May 4, 1943. W. MAHLER 2,318,003

BACON SLICER

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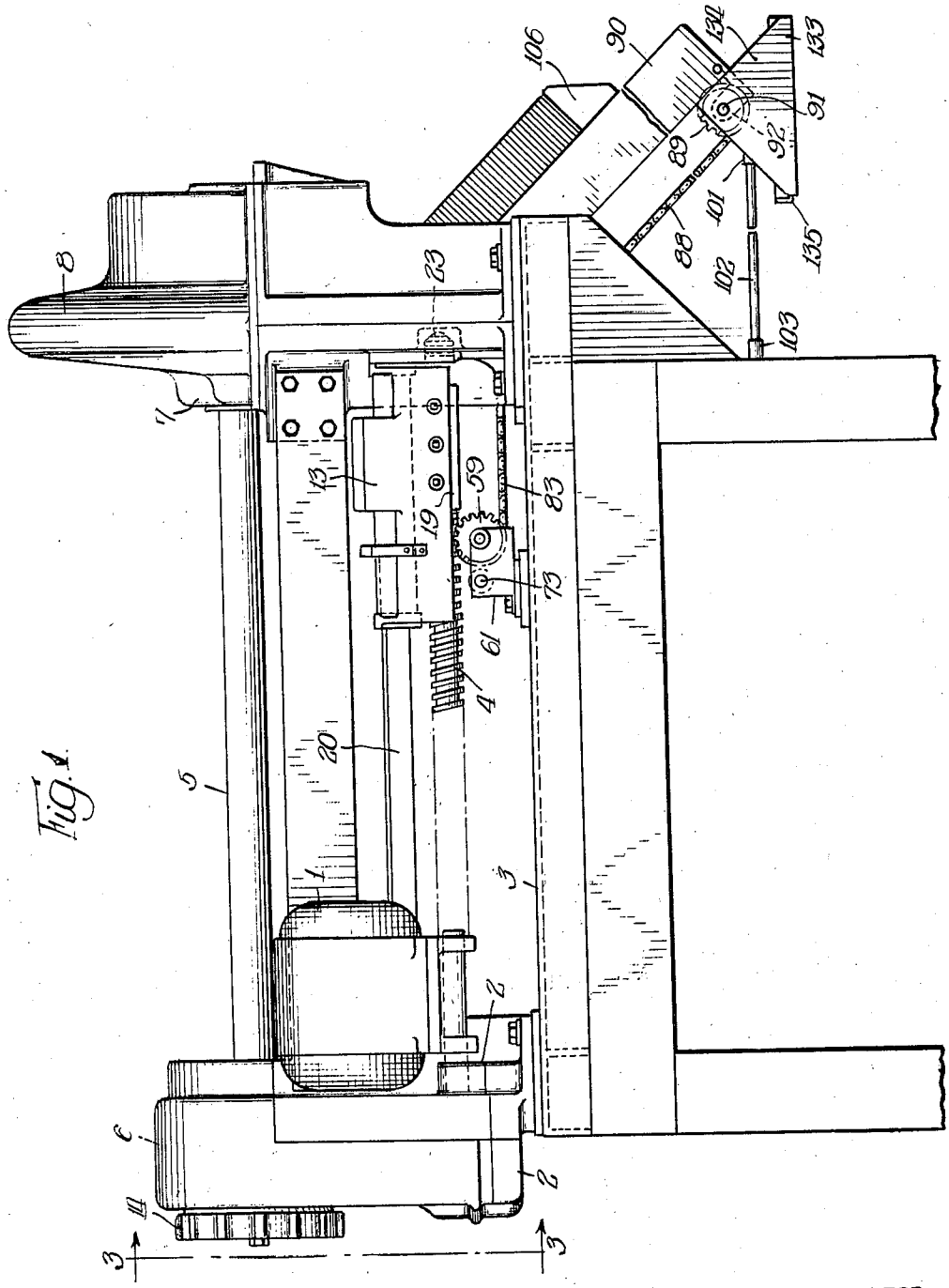


Fig. 1.

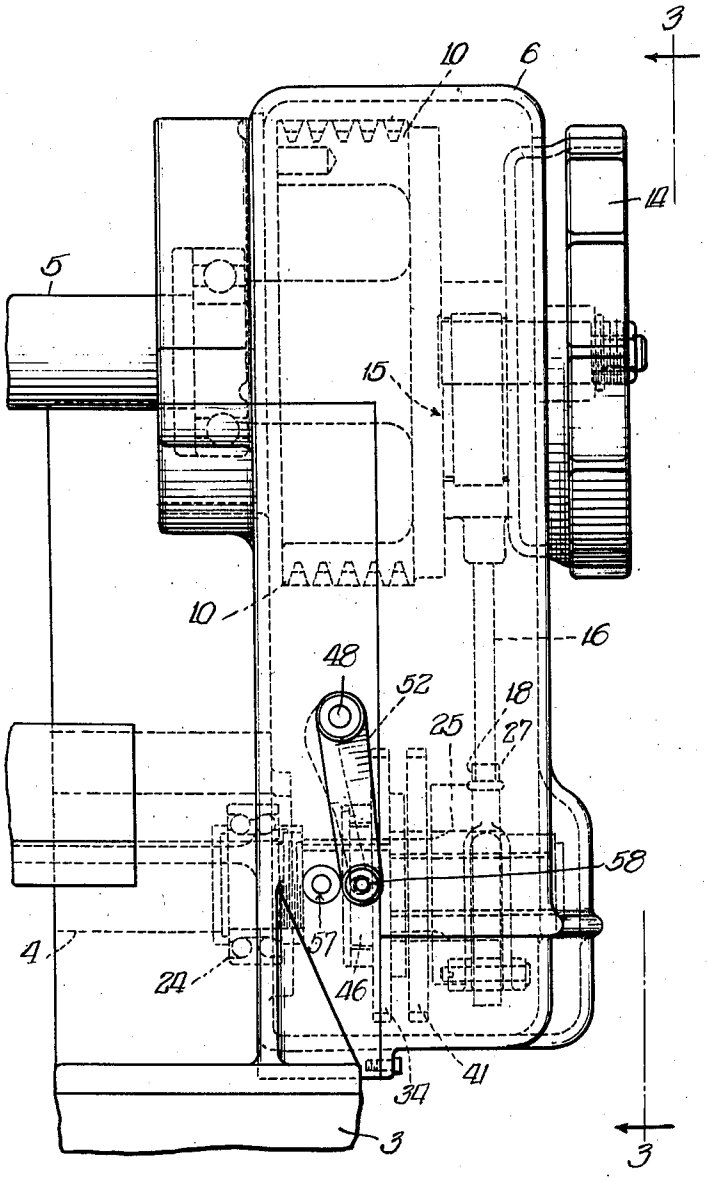
INVENTOR.
William Malder;
BY John A. Marzall
ATTORNEY.

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BACON SLICER

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Fig. 2.



