

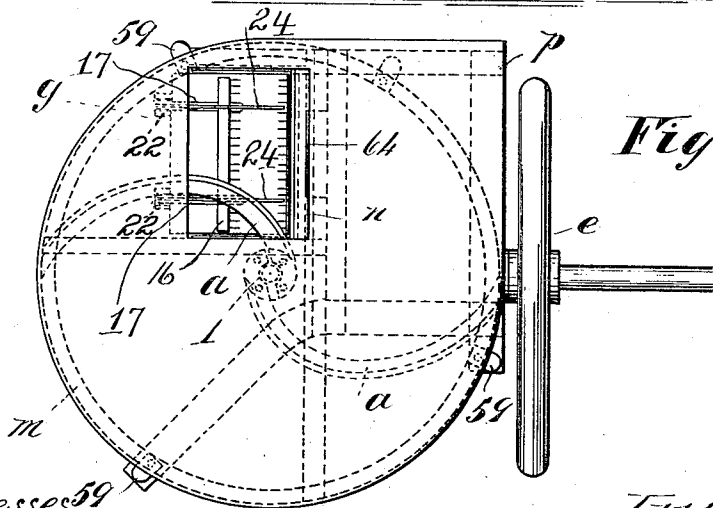
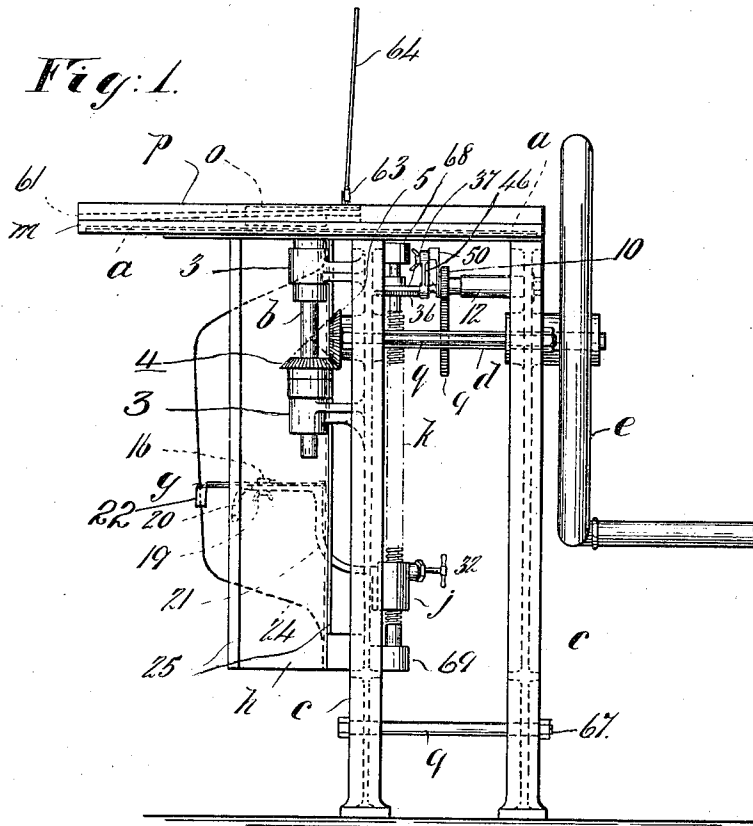
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No. 825,529.

PATENTED JULY 10, 1906.

