Sept. 29, 1931. A. L. MILLIGAN 1,824,913

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Filed Sept. 12, 1929 3 Sheets-Sheet 1

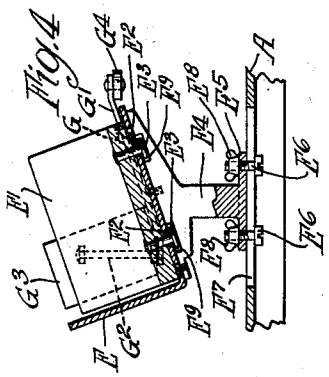


Fig. 4

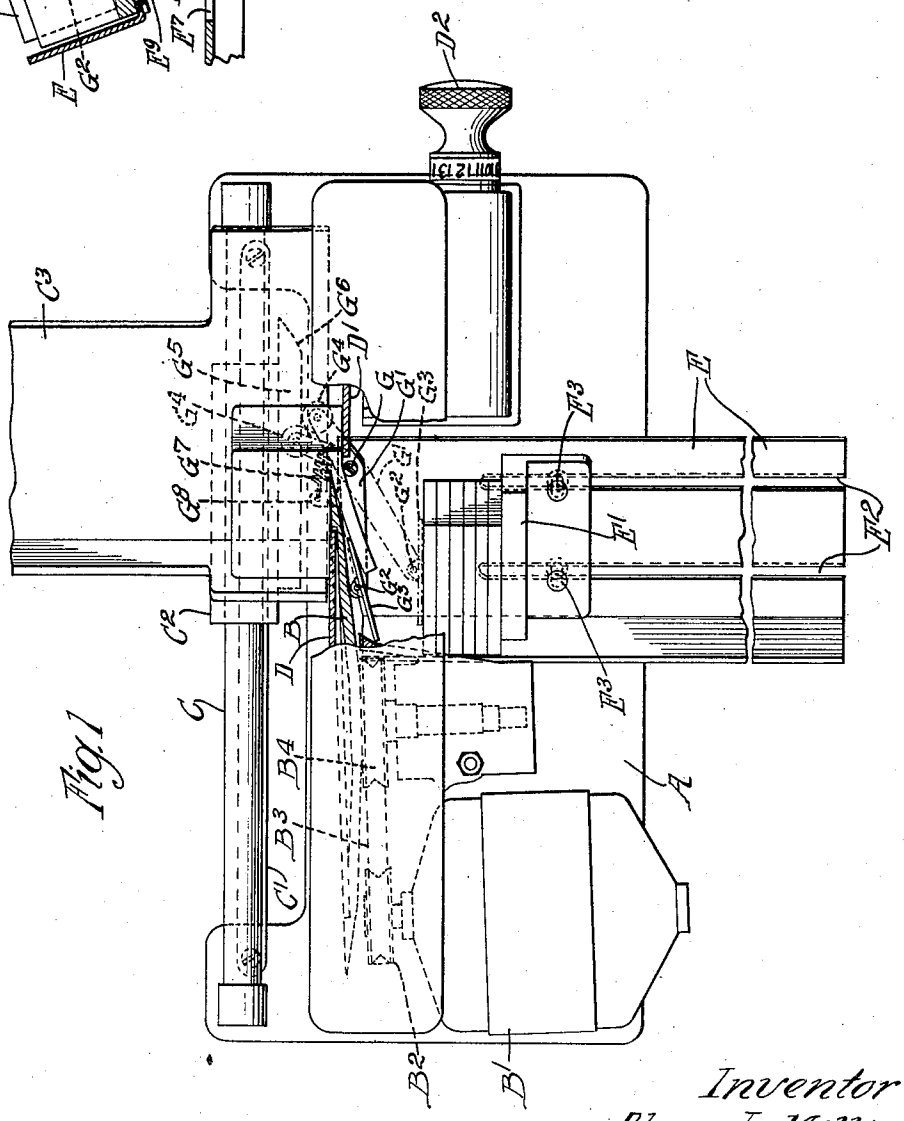


Fig. 1

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Fig. 2

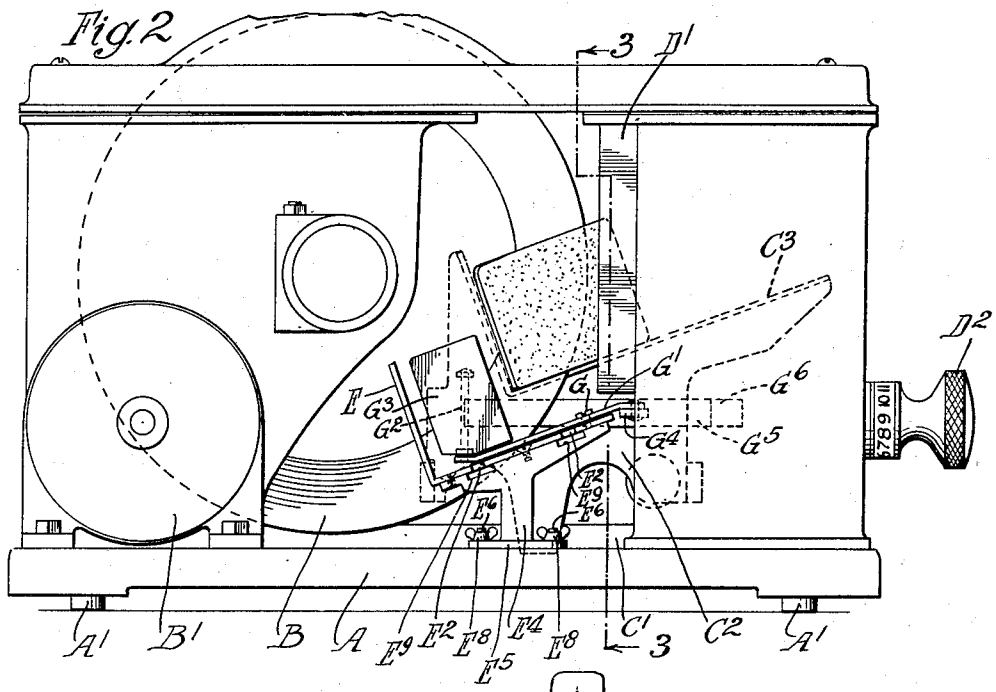
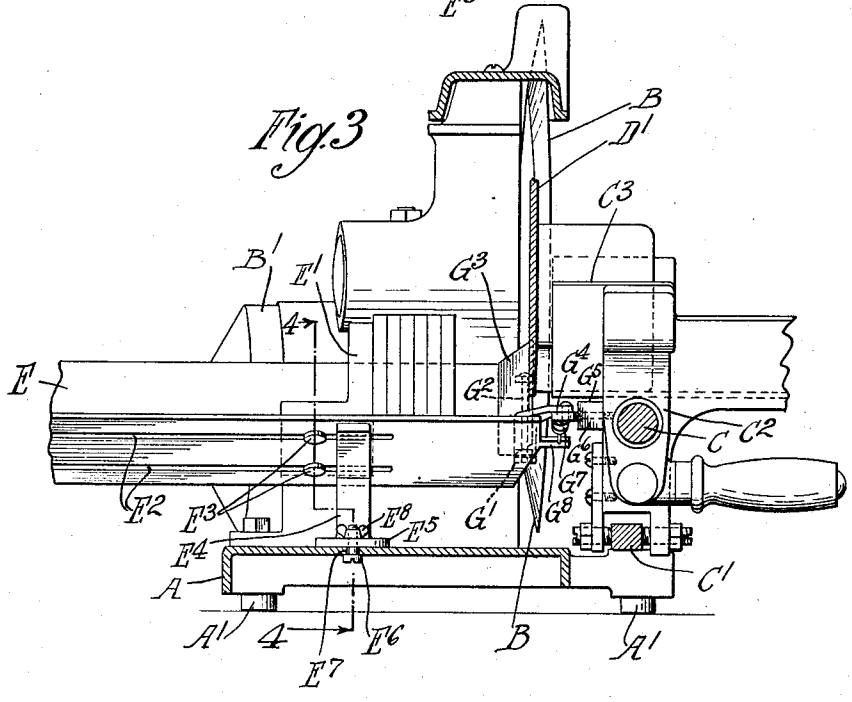