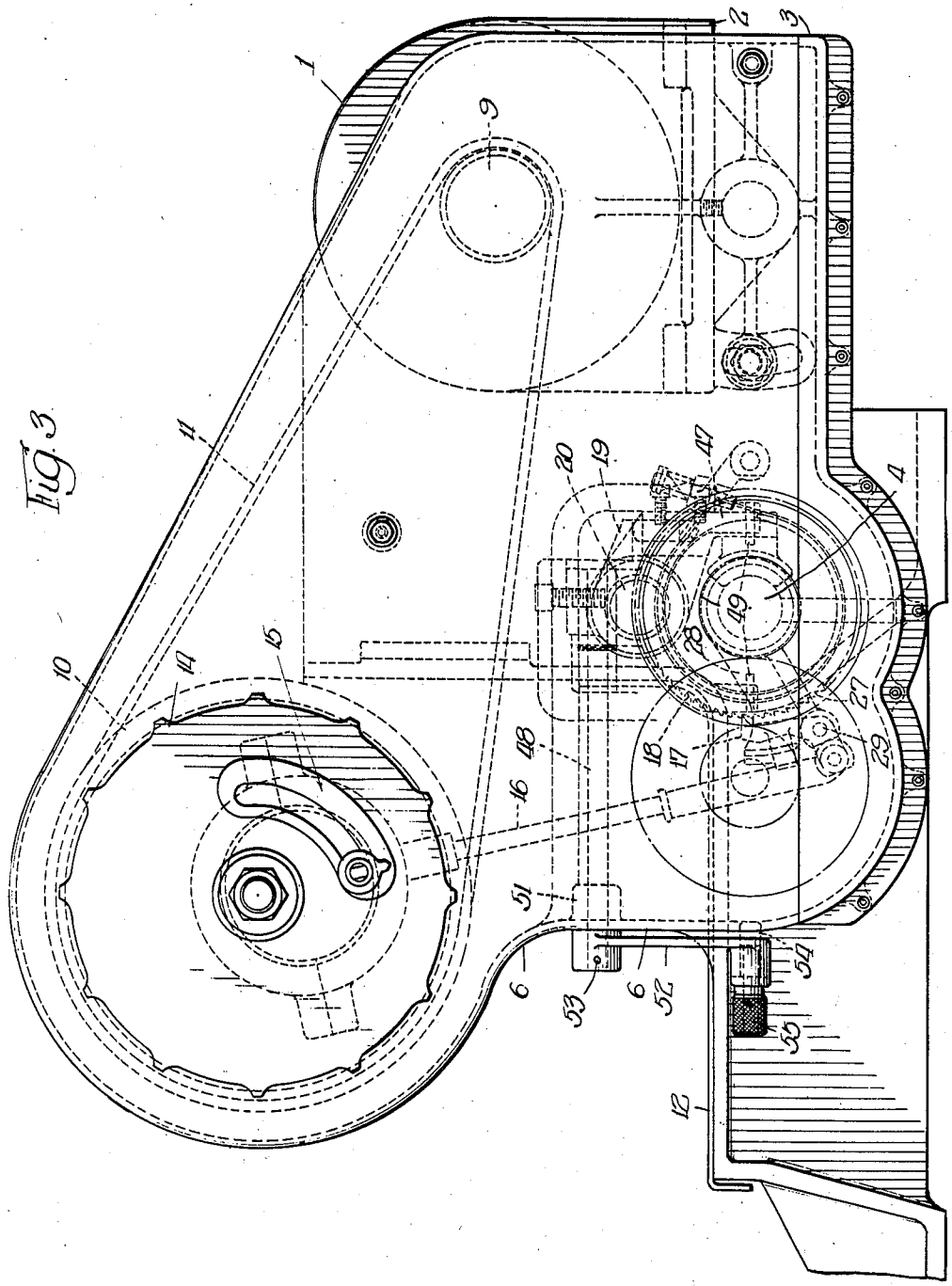
INVENTOR.
William Mahler;
BY John A. Marzall
ATTORNEY.

May 4, 1943. W. MAHLER 2,318,003

BACON SLICER

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Fig. 3



INVENTOR.
William Mahler,
BY John A. Marzall
ATTORNEY.

May 4, 1943. W. MAHLER 2,318,003

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Fig. 4

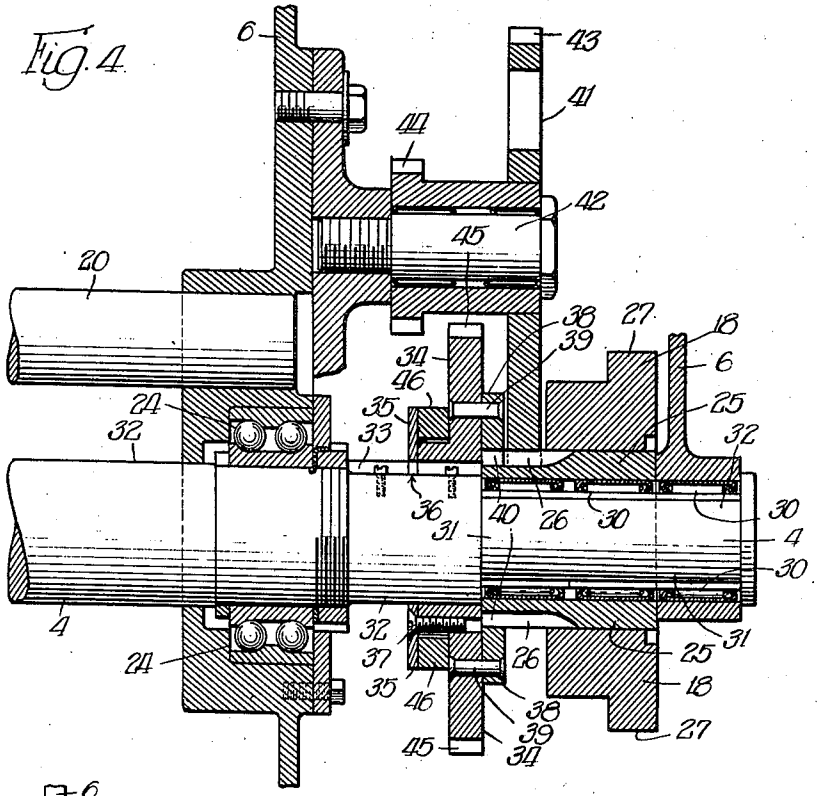
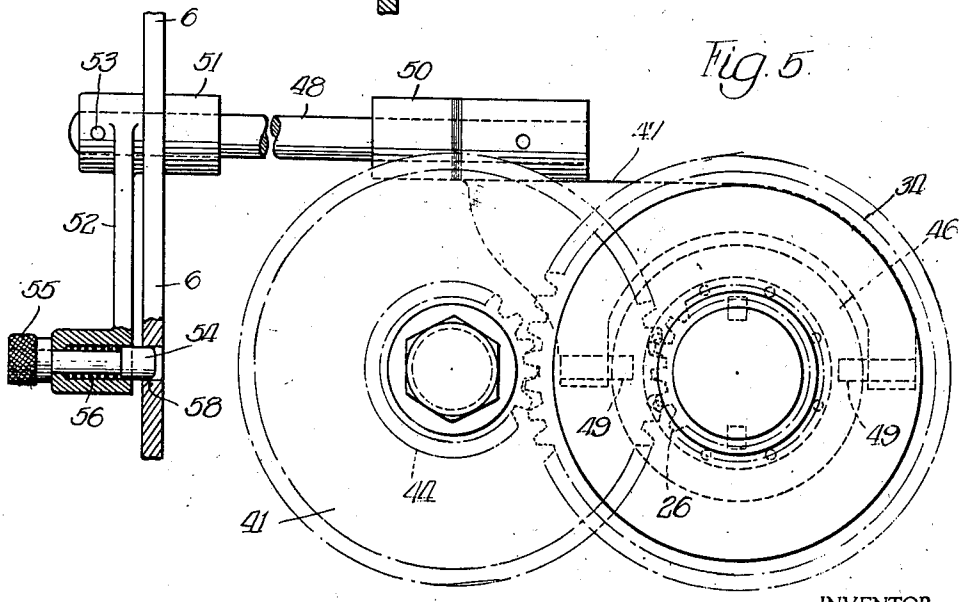


