

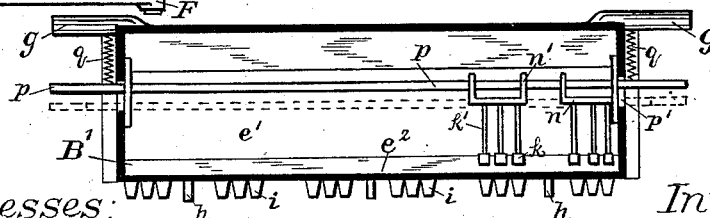
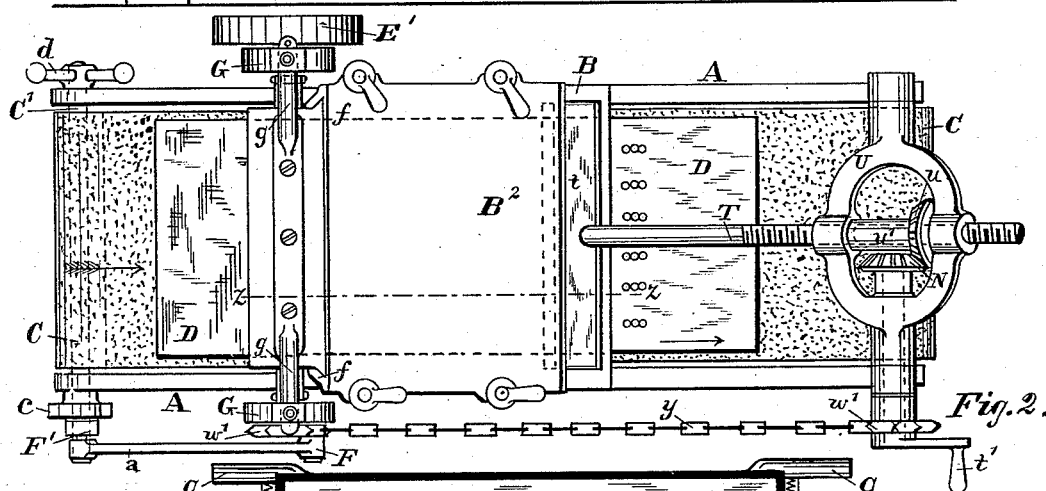
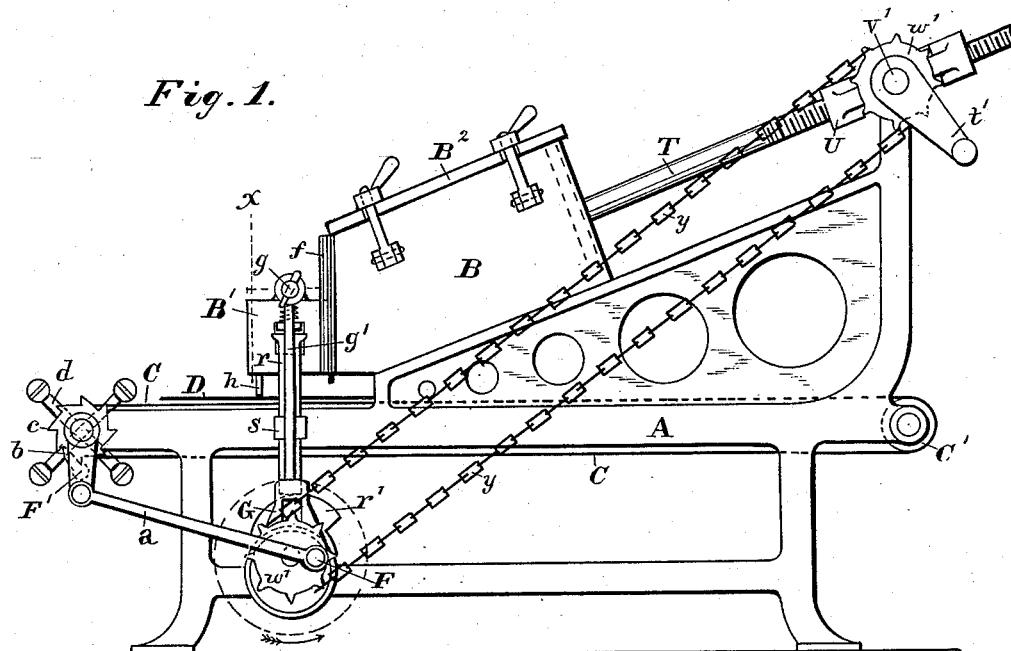
(No Model.)