G. EDWARDS.  
SLICING MACHINE.  
APPLICATION FILED MAY 28, 1904.

5 SHEETS—SHEET 1.



Witnesses  
James L. Morris, Jr.  
C. S. Kesler

Inventor  
George Edwards  
By James L. Morris  
Att'y

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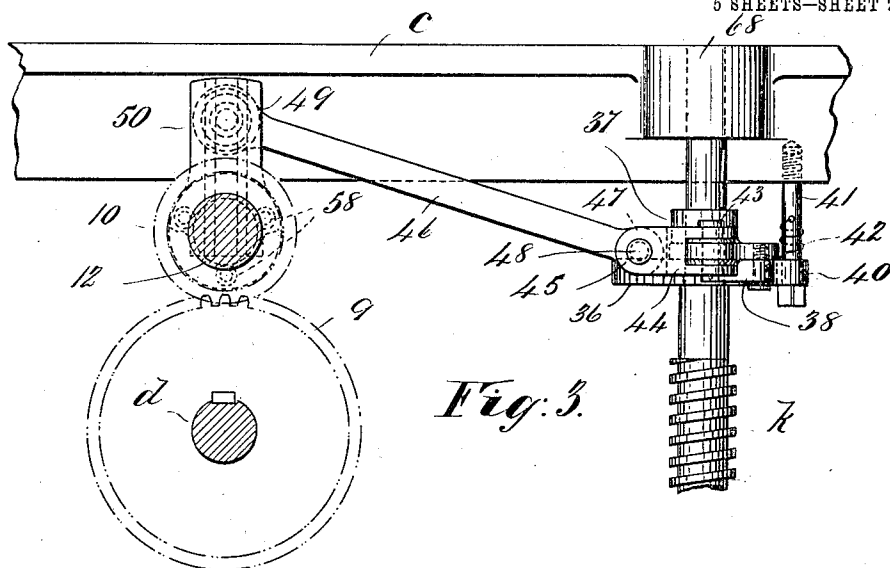


Fig. 3.

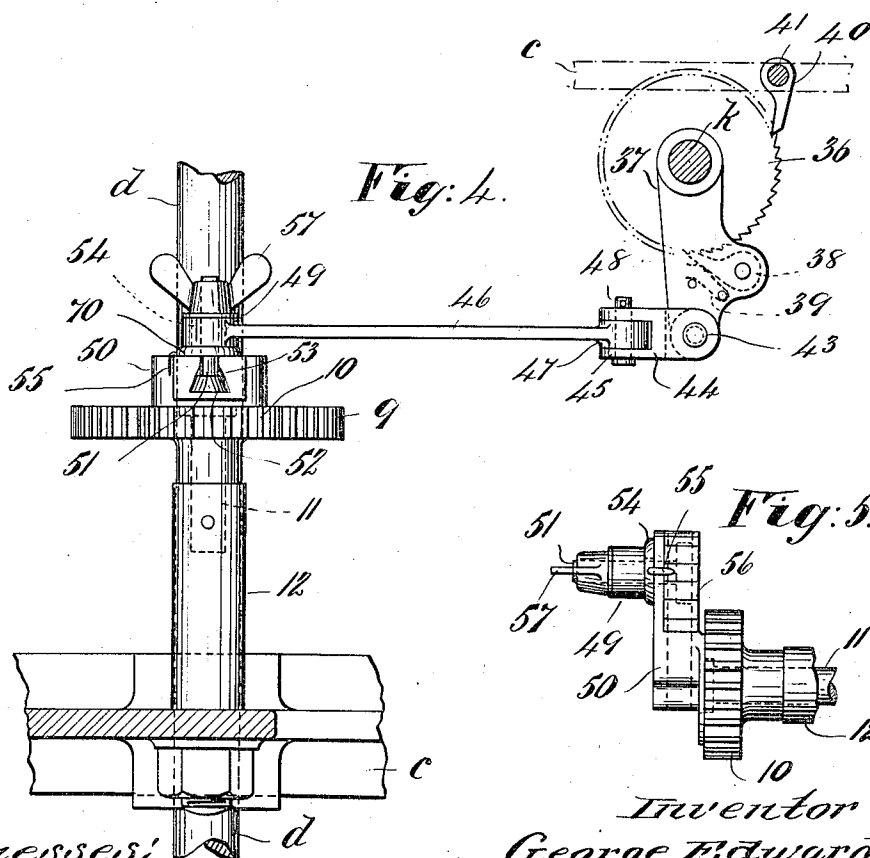


Fig. 4.

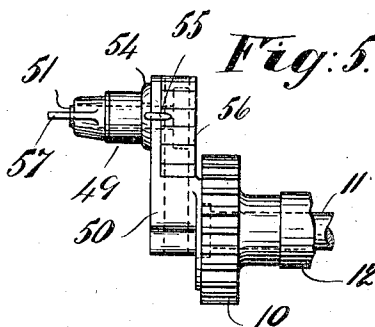


Fig. 5.

