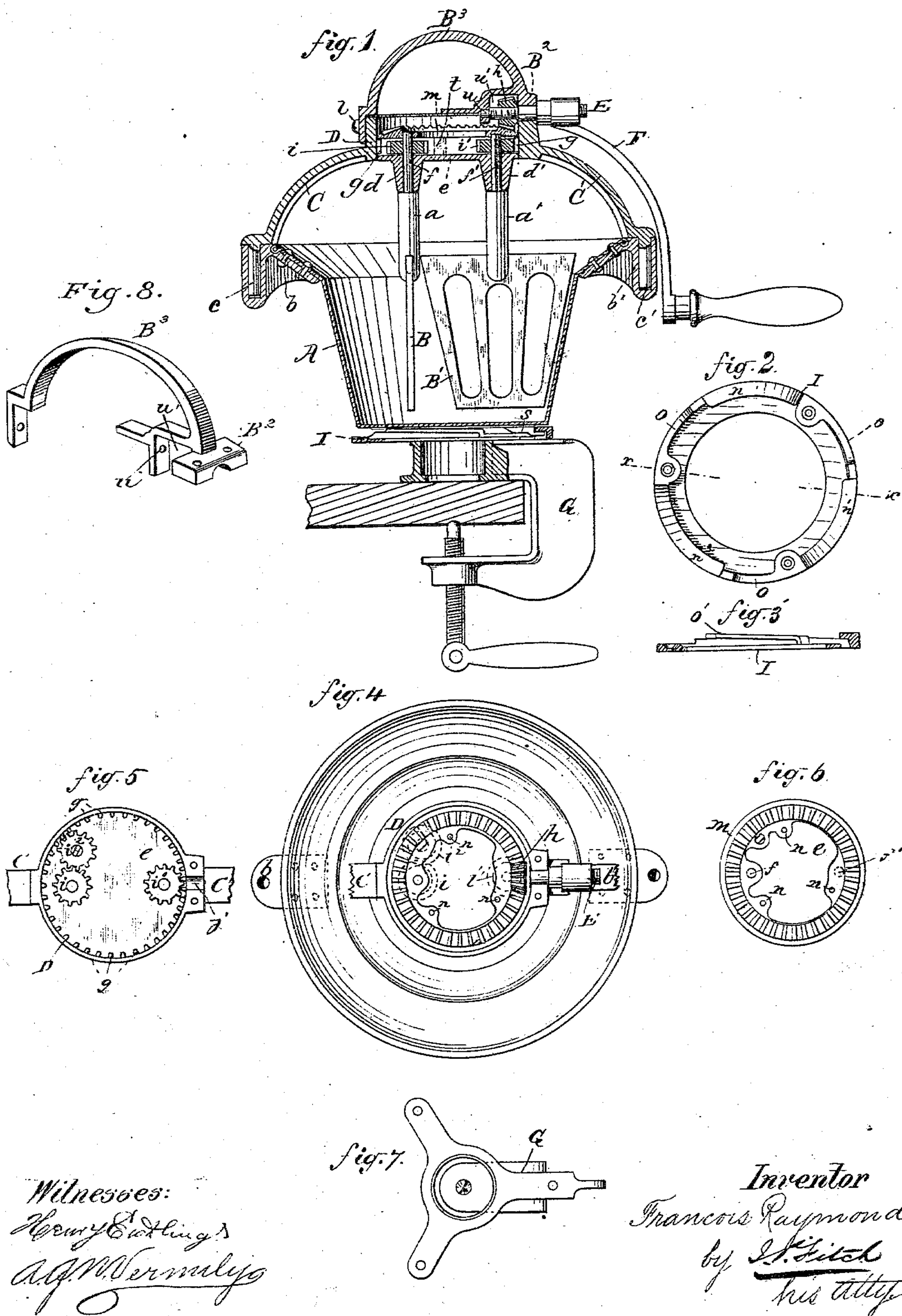


(No Model.)

F. RAYMOND.  
DOUGH MIXER.

No. 283,511.

Patented Aug. 21, 1883.





# UNITED STATES PATENT OFFICE.

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## DOUGH-MIXER.

SPECIFICATION forming part of Letters Patent No. 283,511, dated August 21, 1883.

Application filed May 3, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, FRANCOIS RAYMOND, of Wood Haven, in the county of Queens and State of New York, have invented a new and useful Improvement in Dough-Mixers, of which the following is a specification, reference being had to the accompanying drawings, forming a part of the same, in which—

Figure 1 is a vertical central section of a dough-mixer which embodies my invention; and the remaining Figs. 2 to 7, inclusive, are detail views of the several parts of the machine, to be particularly described hereinafter. Fig. 8 is a perspective view of the part hereinafter designated by the letter B<sup>3</sup>, showing said part removed from the case D.

My invention relates to a dough-mixer in which the work is done by two rotating stirrers in a suitable vessel, the stirrers being constructed so as to rotate on their respective axes, while the axes revolve around the central axis of the vessel.

It also relates to attaching the mixer to a table, and the detaching it therefrom; and it consists in the devices and their combinations hereinafter described and claimed.

A is a hollow pan or vessel, preferably made tapering from the top to the bottom and flaring at the top, as shown in Fig. 1.

B B are the stirring-blades, respectively attached to axle-shafts *a a'*, that are journaled at their upper ends in a revolving disk, *e*, in which long bearings for the journals are provided by the projections *d d'* on the under side thereof, that are drilled through to receive the journal *f f'*.