2 Sheets—Sheet 1.

H. S. DOSH.
CAKE MACHINE.

No. 306,141.

Patented Oct. 7, 1884.



Witnesses:
A. C. Eader
John E. Morris.

Fig. 3.

Inventor:
Henry S. Dosh
By Chas B. Mann
Attorney.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 4.

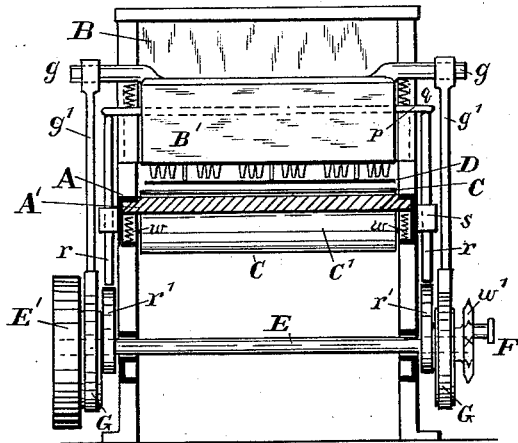


Fig. 5.

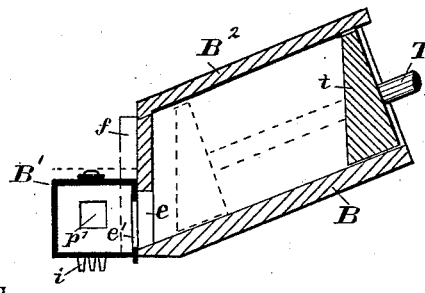


Fig. 7.

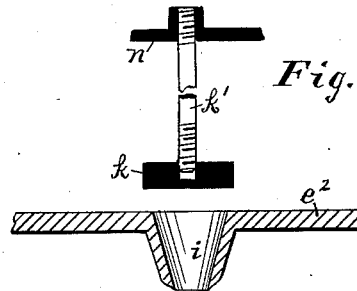


Fig. 6.

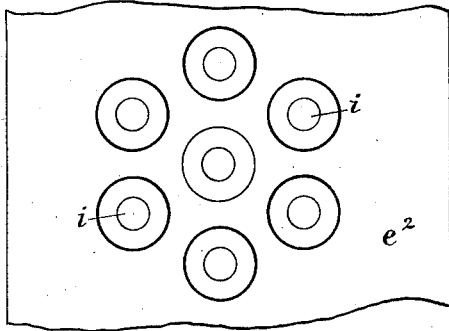


Fig. 10

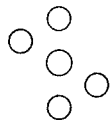


Fig. 13



Fig. 11



Fig. 9

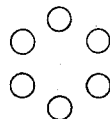


Fig. 8

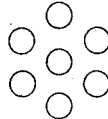
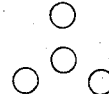


Fig. 12



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UNITED STATES PATENT OFFICE.

HENRY S. DOSH, OF BALTIMORE, MARYLAND.

CAKE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 306,141, dated October 7, 1884.

Application filed February 26, 1883. (No model.)

To all whom it may concern:

Be it known that I, HENRY S. DOSH, a citizen of the United States of America, residing at Baltimore, and State of Maryland, have invented certain new and useful Improvements in Cake-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

My present invention relates to a power-machine for making cakes of "soft" dough, as hereinafter described and claimed.

In the drawings hereto annexed, Figure 1 is a side elevation of the machine. Fig. 2 is a top view of the same. Fig. 3 is a vertical longitudinal section of the dough-dropper on line *x x*, Fig. 1. Fig. 4 is a front end elevation of the machine, the table or frame part, however, being shown in section. Fig. 5 is a vertical section of the dough-box and dropper on line *z z*, Fig. 2. Fig. 6 is a plan view, about full size, of the dough-dropping nozzles, showing the arrangement of the seven nozzles with respect to each other. Fig. 7 is a vertical section, about full size, of one of the nozzles and the stopper for the same. Figs. 8 to 13 are diagrams exhibiting the various combinations of the dropping-nozzles, whereby cakes of six or more different designs may be made from my plan of employing seven nozzles.