Fig. 5



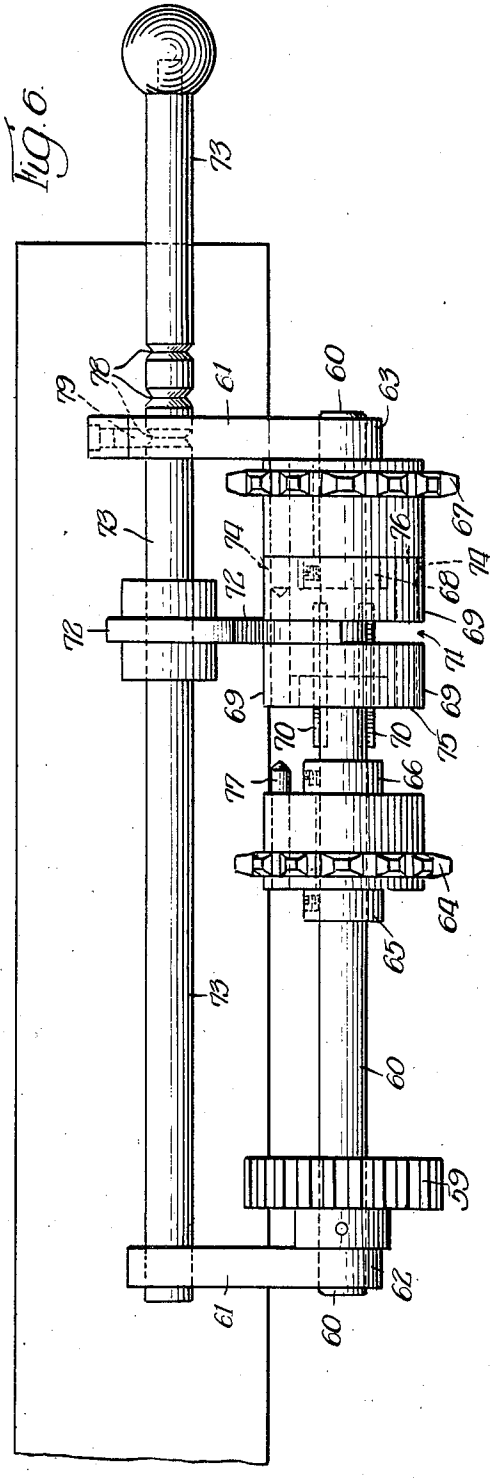
INVENTOR.
William Mahler,
BY John A. Margall
ATTORNEY.

May 4, 1943. W. MAHLER 2,318,003

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Fig. 6



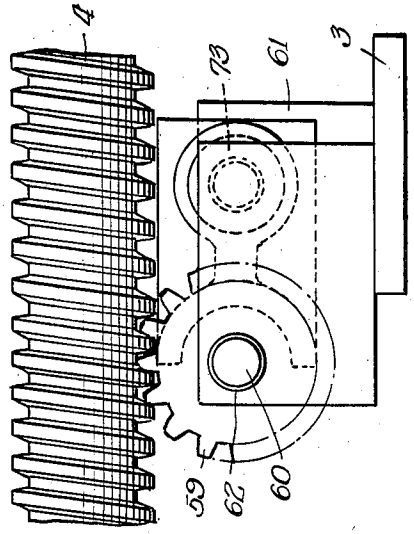


Fig. 7

INVENTOR.
William Mahler,
BY John A. Marzall
ATTORNEY.

May 4, 1943. W. MAHLER 2,318,003

BACON SLICER

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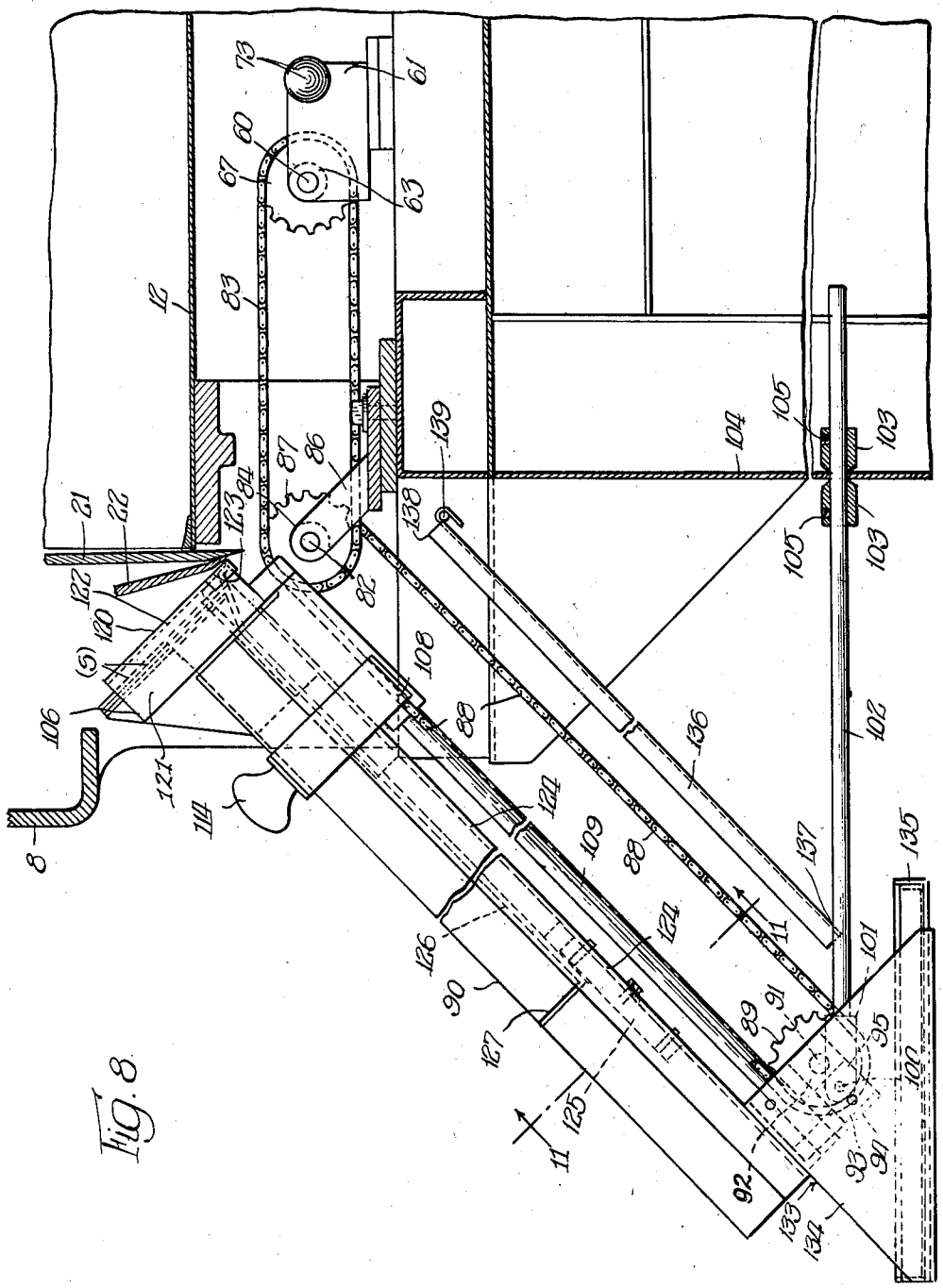


Fig. 8

INVENTOR.
William Mahler,
BY John A. Marzall
ATTORNEY.

