2 Sheets—Sheet 1.

A. E. SPENCER.

Machine for Making Yeast Cakes.

No. 208,272. Patented Sept. 24, 1878.

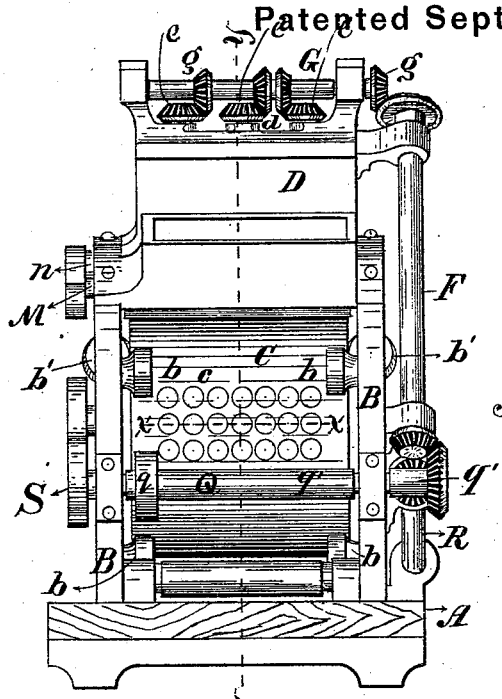

Fig. 1.

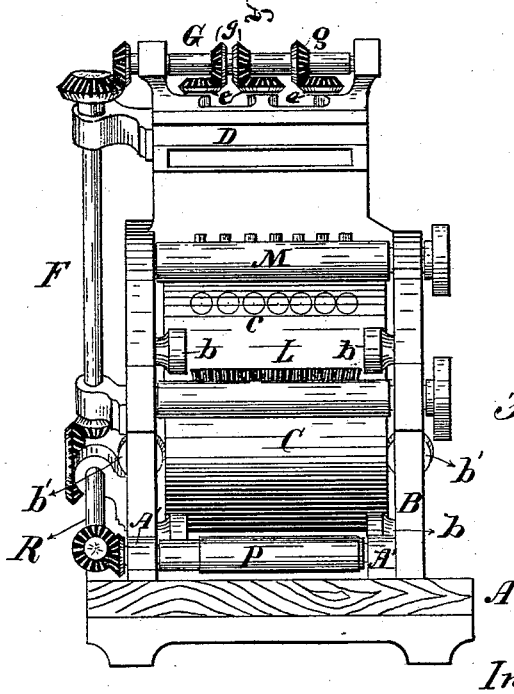

Fig. 2.

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Fig. 3.