Fig. 3



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Fig. 5

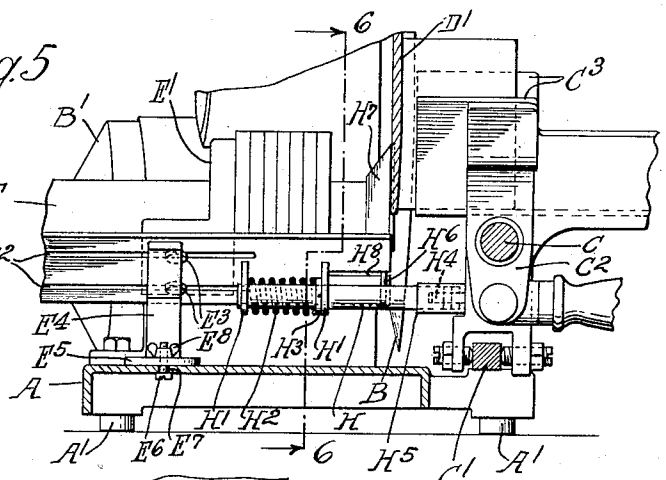


Fig. 6

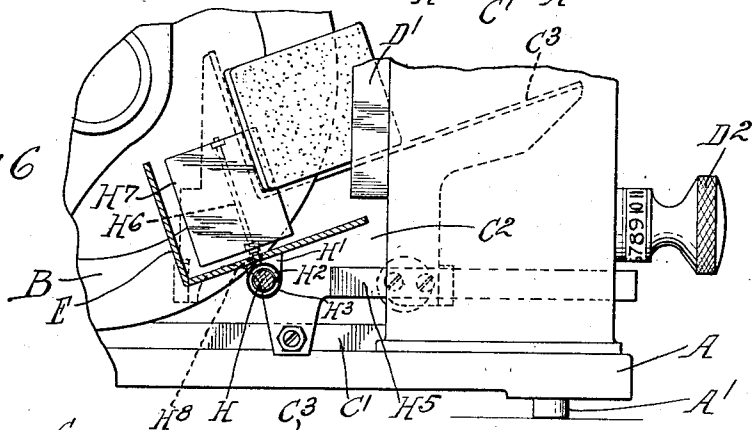
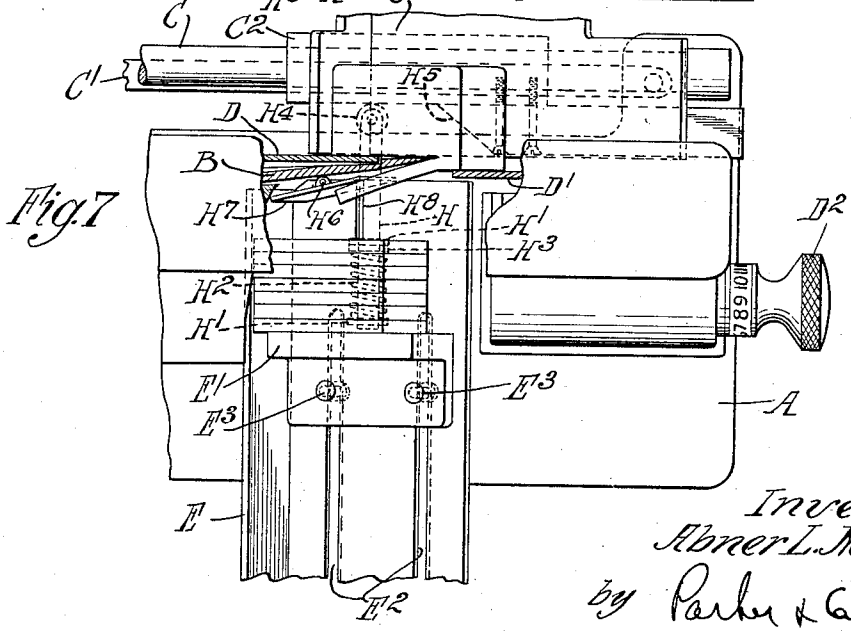


