STATES PATENT OFFICE.

HENRY DUCSH, OF BALTIMORE, MARYLAND, ASSIGNOR TO J. W. RUGER AND AUGUSTUS RUGER, OF BUFFALO, NEW YORK.

CAKE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 239,743, dated April 5, 1881.

Application filed January 8, 1881. (No model.)

To all whom it may concern:

Be it known that I, HENRY DUCSH, of Baltimore, in the county of Baltimore and State of Maryland, have invented new and useful Improvements in Cake-Machines, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to that class of machines which are employed for making cakes from soft dough, and which are provided with a dough-box having apertures in its bottom, through which the soft dough is forced by means of a follower or plunger and cut up into cakes by means of reciprocating knives.

The invention relates more particularly to the construction of the cutting mechanism, and has for its object to simplify the construction of the cutting mechanism and increase its speed and efficacy.

My invention consists of the construction and arrangement of the mechanism whereby the movement of the cutter is controlled, as hereinafter described, and pointed out in the claims.

In the accompanying drawings, consisting of two sheets, Figure 1 is a side elevation of a machine provided with my improvements. Fig. 2 is a longitudinal sectional elevation thereof. Fig. 3 is a horizontal section in line *x x*, Fig. 2. Fig. 4 is a sectional elevation of the cutter mechanism on an enlarged scale.

Like letters of reference refer to like parts in the several figures.

A A represent the side frames of the machine.

B is the dough-box, secured between the upper portions of the side frames, A A, and C is the endless feed-apron, arranged longitudinally between the lower portions of the side frames, A, below the dough-box B.

d is the horizontal driving-shaft, supported in bearings in the lower parts of the side frames below the endless apron, and D is the driving-pulley secured to one end of the shaft *d*.

e is a horizontal shaft, arranged above the dough-box B in bearings formed in the upper ends of the upper portions of the side frames.

F is a ratchet-wheel secured to one end of the shaft *e*, and *f* is an arm provided with a pawl, whereby the ratchet-wheel is rotated at every forward movement of the arm *f*.

g is a rod, whereby the arm *f* is actuated from a rock-lever, G, pivoted to one of the side frames, and H is an eccentric mounted on the driving-shaft *d*, and imparting motion to the rock-lever G by a rod, *h*. The rod *g* is connected with the rock-lever by means of a bolt, which is adjustable in a slot in the lever, whereby the throw of the arm *f* is regulated.

i is a vertical screw-shaft which actuates the follower, and I I′ are a pair of bevel-wheels, which transmit motion from the horizontal shaft *e* to the screw-shaft *i*.

K represents a gear-wheel secured to the driving-shaft *d* on the outer side of each side frame, A, and L is a similar gear-wheel turning on an arbor on each side frame, A, and meshing with the corresponding wheel K.

l l are two connecting-rods, which are pivoted with one end to the wheels L, which serve as crank-wheels, and with the other end to a cross-head, M, which extends across the machine above the endless apron in the rear of the dough-box.

m are longitudinal bars or arms, which are rigidly secured to the cross-head M, and extend forward of the same under the dough-box, where they carry the wire cutters *n*, which are secured transversely between the ends of the arms *m*.

o is a link-shaped guide or groove arranged on the inner side of the upper portion of each side frame, A, below the bottom of the dough-box; and *o′* is a stud, pin, or roller attached to the outer arms, *m*, and running in the adjacent groove *o*. The latter is so formed that during the forward movement of the cross-head M the rollers *o′* will travel in the upper horizontal part of the guide and keep the cutters in contact with the bottom of the dough-box, thereby severing the dough protruding from the apertures of the dough-box, while during the return movement of the cutter mechanism the rollers *o′* will run in the lower horizontal part of the guide and carry the cutters sufficiently low to prevent them from coming in contact with the dough which is being forced out of the apertures of the dough-box by the follower, preparatory to the next forward movement of the cutters.

The frame consisting of the cross-head M, bars *m*, and cutters *n* is attached to the dough-

box by means of springs *p*, in such manner that when the cutters have reached the limit of their forward movement the springs will be relaxed and permit the rollers *o'* to descend from the upper to the lower part of the groove *o*, and that during the backward movement of the cutters the springs *p* will be strained, so that when the limit of the backward movement is reached the rollers *o'* will be drawn up from the lower to the upper part of the groove by the tension of the springs. The apertures through which the dough is forced from the dough-box are preferably surrounded by downwardly-projecting collars or cups *s*, having on the side from which the cutter approaches the aperture an inclined rib, *s'*, which depresses the wire-cutter and guides the latter upon the face of the aperture. The apertures are formed in a plate which is removably fitted in the bottom of the dough-box, so that plates with apertures of different forms may be used at the desire of the operator. The wires *n* cut a row of cakes during their forward movement, then drop and return below the projecting dough, and are then raised up to again make their forward and cutting movement in contact with the bottom of the dough-box.

The guides *o* are provided with an opening at their rear sides, through which the rollers or pins *o'* are introduced into the guides and withdrawn therefrom.

I claim as my invention—

1. The combination, with the dough-box, of a reciprocating cutter, link-shaped guides *o*, whereby the cutter is alternately raised and lowered, and mechanism whereby the movement of the cutter-frame in the guides is controlled, substantially as set forth.

2. The combination, with the dough-box B, of the cross-head M, provided with arms *m*, having rollers or pins *o'*, and carrying the cutter *n*, link-shaped guides *o*, and springs *p*, substantially as set forth.

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