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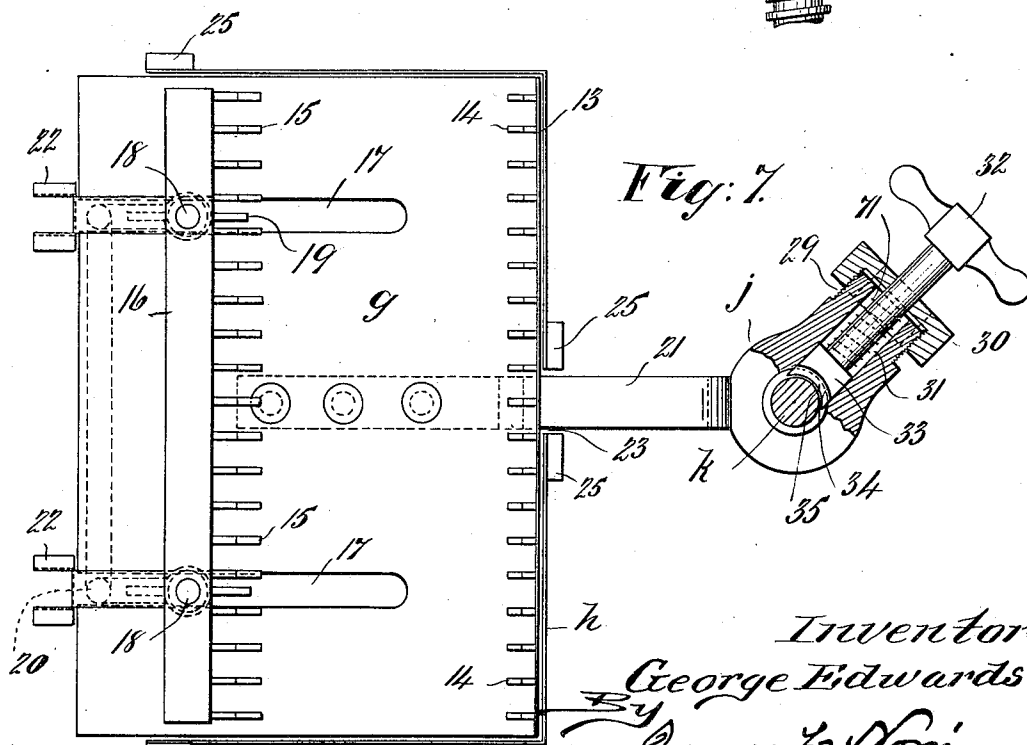
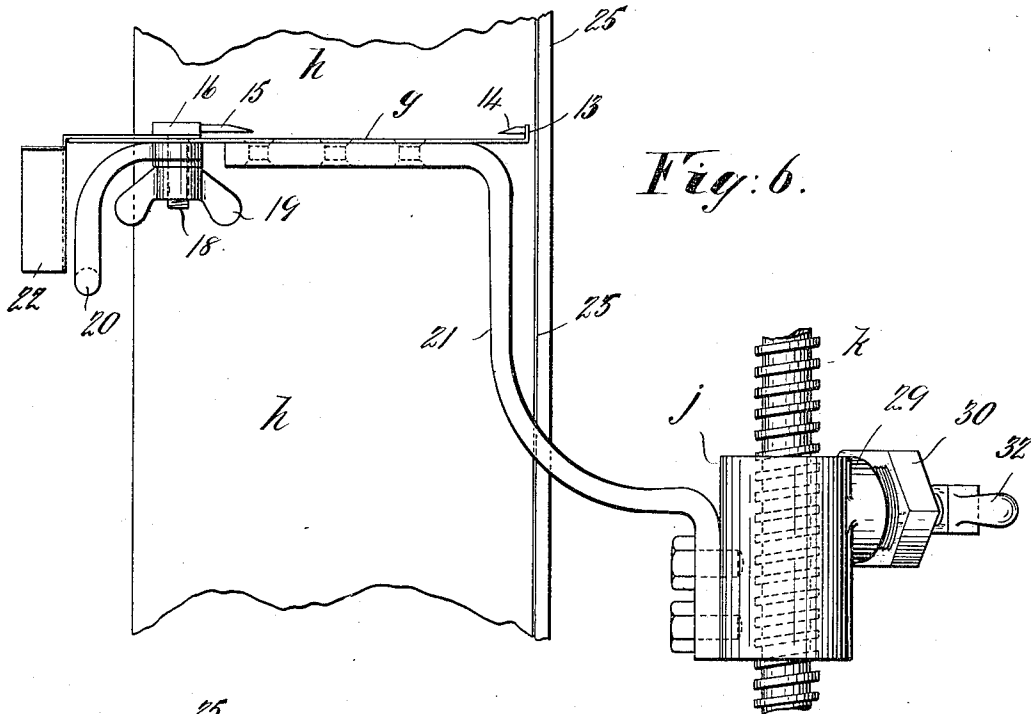
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5 SHEETS—SHEET 3.



