

Sept. 30, 1952

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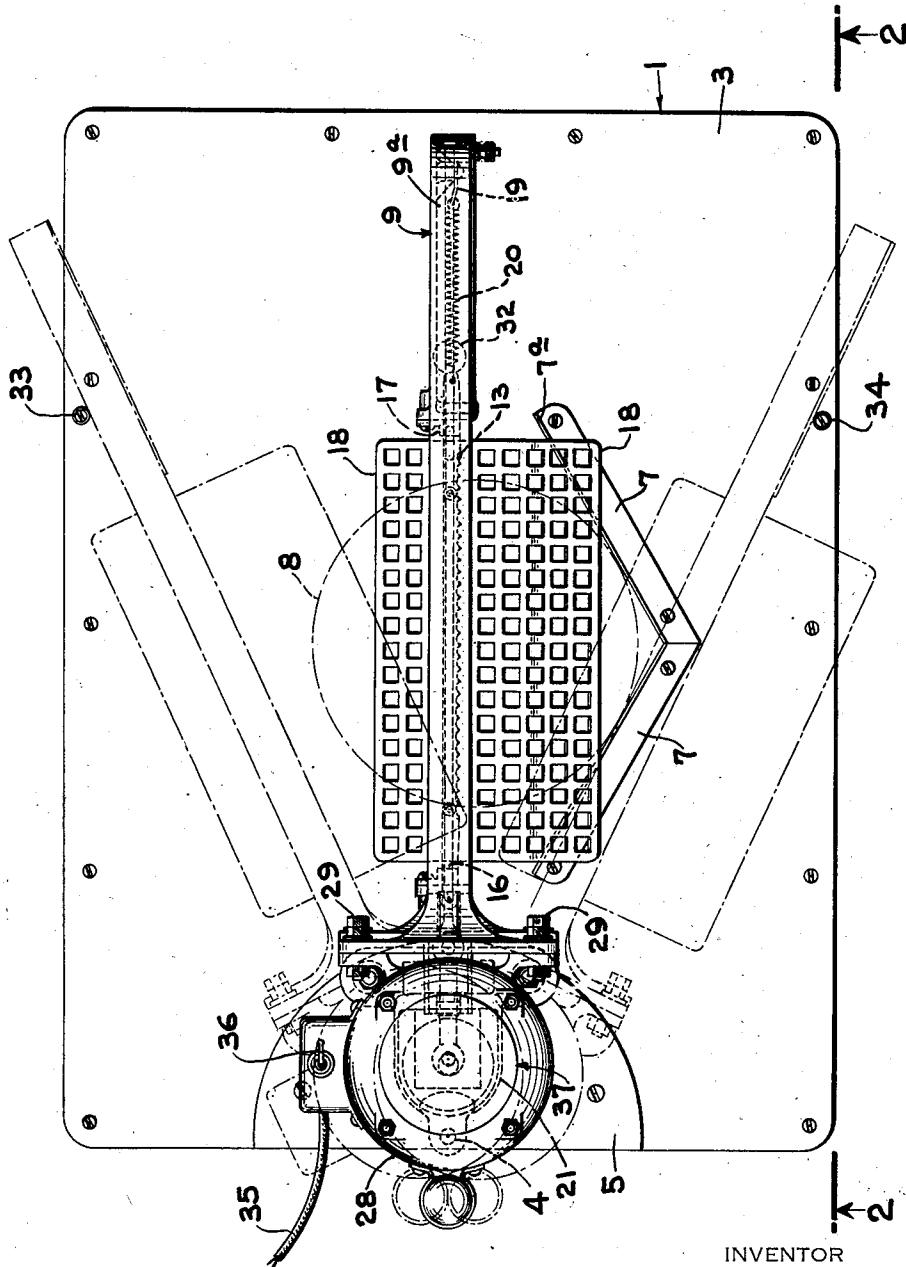
2,612,198

