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G. SZEKELY

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SLICING KNIFE

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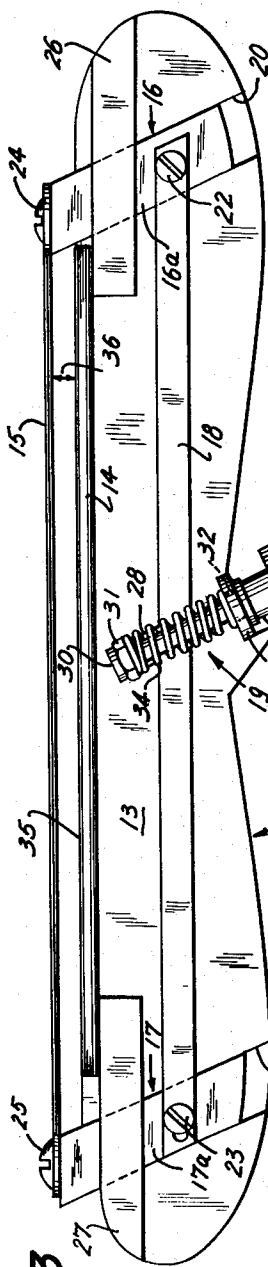


FIG. 3

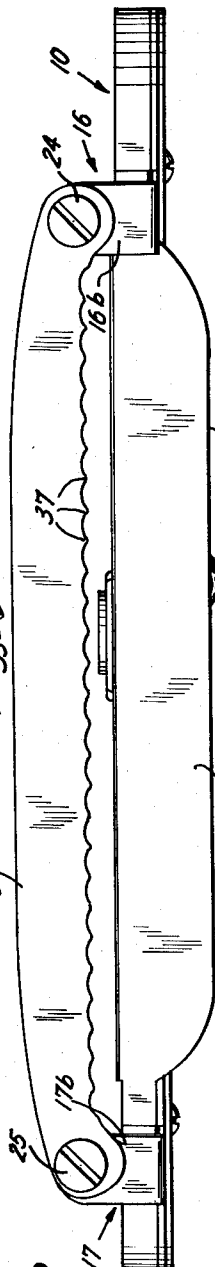


FIG. 2

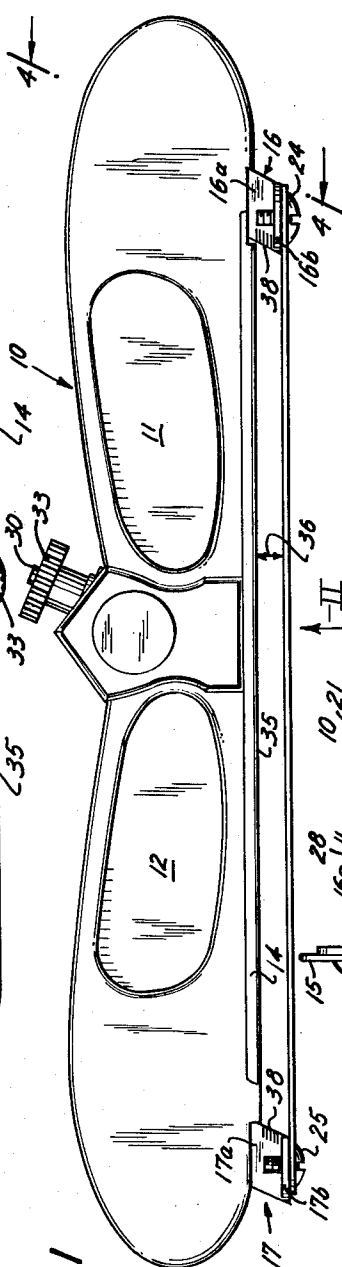


FIG. 1

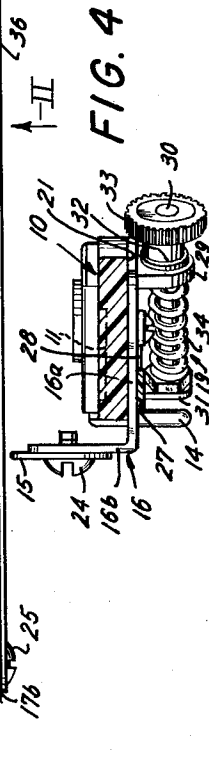


FIG. 4

INVENTOR.
GEORGE SZEKELY

BY

Michael S. Striker
ATTORNEY

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SLICING KNIFE

George Szekely, 2320 Valentine Ave., Bronx 58, N.Y.

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The present invention relates to slicing devices in general, and more particularly to an adjustable slicing knife.