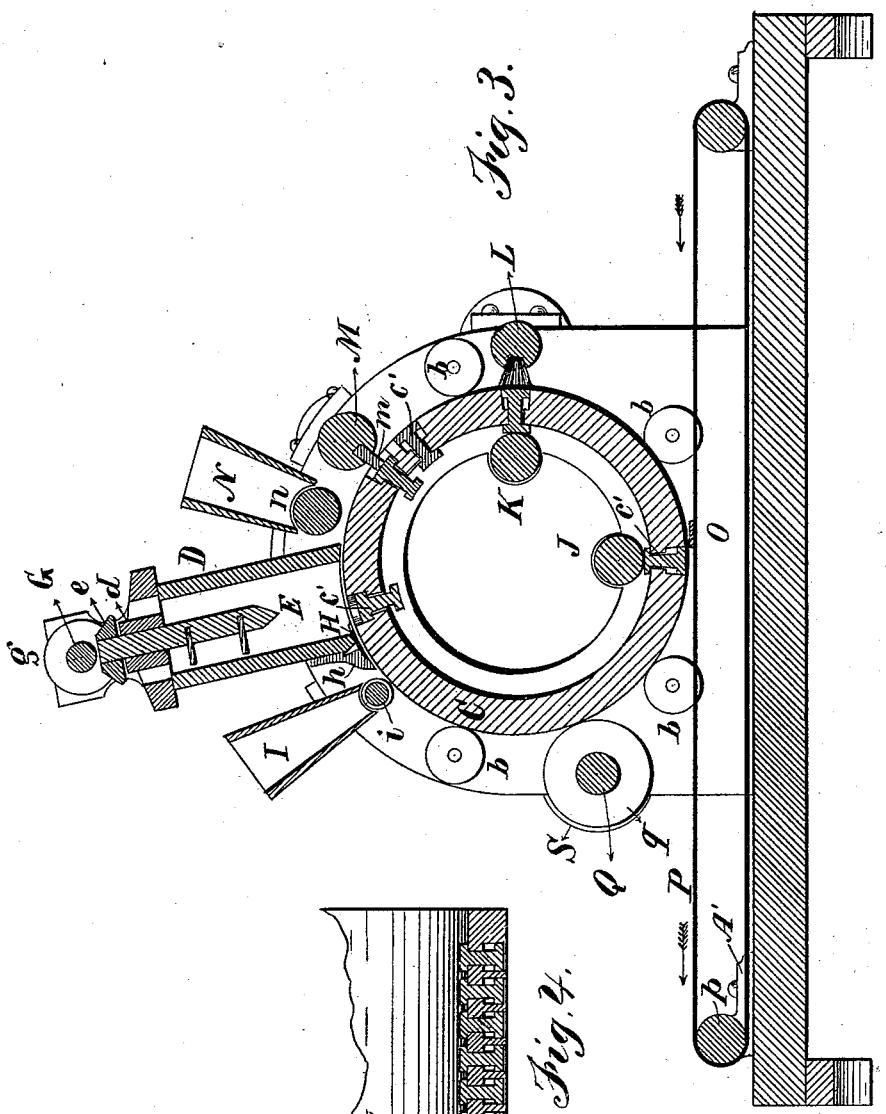
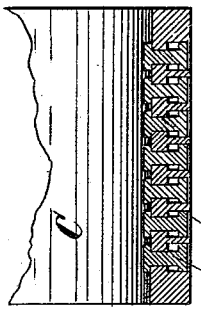


Fig. 4.



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UNITED STATES PATENT OFFICE.

ARCHELAUS E. SPENCER, OF CHICAGO, ILLINOIS, ASSIGNOR OF TWO-THIRDS OF HIS RIGHT TO CHARLES R. STEELE AND V. CLARENCE PRICE, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR MAKING YEAST-CAKES.

Specification forming part of Letters Patent No. **208,272**, dated September 24, 1878; application filed August 20, 1877.

To all whom it may concern:

Be it known that I, ARCHELAUS E. SPENCER, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Yeast-Cake Machines, which is fully described in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a rear elevation of a machine containing my improvements; Fig. 2, a front elevation of the same; Fig. 3, a longitudinal vertical section taken on the line *y y*, Fig. 1; and Fig. 4, a detail cross-section of the main cylinder, taken on the line *x x*, Fig. 1.

My invention relates to a machine for preparing yeast-cakes from the prepared batter, whereby all hand-work is obviated.

The invention consists in a large rotating cylinder provided with recesses, in which the yeast-dough is deposited to form the cakes, and which are provided with pistons or plungers, to be forced out at the proper time to discharge the cakes.

It also consists in a knife or scraper attached to the lower end of the hopper, just over the cylinder, for removing the surplus dough, so that the cake-receptacles will be evenly filled.

It also consists in rollers arranged within the cylinder at suitable points to thrust out the pistons when required to discharge the cakes, and to hold them in this position while being cleaned subsequently.

It also consists in a revolving brush, arranged outside of the cylinder, for cleaning the pistons after the cakes have been discharged.

It also consists in a revolving shaft provided with studs or projections for forcing back the pistons before passing under the hopper, so that they will not prevent the deposit of dough in the cake-receptacles.

