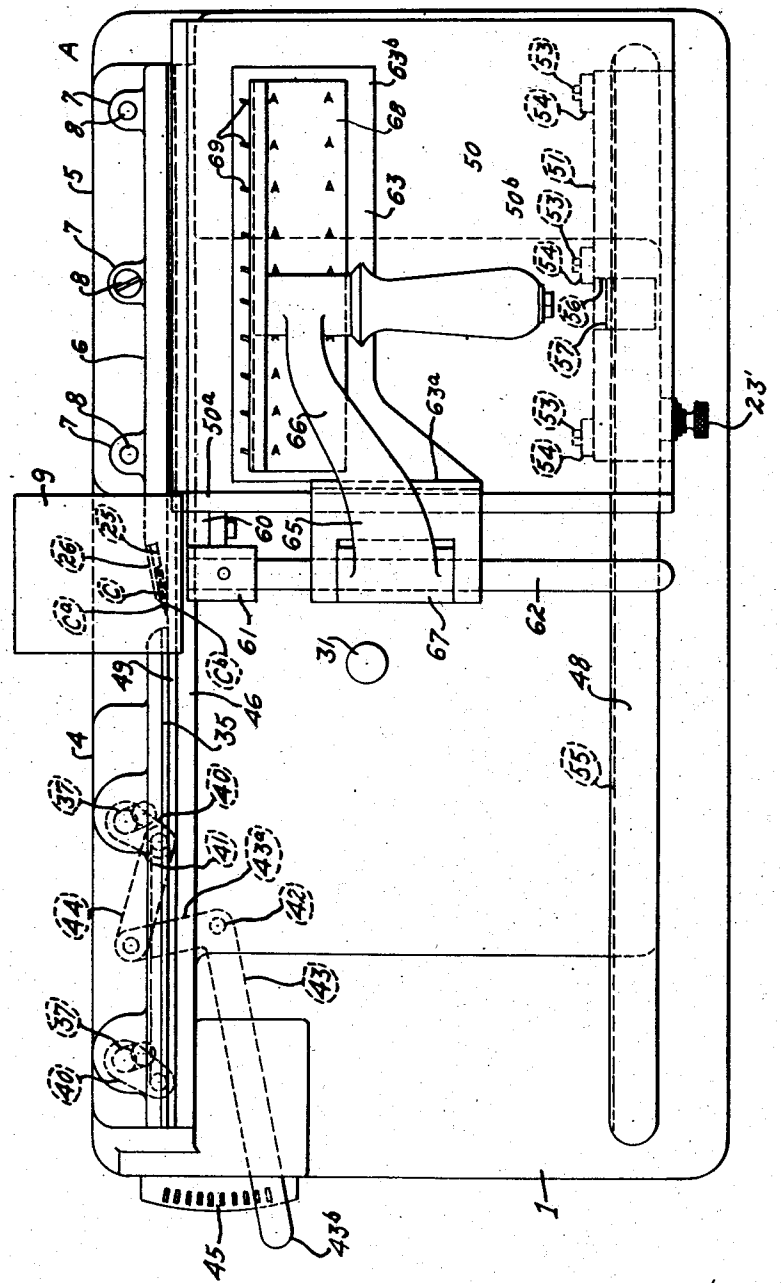
June 19, 1934. A. RUBIN 1,963,449

SLICING MACHINE

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