MACHINE FOR SLICING STATIONARILY-POSITIONED BAKERY PRODUCTS

Filed June 15, 1948

3 Sheets-Sheet 1

Fig. 1



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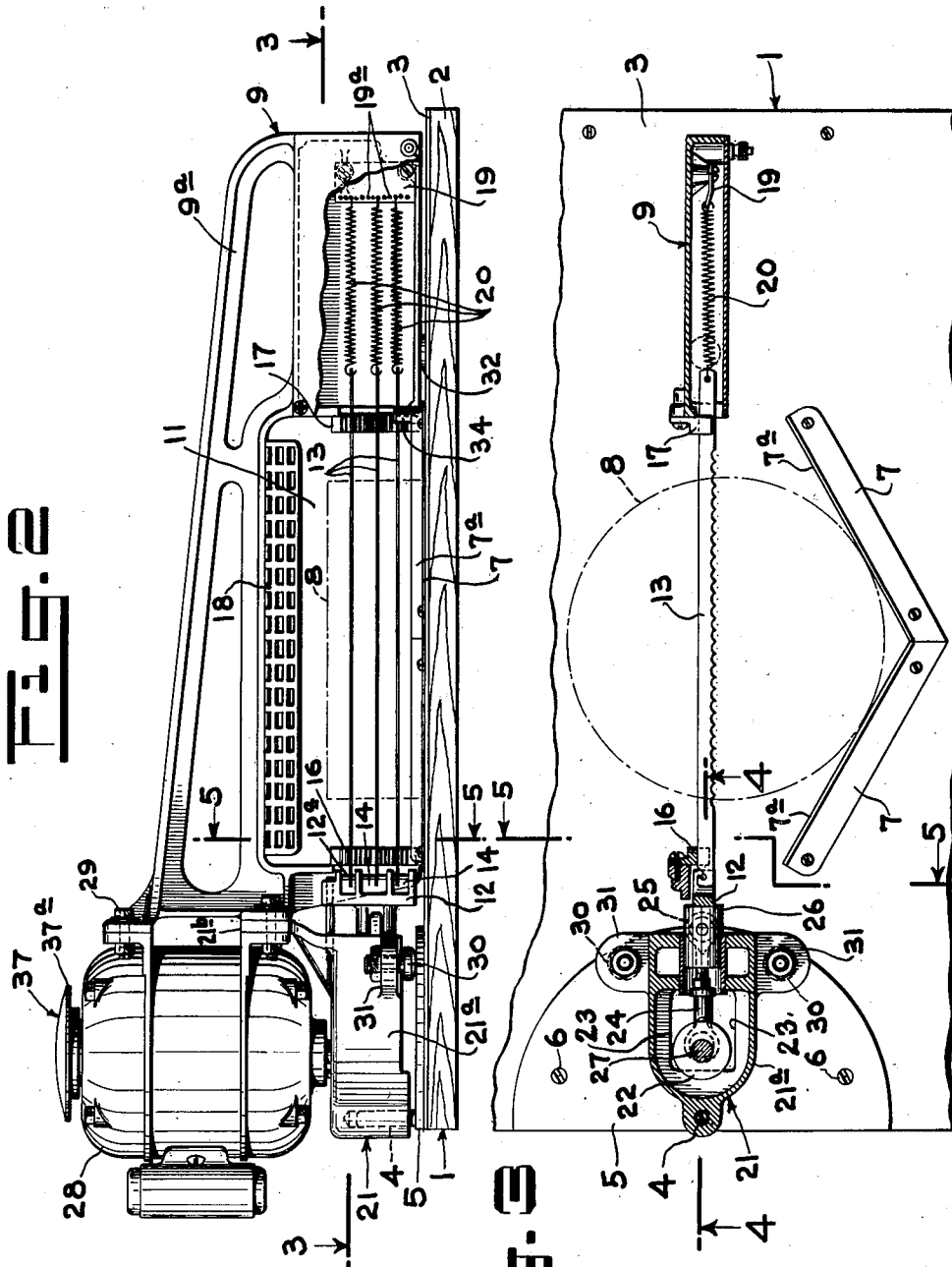