It also consists in a knife or scraper arranged just in front of the point where the cakes are discharged, so as to detach said cakes and insure their discharge upon the carrier.

It also consists in various devices and combinations of devices, all of which will be hereinafter more fully set forth.

In the drawings, A represents a suitable stand or support, upon which are mounted two large standards, B, one at each side thereof. These standards support a large hollow cylinder, C, by means of a circle of anti-friction rollers, *b*, arranged upon the inside of each standard, upon which the cylinder C rests, anti-friction rollers *b'* being also arranged in the standards, so as to bear against the edges of the cylinder C, as shown in Figs. 1 and 2 of the drawings.

The cylinder C is provided with apertures *c* over its entire surface, these apertures being arranged in rows extending nearly across the cylinder, and being made of the size desired for yeast-cakes. The inner portion of the apertures is contracted, and forms a bearing for short plungers or pistons *c'*, which are fitted to slide therein, their outer ends being enlarged to fit the outer portion of the apertures, and their inner ends being enlarged within the cylinder, to form a head or stop to limit the outward movement of the pistons. The pistons are made of such length that when forced outward as far as possible their outer faces will be flush with the surface of the cylinder, and when driven inward against the shoulders within the aperture *c* they will be depressed below the surface of the cylinder about the thickness of a yeast-cake.

Upon the upper part of the standards B is mounted a hopper or receiver, D, in which the yeast-dough is placed, and within which are stirrers or mixers E, supported in bearings *d* in the cover of the receiver, and rotated by means of pinions *e*, driven by a shaft, G, arranged above the hopper, and provided with bevel-pinions *g*, meshing with the pinions *e*. The hopper may also be provided with any known device suitable for pressing the dough into the cups or apertures in the cylinder C. At the back of the hopper, and immediately under the lower edge thereof, is a knife or scraper, H, fastened to a plate or strip, *h*, which is secured, in any suitable manner, to the back of the hopper. The scraper H is arranged as close to the cylinder C as is pos-

sible and permit the latter to revolve beneath it. A little back of the yeast-hopper is a second smaller hopper, I, in which meal is placed, and below the open lower end of which is an elastic roller, *i*, arranged to run in contact with the cylinder C.

The supporting-standards B have large central openings, about the size of the interior of the cylinder C, and a roller, J, is mounted in bearings at lowest portion of the openings in the standards, so that it extends across the cylinder C, upon the inside thereof. This roller is arranged so that its distance from the inner surface of the cylinder C is about the same as the thickness of the inner heads of the plungers *c'*, so that there is just room for the latter to pass under the roller, as shown in Fig. 3 of the drawings.

A similar roller, K, is supported in a similar manner some distance above the roller J, and at the front end of the machine.

Upon the outside of the cylinder C, opposite the roller K, is a revolving brush, L, also having its bearings upon the standards B, which, as it revolves, is brought into contact with the cake-cylinder. Farther up upon the standards B, and above the revolving brush, is a roller, M, provided with a series of short studs or projections, *m*, which are arranged to correspond with a row of the apertures or recesses *c* in the cake-cylinder, and are of such length that when striking into said recesses they will drive the pistons *c'* to the bottom thereof.

Just in front of the hopper D, and between it and the toothed cylinder M, is a second meal-hopper, N, with a roller, *n*, at its lower end, driven, as will be hereinafter described, out of contact with the cake-cylinder.

Below the cylinder C, and just in front of the roller J, is a knife or scraper, O, which is arranged so that the surface of the cake-cylinder will just pass above it, and is supported by the standards B. An endless belt or carrier, P, is arranged just below the cylinder C and scraper O, being passed around a roller, *p*, on a stand, A, and driven in the direction of the arrows by any suitable mechanism.

A main driving-shaft, Q, is mounted in the standards at the rear of the machine, to which motion is communicated in any well-known way. This shaft is provided with a small wheel, *q*, which may either be a friction-wheel running in contact with the cylinder C, or a toothed pinion meshing with a corresponding rack upon the cylinder.

