

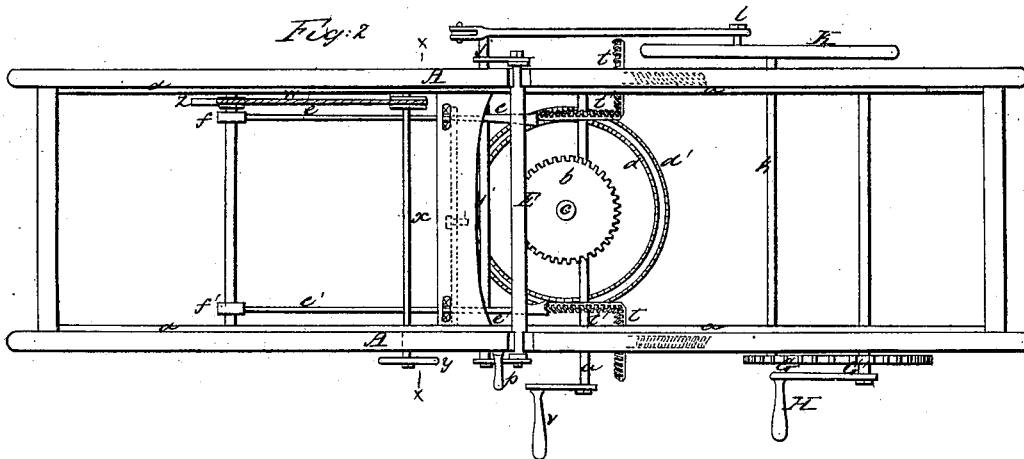
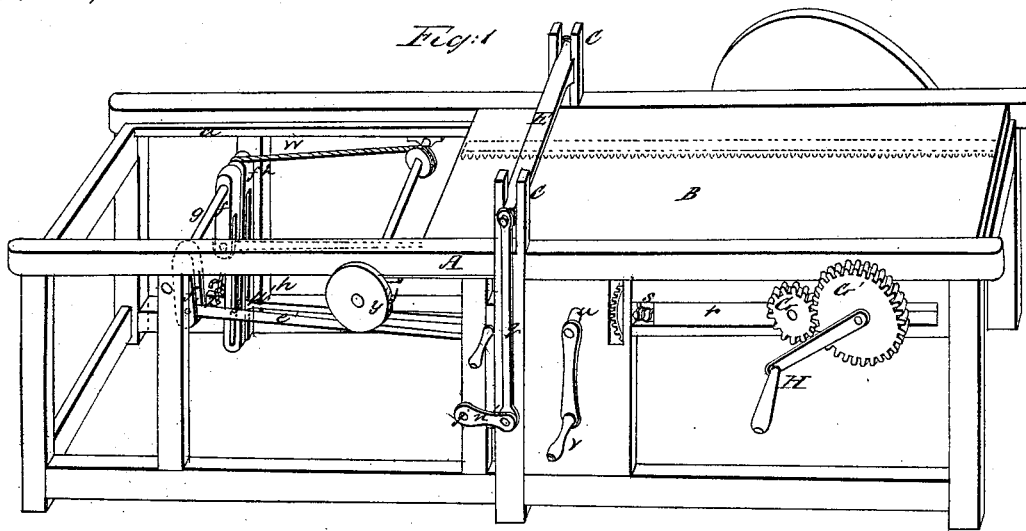
Sheet 1-2 Sheets.

H. N. Rider,

Bread Machine,

N^o 7,105.

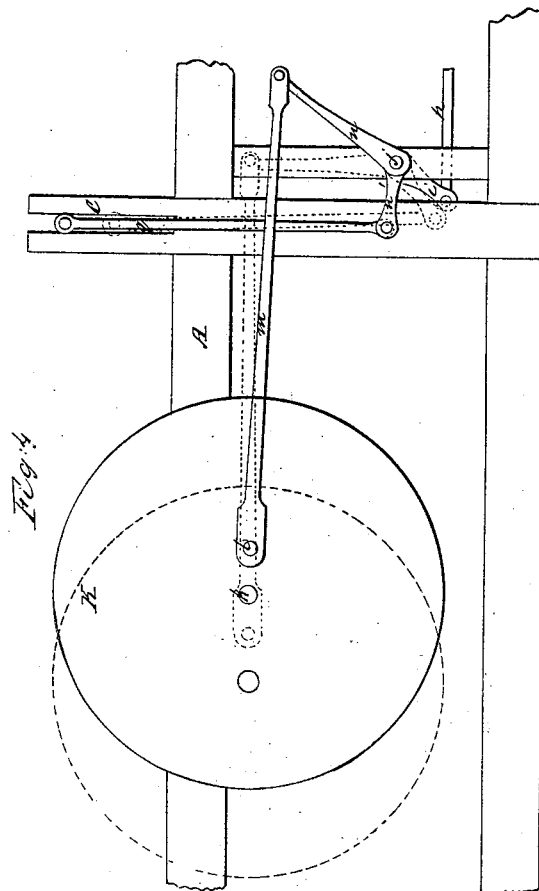
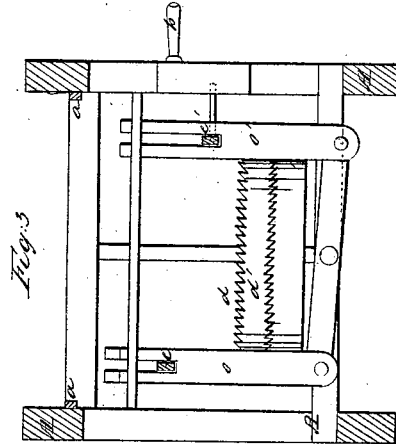
Patented Feb. 19, 1850.



