

M. J. FERREN.
BREAD CUTTING MACHINE.
APPLICATION FILED JUNE 9, 1908.

941,065.

Patented Nov. 23, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

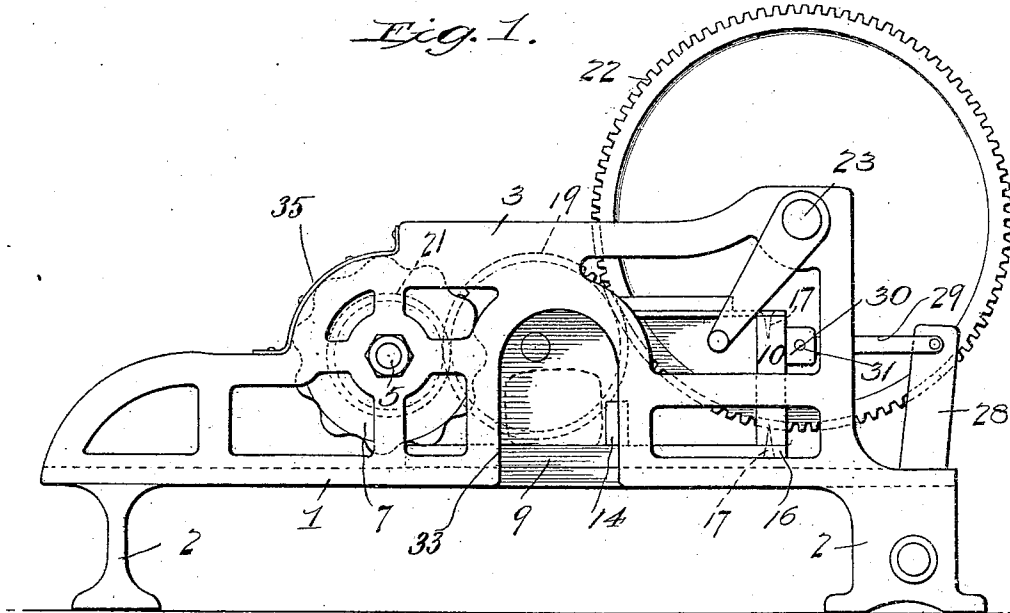
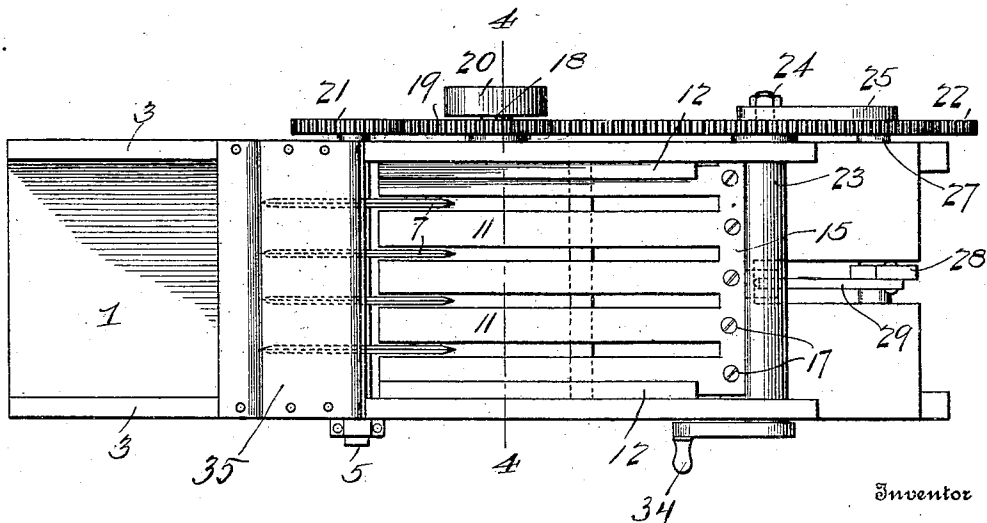


Fig. 2.