Upon the outer end of this shaft, at the left side of the machine, is a bevel-pinion, *q'*, meshing with corresponding pinion upon shafts F and R, from the former of which motion is communicated to the mixer-shaft G, and from the latter to one of the carrier-rollers *p*, as shown in Fig. 2 of the drawings.

Upon the other end of the shaft Q, at the right side of the machine, is a band-pulley, S, by which motion is communicated to the brush L by means of a similar pulley on its shaft, and thence to the studded shaft M and distributer *n*, in a manner which will be readily understood.

The brush L, I have shown in form of a shaft with a brush at one side; but it may be constructed in any other way which will provide a brush adapted to clean the cake-cylinder. The roller M may be provided with one or several rows of pins, *m*, according to the velocity with which it is caused to revolve.

The operation of my machine is as follows: The yeast-dough being placed in the hopper D and the machinery set in motion, the cylinder C is caused to revolve below the hopper, and as each row of recesses *c* is brought underneath the hopper with the plungers depressed, as shown in Fig. 3 of the drawings, they will be filled with yeast and then carried underneath the scraper H, which removes all surplus dough and leaves the surface clean and smooth. Passing on, the cakes are next carried underneath the elastic roller *i*, by which they are slightly compressed, so as to present an even surface, and at the same time are sprinkled with meal. The cakes are carried round thence with the cylinder until the roller J is reached, when the plungers *c* are forced outward as they pass under the roller, thereby discharging the cakes from their receptacles upon the endless apron below, the knife or scraper O detaching the cakes as they are pushed out and dropping them upon the apron, thereby always insuring the delivery of the cakes at the proper time. The plungers are then carried along to the revolving brush L, where they are held out by means of the roller K, and are cleaned by the action of the brush. Passing upward thence they come beneath the roller M, the revolution of which is so timed that a row of pins, *m*, will strike into each row of recesses *c* as they pass underneath the roller, thereby forcing the plungers inward, as shown in Fig. 3 of the drawings. After leaving the roller M the cups are carried under the hopper N, and receive a little meal from the roller *n*, when they are prepared to be again filled with yeast as they pass under the hopper D.

The cups or recesses *c* in the cylinder C, it will be understood, are made as thick as possible, although in the drawings I have shown only a few rows, sufficient to illustrate the operation of the machine, and have arranged them in straight lines in both directions. An alternate arrangement of the recesses in the rows across the cylinder will, however, be preferable, as a greater number may thus be made in the cylinder.

The arrangement of mechanism for driving the several parts of the machine is not necessarily confined to that above described; but any suitable driving mechanism may be employed, and under any arrangement which is adapted to the purposes stated.

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

1. In a machine for making yeast-cakes, the cylinder C, provided with cells and pistons *c*, for the purpose set forth, in combination with the first mealing-hopper, N, and roller *n*, the dough-hopper E, and the final mealing-hopper, I, and the elastic roller, for joint operation to produce yeast-cakes, as set forth.

2. In a machine for making yeast-cakes, the combination of the cylinder C, provided with cells and pistons *c*, with revolving brush L and roller K, to throw said pistons forward at the proper moment to encounter said brush, as set forth.

3. In a machine for making yeast-cakes, the roller K, in combination with the cake-cylinder provided with sliding pistons and the brush L, substantially as and for the purpose set forth.

4. In a machine for making yeast-cakes, the shaft M, provided with pins *m*, in combination with the recessed cylinder and movable pistons, substantially as and for the purpose set forth.

5. In a machine for making yeast-cakes, the elastic roller *i*, in combination with the cake-cylinder, substantially as and for the purpose set forth.

6. In a machine for making yeast-cakes, the meal-hopper I, in combination with the elastic roller *i* and cake-cylinder C, substantially as and for the purpose set forth.

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Witnesses:
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