An important object of the invention is to provide a slicing knife whose blade need not be touched by the fingers of a user when it becomes necessary to change the thickness of the slices to be cut.

Another object of the invention is to provide a slicing knife of the just outlined characteristics wherein the tension of the blade need not be changed during adjustment.

A further object of the invention is to provide a slicing knife wherein a single hand-actuated member may move the blade to an infinite number of positions to form slices of desired thickness.

An additional object of the invention is to provide a slicing knife of the above described type which may be utilized with equal ease by righthanded or lefthanded persons, and wherein the blade is positively retained against tilting with the help of a very simple, lightweight and inexpensive supporting arrangement.

A concomitant object of my invention is to provide a slicing knife which may be produced in any desired size or shape, which may be mass-manufactured at a low cost, wherein the blade may be rapidly and conveniently removed if it requires inspection, sharpening or replacement, and wherein the position of the blade and hence the thickness of the slices to be cut may be adjusted by the fingers of that hand which holds the knife.

Still another object of the invention is to provide a slicing knife of eye-pleasing appearance wherein the means for changing the position of the blade are at least partially concealed from view.

With the above objects in view, the invention resides in the provision of an adjustable slicing knife comprising a handle, a guide rigid with the handle and having an outer face which is brought into abutment with the exposed side of the product to be sliced, an elongated blade, and means mounted on the handle and connected with the longitudinal ends of the blade for supporting the blade in the proximity of and in parallelism with the outer face of the guide, and for moving the blade toward and away from the guide.

The novel features which are considered as characteristic of the invention are set forth in particular in the appended claims. The invention itself, however, both as to its construction and its method of operation, together with additional objects and advantages thereof, will be best understood from the following detailed description of a specific embodiment with reference to the accompanying drawing, in which:

FIG. 1 is a top plan view of an adjustable slicing knife which embodies my invention;

FIG. 2 is a front elevational view of the knife as seen in the direction of arrow II in FIG. 1;

FIG. 3 is a bottom plan view of the knife; and

FIG. 4 is a transverse section as seen in the direction of arrows from the line IV—IV of FIG. 1.

Referring now in greater detail to the drawing, there is shown an adjustable slicing knife comprising an elongated substantially flat plate-like handle or holder 10 whose upper side is provided with spaced thumb-accommodating depressions 11, 12 enabling a right- or left-handed user to properly grasp the handle when the knife is put to use for slicing of cheese, sausages, bread, meat, vegetables, fruits or the like. The user grasps the han-

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dle 10 with one hand in such a way that the thumb rests in the depression 11 or 12 and that the other four fingers engage the underside 13 of the handle (see FIG. 3).

The front edge portion of the handle 10 is rigidly connected to or is integral with a combined guide and finger guard 14 which may extend upwardly and/or downwardly from the handle. In the embodiment of FIGS. 1 to 4, the major portion of the plate-like guide 14 extends downwardly and beyond the underside 13 of the handle 10. The purpose of this guide is to control the position of the knife in such a way that the slicing blade 15 will cut a slice of uniform thickness, as well as to protect the fingers by forming a barrier between the handle and the blade.

The means for supporting and adjusting the position of the blade 15 is mounted at the underside 13 of the holder 10 and comprises four main components, namely, two spaced substantially L-shaped parallel brackets 16, 17, a plate-like connecting member or strip 18, and means 19 for reciprocating the rigid U-shaped carrier formed by the components 16—18 with respect to the holder 10. The flat longer arms 16a, 17a of the brackets 16, 17 are respectively slidable in shallow parallel elongated channels or grooves 20, 21 provided in the underside 13 of the holder 10, and these arms are preferably releasably secured to the connecting member 18 by screws 22, 23 so that the brackets 16, 17 are compelled to slide in their respective channels in response to displacements of the connecting member. The flat shorter arms 16b, 17b of the brackets are releasably connected to the opposite longitudinal ends of the blade 15 by means of screws 24, 25, respectively. These shorter arms are bent upwardly beyond the depressions 11, 12 to support the blade 15 at a level above the level of the guide 14. The arms 16a, 17a are slidably retained in their respective channels 20, 21 by bridge members 26, 27 which are secured to the underside 13 or which form integral parts of the handle 10.

