D. J. TITTLE.

Improvement in Machines for Cutting Cakes.

No. 132,034. Patented Oct. 8, 1872.

Fig 1.

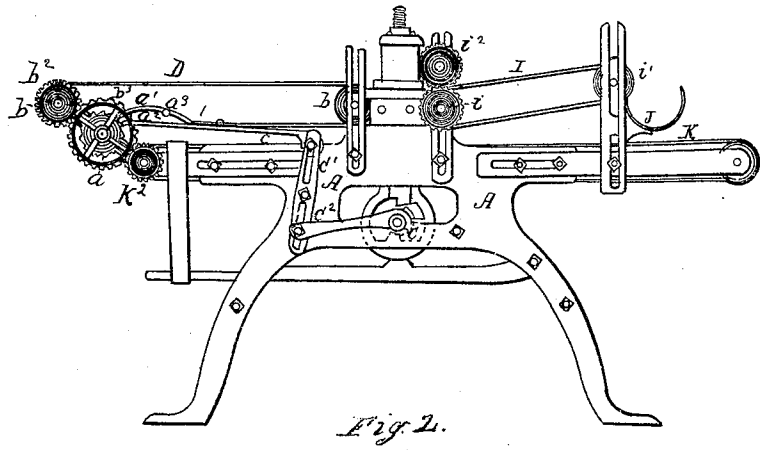


Fig 2.

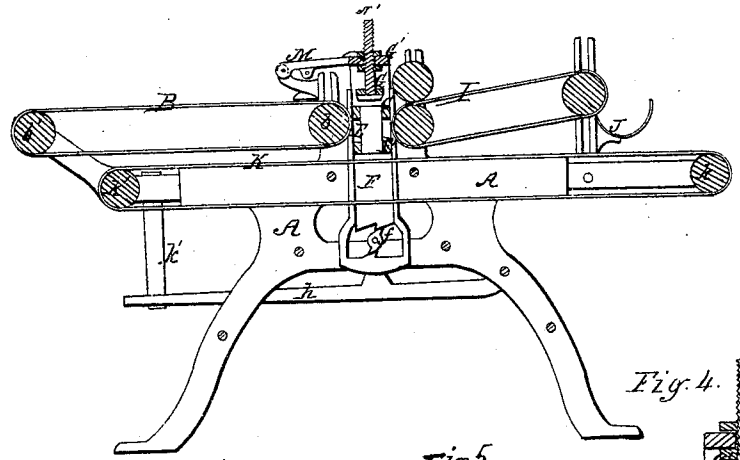


Fig 3.

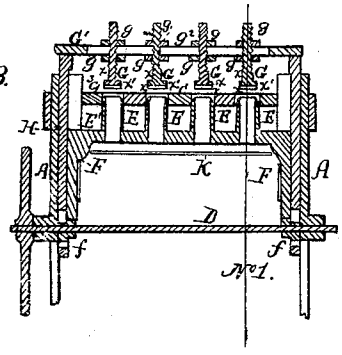


Fig 5.

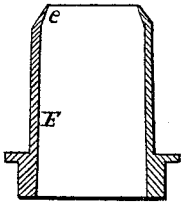
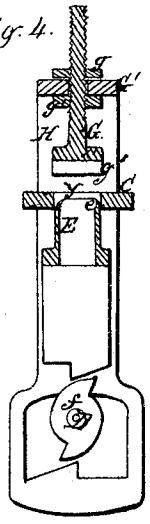


Fig 4.



Witnesses.

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AM. PHOTO-LITHOGRAPHIC CO. N.Y. OSBORNE'S PROCESS.

UNITED STATES PATENT OFFICE.

DANIEL J. TITTLE, OF ALBANY, NEW YORK.

IMPROVEMENT IN MACHINES FOR CUTTING CAKES.

Specification forming part of Letters Patent No. **132,034**, dated October 8, 1872.

