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SLICING MACHINE

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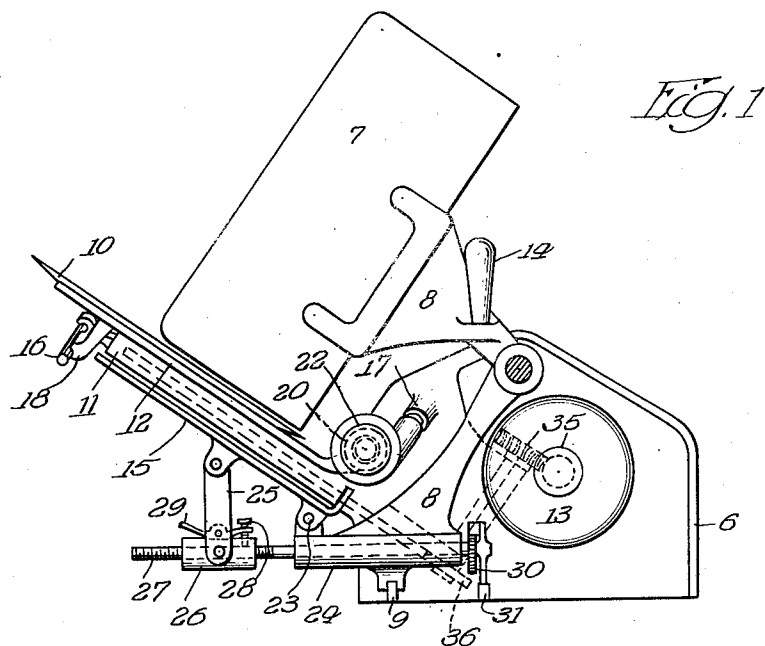


Fig. 1

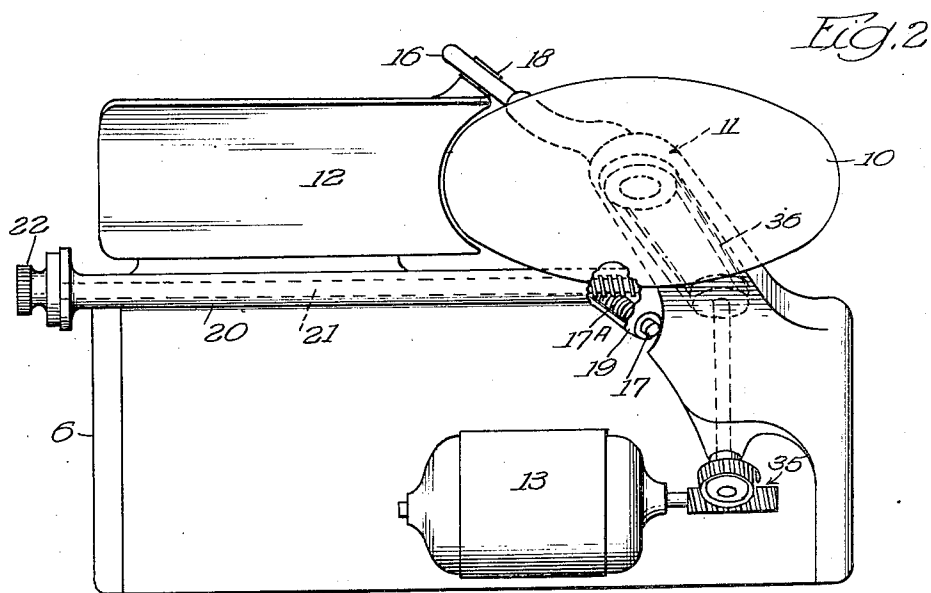


Fig. 2

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## UNITED STATES PATENT OFFICE

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## SLICING MACHINE

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3 Claims. (Cl. 146—102)

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This invention relates to slicing machines of the type in which the substance to be sliced is supported on a carrier movable to and fro on the machine base past a knife journaled in a stationary bracket extending from said base, the substance being fed across the carrier to a slice thickness gage presenting a substance engaging face located to an adjustable extent behind and parallel to the slicing plane.

The invention also relates, more especially, but not exclusively, to machines of the type stated in which the carrier, usually in the form of a push-pull V-shaped or L-shaped trough, is inclined so that gravity will perform or aid the feed of the substance to the knife, which latter is inclined to the work in a plane perpendicular or nearly so to the direction of feed.

Such machines as hereinbefore defined, are commonly known as the gravity feed type.

In such power machines, the space behind the knife, the knife bracket and the slice thickness gage is obstructed by the supporting means for the gage, and often by mechanism extending behind and far below the gage for adjustment of the slice thickness setting. It is desirable that the space behind the knife should be maintained as open as practical so as not to obstruct the operator in his work and his view of the slicing operation, and of the slices being cut, and deposited, or so as not to prevent the usual knife sharpener from being located in its optimum position at or near the top of the knife, or so as not to obstruct clearing of the knife and/or of the gage.