Fig. 2

Fig. 3

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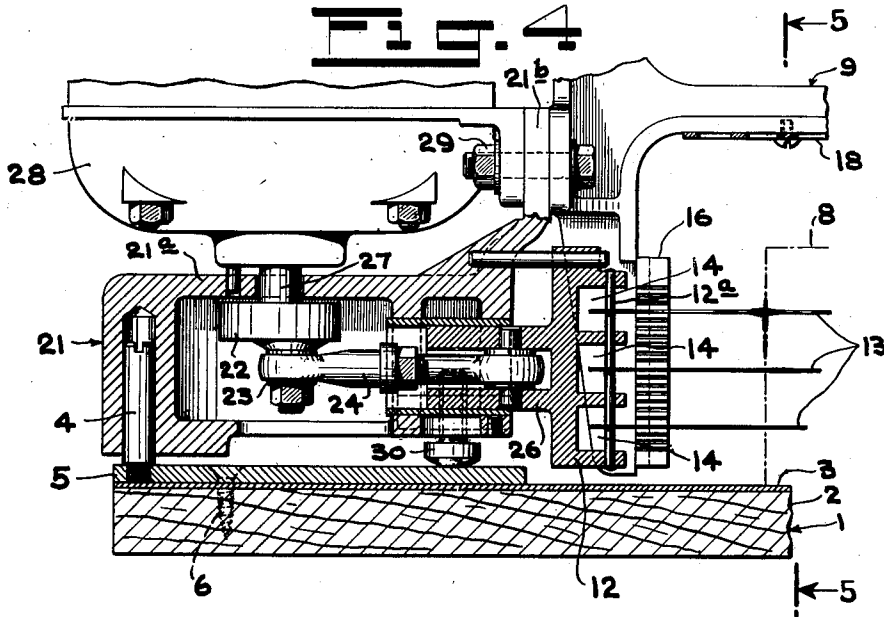
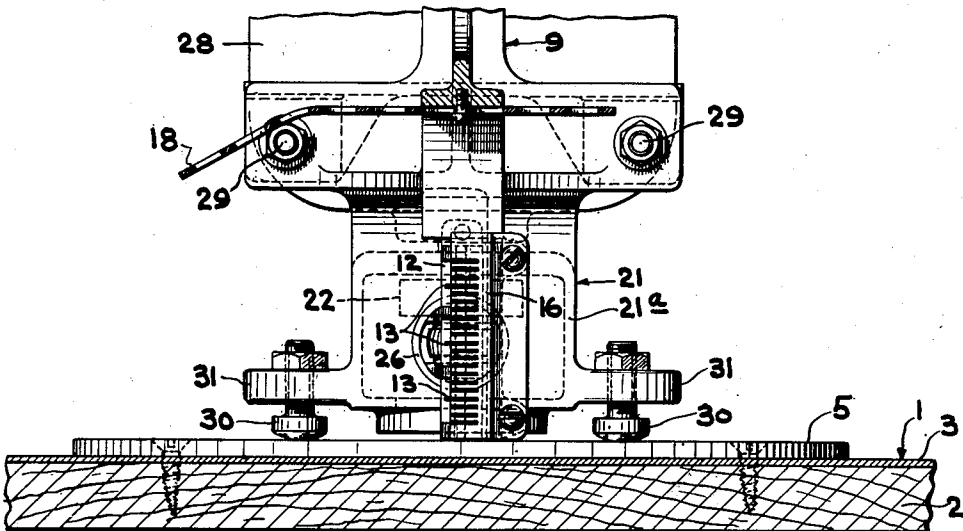


Fig. 5



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MACHINE FOR SLICING STATIONARILY POSITIONED BAKERY PRODUCTS

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6 Claims. (Cl. 146—139)

1

This invention relates to improvements in machines for slicing stationarily-positioned bakery products.

One of the objects of this invention is to produce a horizontal slicing machine in which the product to be sliced is maintained in stationary position and cutting knives are mechanically reciprocated while being moved in an arcuate path through said product.

Still another object of my invention is to provide a mechanism having one or more mechanically-reciprocated slicing knives mounted in a radially-extending operating frame movable in an arcuate path, combined with means for retaining the product to be sliced in a fixed position in the arcuate path of the reciprocating knives in said radially-extending and arcuately-movable operating frame, whereby conveying devices for the product may be eliminated and the slicing-machine construction may be greatly simplified.

Still another object of my invention is to produce a horizontal slicing machine of the type specified having a stationary product-supporting table, combined with a radially-projecting operating frame pivoted at one edge on said supporting table and free at its opposite edge to enable manual arcuate movement over said supporting table of said frame about its pivot, said operating frame having one or more horizontally-disposed slicing knives mounted therein for mechanical reciprocation, power means is employed for reciprocating said knife or knives, and means is provided on said supporting table for maintaining the product in a stationary position within said path of arcuate movement of said reciprocating cutting knives.

Still another object of my invention is in a horizontal slicing machine of the character specified to provide a pivoted radially-disposed operating frame having mounted therein one or more mechanically-actuated reciprocating knives, a stationary product-mounting table on which said radially-disposed operating frame is pivotally movable in an arcuate path during mechanical reciprocating movement of said knife or knives, means on said table is provided for retaining the product in stationary position relatively to the said arcuately-movable operating frame and means is also provided on said table for supporting said operating frame during its said arcuate movement.