FIG. 1



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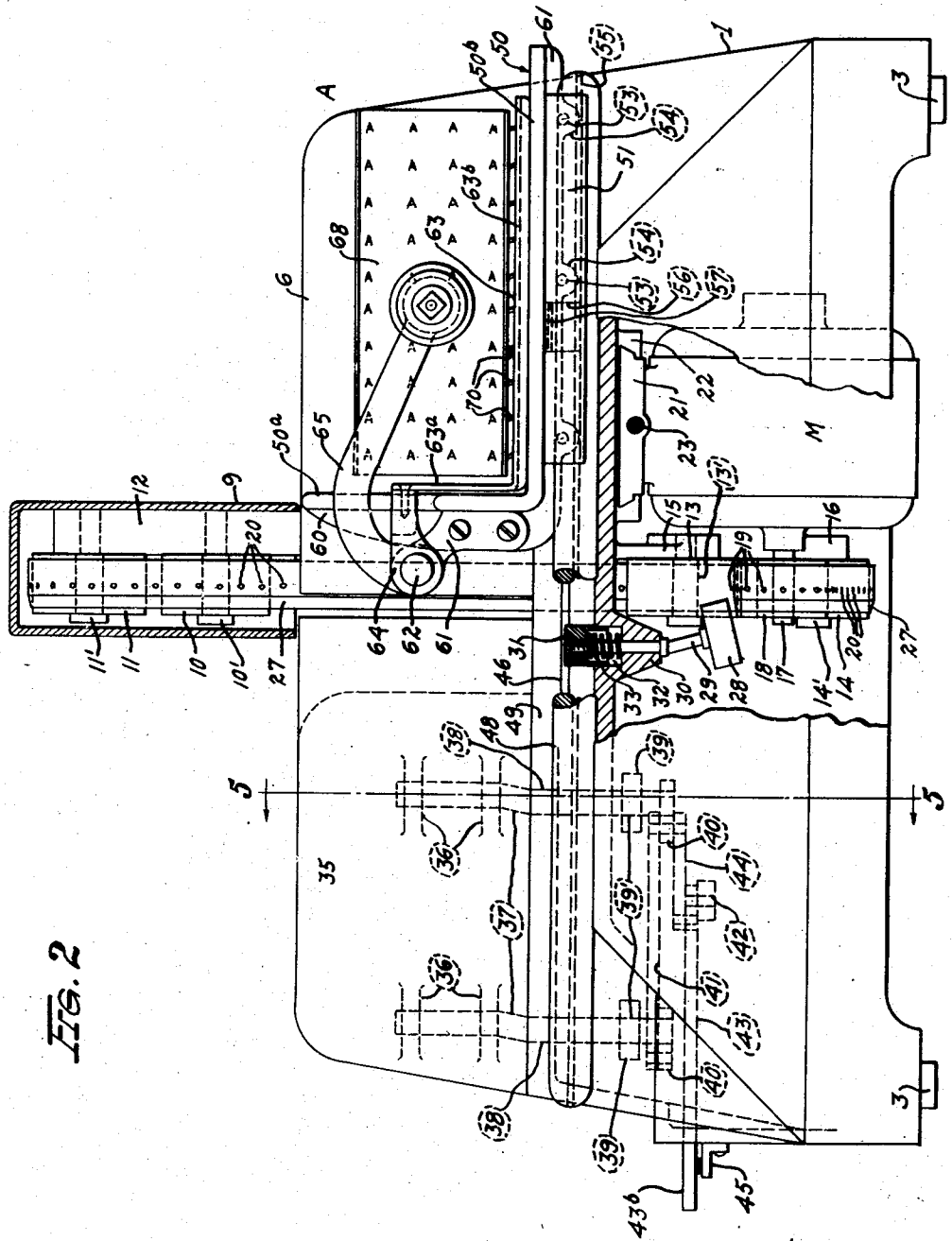