The disadvantages due to restriction of the space behind the knife apply in still greater measure to machines of the gravity feed class, because in such machines the said space is quite acutely angular on account of the steeply inclined setting of the knife, knife bracket and gage. In prior machines, the slice receiver generally consists of a horizontal plate fixed to the base behind and below the knife and gage. However, it may be desired to provide a slice receiver which is moved to and fro in unison with the carrier. Such a receiver may be operated to lower, step by step from an initial position in which it extends close to the knife. In order that such a receiver can be applied to a machine of the gravity feed class, the restricted angular space must be clear of obstruction.

According to the present invention, in a machine of the type referred to, the slice-thickness gage is supported and guided for slice-thickness adjustment on the bracket to which the slicing knife is journaled. Thus, the space behind the

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said knife, bracket and gage is left free from obstruction by gage supporting parts.

Further, according to this invention, in a machine of the gravity feed class, the inclined slice thickness gage is supported on the inclined bracket in which the knife is journaled, thus leaving the restricted angular space behind the said inclined parts free from obstruction by gage supporting parts. The gage may be a plate with its supporting means connected directly on the knife bracket or made integral therewith. The gage may be adjustable to vary the slice thickness in a direction which inclines rearwardly and laterally, that is, obliquely away from the knife. Thus, the thicker the slices, the greater will be the space for their passage between the knife and gage. By virtue of this arrangement the gage is maintained as close as practicable to the knife and yet allows ample freedom for passage of the slice.

The gage may be adjustably supported in spaced guides extending in the direction of adjustment. Thus, the guides may incline obliquely away from the knife. Such guides function as supports independently of any movable means provided to adjust the gage.

To the attainment of these ends and the accomplishment of other new and useful objects, as will appear, the invention consists in the features of novelty, in substantially the construction, and in the combination and arrangement of the several parts, hereinafter more fully described and claimed and shown in the accompanying drawing, exemplifying this invention, and in which

Figure 1 is a view partly in elevation and partly broken away, of a gravity feed class machine, viewed from the operator's usual stance.

Figure 2 is a plan view with parts omitted.

Referring more particularly to the drawing the numeral 6 designates the stationary base of the machine, and 7, and 8 designate the substance carrier which is slidably reciprocable along guides 9 on the base, 10 designates an inclined circular knife, 11 designates an inclined bracket which rises from the base, and 12 designates a similarly inclined slice-thickness gage. The knife may be driven in any suitable manner, such as by means of a motor 13, which is mounted, not as usually on the knife bracket but on the base below the carrier 7, 8. The carrier consists of an inclined V-section or L-section trough 7 and a support 8 therefor which has a handle 14 by means of which the operator may reciprocate the carrier past the knife.

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The slice receiver is designated by the numeral 15. A guard plate (not shown) may be arranged in the slicing plane to mask the knife in front, with the exception of an exposed arc of the cutting edge.

The substance carrier is inclined with sufficient steepness to insure that the substance will maintain itself under gravity against the assembly constituted by the gage plate, the knife and the guard plate. Notwithstanding that the gage plate 12 extends upwardly from the base 6, in a position laterally spaced from the knife 10, and its bracket 11, the gage plate is supported solely by fittings on said bracket. The supporting means consists of stationary guides 16, 17, both extending rigidly from the bracket 11, the one at the top and the other at the bottom.

The top guide 16, is engaged by an open top bearing 18, on the top plate.

The bottom guide 17, is engaged by a sleeve bearing 19, extending from one end of a sleeve 20, constituting the base of the gage plate itself.

The gage plate is adjustable to give a range of slice thickness, and for this purpose the guide 17, is formed with a screw portion 17A, which is engaged by the screw end of a rod 21, extending through the sleeve 20, and turnable by a hand knob 22. The guides 16, 17, are arranged at the same inclination as the carrier trough 7, as viewed in Figure 1, but are oblique to the direction of feed, as shown in Figure 2. Thus when the knob 22, is turned, say to increase the slice thickness, the gage plate is displaced not only rearwardly away from the slicing plane but also laterally away from the knife in order to leave a greater space for passage of the thicker slices between the gage plate and the knife.

The gage plate is supported solely by the immobile guides 16, 17, the turnable adjustment rod 21, functioning quite independently of the work of support.