Still another object of my invention is in a machine of the character specified to provide in combination with a pivotally-movable operating frame, a motor mounted on and movable with

2

said pivoted operating frame for operating an eccentric to reciprocate the knife or knives and thus to cause continuous and unimpeded movement of said eccentric during arcuate operating movement of said operating frame.

Still another object of my invention is to provide a pivoted arcuately-movable carrier member or bracket including a casing for mounting eccentric mechanism adapted to reciprocate one or more knives in a radially-projecting operating frame and to carry in said movement a motor for actuating said eccentric mechanism, whereby said radially-projecting operating frame is unitarily connected with said motor and both may be moved by hand-manipulation to produce an unimpeded slicing engagement of said knife or knives with a stationary bakery product.

Still another object of my invention is in a machine of the character specified, to utilize for the reciprocation of the slicing knife or knives mechanism that will be strong and durable and will eliminate strains and stresses that have heretofore caused the bending and breakage of reciprocating connecting rods having articulating connections with an eccentric or eccentrics, and with this end in view I provide a two-part or bifurcated connecting rod adapted to engage and embrace intermediate its ends the articulating joint or connection with the eccentric rod or strap, and to enable such joint or connection to be articulated within a rod-bearing member having a diameter adapted to receive and cooperate with said heavy bifurcated or two-part rod so as to permit both articulation of the joint and reciprocation within said bearing, and thus to avoid much of the strains and stresses heretofore imposed upon such rods and to effectually resist such strains as may be imposed thereon.

With these and other objects in view, the invention comprises the combination of members and arrangement of parts so combined as to co-act and cooperate with each other in the performance of the functions and the accomplishment of the results herein contemplated, and comprises in one of its adaptations the species or preferred form illustrated in the accompanying drawings, in which:

Fig. 1 is a view in plan of a machine embodying my invention;

Fig. 2 is a view in side elevation of the machine shown in Fig. 1 viewed from the section line 2—2 of Fig. 1;

Fig. 3 is a section on the line 3—3 of Fig. 2, looking in the direction of the arrows;

3

Fig. 4 is a section on the line 4—4 of Fig. 3, looking in the direction of the arrows; and

Fig. 5 is a section on the line 5—5 of Figs. 2, 3 or 4, looking in the direction of the arrows.

Referring now to these drawings, which illustrate a preferred embodiment of my invention, a support, preferably comprising a table 1 composed of a wooden body 2 having a metal surfacing plate 3 is provided at one side thereof with a pivot-pin 4 for the pivotal mounting of my slicing mechanism which will thus move in an arcuate path over the table 1. As shown, the pivot has a screw-threaded connection with a flat semi-circular and heavy metallic bearing plate 5 which is suitably mounted on the table, and, as shown, is fastened with its diametric edge registering with the edge of the table and its arcuate edge extending inwardly so that the flat surface of the plate will function as a flat, hard and smooth bearing for the pivoted slicing mechanism during its arcuate movement. Said pivot, as shown, extends upwardly from said plate at a right angle thereto, and said table is also preferably provided between its front and rear edges with position-maintaining or holding members for holding the product to be sliced in stationary position during movement of the reciprocating knife or knives therethrough. In the form shown, the product-holding member 7 comprises a pair of angle bars positioned in angular relation to each other and having upright flanges 7^a so that a bakery product or cake 8 positioned substantially at the center of the supporting table, as shown in dotted lines in Figs. 1 and 3, will be maintained in stationary position and held from shifting during subsequent horizontal slicing thereof by the slicing mechanism.

In accordance with the preferred form of my invention a horizontally-disposed slicing knife, and preferably a plurality or series of such knives 13 are mounted and guided to swing or move in an arcuate path over the table into contact with said cake 8 and during such arcuate movement to have a reciprocating movement in order to sever the cake into layers.

As shown, an operating frame member 9, preferably adapted to be operated manually, is pivoted on the pivot 4, extends radially therefrom and is movable in an arcuate path over the table and across the location of the product so as to cause the slicing knives to horizontally engage the product 8 during such pivotal movement of said operating frame. Said operating frame member 9 is preferably provided at its top portion with a handle portion 9^a for such manual operation and embodies a knife-mounting opening 11 registering during said movement with the product location and within this opening 11 is mounted a knife-mounting frame 12 which, as shown, is provided with three slicing knives 13. In the embodiment shown, the frame 12 has four horizontal partitions or fingers to divide the same into three knife compartments 14 and is provided at its inner edge with a single knife-holder pin 12^a which extends through said three knife-mounting compartments. In the preferred embodiment of my invention shown, the frame 9 is provided at opposite edges of the opening 11 with posts 16 and 17, each containing a series of spaced knife-aligning notches, and the portion of the frame 9 comprising the top of the opening 11 is provided with a guard member 18 extending to opposite sides of the opening 11 over the knives 13.

