Oct. 10, 1933. W. A. VAN BERKEL 1,929,718

SLICING MACHINE

Filed Jan. 20, 1930

Fig. 1

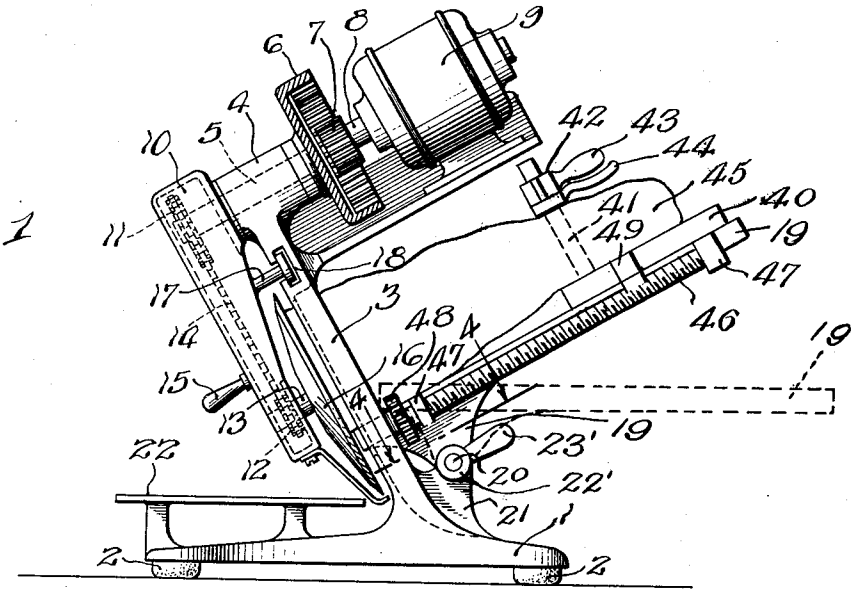


Fig. 2

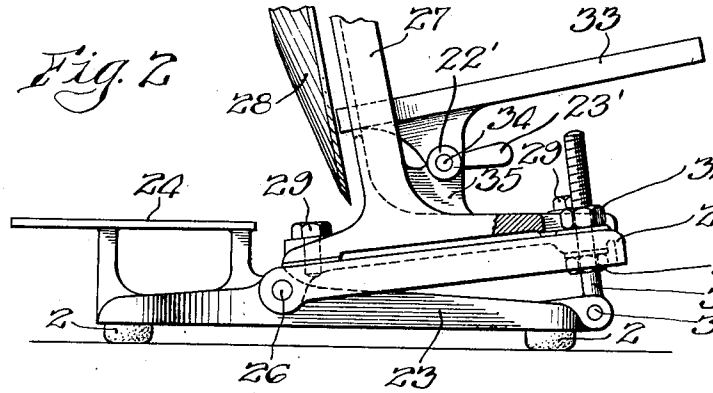
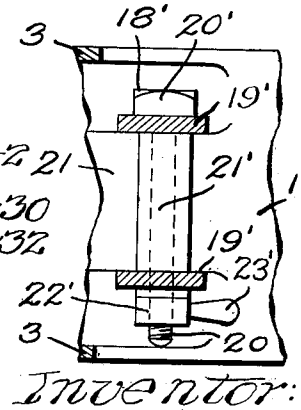


Fig. 4.



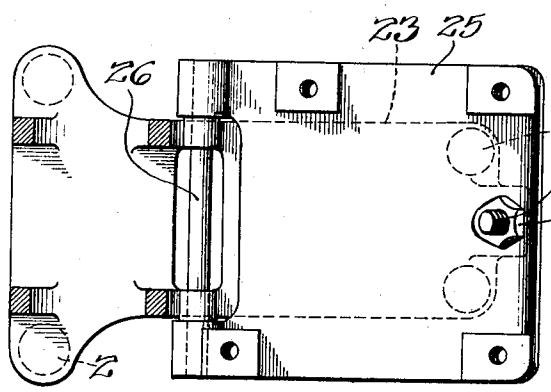


Fig. 3

Inventor:
Wilhelmus A. van Berkel,
By Chas. M. Nissen,
Atty.