Inventor

Witnesses
T. L. McGowan
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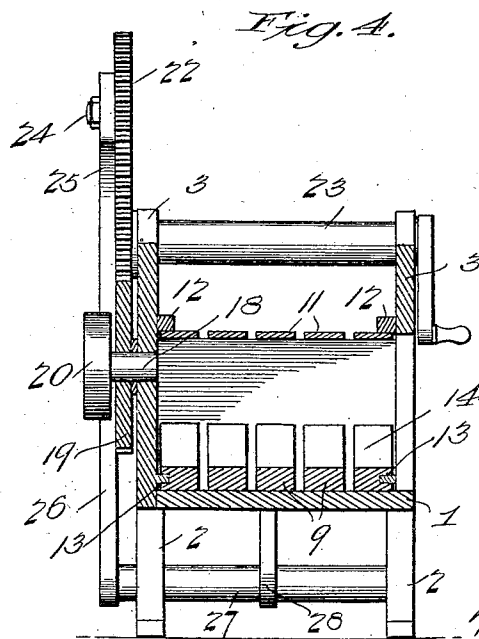
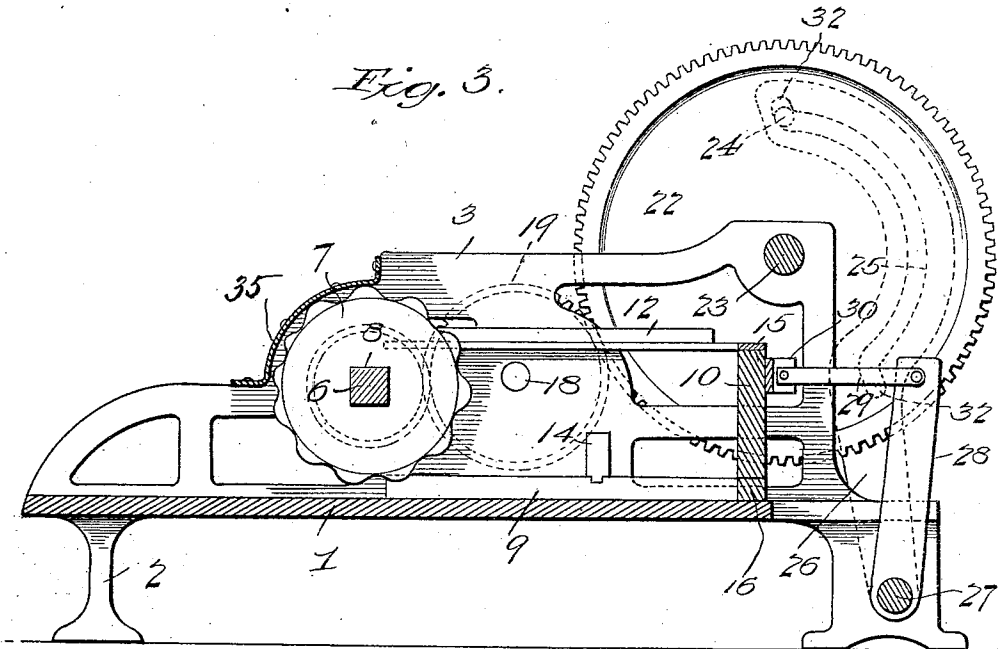
Myron J. Ferren
By O. E. Kilmun Attorney

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2 SHEETS—SHEET 2.



Inventor

Witnesses

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UNITED STATES PATENT OFFICE.

MYRON J. FERREN, OF WASHINGTON, DISTRICT OF COLUMBIA.

BREAD-CUTTING MACHINE.

941,065.

Specification of Letters Patent.

Patented Nov. 23, 1909.

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To all whom it may concern:

Be it known that I, MYRON J. FERREN, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Bread-Cutting Machines, of which the following is a specification.

My invention relates to new and useful improvements in machines for slicing bread, and more particularly of the type wherein means is provided for simultaneously cutting a loaf into a plurality of pieces at a single operation whereby the loaf is reduced into slices of the desired thickness more expeditiously than can be done by cutting each slice separately.

The primary object of my invention is to construct a machine of the type mentioned which will be extremely simple in construction, efficient in operation, and durable and satisfactory in use.

A further object is to provide a machine which can be operated by a single operating device to simultaneously move the loaf to the cutters and operate the latter to perform the cutting operation.