May 4, 1943. W. MAHLER 2,318,003

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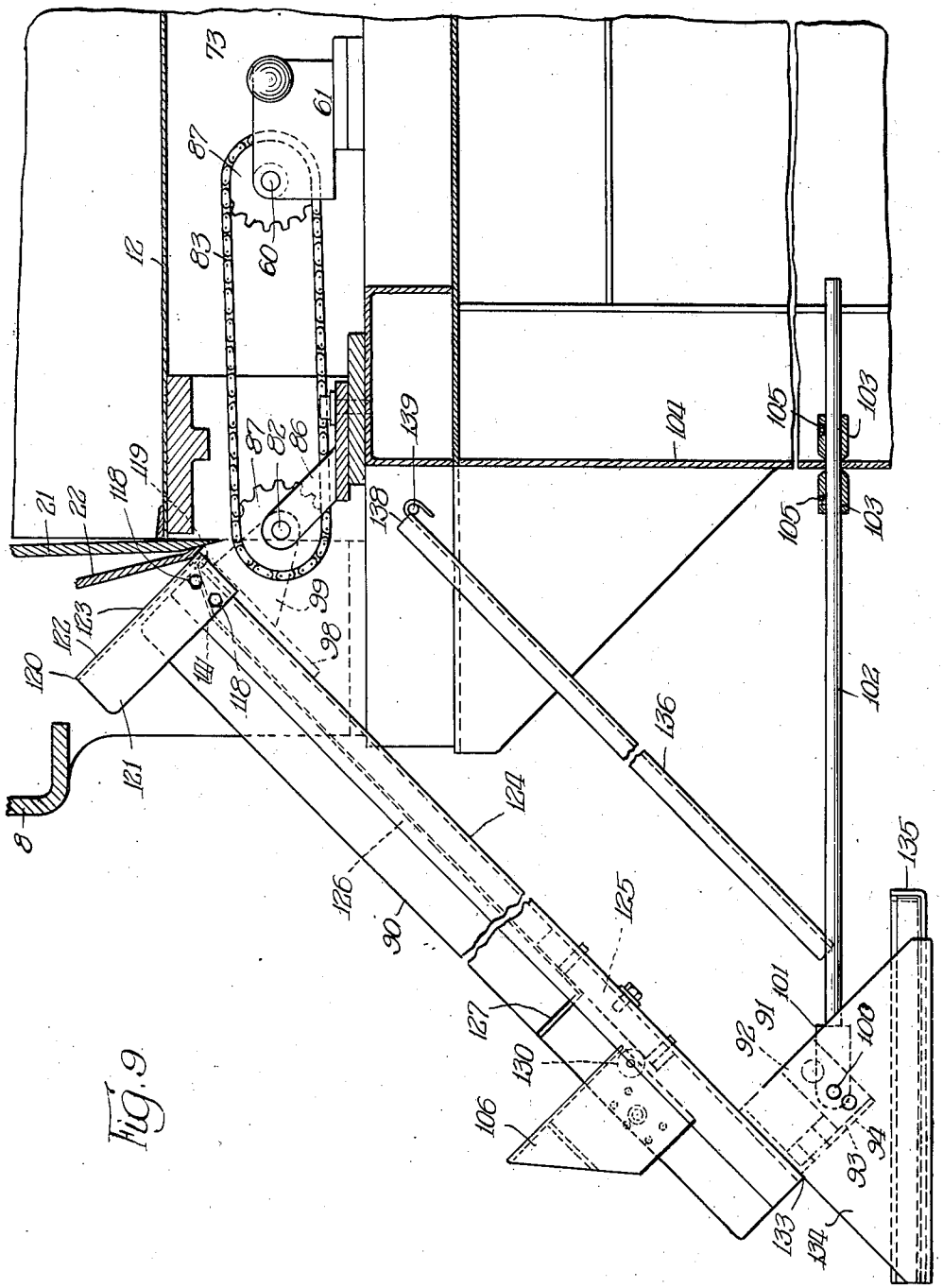


Fig. 9

INVENTOR.
William Mahler,
BY John A. Marzall
ATTORNEY.

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Fig. 10

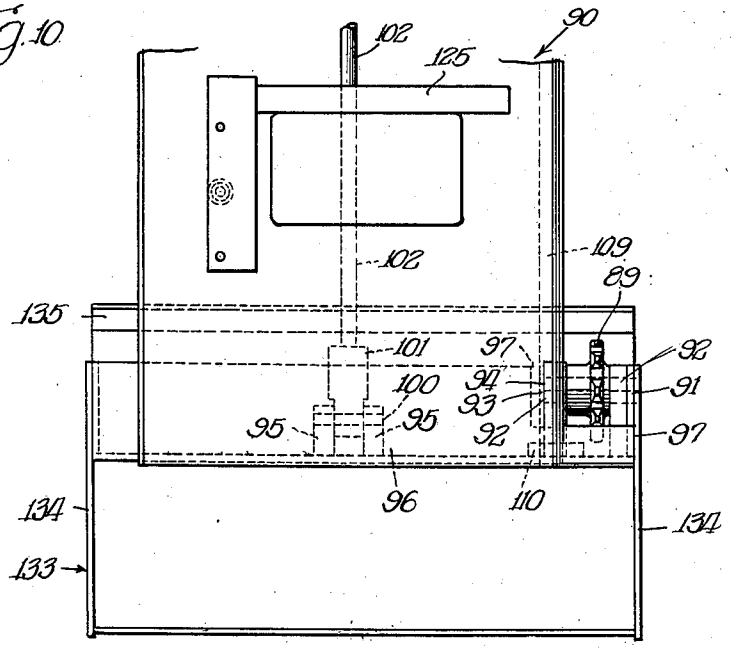
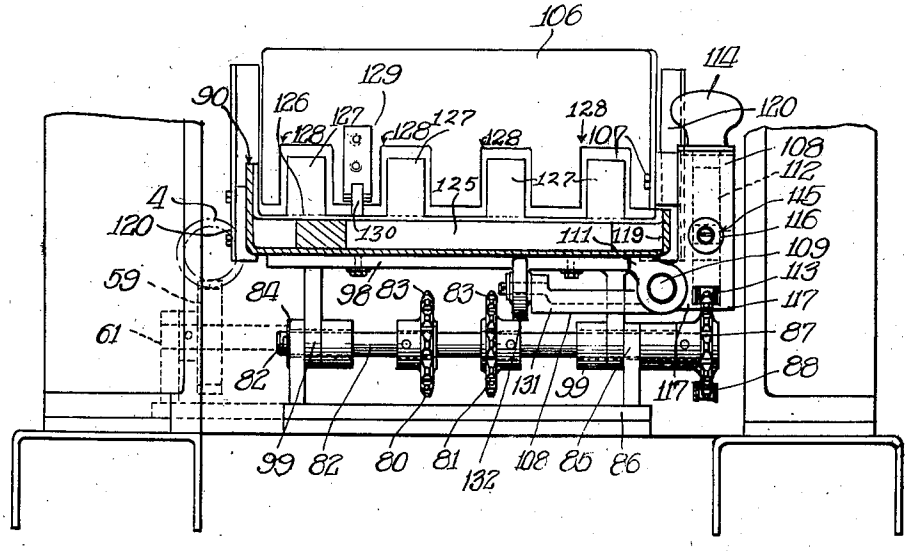


Fig. 11.