The reciprocating means 19 is mounted in part on a projection 28 of the connecting member 18, and in part on a downwardly extending projection or lug 29 of the handle 10. This reciprocating means comprises a threaded spindle 30 having one of its ends anchored in an upturned end portion or eye 31 of the projection 28 and slidably extending through an aperture 32 of the lug 29, a knurled hand-actuated adjusting nut 33 which meshes with the spindle 30 and is located at the outer side of the lug 29, and a resilient element in the form of a helical expansion spring 34 which is disposed about the spindle 30 intermediate the eye 31 and the lug 29 and which biases the eye and hence the spindle 30 in a direction away from the lug. The inclination of the spindle 30 with respect to the longitudinal direction of the blade 15 is preferably the same as that of the arms 16a, 17a and channels 20, 21, i.e. between about 30—60 degrees.

The slicing knife is utilized as follows:

In the first step, the user adjusts the width 36 of the gap between the outer face 35 of the guide 14 and the cutting blade 15 by turning the nut 33 in clockwise or anticlockwise direction. If the nut is rotated anticlockwise, as viewed in FIG. 4, the spring 34 is free to move the connecting member 18 with the brackets 16, 17 and blade 15 in a direction to the left and to thereby increase the width of the gap 36. The width of this gap is reduced if the nut 33 is rotated in clockwise direction. Since the nut is located substantially midway between the longitudinal ends of the holder 10, i.e. between the thumb-receiving depressions 11, 12, it may be manipulated with the fingers of that hand which grasps

the handle, while the other hand remains free to hold the article or product which is to be sliced.

Once the user has selected a gap 36 of requisite width, he places the outer face 35 of the guide 14 against the exposed side of the product to be sliced, e.g. a block of cheese, a piece of meat or a loaf of bread, and begins to reciprocate the knife by simultaneously forcing the cutting edge of the blade 15 into the material of the product whereby the blade forms a slice whose thickness equals the width of the gap 36. The cutting edge of the blade 15 is preferably formed with teeth 37.

It will be noted that the plane of the blade 15 preferably encloses right angles with the plane of the holder 10 and that the flat outer face 35 of the guide 14 is parallel with the plane of the blade. The plane of the arms 16a, 17a also encloses right angles with the plane of the arms 16b, 17b and the inclination of channels 20, 21 is preferably in the range of between 30-60 degrees though it is possible to form the carrier 16-18 in such a way that the arms 16a, 17a are nearly or fully perpendicular to the connecting member 18. Since the connecting member 18 is called upon to transmit stresses only in the direction and in the planes of the arms 16a, 17a, it may be made of thin sheet metal to reduce the overall weight and thickness of the slicing knife. If desired, the arms 16a, 17a and at least the major part of the connecting member 18 may be concealed by a cover plate (not shown) extending along the underside 13 of the holder 10. In such instances, the bridge members 26, 27 may be omitted since they can form integral parts of the cover plate.

When the cutting edge of the blade 15 is forced into the material of the product to be sliced, the bridge members 26, 27 retain the brackets 16, 17 in their respective channels and the connecting member 18 is not subjected to any stresses. During a slicing operation, the blade 15 is not acted upon by forces which would tend to move it toward or away from the guide 14 so that the connecting member is required to move the blade only against or under the bias of the spring 34. The inclined arms 16a, 16b of the brackets 16, 17 and the bridge members 26, 27 hold the blade 15 against tilting and, together with the connecting member 18, these brackets form a composite substantially U-shaped carrier for the blade which is reciprocable with respect to the holder 10 in a plane parallel with the plane of the holder to move the blade in a plane parallel with the outer face 35 of the guide 14 but perpendicular or nearly perpendicular to the plane of the holder.

Of course, the screws 22, 23 may be replaced by weldants providing a permanent connection between the arms 16a, 17a and the member 18, and the reciprocating means 19 may be modified in a number of ways without departing from the spirit of my invention. For example, the nut 33 may be replaced by a rotary cam whose cam face would engage the outer side of the lug 29 in order to move the member 18 against the bias of the spring 34. Also, the position of the lug 29 and eye 31 may be reversed so that the spindle 30 would be anchored in the lug rather than in the eye. Such modifications are so obvious that they can be readily understood without additional illustrations.

The handle 10 preferably consists of suitable synthetic plastic material and the appearance of the slicing knife may be improved by utilizing a brightly or multi-colored handle. The components 16-18 may be formed of a suitable metallic material by a stamping process so that the entire knife may be produced and assembled in a mass-manufacturing operation at a very low cost.

If desired, the upper sides of the arms 16a, 17a may be provided with graduations 38 to indicate the thickness of a slice.