FIG. 2

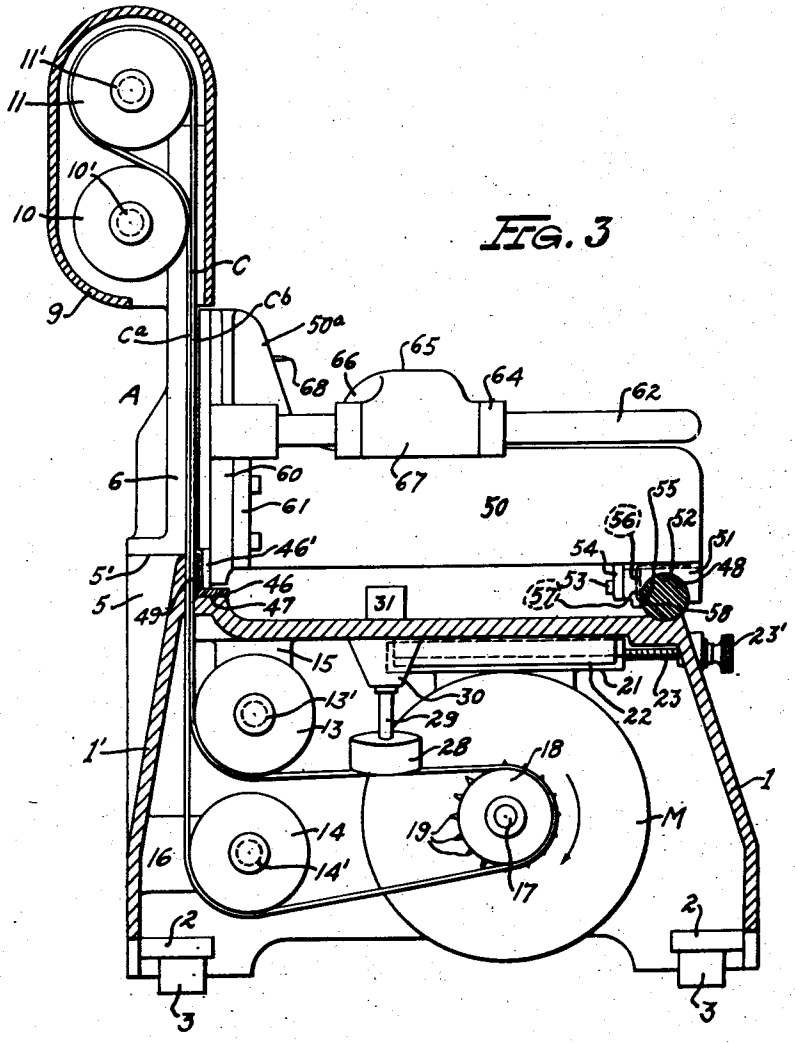
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FIG. 3



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FIG. 4

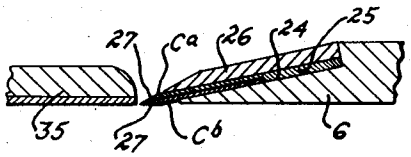
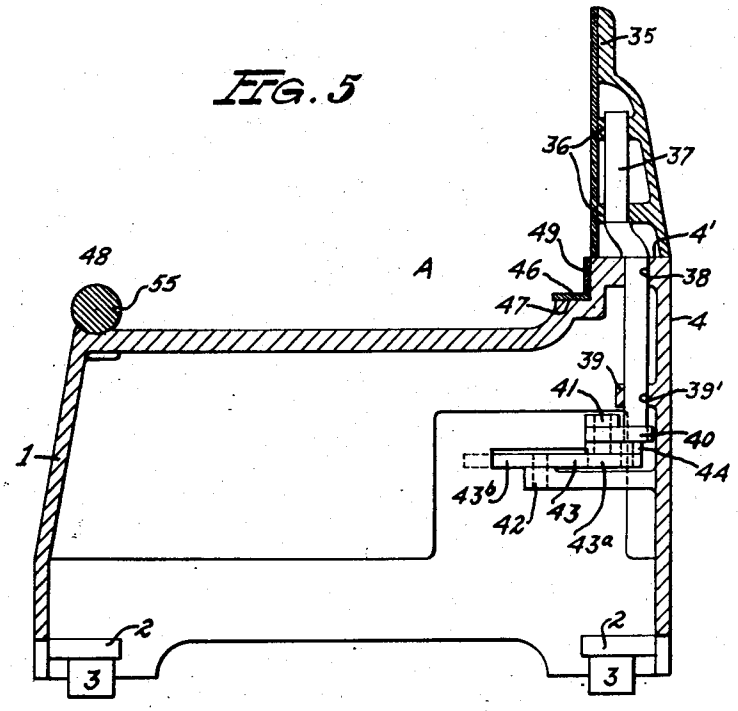