INVENTOR.
William Mahler,
BY John A. Marzall
ATTORNEY.

Patented May 4, 1943

2,318,003

UNITED STATES PATENT OFFICE

2,318,003

BACON SLICER

William Mahler, La Porte, Ind., assignor to U. S. Slicing Machine Company, La Porte, Ind., a corporation of Indiana

Application December 11, 1939, Serial No. 308,510

12 Claims. (Cl. 146—94)

This invention relates to slicing machines in general and more particularly to the heavy duty type of slicing machine adapted particularly for slicing bacon and dried beef and the like. The type of slicing machine to which the invention relates generally is of the type shown in United States Letters Patents Nos. 1,976,823, 1,976,824, 2,150,585, and 2,168,612, each assigned to the present assignee.

An important object of the present invention is to provide a slicing machine which is adapted for both high and low speed operation, there being means for effecting selective fast and slow feed of the substance to be sliced.

Another important object of the invention is the provision of means including a slice receiving conveyor trough which is capable of being operated intermittently at various speeds according to the speed of the substance feeding means and in timed relationship therewith.

A further object of the invention is the provision of a slicing machine which is provided with means for effecting a high and low speed feeding movement of the substance to be sliced in combination with a slice receiver, or the means may be used for operating a conveyor, whereby the movement of a movable slice receiver is operatively correlated with the feed of the slicing machine and properly synchronized therewith so that regardless of the speed at which the material is fed, the movable slice receiver will be moved the required distance proportionately.

A still further object of the invention is the provision of a new and novel slice receiver adapted to receive slices as they are cut consecutively from the substance and arranged in stacked relationship one upon another on a support or abutment movably arranged in the slice receiver, the slice supporting abutment moving in proper timed relationship with the feed movement of the substance to be sliced so that the last slice cut is in juxtaposition with respect to the next succeeding slice; the abutment being lowered successively during each cutting operation an amount equivalent to the thickness of the slice being cut.

Still another object of the invention is the provision of new and novel means for effecting a feeding operation at various speeds whereby the slicing machine is adaptable for slicing different substances at different thicknesses and at different speeds, whereby the machine is adapted for use in slicing relatively thick slices such as bacon, and very thin slices such as dried beef.

Another object of the invention is the provision of new and improved means for effecting the operation of slice supporting means whereby the slice supporting element of the said slice supporting means is moved a distance equal to the thickness of a slice being cut during each cutting operation of the machine.

A further object of the invention consists of new and improved means for effecting multiple speeds of the feed and multiple speeds of the slice receiving means, both of said means being correlated to operate synchronously.

Still another object of the invention is the particular arrangement, construction and location of the parts for effecting the various operations of the machine.

Numerous other objects and advantages will be apparent throughout the progress of the following specification.

The accompanying drawings illustrate a selected embodiment of the invention and the views therein are as follows:

Fig. 1 is a detail elevational view of a slicing machine and embodying the invention, the view being taken on the side opposite the operator's stance.

Fig. 2 is a detail elevational view of the front right hand end of the machine and showing some of the driving means and the means for regulating the thickness of slices.

Fig. 3 is a detail elevational view partly in section and looking in the direction of the arrows 3—3 of Figs. 1 and 2.

Fig. 4 is a detail plan section of the change speed means arranged in the lower part of the housing, at the lower end of the view shown in Figs. 2 and 3.

Fig. 5 is a detail sectional view partly in elevation and showing the shifting means for effecting change speed operation of the feed screw.

Fig. 6 is a detail plan section showing some of the change speed mechanism for operating the slice receiving conveyor or trough.

Fig. 7 is a detail elevational view of the feed screw and driving means therefrom for selectively driving the slice receiving trough or conveyor driving sprockets.

Fig. 8 is a detail view partly in section and partly in elevation showing the slice receiving trough or conveyor and some of its associated mechanism.

Fig. 9 is a view similar to Fig. 8, showing the slice receiving trough more in detail.

Fig. 10 is a detail plan view of the lower end of the slice receiving trough.

Fig. 11 is a detail sectional view on the line 11—11 of Fig. 8.

The particular slicing machine herein shown for the purpose of illustrating the invention comprises a driving motor 1, Fig. 1, which is mounted on a bracket 2 bolted to the base 3 of the slicing machine frame. The motor 1 drives means intermittently to rotate a feed screw 4. A knife drive shaft 5 is journaled in a housing 6 carried by the bracket 2, and this shaft operates in a bearing 7 mounted in a knife housing 8 which is secured to the base 3 at the end of the machine opposite the housing 6. The motor 1 is adapted to continuously drive the shaft 5 by means of pulleys 9 and 10, and the belts 11, Fig. 3. This means for effecting continuous rotative movement of the shaft 5, is shown in applicant's Patent No. 2,150,585 granted March 14, 1938. This latter patent also discloses the general type of slicing machine to which the present invention is applicable.

The substance to be sliced is adapted to be fed along a substance support 12, Fig. 3, by a feed clamp 13, Fig. 1, which is selectively connectable and disconnectable with the feed screw 4 and intermittently moved thereby.

This feed clamp may be of the construction disclosed in Patent No. 2,177,470 granted October 24, 1939.

Means for operating or intermittently rotating the feed screw 4 may comprise eccentric mechanism of the kind disclosed in Patent No. 2,168,612 granted August 8, 1938, to Ahrndt. The thickness of slices to be cut is determined by operating the hand wheel 14, Fig. 3, which through certain mechanism shown and described in the said Patent No. 2,168,612 and arranged in the housing 6, controls the degree of rotation of the feed screw 4. The means for rotating the feed screw 4 comprises eccentric mechanism 15, Fig. 3, for reciprocating an arm 16, as shown in Figs. 4–7 of said last named patent, to operate a pawl 17. The pawl 17 is engageable with a ratchet wheel 18, Fig. 3, on feed screw 4, whereby the feed screw is given intermittent rotative movement. The ratchet pawl-and-wheel mechanism 17, 18, is similar to that shown in Fig. 15 of Patent No. 1,976,823, or in Fig. 23 of Patent No. 1,976,824. The feed clamp 13 may include a feed nut 19 which is adaptable to be operatively connected or disconnected from the feed screw 4 and is movable on a feed nut slide bar 20.

The shaft 5 is adapted to rotate a slicing knife 21, Figs. 8 and 9, which is arranged in the knife housing 8, Figs. 1 and 8. The knife 21 is adapted to be rotated as well as given planetary movement about a fixed orbit. The construction and mechanism for rotating the knife may be mechanism of the type disclosed in Patents Nos. 1,976,823 and 1,976,824, although it has been found preferable that the knife operating means be of the type shown in Patent No. 2,150,585, particularly Fig. 4 thereof. The knife 21 may also be provided with a slice deflector 22, Figs. 8 and 9, of any known type but it has been found preferable to use the type shown and disclosed in Fig. 12 of Patent No. 1,976,823. The mechanism for effecting rotary as well as planetary movement of the knife 21 is arranged in the knife housing 8.

In conventional slicing machines, the feeding mechanism has constant operation, the feed screw being rotated at a predetermined speed intermittently to effect translation of the substance along the feed table to the cutting knife. In instances where different substances such as bacon and dried beef are to be cut, machines had a gear train which had to be taken off and replaced by another train of gears each time the slice thickness was to be changed.