D is a circular case or rim that is supported centrally over the vessel A by the curved arms C C', that extend from it on opposite sides, and the outer or lower ends of which rest upon brackets *b b'*, secured to the flaring rim of the said vessel. The said brackets are provided with vertical sockets into which fit pins or studs *c c'*, thus holding the said arms C C' and the case D securely in place on the vessel, and at the same time permitting their ready removal from it by a directly-upward movement. Around the inner face of the case D, near the bottom edge, are formed gear-teeth *g*, as seen

plainly in Fig. 5. The disk *e* fits loosely into the lower end of the case D against the lower ends of said gear-teeth *g*.

*m* is a beveled-gear annulus, which is fitted loosely into the said case down upon the upper ends of said gear-teeth *g*, and the said disk *e* and annulus *m* are fastened together by screw-bolts that pass through holes in the said disk and into screw-threaded holes *n n n* in the annulus *m*, so that they must revolve together within the said case, the former below and the latter above the gear-teeth *g*, they being held within the case by the said teeth. Hollow studs are formed on the upper face of the disk *e*, and the screw-bolts which fasten the said disk and the annulus together pass through these hollow studs, one of which is shown at *t*, Fig. 1. The annulus *m* rests down upon the upper ends of these studs and is screwed fast thereto. The length of the studs is such that the said disk and annulus may revolve, one above and the other below the teeth *g*, without gripping the said teeth between them. On the upper ends of the shafts *a a'*, which project through the disk *e*, as shown in Fig. 1, are fixed small gear-wheels *i i'*, one of which, *i'*, meshes with the gear-teeth *g* on the case D. Between the gear *i* and the said teeth is an intermediate gear, *i''*, journaled in the said disk *e* and annulus *m*, that meshes with both.

E is the driving-shaft, provided with a crank, F. It is mounted to revolve in bearings on the upper end of the case, one bearing being in a lug, *j*, formed on the side of the case D at the top of the arm C', and the other at *u* in the cap B<sup>2</sup>, which is screwed down upon the said lug *j*. This cap has a recess, *u'*, and a beveled gear, *h*, on the shaft E is in this recess, and thus covered up. A curved bar, B<sup>3</sup>, extends from the cap B<sup>2</sup> over across the case D, and is secured by a screw at *l* to the opposite side thereof. This arrangement affords a firm support to the cap B<sup>2</sup>, and provides a handle by which the stirring-blades and the case and its connections may be taken hold of. The gears are so adjusted that the blades are set relatively to each other, as shown in Fig. 1—that is to say, when the plane of one blade coincides with the plane of the axis of the other



the planes of the two blades are at right angles to each other, and so that the distance between their axes is only about one-half the breadth of the upper part of one of the blades. Each  
 5 in revolving will thus sweep a circle extending from the inner face of the vessel on one side near A to the axial shaft of the other on the opposite side. As will be manifest, when these blades are revolving coincidently as their  
 10 halves on one side of their axes approach each other the dough will be pressed together between them, while at the same time the two opposite halves as they recede from each other will pull the dough on that side asunder.  
 15 They will thus have the peculiar effect of compressing the dough on one side of the vessel and pulling it on the other—an action which is most favorable not only to a very complete kneading of the dough, but also of repeatedly  
 20 pulling it, which, as is well known to bakers, imparts to the dough a fine cellular structure, which is very desirable. By turning the crank F a rotary motion is given to the annulus *m* and disk *e* through the gear *h*. By this motion the stirring-blades will be carried around  
 25 within the vessel A, their axes describing a circle having for its center the center of the said disk *e*, thus causing the stirring-blades as they revolve on their axes to act on the dough throughout all parts of the interior surface of the vessel A. The blades are turned on their axes by the engagement of their gears *i' i'*, the former with the fixed teeth *g* of the case and the latter with the gear *i*<sup>2</sup>, and that with  
 30 the said fixed teeth. The blades B B' are provided with slotted openings, which greatly assist in the before-named compressing and pulling of the dough.

In order to conveniently hold the vessel A  
 40 fixedly in place while the stirrer is being operated, I provide a flat ring, I, of peculiar construction, a top face view of which is shown in Fig. 2, and a cross-section on line *x x* of same in Fig. 3, to which the vessel A is to be

attached, as shown in Fig. 1. On the outer  
 45 edge of the face of said ring is an upwardly-projecting rib, *o*, on which are formed three inwardly-projecting flanges, *n n' n*<sup>2</sup>, which set inclined lengthwise to the face of the ring, thus forming wedge-shaped spaces between  
 50 them and the ring. On the bottom face of the vessel A are fixed three bracket-shaped feet, one of which is shown at *s*, Fig. 1. Now, by setting the vessel down upon the ring with the said feet between the said flanges, and then  
 55 turning the vessel on its center the feet will slip in under the flanges and be held firmly. The vessel may be disengaged by reversing the motion. The ring I may be screwed down upon a table, or preferably it may be attached  
 60 in any suitable way to a screw-clamp, G, and the clamp secured to the table as represented in Fig. 1.

What I claim as my invention, and desire to secure by Letters Patent, is— 65

1. The combination of the vessel A, the stirring-blades B B', the axle-shafts *a a'*, the revolving disk *e*, and gear-annulus *m*, the driving-shaft E, the gears *h i i' i*<sup>2</sup>, and the case D, and means, as described, for supporting and  
 70 connecting said case with the vessel A, provided with the gear-teeth *g*, all constructed and arranged to operate as and for the purpose described.

2. The combination of the vessel A, provided  
 75 with the socket-brackets *b b'*, the stirring-blades B B', the shafts *a a'*, and operating mechanism as described, the case D, and supporting-arms C C', provided with the pins *c c'*, that fit into the sockets in said brackets, whereby  
 80 the said stirring-blades may be removed from or placed in the said vessel by a direct vertical movement, as and for the purpose described.

FRANCOIS RAYMOND.

In presence of—

A. G. N. VERMILYA,  
 A. S. FITCH.