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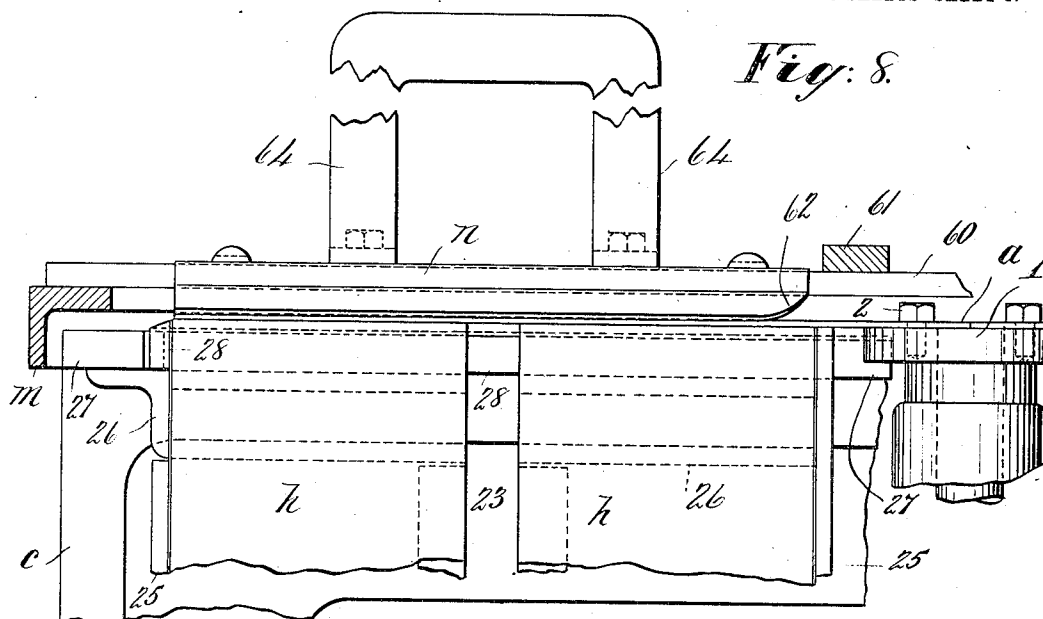
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No. 825,529.

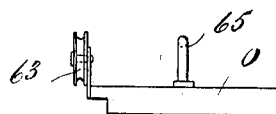
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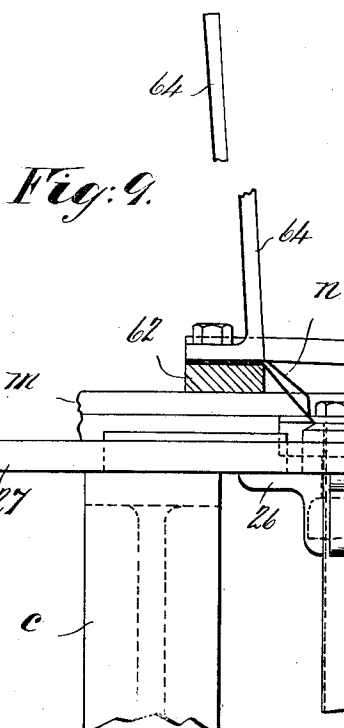
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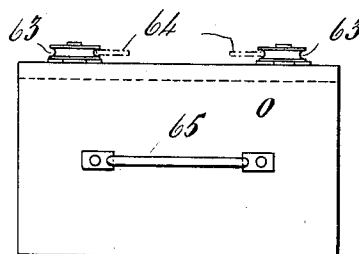
*Fig. 8.*