Patented Oct. 10, 1933 1,929,718

UNITED STATES PATENT OFFICE

1,929,718

SLICING MACHINE

Wilhelmus Adrianus van Berkel, Clarens, Switzerland, assignor to U. S. Slicing Machine Company, La Porte, Ind., a corporation of Indiana

Application January 20, 1930, Serial No. 422,018, and in Germany March 2, 1929

3 Claims. (Cl. 146—103)

The present invention relates to a slicing machine in which the knife is supported upon a swinging arm and is moved recurrently past the substance supporting table so as to cut slices from the substance supported thereon. In slicing machines of this nature it is very difficult to deposit the cut slices smoothly on a delivery plate without manually touching the same, unless cumbersome and expensive mechanism is provided. This difficulty is overcome in the present invention by providing a knife which is at an angle of less than 90° to the surface of the delivery table or receiving table upon which the slices are deposited.

One object of this invention is to provide a slicing knife which moves in a fixed plane which is at an acute angle to the surface of the receiving table.

Another object of this invention is to provide a substance supporting table which may be adjustable so that the same can be moved into a position in which the supporting surface thereof is arranged at substantially a right angle to the cutting plane of the knife, or the same may be moved to a substantially horizontal position for positioning the substance thereon.

Another object of this invention is in the provision of an adjustable support for the swinging arm which carries the knife; by providing an adjustable support for the swinging arm the angle between the cutting plane of the knife and the supporting surface of the slice receiver may be varied, as desired.

A further object of this invention is the provision of a slicing machine in which the slices fall by gravity directly onto the slice receiving surface of a slice receiver so that the slices are stacked evenly thereon without the aid of any auxiliary mechanism.

A still further object of this invention is the provision of a slicing machine in which the angular position of the support for the knife may be varied relative to the slice receiving surface and in which the angle between the cutting plane of the knife and the substance support may be varied to suit various requirements.

In the drawing—

Fig. 1 represents a front elevational view of a device embodying my invention;

Fig. 2 illustrates a modification of the device shown in Fig. 1;

Fig. 3 is a fragmentary plan view of the apparatus shown in Fig. 2, with certain of the parts removed for the sake of clearness; and

Fig. 4 is a cross section taken substantially along the line 4—4 of Fig. 1 showing one means for holding the table in adjusted position.

Referring now to Fig. 1, it will be noted that the slicing machine shown comprises a base member 1 supported by suitable feet 2 and carries an angularly disposed bracket 3 which has a bearing 4 at its upper end. This bearing supports the rotatable shaft 5 having the internal gear 6 rigidly connected to one end thereof. A gear 7 mounted on the rotor 8 of the motor 9 meshes with the internal gear 6 and causes the latter to rotate when the motor is running.

An arm 10 is supported on the opposite end of the shaft 5 and this arm encloses the sprocket 11 rigidly mounted on the end of the shaft 5, the sprocket 12 mounted on the knife spindle shaft 13 journaled in the free end of the arm 10, and also the chain 14 trained over the sprockets 11 and 12. The arm 10 is not rigidly connected to the shaft 5 but is free to rotate thereon, the handle 15 being used to oscillate the arm about its pivot.

A knife 16 is rigidly supported upon the shaft 13 and is caused to rotate therewith. It will be seen that by the mechanism just described, the motor drives the knife by means of the gears 6 and 7, shaft 5, sprockets 11 and 12, and chain 14 and that an oscillating movement is imparted to the arm when desired by means of the handle 15.

Due to the angular position of the bracket 3, it is desirable to provide an additional means for supporting the arm 10 to prevent canting movement thereof on the shaft 5 to thereby reduce the strain on the shaft 5, this additional means also serving as means to always guide the knife in the same plane so as to insure that uniform slices are cut from the substance being sliced. This additional means comprises a lug 17 extending outwardly from the arm 10, this lug having a T-head which engages within the arcuate slot 18 which is T-shaped in cross-section. The arcuate slot 18 is concentric with the shaft 5.

The substance supporting table 19 is pivoted on a bolt 20 passing through the boss 21' on the bracket 21 formed on the base 1 and through the lugs 19' formed on the table 19. The bolt 20 has the head 20' thereof abutting against a lug 18' formed integrally with the lug 19' as is best illustrated in Fig. 4. This prevents the bolt from rotating. A locking nut 22' provided with a handle 23' is threaded on the bolt 20 and is adapted to lock the table 19 in adjusted posi-

tion by the frictional engagement of the table 19 with the lugs 19' and boss 21'. Any other form of locking means may be used for locking the table in its adjusted position and if desired, limiting stops may be provided for limiting the movement of the table in either direction about its pivot, the limiting postions being shown by the full and dotted lines in Fig. 1.