FIG. 5



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1,963,449

UNITED STATES PATENT OFFICE

1,963,449

SLICING MACHINE

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Application September 21, 1931, Serial No. 564,011

2 Claims. (Cl. 146—88)

This invention relates generally to slicing machines adapted for use in slicing foodstuffs, such as meats, sausage, bread, cheese, etc., and the predominant object of the invention is to produce an improved slicing machine which is provided with a cutting element in the form of an endless band of flexible material.

Fig. 1 is a plan view of the improved slicing machine.

Fig. 2 is a front elevation of the slicing machine illustrated in Fig. 1, a portion thereof being shown in section.

Fig. 3 is a cross-section of the machine shown in Figs. 1 and 2.

Fig. 4 is a fragmentary section showing a portion of the guiding element for the cutting element.

Fig. 5 is a section on line 5—5 of Fig. 2.

In the drawings, wherein is shown for the purpose of illustration, merely, one embodiment of the invention, A designates the improved slicing machine generally, said machine including a suitable base 1 which preferably, though not necessarily, is of the inverted, hollow construction shown in Fig. 3. The base 1 is provided with inturned extensions 2, to which suitable feet 3 are fixed. The base of the machine A includes a pair of rearwardly projected and vertically disposed extensions 4 and 5, which provide flat shoulders 4' and 5' at their tops, and secured to the shoulder 5' of the extension 5 is an upstanding element 6 which provides a guide for the cutting element C of the machine. As illustrated clearly in Fig. 2 of the drawings, the element 6 extends from a point at the approximate longitudinal center of the base of the machine to an end of said base (the right-hand end in Fig. 2), said element being provided with suitable ears 7 at the lower edge thereof through which fastening devices 8 are extended to secure the element to the shoulder 5' of the extension 5. In addition to providing a guide for the cutting element, the element 6 serves as a guard plate in a manner to be hereinafter explained.

Fixed to the element 6 is a housing 9 which encloses a pair of rollers 10 and 11. The rollers 10 and 11 are supported for rotary movement by an extension 12, which is projected upwardly from the element 6, said rollers being mounted on pins 10' and 11' which extend from said extensions 12 as shown in Fig. 2. Located within the hollow base 1 of the machine is a pair of rollers 13 and 14 which are rotatably mounted on pins 13' and 14' extended from extensions 15 and 16 formed on the base 1. Supported within the hollow base 1 of the machine is an electric motor or other equivalent movement-initiating element M of ordinary construction, which has mounted on the power shaft 17 thereof a drive wheel 18 provided with a plurality of radial projections 19 in the preferred form of pins, which are spaced circumferentially of said drive wheel. The cutting element C of the slicing machine, which, as already explained, is in the form of an endless band of flexible material, is supported by the rollers 10, 11, 13, 14, and the drive wheel 18, as shown clearly in Fig. 3, said cutting element passing around the roller 11 and the drive wheel 18, and contacting with the upper forward portion of the roller 10 and the lower rear portions of the rollers 13 and 14, as illustrated. The cutting element C is provided with an endless row of perforations 20 spaced longitudinally thereof, as shown in Fig. 2, which are adapted to receive the radial projections 19 of feed wheel 18, whereby rotary movement of the feed wheel 18 will impart continuous longitudinal travel to the cutting element.