A further object is to provide cutting means of improved construction which will cut a plurality of slices at a single operation cleanly and evenly, without tearing or crumbling the bread.

A further and important object is to provide a cutting mechanism having improved features of adjustability which will permit of the ready adjustment of said mechanism to cut slices of varying thickness.

Another object is to provide an improved and simplified means for feeding a loaf to the cutting mechanism and holding the same in position relative thereto to be cut into slices.

To the ends above stated, the invention consists in the improved arrangement and aggroupment of parts in operative combination to be fully described hereinafter, and the novelty of which will be particularly pointed out and distinctly claimed.

I have fully and clearly illustrated an embodiment of my invention in the accompanying drawings to be taken as a part of this specification and wherein:—

Figure 1 is a view in side elevation of a machine embodying my invention. Fig. 2 is a top plan view. Fig. 3 is a longitudinal central section. Fig. 4 is a section on the line 4—4 of Fig. 2.

Referring to the drawings: 1 designates a table or bed which is substantially rectangular in plan, and of such material and dimensions as best suit it for the purposes intended, said bed being preferably of cast metal and having integral therewith legs or feet 2. Rising from the longitudinal edges of the bed or table are vertical side pieces 3, 3, which inclose the cutting and feeding parts of the machine. These side frames are also preferably of cast metal and in skeleton form as shown so as to add lightness to the parts. Within the side frames 3, 3, at a point adjacent one end of the same, are journaled the ends of a transversely extending shaft 5, having round journals at the end portions, but for the greater part of its length between the side frames is angular in cross section, being shown in the drawings as square, as at 6, this formation being for a purpose to be presently set forth. Mounted on this shaft are a plurality of annular cutting blades or disks 7 having convolute cutting edges to insure a clean cut of the slices without tearing or crumbling the bread. These blades are formed with central openings 8 through which the shaft 5 passes said openings being formed to correspond to the cross section of the shaft and to closely engage the same so that said blades rotate with the shaft but may be readily moved longitudinally thereof. It will be understood that the number of blades on this shaft will be varied according to the number of slices into which it is desired to cut a loaf, and means will be presently described for maintaining these blades in proper spaced relation to cut slices of determined thickness.

Slidably mounted upon the upper face of the bed 1, is a sliding pusher or carriage comprising a plurality of bottom slats or members 9 connected at their rear ends to a cross head 10 and of sufficient length to project at their forward ends to approximately a point beneath the shaft 5. These members 9 are arranged in parallel spaced relation so that when they are pushed forward to feed the loaf to the cutters, one slat will pass between each two cutters. From the upper edge of the cross-head 10 projects a similar set of members 11 which at all times project between the cutting blades during the reciprocations of the carriage. It will thus be seen that the members or fingers 9, 11, serve as spacing means to hold the blades in the

desired spaced relation during both the forward and backward movements of the carriage. The movements of the carriage may be guided by means of guide flanges 12, 12, on the side frames 3, 3, overhanging the edges of the upper fingers 11, 11, and by the tongue and groove connection between the lower outer members 9, 9, and the side frames as shown at 13, 13.

Each of the lower fingers 9, 9, of the carriage may be formed or provided with a transverse ledge or abutment 14, against which the back of the loaf rests when being fed up to the cutters, said ledges moving up between the cutters so as to push the slices of bread clear through and beyond the cutters on the forward movement of the carriage.

From the above description it will be apparent that the cutting blades are free to move lengthwise of the shaft 5, and that they are spaced in proper relation by means of the fingers 9, 9, 11, 11, on the feed carriage, the distance between adjacent blades depending on the width of the fingers. In order to cut slices of different size, it is only necessary to change the carriage for one having narrower or wider fingers. I provide a simple means of accomplishing this end by making the sets of fingers in the form of a comb, the heads 15, 16 of which are secured to the upper and lower edges of the cross-head 10 by means of suitable screws as at 17.