The table 19 is provided with a general type of substance feeding table 40 having an upright 41 upon which the clamping bar 42 is slidably mounted. The clamp is provided with a handle 43 and a releasing trigger 44 which releases suitable clamping mechanism which holds the clamp in adjusted position on the upright 41. The table is moved into the dotted line position shown in Fig. 1 and the substance placed partly on the feed table and partly on the table 19. The clamp is brought down against the substance 45 and clamps the substance against the feed table 40 so that when the feed table is moved relatively to the table 19 the substance will also be fed along the table 19. A feed screw 46 mounted in the brackets 47 and provided with a ratchet 48 secured at one end thereof is adapted to be rotated in any manner by a suitable pawl engaging ratchet 48 and cause movement of the feed table 40 in a direction toward the cutting plane of the knife by means of the engagement of the feed nut 49 on the table 40 with the feed screw 46.

By clamping the substance on the table while in a horizontal position a better clamping connection is secured due to the fact that the weight of the substance is all downwardly and there is no sliding of the substance along the table. Furthermore, the knife position is not affected by the movement of the table to the clamping position. By this arrangement it is much easier to move the table to an inoperative position and the substance may be quickly positioned on the table and then again re-positioned in operative relation to the slicing knife. The base 1 also supports a slice receiving table 22 adapted to receive the slices as they are cut from the substance by the knife, the receiving table 22 occupying a substantially horizontal position.

In Figs. 2 and 3, I have illustrated a form of my invention substantially the same as that shown in Fig. 1, with the exception that the bracket which supports the motor and the swinging knife is adjustable relative to the base instead of being fixed as illustrated in Fig. 1. In this form of the invention, the base 23 has a receiving table 24 rigidly connected thereto in the same manner as the table 22 is connected to the base 1 in Fig. 1. A bracket support 25 is pivotally connected to the base at 26 and this bracket support supports a bracket 27 similar to the bracket 3 shown in Fig. 1, the knife 28 being supported in substantially the same manner as the knife 16 shown in Fig. 1, it not being thought necessary to illustrate the driving means and supporting means for the knife in Figs. 2 and 3 as these are identical with the same means found in Fig. 1.

The bracket 27 is fastened to the bracket support 25 by means of suitable cap screws 29. A bolt 30 is pivoted at 31 to the base 23 and extends through a suitable opening in the bracket support 25, the lock nuts 32 being used to lock the bracket support 25 in the desired angular position relative to the base 23. A table 33 is pivoted at 34 to the bracket 35 mounted on the bracket support 25, this table being adjustable in the same manner as the table 19 shown in Fig. 1.

One of the most important advantages of the form of invention shown in Figs. 2 and 3, is that the angular position of the knife may be varied to insure that the slices will be deposited on the table evenly without the aid of auxiliary mechanism, as it may be that for certain substances it is necessary that a different angle be used for even stacking of the slices than that required for other substances.

It will be understood, of course, that any suitable adjusting means may be used for varying the angular position of the bracket 27 and that other means may be used for driving the knife, if desired, or it may be found desirable to dispense with the driving means for the knife and use only a knife which is free to rotate about an axis.

Obviously those skilled in the art may make various changes in the details and arrangement of parts without departing from the spirit and scope of the invention as defined by the claims hereto appended, and I wish therefore not to be restricted to the precise construction herein disclosed.

Having thus fully disclosed an embodiment of my invention, what I desire to secure by Letters Patent of the United States is:

1. A slicing machine comprising a frame, a base on which said frame is pivotally mounted, a swinging arm carried by said frame, a knife rotatably mounted on the end of said arm, a guide member on said arm spaced from said pivot for co-operating with a guiding means on said frame, and means for adjusting said frame relative to said base.

2. A slicing machine comprising a base, a frame pivoted to said base, a substance support, a slice receiver, an arm pivoted to said frame, an arcuate guide on said frame, a member on said arm projecting into said arcuate groove and held therein against lateral movement, a knife on said arm, and means for adjusting the angular position of said arm relative to said base.

3. In a slicing machine, the combination with a base member, of a slice receiving surface on said base member, a bracket extending upwardly and over said slice receiving surface, a reciprocating arm mounted on said bracket, a knife carried by said arm and movable at an acute angle to said slice receiving surface, means for reciprocating said arm, a substance support movable from a substantially horizontal position to a position inclined downwardly toward said slicing knife and without changing the cutting plane of said knife, a feed table mounted on said substance support and movable toward and from the cutting plane of said knife, and a substance clamp for holding a substance on said feed table during the movement of said feed table toward the cutting plane of said knife, and means for feeding said table in a direction toward the cutting plane of said knife so that the slices may be severed by said knife as the same reciprocates, the slices falling directly on said slice receiving surface as the same are formed by said knife.

WILHELMUS ADRIANUS VAN BERKEL.