*Fig. 11.*



*Fig. 9.*



*Fig. 12.*

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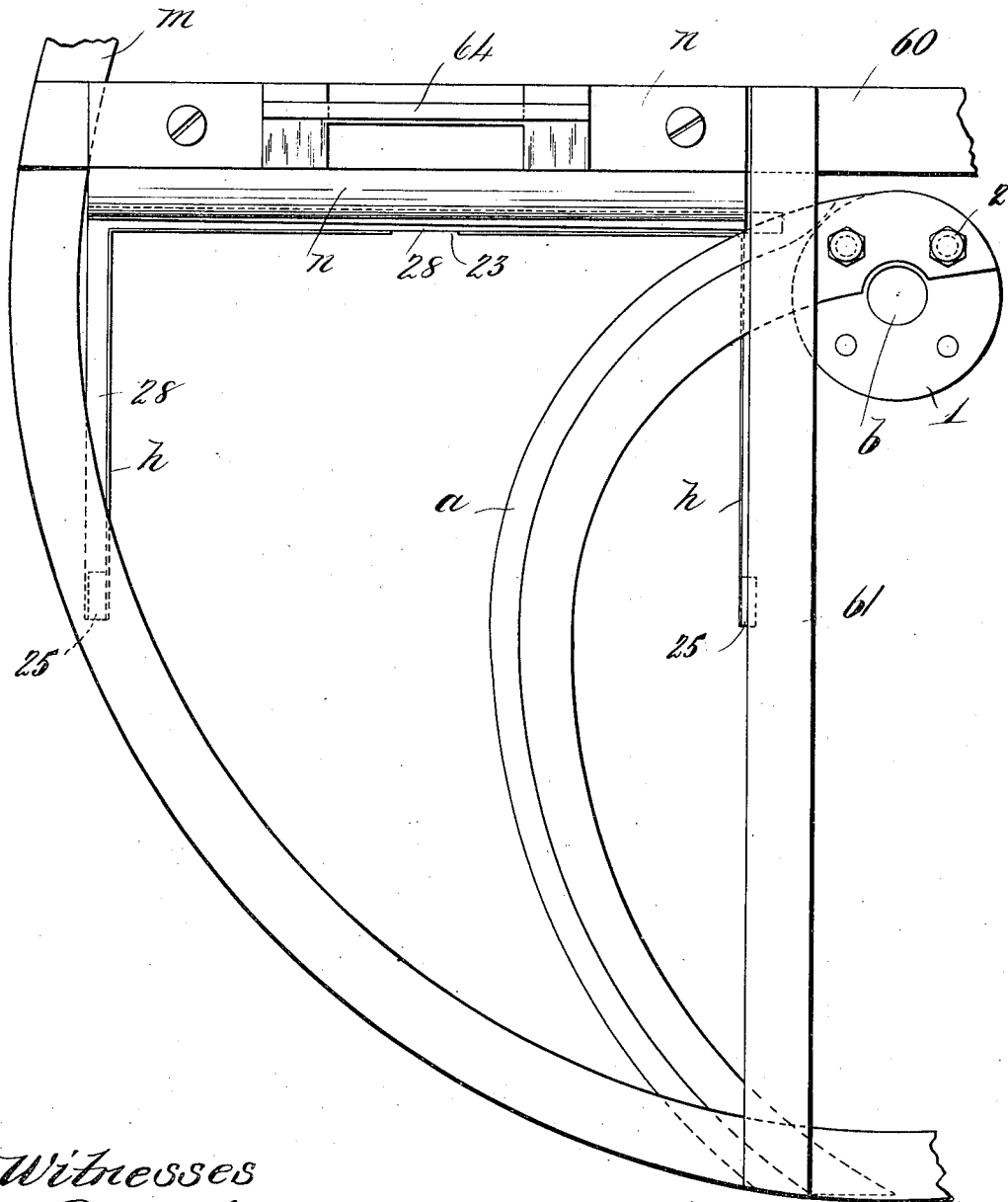
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5 SHEETS—SHEET 5.

*Fig. 10.*



*Witnesses*

*James L. Morris, Jr.*  
*C. D. Kessler*

*Inventor*  
*George Edwards*  
*By James L. Morris, Jr.*  
*Att'y*

# UNITED STATES PATENT OFFICE.

GEORGE EDWARDS, OF CAMDEN TOWN, LONDON, ENGLAND.

## SLICING-MACHINE.

No. 825,529.

Specification of Letters Patent.

Patented July 10, 1906.

Application filed May 28, 1904. Serial No. 210,275.

*To all whom it may concern:*

Be it known that I, GEORGE EDWARDS, provision merchant, a subject of the King of Great Britain, residing at 27 St. Augustines Road, Camden Town, London, England, have invented certain new and useful Improvements in Slicing-Machines, of which the following is a specification.

This invention relates to that class of machinery used for slicing bacon and other matters requiring to be cut into even slices of suitable thickness.

In most existing machines with which I am acquainted the slices of the bacon or other material cut are allowed to fall into a receiver or are simply removed singly by hand, and a considerable residue of the block of material necessarily remains uncut.