To all whom it may concern:

Be it known that I, DANIEL J. TITTLE, of the city and county of Albany, State of New York, have invented certain new and useful Improvements in Machines for Cutting Cakes, Crackers, Lozenges, &c.; and I do hereby declare that the following is a description thereof, reference being had to the accompanying drawing forming a part of this specification, in which—

Figure 1 represents a side view of the machine embodying the invention; Fig. 2 is a vertical longitudinal section of the same taken at line No. 1 in Fig. 3; Fig. 3 is a vertical lateral section of the machine taken at line No. 1 in Fig. 2; Fig. 4 is an enlarged view of a section of the machine taken at line No. 1 in Fig. 3 and illustrating the manner of the arrangement of the cutters, table, cutting-block, and their operating parts; and Fig. 5 is a vertical lateral section of a cutter on an enlarged scale.

My invention relates to certain improvements in machines for cutting cakes, crackers, lozenges, and like articles; and consists in certain arrangements of the cutters, cutter-blocks, table, and other mechanical devices, whereby the sheets of dough are made to pass over a horizontal table, with intervals of stoppage, in which the cutters will be thrown upward through the table while the cutter-blocks will be moved downward toward the cutters, when the cakes or like articles will be cut and fall below on a pan carried on an endless apron, while the scraps will be carried off the table and deposited onto a receptacle, all of which I will proceed to describe to enable others skilled in the art to make and use the same, reference being had to the drawing and the letters of reference marked thereon, the same letters indicating like parts.

In the drawing, A represents any suitable frame-work for supporting the several parts of the machine. B is an endless feed-apron, which is to carry the material to the cutters; the said endless apron is carried by the rollers b b^1, operated by a gear, b^2, attached to the shaft of the roller b^1 by a second gear, b^3, Fig. 1. The gear b^3 has attached to it on its shaft a ratchet-wheel, a, Fig. 1, which ratchet-wheel is operated by a duplex pawl, a^1 a^2, operated by the bar c, lever c^1, and pitman c^2, and eccentric c^3, or equivalent crank attached to the operating shaft D, Figs. 2, 3, and 4. The object of using a duplex-pawl with a ratchet-wheel is to insure a certain positive movement of the gear b^3 when the pawl a a^1 and lever c^1 are set for a certain size cake. The duplex pawl consists of two pawls, the one, a^2, stiff and continuous with the bar c, and the other pawl, a^1, hinged to the first at any suitable point, a^3, as shown in Fig. 1, and their extreme ends are arranged so as to act against different teeth in the ratchet a. By this arrangement of the gears b^2 b^3, ratchet a, duplex pawl a^1 a^2, bar c, lever c^1, pitman c^2, and eccentric c^3, the distance of a single movement of the apron B between its intervals of stoppage can be regulated by altering the distance of the pitman c^2 or pawl-bar c, or both, from or toward the central fulcrum of the lever c^1. C, Figs. 2, 3, and 4, is what I denominate the dough-table, which table consists of a horizontal plate, preferably made of steel, placed close to the front end of the feed-apron B, and about on a line with the said apron, and is provided with several perforations, V V, corresponding in number, size, and form with the cutters used. The said table is intended to receive the dough fed by the apron and hold it in each interval of its stoppage until the cutters have performed their work, the object of this part of my invention being to support the dough above the cutters in the interval of its stoppage, and also to afford a passage for the clippings to the clip-apron when the cutters have been drawn back. E E are cutters, made of any suitable metal but preferably of steel, case-hardened iron, or composition. The said cutters may be made of any size or form desired. The bore E is slightly widened at its lower end, as shown in Fig. 5, while the bore at its cutting-end e is made slightly contracted, as shown, to the extent of about an eighth of an inch, more or less. The object of thus making the cutter with a widened bore at its lower end, and a contracted bore, e, at its upper end, is to insure a free fall of the disk of dough or other material from the cutters, as soon as the said disk has been cut. The said cutters E E are arranged in the cutter-bar E^1, in number as may be desired or suited, from their size, to the capacity of the machine. The said cutter-bar is at-