The present invevntion, however, contemplates a machine wherein change speeds are employed to effect the feeding of the substance at a slower or faster rate as required for different substances. In the present embodiment, a single machine is adapted for feeding and slicing different kinds of substance at different speeds. Bacon is generally sliced considerably thicker than dried beef, therefore the feed of the bacon should be much more rapid than the dried beef. The present invention provides means whereby the speed of the feeding mechanism can be considerably advanced for slicing one particular substance, such as bacon, and then considerably reduced or lowered for slicing another substance, such as dried beef. The means for effecting the change speed operation of the feed screw 4 may comprise shifting gear mechanism, Figs. 2 to 5.

The feed screw 4, Fig. 4, has one end thereof mounted in suitable bearings 23 in the knife housing 8, Fig. 1, and its other end mounted in suitable bearings 24 in the housing 6, Fig. 4. The ratchet wheel 18, Fig. 4 is mounted on the feed screw shaft 4 and driven by the ratchet pawl 17 through the eccentric rod 16, Fig. 3.

A sleeve 25, Fig. 4, is rigidly secured to the ratchet wheel 18 by welding or otherwise, so that the sleeve will rotate with the ratchet wheel. The sleeve 25 is provided with external teeth 26, while the ratchet wheel 18 is provided with ratchet teeth 27 which are engaged by ratchet pawl 17. The pawl 17 is fastened to a pawl bracket 28, Fig. 3, by means of a pin 29 so that it may be operated by the rod 16 through the flywheel eccentric mechanism 15 during rotation of the flywheel or pulley 10.

The ratchet wheel 18 and the sleeve 25, are suitably bushed and operate in bearings 30, Fig. 4, about the reduced diameter 31 of the feed screw 4. The larger diameter 32 of the feed screw carries a key 33 and a gear 34. A washer 35 provided with a key-way slot 36 is fastened to one side of the gear 34 by screws 37. A ring 38 is fastened to the other side of the gear 34 by means of rivets or screws 39. The ring 38 is provided with internal teeth 40, Fig. 4, which mesh with the external teeth 26 on the ratchet wheel sleeve 25. A gear 41 is mounted on a countershaft 42 which is securely fastened to a part of the housing 6. This gear 41 is provided with gear teeth 43 which are adapted to mesh with the teeth 26 on the ratchet wheel gear sleeve 25. A second gear ring 44 on the gear 41 is adapted to be brought into meshing engagement with the teeth 45 on the gear 34. The gear 34 and its washer 35 and the ring 38 are adapted to be shifted to the left, Fig. 4, on the enlarged portion 32 of the feed screw 4 which carries the key 33. A shifting collar 46 is arranged between the gear ring 34 and the washer 35. This collar 46 is adapted to be shifted by means of a shifting fork 47, Fig. 5, which is mounted on a shifting shaft 48. Pivot pins 49 connect the shifting collar 46 and the shifting fork 47. Bearings 50 and 51 are provided to suitably mount the shifting fork shaft 48. A gear shift crank 52 is pinned at 53 to the shifting shaft 48, and a lock pin 54 provided with a knob 55 is adapted to lock the gear shift crank 52. A spring 56 is arranged about the pin 54 to urge the pin 54 in a direction toward the housing 6, Fig. 4, so that when the gear shift crank 52 is moved from one shifting po-

sition 57 to another shifting position 58, Fig. 2, the pin 54 will be pressed into its proper position. The positions 57 and 58 are apertures into which the pin 54 extends to hold the gear shift crank 52 in proper position. The gear shift crank 52 is shifted to positions 58 and 57 for fast and slow speed, respectively.

The teeth 26 of the ratchet wheel sleeve 25, Fig. 4, are shown meshing with the teeth 43 of the gear 41, but in this position the entire gear 41 is in idling position. Therefore, the worm feed 4 will be driven by the ratchet pawl 17 through the ratchet wheel 18 and sleeve 25, and inasmuch as the gear 34 rides on the key 33 on the feed screw 4, the feed screw is driven directly through the parts 18, 25, 26, 33, 34 and 33 at high speed. When the gear shift crank 52 is operated from position 58 to position 57, Fig. 2, the shifting fork 47 will cause shifting collar 46 to shift the gear 34 to the left, Fig. 4, so as to cause the teeth 45 of the gear 34 to mesh with the teeth on gear 44, whereby the feed screw 4 will be driven through the members 18, 25, 43, 44 and 45 at reduced speed. The internal tooth spaces on the member 38 are such that they will clear the key 33 when the gear 34 is shifted to the left, Fig. 4. The feed screw 4 through this change speed gearing, therefore, is capable of being rotated at a relatively low speed or at a relatively high speed, depending upon the type of substance to be cut and the speed at which the substance should be fed.

The slicing machine is provided with a feed trough to receive the slices cut by the knife 21, and the invention contemplates the provision of a slice abutment or receiving element upon which the slices are stacked one upon the other as they are cut. The slice receiving element or abutment upon which the slices abut is adapted to recede or lower a distance at least equal to the thickness of each slice being cut. Means, therefore, are provided for operating the slice support or abutment in timed relationship with the slices as they are being cut. This means is operatively connected with the machine feeding mechanism, and inasmuch as the feeding mechanism is capable of operating at a fast or slow speed, the slice supporting abutment is operated at corresponding speeds and in synchronism with the various speeds of the machine. The air space between cut slices varies, however, for slices of different thickness. A change speed mechanism is, accordingly, provided between the feeding mechanism of the machine and the drive for the slice receiving abutment to vary the movement of the abutment, thereby to provide for accommodating the difference in air spacing between slices of different thickness. The use of this change speed mechanism for controlling or operating the abutment is also an important feature of the present invention.

This change speed mechanism for the conveyor or slice receiving abutment comprises a gear 59, Figs. 6 and 7, which is mounted on a transverse shaft 60. The transverse shaft 60 is mounted in side brackets 61, there being suitable bearings 62 and 63 in the brackets 61 to revolubly support the transverse shaft 60. The gear 59 is a spiral spur gear and has meshing relationship with the feed screw 4, as clearly shown in Fig. 7, whereby rotative movement of the feed screw 4 will be transmitted to the shaft 60 by means of the spiral spur gear 59. A sprocket 64 is revolubly mounted on the shaft 60 and this sprocket 64 is arranged between collars 65 and 66 fixed to the shaft 60, Fig. 6. A second sprocket 67 is also revolubly mounted on the shaft 60 being ararnged between a collar 68 on the shaft 60 and the bearing 63 of a bracket 61. A clutch sleeve 69 is slidably mounted on the shaft 60 and is rotated by the shaft 60 through the keys 70 on the shaft 60. The clutch sleeve 69 is provided with an annular groove 71, Fig. 6, into which a clutch shifting arm 72 extends. The clutch shifting arm 72 is fixed to a transverse shifting shaft 73, Fig. 6, which is shiftably mounted in the brackets 61. The clutch 69 is therefore adapted to be shifted for driving relationship with either of the sprockets 64 or 67. The clutch 69 is provided with driving holes 74 and 75 on opposite faces thereof. These holes 74 and 75 are adapted to receive selectively the driving pins 76 and 77 on the sprockets 67 and 64 respectively. Therefore, the clutch sleeve 69 is adapted to be moved into driving engagement with either of the sprockets 64 or 67.

The shaft 73, Fig. 6, is provided with annular grooves or recesses 78 into which a locking pin 79 is adapted to be received, Fig. 6. When the shifting shaft 73 is at the extreme right hand position as shown in Fig. 6, the shifting arm 72 has moved the clutch sleeve 69 to the right, Fig. 6, and the pins 76 are in the holes 74 causing the sprocket 67 to be rotated. When the shifting shaft 73 is moved to the left, Fig. 6, so that the pin 79 will be received in the last right notch 78, Fig. 6, the shifting arm 72 will move the sleeve 69 to the left and cause driving engagement between the clutch sleeve 69 and the sprocket 64. When the shifting shaft 73 is moved so that the center recess 78 is engaged by the pin 79, the clutch sleeve 69 will be in neutral position and out of engagement with both sprockets 64 and 67 and therefore no rotative movement will be given to these two sprockets.