A distinguishing feature of this invention consists in the knives traveling in a horizontal plane and passing through the block of material time after time at a fresh point in the block by reason of the block being moved step by step, so as to present successively the point at which each successive cut is to be made, and yet leaving the slices assembled in substantially their original order and position in the block before such slicing and ready for the removal of any of the slices in pile as may be desired, while at the cutting-point where the knife inserts itself into and passes through the block any pressure of the superincumbent slices is taken off by a supporting-spring, the weight of which spring is again taken off by the blades of the knives themselves acting as a species of cam or wedge, this arrangement utilizing the force of gravitation in keeping the slices in place, as well as helping to retain the slice being cut in place during severance, the parts adjacent to the knife also giving the edge of the block support to prevent tearing or dragging away of material, as will be explained. The bacon or the like matter by this arrangement can be sliced up to the last piece, and even that will be about normal thickness of slice.

The following constitutes a convenient embodiment of mechanism for carrying the invention into practical use; but the apparatus admits of considerable modification to circumstances, such as variation in the material to be cut and the purposes of the slices. In this embodiment I have had more especially in view the slicing up of bacon, such as for use as what is known as "breakfast-ba-

con" slices. For other uses details would be modified.

Figure 1 by a side view indicates the general arrangement of the machine. Fig. 2 is a plan view of Fig. 1. Fig. 3 by front view, drawn to a larger scale, shows separately the mechanism for adjusting the "slice" or thickness of the material cut off and means for actuating the feed. Fig. 4 is a plan view of Fig. 3. Fig. 5 shows details of the adjustable crank-arm. Fig. 6 is a side view of the plate and its adjuncts to illustrate how it is connected to the feed-screw. Fig. 7 is a plan view of Fig. 6, partly in section, to illustrate more clearly how the plate is released from the feed-screw. Fig. 8 by front view shows the upper portion of the receptacle for material to be cut and its parts, the double flexible spring-plates beneath which the knives pass, and the guide for the guide-block. Fig. 9 is an edge view of Fig. 8. Fig. 10 is a plan view of the parts shown by Figs. 8 and 9, including one of the cutting-knives. Fig. 11 is an edge view of the guide-block, and Fig. 12 is a plan view of the same.

Curved knives *a a*, herein shown as two in number, are secured on the opposite sides of a small central circular knife plate or support 1, Fig. 10, as by set-screws 2, said plate 1 being mounted on the end of a vertical shaft *b*, journaled in brackets 3 3 on the side frames *c*. Between these brackets 3 3 and fitted on the shaft *b* is a bevel-toothed wheel 4, which wheel engages with and is driven by a second bevel-wheel 5.

*c c* indicate the framing of the machine, and *q q* are cross-stays, and 67 nuts thereto.

The wheel 5 rotates at right angles to wheel 4 and is mounted on the main shaft *d*, carried by bearings 6 7, and is driven by the fly-wheel *e*. 8 is the handle for moving the wheel *e* by manual power, or this may be replaced by a power-pulley. This main shaft has another gear-wheel 9 mounted on it, gearing with the wheel 10, carried by a pin 11 in a bearing 12, bolted to the side frame *c* (more clearly seen in Figs. 3, 4, and 5) for actuating the adjustable feed mechanism to be explained.

The meat or other material to be sliced is supported upon a plate *g*, here shown as of rectangular form; but this may be varied to suit convenience, fitted to whose upturned edge 13 by screwing and riveting or otherwise is a row of points or teeth 14, here shown ar-

ranged slightly above the plane of the supporting-plate *g* and at the side next to the machine. An opposed row of points or teeth 15 are fitted in a similar manner to a flat adjustable plate or bar 16, the plate having parallel guideways or slots 17 cut partly across the width of said rectangular plate *g* from front to back parallel to the teeth 14 15. This adjustable bar 16 has a corresponding number of set-screws 18 and fly-nuts 19 affixed to the under side of and so as to pass through the rectangular plate *g*. These enable the bar to be set at the desired interval. A handle 20 is attached to the adjustable bar 16, and by it this bar is moved into position to press against the piece of meat or material to be sliced.