I preferably utilize a single knife-mounting frame 12 and provide a single eccentric 22 for re-

4

ciprocating this frame to cause reciprocation of three knives 13 which pass through and reciprocate in the notches in the posts 16 and 17 and at their outer ends are connected to springs 20, which in turn are connected to a plate 19 having holes 19^a to permit adjustment of the outer ends of the knives 13, the arrangement being such that the knives will thus be held in properly tightened and aligned positions to slice the cake 8 during a manually actuated pivotal movement of the frame 9.

In accordance with the preferred form of my invention shown, the operating frame 9 is mounted on a carrier unit 21 which carries the motor, operating frame and eccentric casing, and comprises the pivotally mounted eccentric casing 21^a for said single eccentric 22 and an upwardly-extending bracket 21^b for connection of the operating frame 9.

As illustrated, the eccentric 22 is suitably mounted in horizontal bearings 23 and is provided with an adjusting rod 24 having an articulating joint 25 which is connected with a connecting rod 26 which, in the form of my invention shown, is integrally connected with the knife-mounting frame 12. The eccentric 22 is, as shown, mounted upon a shaft 27 rotated by a motor 28 which is preferably mounted in the carrier unit 21 and positioned above the casing 21^a with its shaft 27 disposed vertically and entering said casing 21^a to rotate the eccentric 22.

As illustrated, the integral vertically-extending bracket 21^b is connected with the conventional supporting feet of the motor 28 and secured to said bracket by bolts 29 and the same bolts are preferably employed to connect to the said bracket the operating frame 9 which is formed separately from the unit 21.

By carrying the motor 28, as illustrated, the reciprocating movement of the knives will be completely unimpeded during the arcuate movement of the operating frame.

In the preferred embodiment of my invention the unit 21 is provided adjacent to the outer edges of the casing 21^a with a pair of weight-supporting contact members 30 mounted in a pair of bearing lugs 31 formed integrally with the casing 21^a and to balance the weight of the projecting frame at one side thereof and of the carrier unit and motor on the opposite side thereof. Said members 30 have contact with the plate 5 to assist in supporting the weight of the unit and the frame 9 is provided adjacent to the opening 11 with a remote weight-supporting contact member 32.

The table is also provided with movement-limiting stops 33 and 34 positioned near the front and rear edges of the table so as to engage the frame and limit the movement thereof adjacent to the outer end of the same.

In operation, all that is necessary is that the motor cord 35 be suitably connected to a source of current supply; that the switch 36 be thrown to start the motor which will thereupon cause reciprocation of the knives. The operating frame will, of course, be initially positioned in engagement with the stop 33 and the cake 8 will be positioned with its edges in engagement with the flanges 7^a of the member 7. Thereupon, a workman will grasp the handle 9^a of the operating frame 9 and move it in its arcuate path over the table and product till it engages with the opposite limiting stop 34. During this movement, the reciprocating knives will enter and slice the cake 8 horizontally into as many layers as may be

required, the number of which of course is controlled by the number of reciprocating knives in the operating frame.

Conventional motors of the type used by applicant are provided with slotted openings or ports arranged concentrically of the hub in the motor casing to permit cooling currents to air to pass over the rotating parts. Because of the positioning of my motors, these openings are in the top surface thereof, and in the preferred embodiment of my invention, I protect these openings from the passage therein of foreign substances, such as dust or flour by applying and fastening on the bearing hub of the motor a cap 37 having rim flanges 37^a extending outwardly above but spaced from said motor openings or ports in order to protect the same as aforesaid.

Having described my invention, I claim:

1. A machine for slicing stationarily-positioned bakery products comprising a supporting table along which a bakery product may be moved in a horizontal path, a stop member on said table to hold said product against movement in one direction, an operating frame member having horizontally-disposed knives mounted therein, means for mounting said frame to move in a horizontal arcuate path over and in parallelism with said support to engage and slice the said bakery product, said mounting means comprising a pivot on said support and a pivot bearing connected with said frame, a motor carried by said frame, means connected with said motor for reciprocating the knives mounted in said operating frame comprising a knife-mounting frame and an eccentric for reciprocating said frame, means for connecting said eccentric to said knife-mounting frame comprising a rod movable with said eccentric, a frame-connecting rod of two part construction having an articulating joint with said eccentric and a bearing within which said two part connecting rod is slidable over said articulating joint.