tached to the guides F F, Figs. 1, 2, 3, and 4, and may be operated vertically by any suitable known mechanical device, preference being given to the tripping-cam *f* attached to the operating-shaft D, which tripping-cam will, at each revolution of the said operating-shaft, strike against the beveled lower ends of the guides F F and force them upward through the dough-table. In the meanwhile the wings of the said cams are made to contract with the said beveled ends, and when the said wings have passed the said beveled ends the said cutter-bar E^1 and the cutters will fall, the object of this part of my invention being the cutting of the dough in a vertical direction from its lower side, so that the several disks of dough or other material when cut will, with the cutters, drop below the dough-table, and separate from the clippings and permit a movement of the same from off the table to the clip-apron to make room for fresh dough for another operation of the cutter. G G are a series of independent cutter-blocks, consisting of the screw-cut shaft *x* and head *x'*, arranged in number and size corresponding to the cutters E used. The said cutter-blocks are arranged with the block-head G', and are capable of being set nearer to or further from the table C by means of the set-nuts *g* g^1, Fig. 4, which set-nuts find a bearing on the upper and lower surfaces of the head-piece G', as shown. The said cutter can also be set further apart or nearer together, as may be desired, by means of the oblong slot g^2 made in the head-piece G', as shown in Fig. 3, the object of this part of my invention being to render each cutter-block independent of the other, so that each can be adjusted with great accuracy at a proper distance from its cutter independent of the other, whereby unequal lengths (if any) of the cutters can be made to operate at equal times with the said cutter-blocks. The said cutter-blocks G G are made elastic by means of the rubber faces g^3, which are attached to the lower ends of the cutter-blocks, as shown in Fig. 4. The said elastic faces g^3 are intended to act with the cutting-edges of the cutters E, when in contact, in a yielding manner, while there will also result a sudden rebound at each contact, which operates on the dough-disks being cut, to give them an impulse to drop down through the cutters, the object of this part of my invention being to effect a yielding of the cutter-block face to the cutter, whereby the dough-disk, when cut, will be made to receive a sudden impulse to drop from its cutter. The said cutter-block head G' is attached to the guide-pieces H H, Figs. 1, 2, 3, and 4, which guide-pieces H work in suitable ways attached to the sides of the frame A, and is made capable, with its blocks, of a vertical movement to and from the table C simultaneously with the similar vertical movement of the cutters, by means of any suitable known mechanical device, preference being given to the tripping-cam *f* operating as with the cutter-bar E before described, in the reverse, and the pivoted lever *h* and elastic spring *h'*. This arrangement is intended to lessen the distance of the movement of the cutters, which otherwise would be required, and also prevent the dough being carried upward from the table C at each cutting, and by the retreat of the cutter-blocks permit the dough to slide over the table free from all contact with the said cutter-blocks, the object of this part of my invention being to effect a simultaneous movement of the cutter-blocks toward their cutters, that the contact of the one with the other can be made almost instantaneous, whereby the movement of the dough over the table is required to be stopped for only a small period of time for the cutting of the dough and retreat of both the cutters and the cutter-block therefor. J is the clip-trough, made of any suitable material, and placed parallel with the roller *i* and just below its center, as shown in Figs. 1 and 2. The said trough should be in length equal at least with the length of the roller *i*, and may have a width and depth to give any required capacity, and preferably both ends are open, so that the clippings can be taken out at either end without necessitating a removal of the same by lifting up, the object of this part of my invention being the prevention of clippings falling on the floor or other parts of the machine, and to afford a receptacle from which the clippings can be readily removed. K is an endless apron, which I denominate the pan-apron. The said apron is carried by the roller *k* k^1 and operated by the gear k^2, Fig. 1, working into the gear b^3. The said pan-apron runs longitudinally with the feed and clip apron, and moves in the same direction beneath the cutters E E and at a short distance below the same, as shown in Figs. 2 and 3, and with about the same rate of speed as the aprons above. The said apron is intended to receive the pans intended to hold the dough-cakes at its rear, and to carry them successively under the cutters to receive the cake-dough as they fall from the same, the object of this part of my invention being to effect an automatic panning of the dough-cakes as they fall from the cutters, whereby all necessity for handling or arranging the cakes by hand will be dispensed with.