The plate *g* is held in front of the machine in a horizontal position by means of a bracket 21, said bracket being retained in a vertical slot 23 between the edges of the receptacle *h*. This bracket 21 is connected to the plate *g*, as by rivets or screws, and at its opposite end it is bolted to a sleeve *j*, provided with adjustable means for engaging and disengaging the feed-screw *k*, hereinafter referred to. The receptacle *h* has, as shown in Figs. 1 and 2, two upright flat steel springs 24, which pass in front of the bar 16 and through said slots 17 in the rectangular plate *g* to just below about the level of the cutting edges and pressed lightly against the outer face of the block of material being cut to keep it (especially if the block be of a slender form) pressed to the machine-face. These springs 24 are curved at their upper ends and secured at their lower ends to the receptacle *h*. Their curved form enables them to clear the matter being cut except at the points where their pressure is useful—near the top portion of block that remains uncut. These springs 24, or their equivalents, when applied serve by pressing lightly against the block of material being cut to keep it (especially if the block is of a slender form) pressed to the face of the cutting means. U-shaped guides 22 22, (omitted in Figs. 1 and 2, but shown in Figs. 6 and 7,) affixed on plate *g* by bolts 18 and nuts 19, serve to guide the springs 24 when plate *g* rises above the level of the said springs, thereby obviating danger of breakage. This receptacle *h* may be constructed as shown (see Figs. 1, 2, 6, 7, 8, 9, and 10) and may be of light steel or iron plates bent to the desired shape strengthened by vertical bars 25, riveted thereon, and attached to the framing *c* of the machine by angle-irons 26, carried thereon by bars 27. To the two sides of the upper part of this hopper *h* is screwed a beveled steel bar or plate 28, which, acting in conjunction with the knives, forms the cutting means.

Immediately behind the long vertical slot 23, in bearings 68 and 69 on the side frame *c*, is fitted the vertical feed-screw *k*, carrying at its upper end a ratchet-wheel 36, above

which is loosely mounted a reciprocating arm 37, having on its under side a pawl 38, capable of engaging with the ratchet-teeth on the wheel 36 and kept up to its work by a spring 39. Another pawl 40, pivoted at 41 and kept in engagement by means of the torsional spring 42, prevents backward movement of the ratchet-wheel 36. To the outer end of the reciprocating arm 37 is connected by a pin 43 a piece having slotted connections at right angles one to the other for connecting levers 38 and 46 by pins 43 and 48. The other end 49 of the said rod 46 is adjustably secured to the slotted crank-arm 50 by means of a bolt 51, having a V-shaped head 52, capable of sliding up and down in the slot 53 in the crank-arm 50, and affixed to a collar 54, flanged at 70, is a pointer 55 for enabling the operator to correctly adjust the position of the center of the bolt 51 (which bolt constitutes the crank-pin of the crank-arm 50) correctly to the required line of the index series of lines 56, marked on the side of the arm 50, whereby to determine the thicknesses of the slices to be cut. The end 49 of the rod 46 is passed over the collar 54 and clamped in position by the fly-nut 57. The crank-arm is secured by screws 58 to its driving gear-wheel 10.

Mounted on the vertical feed-screw *k* by its threaded portion is an arrangement of mechanism whereby the rectangular plate can be raised or lowered by an open handle 32. This arrangement (see Figs. 6 and 7) consists of a sleeve *j*, cylindrically formed so as to make a sliding fit on the screw *k*, having at its upper end a boss 29, the outer end of which is screwed to receive a locking-nut 30. A squared hole 31 is formed in the boss to receive a square extension 33 of the handle 32, whose side 34 nearest the feed-screw *k* is shaped to the radius of this screw *k* and provided with a projection 35 of size and shape when the pressure of the spiral spring 71 is transmitted to it to enter between the thread of the screw *k* and lock the whole in position, so that when the screw *k* is rotated the sleeve *j* will travel up the screw, carrying with it the rectangular plate *g*, connected thereto by the bracket or support 21. To release the sleeve from the screw when it is necessary to adjust the level of the plate *g*, the handle 32 is pulled toward the operator, overcoming the resistance of the spring 71 and releasing the projection 35 from the thread of the screw. The sleeve *j* can be moved into position, carrying with it the plate *g*. The locking-nut 30 serves to adjust the compression on the spring 71 and keeps the various parts in position.

The knives *a* move in a horizontal plane beneath and pressing against the under side of a circular guide-ring *m*, affixed to the machine by lugs 59. To the upper side of this ring is fitted a cross-bar 60, parallel to but slightly behind the cutting edge of the steel

angular bar 28, hereinafter described, which cross-bar 60 also carries a light radial bar 61, arranged at right angles to the said bar 60. Fitted to the cross-bar and immediately over the cutting edge formed by the bars 28 is a long double flexible steel spring *n*, (more clearly seen in Fig. 9,) so arranged that the end 62 nearest the center of the machine is slightly inclined away from the front edge of the bar 28. The end 62, Fig. 8, is upturned, allowing the knives *a* to pass freely under this spring *n*. The object of this spring *n* is that as each slice is cut from the piece of meat or other material the slice is removed from the knives by the aid of the lower spring and retained in its position by the upper spring. The springs also serve to clean from the knives as they pass them any adherent matters.