The letter A designates the table of the machine; B, an inclined dough-box; C, an endless apron or belt mounted on two rollers, C', one at each end of the table, and D a sheet-metal plate or pan to receive the dropped dough which is to constitute the cake. This pan rests upon the apron, by which it is carried along below the dough-box. The upper surface of the endless apron is directly above a board, A', extending from one end of the machine to the other, the top surface of the said board being flush with the top of the roller at either end. This board serves to prevent the apron from sagging down when pressure is brought upon it, as hereinafter set forth.

The shaft E has at one end a drive-pulley, E', by which power is applied. A crank-head, F, on the shaft is connected to an arm, F', loosely mounted on the shaft of roller C', at the front end of the table, by a pitman-rod, *a*, whereby a swinging movement may be

given the said arm. This arm carries a spring-pawl, *b*, which engages with a ratchet-wheel, *c*, keyed on the end of the shaft of the roller. By this arrangement the continuous rotation of the shaft E causes an intermittent rotary movement of the roller C', which in like manner moves the apron which carries the cake-pan D.

At the other end of the front roller-shaft is a wheel, *d*, with arms similar to a pilot-wheel. When the cake-pan has received the last deposit of dropped dough which it is capable of holding, and the person attending the machine is entering another pan, it is desirable to prevent drops of dough from being deposited on the abutting ends of the two cake-pans. To this end the endless apron on which the pans rest should be quickly moved past the nozzles by the attendant partly turning the armed wheel *d*.

A dough-dropper is attached to the inclined box at its lowermost part, the vertical side of which has a dough-discharge opening, *e*. This dropper consists of a box, B', adapted to reciprocate vertically in slides *f* on the end of the dough-box. The side *e'* of the dropper-box is open where it adjoins the dough-box, so that soft dough in the latter passes through the opening *e* and open side *e'* into the dropper-box, and these two openings are always coincident or in communication, whether the dropper be up or down. Projecting from each end of the dropper-box is an arm, *g*, and a rod, *g'*, from an eccentric, G, on each end of the shaft connects with the said arm. It will thus be seen that the eccentrics and rods raise and lower the dropper-box at each revolution of the shaft E. Two or more pins, *h*, are attached to and depend straight down from the bottom of the dropper-box, and these pins are longer than the projecting nozzles. When the dropper-box is lowered, the ends of these pins come down on the cake-pan and serve, by pressing the pan, to level or flatten out any kinks or bulging places which exist in the sheet metal.

While the board A' serves to prevent the apron from sagging down when the pins *h* of the dough-dropper press on the cake-pan, it is necessary that the said board should be adapted to yield slightly, in order that if a piece of

dough or any other obstruction should happen to be between the cake-pan and apron no damage will result to the mechanism. To this end springs *w* of rubber or metal are provided, on which the board *A'* is supported. By this means the board will yield under considerable pressure.

The nozzles *i* are cast integral with the bottom *e*² of the dropper-box. From the inner or upper side to the discharge-orifice these nozzles taper, as shown in Fig. 7, and at the discharge-orifice the end of the nozzle is sharp, which is effected by exteriorly beveling off the nozzle. Each nozzle is controlled by a stopper, *k*, which has a screw-stem, *k'*. The stem being screwed into the stopper and into the head *n*, permits the stopper to be detached, and, if desired, the removal of the stem. The seven nozzles (see Fig. 6) are so disposed with respect to each other that cakes of different designs may be produced by closing certain of the nozzles. Any one or more of the nozzles may be closed by inserting therein a suitable plug of wood. (Not shown.) Figs. 8 to 13 illustrate some of the several dispositions of the seven discharge-nozzles which may be effected by closing part of them.

With open nozzles arranged as shown in Fig. 8, a cake may be made composed of seven drops of dough, which, after dropping on the pan, run together and form a single cake, as shown in Fig. 9. The open nozzles would produce a cake of six drops in the form of a ring. As shown in Fig. 10, the open nozzles would produce a cake of five drops, as shown in Figs. 11 and 12 the open nozzles would produce a cake of four drops and as shown in Fig. 13, a cake of three drops.