2. A machine for slicing stationarily-positioned bakery products comprising a horizontally-positioned supporting table along which a bakery product may be fed in a horizontal path, an operating frame member having a plurality of spaced horizontally-disposed knives mounted therein, means for mounting said frame to move in a fan-shaped arcuate path over said supporting table from a position adjacent to one side of said table to the opposite side thereof, said mounting means including a vertically-disposed pivot on said supporting table, a stop member having a height limited to the space between said table and the lowermost knife in said operating frame member to permit said frame and knives in said movement to pass over the same, said stop member being adapted to contact with the bottom portion of one side of the bakery product, a carrier unit for mounting said operating frame composed of an eccentric mounting casing, an eccentric in said casing, said casing having a pivot bearing for mounting on said vertical pivot, and a motor supported on said casing in endwise position and having its shaft extending vertically through said casing to operate said eccentric.

3. A machine for slicing stationarily-positioned bakery products comprising a horizontally-positioned supporting table along which a bakery product may be fed in a horizontal path, an operating frame member having a plurality of spaced horizontally-disposed knives mounted therein, means for mounting said frame to move

in a fan-shaped arcuate path over said supporting table from a position adjacent to one side of said table to the opposite side thereof, said mounting means including a vertically-disposed pivot on said supporting table, a stop member having a height limited to the space between said table and the lowermost knife in said operating frame member to permit said frame and knives in said movement to pass over the same, said stop member being adapted to contact with the bottom portion of one side of the bakery product, a carrier unit for mounting said operating frame composed of an eccentric mounting casing, an eccentric in said casing, said casing having a pivot bearing for mounting on said vertical pivot, a motor supported on said casing in endwise position and having its shaft extending vertically through said casing to operate said eccentric, means positioned adjacent to the forward edge thereof for supporting said carrier unit on said supporting table, said pivotal mounting of said carrier unit being positioned radially of said motor shaft in a rearward direction therefrom to cause the carrier unit and motor to be accurately movable in said fan-shaped arcuate path horizontally parallel with said supporting table from one side edge thereof to the other and in said movement to horizontally slice a bakery product held against movement by said stop member and in said operation to pass over said stop member.

4. A machine for slicing stationarily-positioned bakery products comprising a supporting table along which a bakery product may be freely moved to slicing position in a horizontal path, an operating frame member having a plurality of knives mounted in horizontally-disposed position therein, a stop member mounted on said table in position to contact with one side edge of said bakery product and said stop member being of limited height to contact only with the lower portion of said bakery product which is located below the lowermost knife in said frame to hold the same against movement with the knives during slicing, a pivot element for said operating frame supported on said table, means for reciprocating said knives in said frame member, and means for mounting said frame to move about said pivot element in a horizontal fan-shaped arcuate path in parallelism with said supporting table and over said stop member to engage and slice the said bakery product horizontally.

5. A machine for slicing stationarily-positioned bakery products comprising a supporting table along which a bakery product may be freely moved to slicing position in a horizontal path, an operating frame member having a plurality of knives mounted in horizontally-disposed position therein, a stop member mounted on said table in position to contact with one side edge of said bakery product and said stop member being of limited height to contact only with the lower portion of said bakery product which is located below the lowermost knife in said frame to hold the product against movement with the knives during slicing, a pivot element for said operating frame supported on said table, means for reciprocating said knives in said frame member, means for mounting said frame to move about said pivot element in a horizontal fan-shaped arcuate path in parallelism with said supporting table and over said stop member to engage and slice the said bakery product horizontally, said horizontally-disposed knives being mounted in a knife-mounting opening in said operating

frame and adapted to move across and over said stop member during cutting contact with said bakery product, means for supporting said operating frame member on said table to move in a true horizontal path, and means for manually moving said operating frame member from one side edge of said table to the other and during such movement to horizontally slice into layers the portions of said bakery product above said stop member.

6. A machine for slicing stationarily-positioned bakery products as claimed in claim 5 in which the means for reciprocating the knives comprises a motor carried by and movable with said operating frame member, said motor being mounted endwise in said operating frame member to permit downward vertical extension of its shaft, and

means connected with said shaft to move said knives reciprocally.

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