The sprockets 64 and 67 are adapted to drive the sprockets 80 and 81 respectively. The sprockets 80 and 81, Fig. 11, are mounted on a transverse shaft 82 and are driven through separate sprocket chains 83. The sprockets 64 and 67 are of different diameters, and therefore the shaft 82 carrying the sprockets 80 and 81 is adapted to be driven at either relatively low speed or at a relatively high speed, depending upon whether the sprocket 64 or 67 is doing the driving.

The sprocket shaft 82, Fig. 11, is supported in suitable bearings 84 and 85 in the bracket member 86 to revolubly support the shaft 82. A sprocket wheel 87 is fixed to one end of the shaft 82 and is adapted to drive the slice abutment drive chain 88. The drive chain 88 drives a sprocket 89, Fig. 8, mounted at the lower end of the slice receiving trough 90. The sprocket 89 is mounted on a shaft 91, Figs. 8 and 9, in the bearings 92, Figs. 8 and 9. The bearings 92 are fastened at 93, Fig. 8, to a bracket 94 which is wide enough to support the slice receiving trough 90. The bracket 94 carries two lugs 95 and a bearing plate 96, Fig. 10. The top surface of the bracket 94 is cut out as indicated at 97 to clear certain of the working parts. The top of the slice receiving trough 90 is adapted to rest on a supporting bracket 98, Fig. 11, having two lugs 99, Figs. 9, 11, for pivotally mounting the trough on the shaft 82. The lugs 95, Figs. 8 and 10, carry a pivoting pin 100, Fig. 10, to which pin a lug 101 is pivotally connected. The lug 101, Figs. 8 and 9, threadedly receives an adjusting rod 102 upon which adjusting nuts 103, Figs. 8 and 9, are mounted. The adjusting nuts 103

are arranged on opposite sides of a part 104 of the machine base. The adjusting nuts 103 may threadedly engage the rod 102, or the rod 102 may be left smooth and the nuts 103 locked in adjusted position by means of the set screws 105, Figs. 8 and 9. By adjusting the nuts 103 and consequently the rod 102, the angularity of the slice receiving trough 90 can be changed to suit best stacking conditions.

An abutment plate 106, Fig. 11, is arranged in the receiving trough 90, and slices S as they are cut by the knife are adapted to be stacked on the abutment 106. This abutment plate 106 is fastened by screws 107, Fig. 11, to a slide bearing 108 which rides on a slide rod 109. This slide rod 109 is fastened in bearings 110 of the member 96 of bracket 94, Fig. 10, and bearings 111 of the member 98, Fig. 11.

The slide bearing 108 is provided with a plunger rod 112, Fig. 11, which terminates at its bottom in a projection 113 which is adapted to fit in the space between rollers or links of the roller chain 88. The rod 112 is provided with a knob or handle 114 at its upper end, and it is adapted to be raised or lowered to bring the kerfs 115 into position to be locked by a spring pressed plunger 116. This plunger 116 locks the rod 112 in either engaged or disengaged position with the chain 88. When the spring pressed plunger 116 is pressed downwardly onto the links of the upper reach of the chain 88, the projection 113 on the rod 112 will rest in the space between the rollers of the chain. Downward pressure on the rod 112 is taken up by reaction plates 117, Fig. 11, on the slide bracket 108 so as to prevent deflection of the chain. When the chain 88 is operated by the feed screw 4, gear 59, chain 83, and sprockets 80 or 81, the slide bearing 108 and the abutment 106 will slide downwardly in the slice receiving trough 90 as the slices S are deposited against the abutment 106. When the slice abutment 106 arrives at the bottom of the trough, the projection 113 will ride over the sprocket 87 and one of the sprocket teeth entering the chain link which engages the projection 113, will force the projection 113 out of the link, whereby the lower kerf 115 on the plunger rod 112 will be in a position opposite the locking plunger 116 and held in this position until the plunger rod 112 is again pushed into engagement with the chain 88. The abutment 106 will then again be in position to receive a new stack of slices S, and be adapted to be lowered continually until it again reaches the bottom of the trough where the operation is repeated. After the abutment 106, and of course the slide bearing 108, has reached the bottom of its travel in the trough 90, the abutment and side bearing will be returned upwardly to the top of the trough by manually raising the same.

The slice receiving trough 90 has a low side 119 (to the right, Fig. 11) so as to clear a part of the slide bearing at the point where the abutment 106 is attached thereto by the screws 107. A flat spacer member is fastened at the top of the trough outside of the low side 119 and the opposite side of the trough 90, Fig. 11. Outside of this spacer is a guard plate 120 of angle shape, Fig. 9. This angle shaped guard plate 120 is arranged at the top of the trough 90 and has one leg 121 of each angle extending parallel with the guide rod 109. The other leg 122 of the guard plate 120 is at an angle with the leg 121. The leg 122 is spaced a short distance from the end of the trough sides as shown at 123, Figs. 8 and 9.

The trough 90 has a trough bottom 124, and near the lower end of the trough bottom there is a spacing block 125 of L form, Fig. 10. A false bottom or tray 126 having upstanding end portions 127 rests loosely with its lower end on the spacing block 125. The tray 126 fits within the sides of the slice receiving trough, and this tray is provided at its upper end with two lateral short pins 118, Fig. 9, which fit in the space 123 and butt sideways almost against the members 121 of the guard plate 120. The tray 126 is so arranged within the trough 90 that it can be easily removed and replaced. The member 122 prevents the operator from pushing the tray 126 against the knife 21, Figs. 8 and 9.

The abutment 106 is provided with slots 128, Fig. 11, which pass over the upstanding ends 127 of the tray 126. When the abutment 106 has traveled to the bottom of the trough 90, the first slice will be resting against the upstanding end 127, and the subsequent slices will be stacked continuously upwardly. After the tray has been filled with slices when the abutment is at the bottom of the trough, the entire stack can be removed from the trough by the removal of the tray 126.

The abutment 106 has a roller guide 129 upon which there is mounted a roller 130. The roller 130 is adapted to run on the upper surface of the tray 126 and on the downward leg of the block 125 when the abutment 106 has passed the ends 127 of the tray 126. An arm 131, Fig. 11, is fastened to the slide bearing 108 and carries a roller 132 which rolls along the bottom of the trough 90, whereby the abutment 106 will be completely guided on the slice trough.

Outside of the bracket 94 there is fastened a cradle 133 having triangular sides 134, Figs. 1, 8 and 9. A scrap tray 135 is slidingly received in the cradle 133 and is supported on the bottom of the cradle. A scrap tray 136, Figs. 8 and 9, is arranged beneath the trough 90 and discharges into the scrap tray 135 so that any scraps which may fall through the trough 90 will be received in the tray 136, whereby the floor where the machine is located will be maintained in a sanitary condition. This scrap tray 136 has its lower end 137 resting on the adjusting rod 102, or on some other suitable support. The upper end 138 of the tray 136 is removably supported by a pin 139 or other suitable support fixed to a part of the machine frame.