The housing of the motor M is provided with an upwardly extended portion 21, which is received by a suitable guide 22 formed on the under side of the top wall of the base of the machine, said extended portion and guide being shaped so as to provide a dovetail connection therebetween which permits the motor M to be moved transversely of the base 1 so as to maintain the cutting element C in a taut condition. In order to facilitate movement of the motor M transversely of the base 1, an adjusting screw 23 is provided with a smooth portion that passes through a smooth opening in the front wall of said base. The screw-threaded portion of the adjusting screw 23 is extended into a screw-threaded opening formed in the extension 21 of the motor housing, and said adjusting screw is provided with a knurled head 23' to facilitate rotation of said adjusting screw. By rotating the adjusting screw 23 in one or the opposite direction the motor M may be moved toward or from the front wall of the base 1 of the machine; thus the cutting element may be maintained in a taut condition at all times by manipulating the adjusting screw to move the motor M in an outward direction.

An extremely important feature of the invention resides in the fact that the section of the cutting element at which the cutting actually takes place comprises portions of said cutting element which move in opposite directions. In other words, the element 6 is provided with a

cavity 24 (Fig. 4) through which a portion C^a of the cutting element C which extends from the roller 14 to the roller 10, and a portion C^b of said cutting element C which extends from the roller 11 to the roller 13, pass. The portions C^a and C^b of the cutting element are arranged in contact with each other, as shown in Figs. 3 and 4, and during travel of the cutting element when the machine is in operation the portion C^a moves upwardly, while the portion C^b moves downwardly. A backing element for the portions C^a and C^b of the cutting element C in the form of a strip 25 is located in the inner portion of the cavity 24, as shown in Fig. 4, and a cover plate 26 which covers the backing element and the major portions of the portions C^a and C^b is secured to the element 6 by suitable fastening devices, a channel through which the portions C^a and C^b of the cutting element C move being provided between a portion of the inner face of the cavity 24 and a portion of the inner face of the cover plate 26.

The cutting element C is provided at one side thereof with a beveled face 27 which provides said cutting element with a cutting edge that extends throughout the length of said cutting element. Also, as shown clearly in Fig. 4, the bevel edges 27 of the portions C^a and C^b converge toward each other to provide a cutting edge into contact with which the material to be sliced is moved. In order to provide for the maintenance of the cutting edge of the cutting element in a sharp condition at all times, the improved slicing machine includes a grinding element 28, which is rotatably mounted on a rod 29 (Figs. 2 and 3). As shown clearly in Fig. 2, the grinding element is disposed in such position that its lower face is parallel with the bevel face 27 of the cutting element C as said cutting element moves from the roller 13 to the drive wheel 18. The rod 29 is extended through an opening formed through an enlarged portion 30 of the top wall of the base 1, and a push button 31 is fixed to the upper end of said rod. The top wall of the base 1 is provided with a cavity 32 into which the push button 31 is moved when same is depressed, and an expansible coil spring 33 is interposed between the lower face of said cavity and said push button, whereby said coil spring tends to move said push button and the rod 29 and grinding element 28 upwardly to move said grinding element out of contact with the cutting element.

When it is desired to grind the cutting edge of the cutting element C, the machine is operated so as to subject the cutting element to movement. The push button is then depressed to move the grinding element 28 into contact with the bevel face 27 of the cutting element, and said push button is held in such depressed position until the cutting element has been properly sharpened, whereupon said push button will be released and the coil spring will move the grinding element away from the cutting element. When the cutting edge of the cutting element is being sharpened as described, the grinding element is rotated about the rod 29.

35 designates a gauge plate which serves to regulate the thickness of the slices produced by the slicing machine. This gauge plate is arranged in substantially the same vertical plane in which the element 6, already referred to herein, is disposed, the gauge plate 35 being located at the approach side of the cutting element C, or the side thereof from which the material being sliced is moved into contact with the cutting edges of the portions C^a and C^b of said cutting element. The gauge plate is arranged for adjustment so that its inner edge, or that edge which is located immediately adjacent to the cutting edges of the portions C^a and C^b of the cutting element C may be moved with respect to said cutting edges. The gauge plate 35 is provided with a plurality of ears 36 (Fig. 2), there being two pairs of these ears and the ears of each pair being arranged in vertical alinement with each other. Each pair of ears 36 receives the upper portion of a rod 37, said rod being bent so as to cause the upper portion thereof to be offset axially with respect to the lower portion thereof to provide what in effect is a crank. The lower portion of each of the rods 37 is supported by being extended through an opening 38 formed in the top wall of the base 1, and by an ear 39 formed on the base, said ear being provided with an opening 39' through which said rod extends.