When a piece of bacon or other material to be sliced is placed upon the rectangular plate *g* and held in position by the adjustable bar 16, the plate *g* is placed at the required level to bring the surface of the substance being cut level with the cutting edge of the knives. At each revolution of the shaft *b* two cuts, one by each blade, will have taken place, owing to the gearing and levers having actuated the ratchet-wheel 36, attached to the feed-screw *k*, twice through an angle regulated by the adjusted position of the bolt 51 in the slot 53 of the crank-arm 50, whereby the sleeve *j*, connected to the plate *g*, is raised, carrying with it the material to be cut a distance equal to the predetermined thickness of a slice. The plate *g* at each cutting operation remains stationary—that is to say, while one of the knives *a* cuts through the material and severs a slice. These operations are repeated at each successive half-turn of the shaft. The slices already severed are prevented from leaving the pile by the guide *o*, (see Figs. 11 and 12,) which guide is fitted with two pulleys 63 63, so that as the slices increase in number the guide-pulleys travel up the guide-bars 64 64. These bars are slightly out of the perpendicular, as shown by Fig. 9, so that each slice in the pile is moved during each cut slightly up an inclined plane as they are detached by the double spring *n* if the movement of the block being cut is upward. A handle 65 is affixed to the guide-block *o* for convenience of removal.

The top of the machine, as shown by Figs. 1 and 2, is covered over by a wood top *p*.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In a slicing-machine for meat and like material, a feed-table for supporting the material to be cut having rigid teeth at one side and adjustable teeth cooperating with the said rigid teeth, the feed-table being disposed

horizontally, a screw-sleeve supporting and moving the said table, a vertical screw-axis engaging and impelling said table, means for adjusting the height of the table to the depth of the material to be cut, and cutting devices disposed horizontally above the table and having means cooperating therewith for clearing the same and for holding the cut slices in vertical alinement on the table above the cutting devices.

2. In a slicing-machine for meat and other material, a vertically-movable horizontally-disposed feed-table, fixed teeth and adjustable teeth on the table facing each other, means for moving the adjustable teeth and guiding the same horizontally and for locking the said teeth with their points in the material to be cut, a receptacle cooperating with the feed-table and block of material on the latter, cutting devices disposed horizontally above the feed-table, and means for clearing the cutting devices and preserving the cut slices in vertical alinement above the latter and the feed-table.

3. In a slicing-machine, a horizontally-disposed feed-table, guides for the said table, means for imparting vertical movement to the feed-table, a feed-receptacle cooperating with the latter, springs affixed to said receptacle and pressing the material to be cut into position on the table, horizontally-disposed cutting devices arranged above the said table, and means for holding the cut slices in vertical alinement over the table and cutting devices and for clearing the latter.

4. In a slicing-machine, a horizontally-disposed feed-table, rotating knives horizontally arranged over the said table, springs to guide the cut portions of the material operated upon out of the path of the knife-blade succeeding the blade which has effected the cut of the severed portion, and means for preserving the cut slices in vertical alinement on the table above the rotating knives.

5. In a machine for slicing meat and other materials, the combination of a horizontally-disposed support, a horizontally-rotating knife arranged over the support, and a spring-pressure means cooperating with the said knife and by means of which the latter, after passing through the material to be cut, is caused to move under the spring means and abnormally deflect it, thereby preventing dragging action on the cut slices of material, and preserving said slices practically in the original shape of the material before cutting.

6. In a machine for slicing meat and other materials, the combination of a horizontally-disposed support, a horizontally-arranged rotating cutter over the support, and resilient guide means for the sliced material which determine the inclination and position of the rising pile of slices.

7. In a machine for slicing meat and other



materials, the combination of a horizontally-  
disposed support, a horizontally-rotating  
cutter arranged over the support, and spring-  
pressure plates coöperating with the cutter  
5 to prevent the slices of material as they are  
severed being carried out of their normal po-  
sition during the cutting operation of the cut-  
ter.

In testimony whereof I have hereunto set  
my hand in presence of two subscribing wit- 10  
nesses.

GEORGE EDWARDS.

Witnesses:

JOHN COODE HORE,  
ALFRED GEORGE BROOKES.