Any desired means may be provided for rotating the knife shaft and reciprocating the feed carriage, but I have devised and employed the following means as supplying an efficient means for the purpose stated:—
Journaled on a stub shaft 18 projecting from the side of one of the side frames 3, is a spur gear 19 carrying a belt pulley 20 for connection with a suitable source of power. This gear meshes with a spur gear 21 on the shaft 5 extending transversely of the machine and journaled in the side frames 3, 3, and a gear wheel 22 mounted on one end of the shaft 23 also journaled in said side frames. The gears 19, 21 and 22 are so proportioned that the cutter shaft will make about fifty revolutions to one or two of the shaft 23. Projecting from the outer face of the gear 22, is a pin 24 which engages within a curved cam slot 25 formed within a rock arm 26, the lower end of which is rigidly connected to a rock shaft 27 journaled transversely of the machine frame. Rigidly connected to this rock shaft 27 is a second rock arm 28 projecting upwardly therefrom and connected at its upper end by a link 29 with the rear side of the cross-head 10, as by ears 30, and removable cotter-pin 31. The arrangement is such that, power being applied to the pulley 20 to rotate the gear 19, the gear 21 and the cutter shaft 5 will be rotated at a

high rate of speed, and the gear 22 will also be rotated but at a much lower speed. The rotation of the gear 22 will carry with it the pin 24 which coacting with the cam slot will rock the lever 26, the rock shaft 27 and the rock arm 28 which will serve through the link 29 to reciprocate the feed carriage. I preferably form the ends of the cam slot with dwells 32, so that the carriage will have short periods of rest at the ends of its movement sufficient to permit the easy placing of a loaf upon the carriage, an opening 33 through the side 3 being provided for this purpose.

In order that the machine may be driven manually if desired or occasion demand, I may provide one end of the shaft 23 with a hand crank 34 as shown in Figs. 1, 2 and 4 of the drawings.

The hands of the person removing the slices from the table 1 are in a measure protected by means of a guard plate 35 secured to the side frames and overhanging the cutters so that the hands cannot be easily thrust into contact therewith.

What I claim is:—

1. In a machine of the character described, the combination of a cutter shaft, a plurality of cutters mounted thereon to rotate therewith, but capable of free movement lengthwise of said shaft, and feed mechanism having means for maintaining the cutters in spaced relation.

2. In a machine of the character described, the combination of a cutter shaft, a plurality of cutters mounted thereon to rotate therewith, but capable of free movement lengthwise of said shaft, and reciprocating feed mechanism having means for maintaining the cutters in spaced relation.

3. In a machine of the character described, the combination of a cutter shaft, a plurality of cutters mounted thereon to rotate therewith, but capable of free movement lengthwise of the shaft and feed mechanism having projecting parts extending between the cutters to maintain the same in spaced relation.

4. In a machine of the character described, the combination of a cutter shaft, a plurality of cutters mounted thereon to rotate therewith but capable of free movement lengthwise thereof and a reciprocating feed carriage having parts projecting between the cutters to maintain the same in spaced relation.

5. In a machine of the character described, the combination of a cutter shaft, a plurality of cutters mounted thereon to rotate therewith but capable of free movement lengthwise of the shaft and a reciprocating feed carriage provided with upper and lower sets of fingers projecting between the cutters to maintain the same in spaced relation.

6. In a machine of the character described, the combination of a cutter shaft, a plurality of cutters mounted thereon to rotate therewith, but capable of movement lengthwise of the shaft and spacing devices independently of the shaft for maintaining the blades in spaced relation.

7. In a machine of the character described, the combination of a cutter shaft, a plurality of cutters mounted thereon to rotate therewith, but capable of movement lengthwise of the shaft and spacing fingers independent of the shaft and projecting between the cutters to maintain them in spaced relation.

8. In a machine of the character described, the combination of a cutter shaft, a plurality of cutters mounted thereon to rotate therewith but capable of free movement lengthwise of the shaft, a reciprocating

feed carriage provided with fingers projecting between the cutters to maintain the same in spaced relation, a rock shaft connected to said carriage and gearing for simultaneously rotating the shaft and rocking said rock shaft.

9. In a machine of the character described, the combination of a cutter shaft, a plurality of cutters mounted thereon to rotate therewith, but capable of free movement lengthwise of said shaft, and means for maintaining said cutters in spaced relation comprising a plurality of reciprocating elements arranged between the cutters.

In testimony whereof I affix my signature in presence of two witnesses.

MYRON J. FERREN.

Witnesses:

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C. G. HEYLMUN.