At the lower end thereof each of the rods 37 has fixed thereto a short arm 40 which extends radially with respect to the associated rod, and the short arms are connected by a link 41, said link being preferably in the form of a rod having downturned end portions which are extended into openings formed in the outer end portions of the short arms 40. Pivoted at 42 to the base 1 is a bell crank lever 43 which is provided with a short arm 43^a and a long arm 43^b. The short arm 43^a of the bell crank lever is connected by a link 44 to the short arm 40 associated with one of the rods 37, and the long arm 43^b of said bell crank lever is movable with relation to a plate 45 which is fixed to the base 1 and is provided with graduations which indicate the degree of movement of the bell crank lever necessary to obtain slices of predetermined thicknesses.

When it is desired to adjust the gauge plate 35 to obtain slices of a predetermined thickness, the outer end of the long arm of the bell crank lever 43 is moved with respect to the plate 45 until said long arm registers with the proper mark, or graduation, on the plate. The movement of the bell crank lever as described will rotate the rods 37 about the axes of the lower portions of said rods, with the result that the upper crank arm portions of rods will move the gauge plate transversely of the base so as to position the inner edge of the gauge plate in the proper offset relation with respect to the cutting edges of the portions C^a and C^b of the cutting element C to produce slices of the proper thickness.

The base of the machine is provided at its rear portion with a horizontally disposed track 46 which is extended longitudinally of said base and substantially from one to the opposite end thereof. This track, as shown clearly in Fig. 3, is preferably elevated slightly above the top face of the base, said track being supported by an elevated shoulder 47, as illustrated, and the top face of the base being curved upwardly to meet said shoulder. Also, at its front portion the base 1 is provided with a guiding member 48, preferably of round cross-section, which likewise extends substantially from end to end of the base. At the rear of the horizontally disposed track 46 a vertically arranged element 49 is employed. The element 49 extends longitudinally of the base 1 substantially from end to end thereof and is combined with the track 46 to provide what in effect is a guiding member, which is rectangular in cross-section.

Supported by track 46 and the guiding member 48 for movement longitudinally of the machine is a carriage 50. The carriage 50 includes an elongated member 51 which is provided with a semicircular face 52, which slidingly contacts with the upper portion of the guiding member 48. The elongated member 51 is secured to the carriage 50 by suitable fastening devices 53, which are extended through apertures formed in downwardly extended ears 54 arranged on the carriage 50 and pass into apertures formed in said elongated member 51. The guiding member 48 is provided with a groove 55 which extends from end to end thereof, as shown in Fig. 2, and the elongated member 51 is cut away at its inner face and at its top face to provide an angular depression 56. 57 designates an angular element which is secured to the elongated member 51 within said depression 56, said angular element being provided with a horizontally disposed lip 58 which is extended into the groove 55 formed in the guiding member 48. By providing the angular element 57 with the lip 58 which is extended into the groove 55 of the guiding member 48, the face 52 of the elongated member 51 is maintained at all times in close contact with the guiding member, whereby upward movement of the carriage 50 is prevented. The carriage 50 is removed from the machine by being slid off at one or the other end of the guiding member 48, the lip 58 of the angular element 57 passing out of the groove 55 as the end of the guiding member is reached by the lip. The carriage 50 includes suitable shoes 46' which rest upon the top face of the track 46, as shown in Fig. 3.