The stems of the seven stoppers are all screwed into one head, *n*, which has ears *n'*, by which it is attached to a bar, *p*, extending horizontally through the dropper-box. The two ends of the dropper-box have a slot, *p'*, through which passes the ends of the bar *p*. As ordinarily organized this bar carries six heads, *n*, each of which has seven stoppers attached. This bar has vertical movement. When it is down, each of the stoppers covers a nozzle whereby all the latter are closed, and when the bar is up the stoppers are above the nozzles, and the latter are open. The bar is kept down normally by a spring, *q*, above each end, and thus all the nozzles are kept closed. The horizontal bar is raised to allow the dough to pass out through the nozzles by a rod, *r*, at each end of the dropper-box, adapted to move vertically. This rod slides endwise in a guide, *s*, and is moved up by a cam, *r'*, on the shaft *E*.

It will thus be understood that in operation the dropper-box is lowered by the eccentric rod *g'*, and the sheet-metal pan is leveled or flattened out by the pressure of the pins *h*. Then the stoppers are withdrawn or raised from the nozzles by the action of the cam and rod on the horizontal bar *p*, whereupon the drops of dough are left on the pan, the cams suddenly pass the lower ends of the rods *r*, and

the springs *q* press the bar *p* down, thereby quickly closing the nozzles. The pan *D* is then carried forward a space by the intermittent movement of the endless apron, and then the operation of dropping dough is again repeated.

The dough-box *B* has an inclined position and an opening, *e*, through the vertical lower side. The result of arranging this dough-box with its bottom inclining is that the soft dough presses by gravity into the vertically-movable dropper-box. A plunger, *t*, is fitted in the box to press the dough, and said plunger moves crosswise of the inclined bottom, and is driven by means of a fixed screw-stem, *T*, which passes through a yoke or frame, *U*, supported above the rear end of the machine. A bevel gear-wheel, *u*, has a sleeve, *u'*, which is internally threaded, and this wheel has position in the yoke and the screw-stem passes through the sleeve. A second bevel-wheel, *N* gears with the wheel *u*, and is mounted on a shaft, *v'*, which passes through one side of the yoke. At the outer end of the shaft *v'* a sprocket-wheel, *w'*, is mounted, and another like wheel, *w*, is mounted on the shaft *E*. An endless drive-chain, *y*, passes over the two sprocket-wheels, and thereby motion is communicated from the shaft *E* to the bevel-wheel, which has an internally-threaded sleeve, causing the same to turn around the screw-stem. By this mechanism the screw-stem and plunger *t* are moved continually, while the movements of the dough-dropping mechanism are intermittent, resulting advantageously, in that when the nozzles are opened an accumulation of the pressure on the dough causes it to be promptly ejected. A crank, *t'*, is on the shaft *v'*, and when it is desired to withdraw the plunger *t* from the dough-box in order to refill it through the top *B*² it is only necessary to throw off the drive-chain and turn the crank back.

I have set forth at length a description of the several parts of my machine, have explained the use and operation of each part, and have indicated the advantages resulting therefrom. I may now add that I desire to claim all the novel parts and legitimate combinations thereof for all purposes in working dough for cakes, crackers, or such like articles.

I therefore claim as my invention—

1. The combination, in a dough-machine, of a dough-dropper box provided with a number of nozzles, slides in which the dough-dropper box may reciprocate vertically, a movable bar, *P*, within the said box, and stoppers within the box connected with the said movable bar, whereby the dough-dropper box may be reciprocated vertically and the nozzle-stoppers may be moved up and down independently of the movement of the box, as set forth.
2. The combination, in a dough-machine, of a stationary dough-box with an opening, *e*, in its vertical side, a dough-dropper box with an open side, *e'*, always in communication with

the opening in the said dough-box, slides in
which the dough-dropper box may reciprocate
vertically, a movable bar within the dough-
dropper-box, and stoppers connected with the
5 said movable bar, whereby the dough-dropper
box and stoppers may each move independent-
ly, and any pressure on the dough in the sta-
tionary box will be continually felt in the
dough-dropper box and cause the dough to be
10 promptly ejected, as set forth.

In testimony whereof I affix my signature, in
presence of two witnesses, this 6th day of Feb-
ruary, 1883.

HENRY S. DOSH.

Witnesses:

JNO. E. MORRIS,
JNO. T. MADDON.