This machine can be operated by hand or other power, and made of any desired capacity. It may be furnished with a docker, which will stamp, print, or dock the cakes just before they are cut, which docker may be arranged somewhat as M, Fig. 2.

The manner in which this machine operates is as follows: The dough or other material being previously rolled out in sheets of any desired thickness, is placed on the feed-apron B, where it is carried forward to the table C and passes on the same, the other parts of the machine in the meanwhile operating. When on the table C the movement of the feed-apron will be stopped for a short interval, and the tripping-cam *f* or other equivalent device will

operate to throw the cutters upward through the perforation V V in the table and through the dough lying on the said table at the same time the cutter-blocks are being cast down. The simultaneous movement of the cutters and their elastic cutter-blocks toward each other insures a sudden cutting of the cakes, and causes them to fall immediately through the cutters to and on the pan carried by the pan-apron below. As soon as the cutters have dropped, and the cutter-blocks have been thrown up, the feed-apron will again commence its forward movement to present the dough for another operation. In the meanwhile the clippings have been carried up between the rollers i and i^2, and deposited in the trough J. The operation of the machine being continued, the alternate moving forward of the dough and its clippings, and the cutting and panning will be effected automatically in a sure and rapid manner.

This machine is simple in all its parts, and positive in its several actions; and its advantages are apparent, because of the automatic action of its several parts which feed, cut, and pan the dough-cakes, and separate the clippings from the same.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination of the duplex pawl a^1 a^2, bar c, lever c^1, pitman c^2, eccentric c^3, ratchet a, gears b^3 and b^2, rollers b b^1, whereby each movement of the apron can be effected and regulated, substantially as and for the purpose set forth.

2. The arrangement of the dough-table C with the feed-apron B at the front of the same, whereby the dough may be supported above the cutters during the stoppage of the movement of the said dough.

3. The cutter E having a widened bore at its lower end and a contracted bore at its cutting-end e, substantially as and for the purpose set forth.

4. In a cake, cracker, or lozenge machine, one or more cutters, E, capable of a vertical movement, and arranged so that the dough will be cut in the upward movement of the cutters, substantially as and for the purpose set forth.

5. The combination of the set-nuts g g^1 with the independent cutter-blocks x x' and cutter-block head G′, whereby the distance between the cutter-blocks and the cutters can be regulated, substantially as and for the purpose set forth.

6. The arrangement of the cutter-blocks G with the cutter-head G′ having the oblong slots g^2, whereby the distance from one cutter-block to the other can be regulated, substantially as and for the purpose set forth.

7. The combination of the elastic face g^3 with the cutter-blocks x x', whereby the said face will yield to the cutter, and the dough-cake or disk will receive an impulse to fall from the same, substantially as and for the purpose set forth.

8. In a machine for cutting cakes, crackers, and the like, the combination of one or more cutter-blocks, G, with the cutters E, each block being capable of a vertical movement in a direction opposite to and simultaneous with its coacting cutter, whereby the distance of the movement of the cutters is lessened, substantially in the manner set forth.

9. The rollers i i^2 arranged in relation to the dough-table C, so as to draw the clippings from said table and deliver the same into some suitable receptable, substantially as set forth.

10. In a machine for cutting cakes, crackers, and the like, the arrangement of the pan-apron K beneath the cutters, whereby pans may be automatically moved beneath the cutters to receive the dough-cakes, substantially as and for the purpose set forth.

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Witnesses:

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CHAS. SELKIRK.