The slice receiver 15, is a plate which, when in its uppermost position (Fig. 1) inclines upwards so as to adopt the inclination of the knife. The receiver is pivotally mounted as at 23, on a sleeve 24, forming a part of the reciprocable support 8, and is maintained in position by a link connection 25, with a nut 26, on a screw 27, arranged horizontally transverse to the slicing plane. The screw engaging component of the nut 26, is preferably in the form of a pin 28, which is withdrawable by depressing a spring returned hand lever 29.

Means for angularly lowering the pivotally mounted slice receiver step by step consists of a ratchet and pawl mechanism 30, applied to the screw 27, and operated by the to and fro movement of the reciprocable support 8. The operating means preferably embodies a stop 31, provided on the frame 6, and adapted to contact the spring returned pawl-lever at the end of each return stroke of the carrier 7, 8.

In the operation of the machine, the substance carrier 7—8, is reciprocated past the motor rotated knife 10, by the operator, and the slice receiver 15, reciprocates with the carrier as part of the same unit. At each reciprocation, a slice is cut and deposited on the receiver, the slice thickness being as determined by the setting of the gage plate 12, and the receiver is angularly lowered a step.

In order to reset the slice receiver at any desired position, it is only necessary to depress the hand lever 29, and slide the nut 26, along the screw 27.

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It will be noted that the restricted angular space behind and below the knife 10, bracket 11, and gage plate 12, is left completely free from obstruction by the supports of the gage plate, so that this space is fully available for the reciprocating substance carrier 15, which can be turned angularly about its pivot 23, between the angular limits of the space.

In order that the gage plate can be swung aside for cleaning, the range of adjustment of the knob 22, is such that the abutment can be displaced sufficiently for the bearing 18, to leave the top guide 16. When the abutment is so displaced, the gage plate can be pivoted freely about the bottom guide 17, in a direction away from the slicing plane into an inoperative position.

The motor 13, preferably drives the knife 10, through worm gearing 30, and chain gearing 36.

It will be noted that the spaced guides 16—17, by which the gage plate is supported and guided for slice thickness adjustment are connected directly to the knife bracket 11; the guides are situated respectively at opposite sides of the slicing plane in which the knife operates (Fig. 1); the guides are situated respectively above and below the slicing zone (i. e. the zone at which the substance extending from the carrier trough 7, is acted upon by the knife).

Accordingly, all of the practically important space behind the knife bracket and gage assembly (and also below said assembly in the gravity feed class of machines) is left free from obstruction.

While the preferred form of the invention has been herein shown and described, it is to be understood that various changes may be made in the details of construction and in the combination and arrangement of the several parts, within the scope of the claims, without departing from the spirit of this invention.

What is claimed as new is:

1. In a slicing machine, an inclined rotary slicing knife, a bracket in which said knife is journaled, a slice thickness gage plate, fixed spaced guides extending rearwardly from said bracket and upon which said gage plate is adjustably mounted, and means for adjusting said gage plate, said means embodying a rotatable screw threaded operating shaft carried by said gage plate, the screw threaded portion of said operating shaft having threaded engagement with a screw threaded portion on one of said guides.

2. In a slicing machine, an inclined rotary slicing knife, a bracket in which said knife is journaled, a slice thickness gage plate, fixed spaced guides extending rearwardly from said bracket and obliquely with respect to the slicing plane and upon which said gage plate is adjustably mounted, and means for adjusting said gage plate, said means embodying a rotatable screw threaded operating shaft carried by said gage plate, the screw threaded portion of said operating shaft having threaded engagement with a screw threaded portion on one of said guides, said gage being adjustable on said guides in a direction which inclines rearwardly and laterally away from the slicing knife.

3. In a slicing machine, an inclined rotary slicing knife, a bracket in which said knife is journaled, a slice thickness gage plate, fixed spaced guides extending rearwardly from said bracket and upon which said gage plate is adjustably mounted, and means for adjusting said gage plate, said means embodying screw threaded means carried by said gage plate and having engagement with a screw threaded portion on one

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of said guides, the other of said guides being disengageable from the gage plate before the first said guide to permit the gage plate to be swung about the latter guide in a direction away from the slicing plane and into an inoperative position.

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# REFERENCES CITED

The following references are of record in the file of this patent:

## UNITED STATES PATENTS

Number	Name	Date
1,210,476	Hopkinson et al.	Jan. 2, 1917

Number
1,630,099
1,978,929
2,004,603
2,119,762
2,167,015
2,177,475
2,355,487
2,388,588

6

Name	Date
Van Berkel	May 24, 1927
Breaden	Oct. 30, 1934
Folk	June 11, 1935
Wilson	June 7, 1938
Waage	July 25, 1939
Campbell	Oct. 24, 1939
Van Berkel	Aug. 8, 1944
Wood	Nov. 6, 1945

## FOREIGN PATENTS

Number	Country	Date
530,589	Great Britain	Dec. 16, 1940