The slice receiving tray 126 has a short slice landing surface 141, Fig. 9, which is deflected in a direction from the general direction of the slice trough 90, so that it is substantially perpendicular to the general direction of the slice deflecting shield 22. During the slicing operation, the thin edge or periphery of a slice will land on the surface 141 and the broad or flat side of the first slice will lean against the abutment 106, Fig. 8. The subsequent slices will rest against the previously cut slices. The slices as they are being cut will gradually be pushed over the hump 141 of the slice tray 126, Fig. 9, where they become readjusted gradually in accordance with the relation of the slice abutment 106 to the slice receiving tray surface 126.

The invention provides a slicing machine which is provided with change speed mechanism so that the feeding speed of the machine can be changed to suit various conditions, depending upon the kind of substance to be sliced and the speed at which it is to be sliced. The change speed mechanism can be shifted from high to low speed by

the mere manipulation of a pivoted lever. The slicing machine is adapted also to receive the cut slices on a trough or conveyor which operates in timed relationship with the speed of the substance being fed. Means also are provided to have the trough abutment or conveyor move at a speed equal to the speed of the feeding means.

The present improved slicing machine is also provided with new and improved means so as to cause each slice to stand on end and rest one against another and supported by a movable abutment. The slices are arranged in a removable slice receiving tray so that when a piece of substance has been sliced, all the slices may be removed in stacked relationship. The machine is durable and rigid in construction, is efficient in operation, and is adapted to cut various kinds of substances at various speeds.

Changes may be made in the form, construction and arrangement of the parts without departing from the spirit of the invention or sacrificing any of its advantages, and the right is hereby reserved to make all such changes as fairly fall within the scope of the following claims.

The invention is hereby claimed as follows:

1. A slicing machine comprising a slicing knife, means for operating said slicing knife, means for feeding substance to said slicing knife to be sliced thereby, a feed gearing for operating said feeding means, a trough mounted adjacent the knife for receiving slices as they are cut, an abutment slidably mounted in said trough for supporting said slices, a drive shaft driven by said feed gearing, a driven shaft driven by said drive shaft, means for selectively driving said driven shaft at various speeds from said drive shaft, and means operated by said driven shaft for moving said abutment in said trough in timed relationship with the movement of the feed means.

2. A slicing machine comprising a motor, a slicing knife operated by said motor, change speed mechanism driven by said motor, a feed screw selectively driven by said change speed mechanism, a drive shaft driven by said feed screw, a sprocket shaft driven by said drive shaft, a pair of sprockets of different diameters mounted on said sprocket shaft, clutch means operated by the drive shaft for driving the sprockets, a trough located adjacent the slicing knife, an abutment in said trough to receive slices consecutively as they are cut, and means operated from said sprockets selectively to move said abutment at different speeds relatively to said feed screw.

3. A slicing machine for bacon, chipped beef, and the like comprising a slicing knife, a trough located adjacent the slicing knife to receive slices as they are cut, a slice deflector adjacent the knife and having a portion thereof inclined to the cutting plane of the knife, said trough including a bottom portion adjacent the deflector extending substantially perpendicular to said deflector from a second bottom portion inclined downwardly with respect to said first mentioned portion and said deflector and at a relatively steep angle with respect to the horizontal, and a slice receiving abutment movably mounted in said trough.

4. A slicing machine comprising a motor, a slicing knife driven by the motor, feed mechanism including feed gearing for advancing material to the knife for slicing, transmission means drivingly connected with the motor for driving said feed gearing comprising a member driven by the motor and drivingly connected with said feed gearing, selectively operable means to alter the driving ratio between the member and the motor for normal slicing adjustment within a predetermined range, and selectively operable means to change the driving ratio between the member and the feed gearing for abnormal adjustment to condition the machine for thin slicing.

5. A slicing machine comprising a motor, a slicing knife driven by the motor, feed mechanism including a feed screw for advancing material to the knife for slicing, transmission means drivingly connected with the motor for driving said feed screw comprising a transmission member, ratchet means connecting the motor with said member, means selectively operable to change the driving ratio of said ratchet means for normal slice adjustment, and selectively operable means to change the driving ratio between the member and the feed screw for thin slicing adjustment.

6. A slicing machine comprising a motor, a slicing knife driven by the motor, feed mechanism including a feed screw for advancing material to the knife for slicing, transmission means drivingly connected with the motor for driving said feed screw comprising a member driven by the motor and drivingly connected with said feed screw, selectively operable means to alter the driving ratio between the member and the motor for normal slicing adjustment within a predetermined range, selectively operable means to change the driving ratio between the member and the feed screw for abnormal adjustment to condition the machine for thin slicing, a shiftable slice receiver, means driving the slice receiver from said feed screw, and means selectively operable to alter the driving ratio between the feed screw and the slice receiver.

7. A slicing machine comprising a motor, a feeding means driven by said motor, transmission means interposed between the feeding means and the motor for operating the feeding means, selectively operated shiftable means for adjusting the speed of said transmission means within predetermined limits, and additional shiftable means included in said transmission means for changing the driving ratio of the transmission means.

8. A slicing machine comprising a motor, a slicing knife driven by the motor, feed means driven by the motor for feeding substance to the knife, means to operate the feed means, shiftably mounted rotary change speed mechanism for changing the driving ratio of said feed means, a second shiftable means for varying the speed of said feed means at each driving ratio, a slice receiver, means to operate the slice receiver, means driven by said second named means to operate the slice receiving means, and additional shiftably mounted means for selectively controlling the speed at which said feed operating means operates said receiving means.

9. A slicing machine comprising a motor, a slicing knife operated by said motor, change speed mechanism driven by said motor, a feed gearing selectively driven by said change speed mechanism, a drive shaft driven by said feed gearing, a sprocket shaft driven by said drive shaft, means operated by the drive shaft for driving the sprocket shaft at various speeds, a trough located adjacent the slicing knife, an abutment slidably mounted in said trough to receive slices consecutively as they are cut, and means including a chain and sprocket operated from said sprocket shaft to move said abutment each time a slice is cut a distance at least equal to the thickness of the slice cut, and means including

said sprocket for disconnecting said abutment from said chain when said abutment has traveled a predetermined distance.

10. A slicing machine comprising a knife, feed means for feeding substance to the knife to be cut thereby, change speed means for operating the feed means at different speeds, a trough adjacent the knife inclined downwardly from the knife, a slice tray removably mounted in the trough, an abutment slidably movable in said trough to support slices in the tray, means to move the abutment from the feed means a distance at least equal to the thickness of a slice, and a member upstanding from the bottom of said tray providing an end wall therefore, said abutment having a cut-away portion for passing over said upstanding member of the tray.

11. A slicing machine comprising a knife, feed means for feeding substance to the knife to be cut thereby, a trough adjacent the knife inclined downwardly from the knife, a slice receiving tray removably mounted in the trough, a slice receiving abutment slidably movable in said trough to support slices in said tray, means to move the abutment from the feed means a distance at least equal to the thickness of a slice, a member upstanding from the bottom of said tray providing an end wall therefor, and cooperating means between said abutment and said upstanding member providing for passage of the abutment past said upstanding member of the tray.

12. A slicing machine comprising a motor, a feeding means driven by said motor, transmission means interposed between the feeding means and the motor for operating the feeding means, selectively operated shiftable means for adjusting the speed of said transmission means within predetermined limits, and additional shiftable means included in said transmission means for changing the driving ratio of the transmission means, said last named means including a feed shaft, a driven member loosely mounted on said feed shaft, a gear driven by the driven member, and a member shiftable on said feed shaft to be selectively driven by the driven member or said gear for operating the shaft at different speeds.

WILLIAM MAHLER.