When viewed in front elevation, the carriage 50 is substantially L-shaped (Fig. 2), and the upstanding wall 50^a at the left-hand side of the carriage in this view is provided at its inner end with a flange 60 which merges into a similar flange 61, which is extended longitudinally of the horizontal wall 50^b of the carriage. Secured to the flange 60 of the upstanding wall 50^a of the carriage is a bracket 61 which supports a rod 62 extended forwardly of the machine from said bracket. Slidingly supported by the rod 62 is a supporting element which comprises an L-shaped member 63 having a substantially vertical portion 63^a and a substantially horizontal portion 63^b. The supporting element 63 has fixed to the vertical wall thereof an outwardly extended, bifurcated member 64, the bifurcated portion of said member being provided with spaced legs having apertures formed therein through which the rod 62 extends.

Mounted for sliding movement on the rod 62 is a follower 65, which comprises an arm 66 provided with an eye portion 67 (Fig. 1) which is disposed between the spaced legs of the bifurcated portion of the member 64 and is provided with an opening formed therethrough, through which the rod 62 is extended. The follower includes a substantially L-shaped plate 68 which is fixed to said arm, said plate including a horizontally disposed portion which is arranged parallel with and in slightly spaced relation with respect to the portion 63^b of the supporting element 63, and a substantially vertical portion formed integral with the horizontal portion. The follower serves as a pusher plate which is used to force the material being sliced into contact with the cutting element C of the machine, the vertical portion of said plate 68 being provided with prongs 69, by which said material is gripped. Also, the horizontal portion of the plate 68 is provided with downwardly extended prongs 70 for gripping material being sliced which is interposed between the horizontal portion of the supporting element and said horizontal portion of the plate 68. Because the eye portion 66 of the follower is interposed between the spaced legs of the bifurcated member 64 of the supporting element, said follower and said supporting element will move longitudinally of the rod 62 as a unit.

In the operation of the improved slicing machine, the material to be sliced is supported by the carriage 50 and said material is moved rearwardly of the carriage by the follower. As already suggested, the material to be sliced may be clamped between the horizontal plate portion of the follower and the horizontal portion of the L-shaped member 63 of the supporting element when being moved rearwardly, or, if preferred, the material may be moved rearwardly of the carriage by arranging same in contact with the vertical plate portion of the follower and moving said follower rearwardly. The operator grasps the handle and moves the carriage back and forth with respect to the base of the machine, at the same time keeping the material pressed rearwardly by forcing the follower in that direction, and each time the material is moved from left to right of the machine and with respect to the rapidly moving portions C^a and C^b of the cutting element C a slice is cut therefrom, which falls on a suitable slice-receiving element positioned to the rear of the machine and beneath the inclined face 1' of the base 1.

As already suggested, the element 6 in addition to acting as a guide for the cutting element C serves as a guard plate with respect to which the material being sliced is moved after it passes beyond the cutting portions C^a and C^b of the cutting element C.

I claim:

1. A slicing machine comprising a base, a cutting element, means for imparting movement to said cutting element, a gauge plate for regulating the thickness of slices produced by the machine, means for adjusting said gauge plate comprising a rod bent to produce a crank, means associated with said base for supporting said rod in a substantially vertical position, an ear on said gauge plate provided with an opening which receives a portion of said rod, means for rotating the portion of said rod which is associated with said base so as to impart movement to said gauge plate, and a carriage movable with respect to said cutting element for supporting the material being sliced.

2. A slicing machine comprising a base, a cutting element, means for imparting movement to said cutting element, a gauge plate for regulating the thickness of slices produced by the machine, means for adjusting said gauge plate comprising a rod bent to produce a crank, means associated with said base for supporting said rod in a substantially vertical position, an ear on said gauge plate provided with an opening which receives a portion of said rod, means for rotating the portion of said rod which is associated with said base so as to impart movement to said gauge plate, a plate provided with graduations for indicating the degree of movement necessary to the last-mentioned means to obtain slices of a predetermined thickness, and a carriage movable with respect to said cutting element for supporting the material being sliced.

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