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UNITED STATES PATENT OFFICE.

HENRY N. RIDER, OF ADAMS, MASSACHUSETTS.

METHOD OF KNEADING DOUGH.

Specification of Letters Patent No. 7,105, dated February 19, 1850.

To all whom it may concern:

Be it known that I, HENRY NORMAN RIDER, of North Adams, in the county of Berkshire and State of Massachusetts, have invented a new and useful Machine for Kneading Dough, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form part of this specification, and in which—

Figure 1 represents a view in perspective of my machine. Fig. 2 is a plan of the same with the kneading table removed. Fig. 3 is a vertical cross section at the line *x x* of Fig. 2, and Fig. 4 is an elevation of a portion of the back of the machine.

My invention consists in passing the dough alternately in opposite directions beneath a reciprocating breaker by which the kneading is effectually performed; and also in the various devices by which the several motions of the breaker and kneading table are obtained and regulated.

In the drawing A, is a strong frame to which the several members of the machine are attached. Two parallel ways *a, a*, are secured to its upper length bars. These ways support the kneading-table B on which the dough is placed; the table has a rack (shown in dotted lines in Fig. 1) secured to its under face which gears into a cog-wheel *b*, mounted upon the upper extremity of a vertical shaft, *c*, supported in bearings attached to the cross bars of the frame. Two face ratchet wheels *d, d'*, are mounted upon the lower extremity of the vertical shaft, their teeth sloping in opposite directions; these are acted upon by two fingers *e, e'*, pivoted to the ends of two arms *f, f'*, depending from a rock shaft *g*, which crosses the frame. This rock shaft has a third arm *f²* secured to it, which is connected by a rod *h*, with an arm *i* depending from a second rock-shaft *j*; the latter receives an oscillating motion from a fly wheel shaft *k*, mounted at one extremity of the frame through the intervention of a crank pin *l*, connecting rod *m*, and arm *n*. The object of the two reverse toothed ratchet wheels *d, d'*, with their respective fingers is to move the kneading table in either direction at will and the fingers are so arranged that but one is operating at a time; this is accomplished by passing each of them through a slot in a sliding upright *o, o'*, the two uprights are pivoted to the opposite extremities of a

balance beam D so that when one (*o*) is raised to lift its respective finger (*e*) out of gear with its appropriate ratchet wheel (*d*), the other (*o'*) is depressed to lower its finger (*e'*) into gear with its ratchet wheel (*d'*). One of the uprights (*o'*) is connected with a handle, *p*, projecting from the side of the machine by which it is raised or lowered to move either finger in or out of gear at the will of the operator. A pair of uprights C, C, are mounted upon the upper length bars of the frame, these guide the breaker E, which slides up and down in slots made in them for that purpose. The breaker has a triangular cross section the edge being beneath to act upon the dough laying on the kneading-table. The extremities of the breaker extend beyond the slots in the uprights, and each is connected by a rod, *q, q*, with an arm *n', n'*, projecting from the rock-shaft *j*; as therefore this shaft is rocked by the revolution of the fly wheel shaft, the breaker is moved up and down in the slotted uprights. The mass of dough placed on the table varies continually in thickness and it is necessary that the breaker should be adjusted at a greater or less distance from the table without stopping the kneading; this is accomplished by moving the fly wheel shaft *k*, from or toward the rock-shaft *j*, see Fig. 4, and thus changing the position of the extreme points to which the arms *n, n'*, oscillate; the opposite bearings of the fly wheel shaft are therefore each supported in a sliding carriage *r*, which is moved to or from the center of the machine by a stationary screw, *s*, whose nut is secured in the end of the carriage; to the head of each screw is attached a beveled wheel *t*, which gears into a corresponding beveled wheel *t'*, on a cross shaft *u*, which is turned by a crank *v*, thus turning the screws and screwing the fly wheel shaft from or toward the rock shaft *j*. It is also necessary that the kneading table should be arranged to move at different stages of the process with different velocities, and that this change should also be effected without stopping the machine; this is accomplished by raising or lowering the pivot of the connecting rod *h* in the arm *f²* of the rock shaft, *g*, and thus giving the finger arms *f, f'*, a greater or less vibration, the arm is therefore slotted and the pivot is slid up or down in this slot by raising or lowering the end of the connecting rod *h* through which the pivot is passed;

the connecting rod is raised by a cord *w*, one of whose extremities is attached to it, while the other is wound upon a cross-shaft *x*, which is turned to wind or unwind the cord
5 by a hand wheel *y*, secured to one of its extremities; when the cord is unwound, the rod is drawn down by a weight *z*, attached to it.

The mass of dough is placed upon the kneading table, and the breaker and table
10 both receive motion from the crank pin, *l*, of the fly wheel *K*, which is put in motion by the wheels *G*, *G'*, the last of which is turned by a crank *H*. The director then standing in front of the machine applies his
15 hands to the crank *v*, or to the hand wheel *y*, thus regulating the stroke of the breaker, and the velocity of the kneading-table while he can also change the direction in which

the table moves, by raising or depressing the handle, *p*. 20

Having thus described my improved kneading machine, what I claim therein as my invention, and desire to secure by Letters Patent is—

The combination of a reciprocating knead- 25 ing-table with a reciprocating breaker substantially as herein set forth, but irrespective of the devices by which they are severally put in motion.

Having signed the foregoing specification 30 in presence of two subscribing witnesses.

HENRY NORMAN RIDER.

Witnesses:

NEHEMIAH HODGE,
E. D. WHITAKER.