The improved slicing knife overcomes several serious drawbacks of conventional slicing devices of which I am aware at this time and which utilize an adjusting

member provided at one longitudinal end of the handle to serve as a means for permitting loosening or tensioning of the blade. In such slicing devices, each end of the blade must be adjusted individually which means that the operator must utilize both hands if he or she desires to change the thickness of a slice. My slicing knife renders it possible to change the thickness of slices by utilizing only one hand, and the user need not touch the blade at all since the adjustment may be made at a point remote from the blade. Also, the tension of the blade need not be changed during adjustment in its distance from the guide 14.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can, by applying current knowledge, readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic and specific aspects of this invention and, therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalence of the following claims.

What is claimed as new and desired to be secured by Letters Patent is:

1. An adjustable knife for slicing meat, bread and like products, comprising elongated substantially plate-like handle means having an elongated front edge portion and a pair of elongated spaced parallel channels; elongated guide means rigid with said edge portion and having a substantially flat outer face disposed in a plane substantially perpendicular to the plane of said handle means; an elongated flat cutting blade; carrier means comprising a pair of substantially L-shaped brackets each having a first arm slidably received in one of said channels and a second arm connected with one longitudinal end of said blade so as to maintain the blade in a plane which is substantially parallel with the plane of said outer face, and an elongated connecting member having ends secured to the first arms of said brackets; and means mounted on said handle means and operatively connected with said connecting member for reciprocating said brackets in the respective channels so as to move said blade toward and away from said guide means.

2. An adjustable knife for slicing meat, bread and like products, comprising elongated substantially plate-like handle means having an elongated front edge portion and a pair of elongated spaced parallel channels; elongated guide means rigid with said edge portion and having a substantially flat outer face disposed in a plane substantially perpendicular to the plane of said handle means; an elongated flat cutting blade, the longitudinal direction of said plane enclosing an angle of between 30-60 degrees with the longitudinal directions of said channels; carrier means comprising a pair of substantially L-shaped brackets each having a first arm slidably received in one of said channels and a second arm connected with one longitudinal end of said blade so as to maintain the blade in a plane which is substantially parallel with the plane of said outer face, and an elongated connecting member having ends secured to the first arms of said brackets; and means mounted on said handle means and operatively connected with said connecting member for reciprocating said brackets in the respective channels so as to move said blade toward and away from said guide means.

3. An adjustable knife for slicing meat, bread and like products, comprising elongated substantially plate-like handle means having an elongated front edge portion and a pair of elongated spaced parallel channels; elongated guide means rigid with said edge portion and having a substantially flat outer face disposed in a plane substantially perpendicular to the plane of said handle means; an elongated flat cutting blade; carrier means comprising a pair of substantially L-shaped brackets each having a first arm slidably received in one of said channels and a second arm connected with one longitudinal end of said blade so as to maintain the blade in a plane which is sub-

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stantially parallel with the plane of said outer face, and a flat elongated strip-shaped connecting member having ends secured to the first arms of said brackets, said connecting member disposed in a plane substantially perpendicular to the plane of said blade; and means mounted on said handle means and operatively connected with said connecting member for reciprocating said brackets in the respective channels so as to move said blade toward and away from said guide means.

4. An adjustable knife for slicing bread, meat and like products, comprising handle means having an elongated front edge portion; elongated guide means rigid with said edge portion and having a substantially flat product-engaging outer face; an elongated flat cutting blade; carrier means comprising a pair of spaced brackets respectively connected with the opposite longitudinal ends of said blade so as to maintain the blade in a plane parallel with the outer face of said guide means, said brackets slidably mounted in said handle means, and means for connecting said brackets to each other; and means mounted on said handle means for reciprocating said carrier means and said blade in directions to move the blade toward and away from said guide means, said reciprocating means comprising a first projection rigid with said connecting means, a second projection rigid with said handle means, a threaded spindle having a portion fixed to one of said projections and slidably extending through the other projection, a hand-actuated nut meshing with said spindle and outwardly adjacent to said other projection, and resilient means for biasing said projections away from each other.

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5. An adjustable knife for slicing bread, meat and like products, comprising handle means having an elongated front edge portion; elongated guide means rigid with said edge portion and having a substantially flat product-engaging outer face; an elongated flat cutting blade; carrier means comprising a pair of spaced brackets respectively connected with the opposite longitudinal ends of said blade so as to maintain the blade in a plane parallel with the outer face of said guide means, said brackets having parallel portions enclosing acute angles with the longitudinal direction of said blade and slidably mounted in said handle means, and means for connecting said bracket portions to each other; and means mounted on said handle means for reciprocating said carrier means and said blade in directions to move the blade toward and away from said guide means, said reciprocating means comprising hand-actuated means operatively connected with said connecting means.

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