Fig. 7



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Patented Sept. 29, 1931 1,824,913

UNITED STATES PATENT OFFICE

ABNER LEMUEL MILLIGAN, OF ATLANTA, GEORGIA, ASSIGNOR TO AMERICAN SLICING MACHINE CO., OF CHICAGO, ILLINOIS, A CORPORATION OF NEW YORK

STACKER

Application filed September 12, 1929. Serial No. 391,992.

My invention relates to a slice feeding or stacking device and has for one purpose the provision of such a device for employment with a slicing machine. One object is the provision of such a device for use with a slicing machine having a rotary knife and a reciprocable carriage upon which the material to be sliced may be conveyed across the face and past the cutting edge of the knife. Another object is the provision of means for feeding or maintaining or stacking the slices in vertical position. Another object is the provision of feeding means for such slices, which means shall be responsive to the actuation of the carriage. Another object is the provision of a feeding means which shall be out of the line of delivery of the slice, or to the rear of the slice, when the slice is actually being severed. Other objects will appear from time to time in the course of the specification and claims.

I illustrate my invention more or less diagrammatically in the accompanying drawings, wherein—

Figure 1 is a plan view;

Figure 2 is a rear elevation;

Figure 3 is a section on the line 3—3 of Figure 2;

Figure 4 is a section on the line 4—4 of Figure 3;

Figure 5 is a view similar to Figure 3, of a modified form;

Figure 6 is a section on the line 6—6 of Figure 5; and

Figure 7 is a partial plan view of the form of the device shown in Figures 5 and 6.

Like parts are indicated by like symbols throughout the specification and drawings.

Referring first to Figures 1 to 4, A generally indicates any suitable base being provided, for example, with the ground or counter engaging members A^1.

Mounted on the base in any suitable manner is the rotary knife B which may be driven for example by the electric motor B^1, through the pulley B^2, the belt B^3 and the knife pulley B^4.

C, C^1, indicate tracks, C being a supporting track upon which is mounted reciprocation the carriage structure generally indicated as C^2. The carriage structure C^2 may include a V-shaped trough C^3, upon which the work to be sliced may be positioned. While I do not wish to be limited in the use of my invention to the employment of a V-shaped trough I find it a practical exemplification of my invention and have so illustrated it.

D is a guard plate positioned forwardly of the knife and D^1 a gauge plate, the guard and gauge plates lying preferably in generally parallel planes, their planes being also in general parallelism with the tracks C and C^1 and therefore with the path of movement of the carriage C^2. Note that the forward edge of the carriage C^2 is closely adjacent the face of the guard plate D and that the gauge plate D^1 may be withdrawn therefrom, as for example by rotation of the knob D^2, in order to gauge the thickness of the slice.

Positioned to the rear of the knife B is the slice receiving trough generally indicated as E. This trough is herein shown as V-shaped in cross-section, conforming generally to the cross-section of the trough C^3 of the carriage C^2. Preferably the two troughs are of generally like-cross section, although this is not under all circumstances necessary.

The trough E may be provided with any suitable follower or limit block generally indicated as E^1 which may slide for example in grooves E^2, through which pass the studs or guides E^3 associated with the block. In the V-trough the guiding slots and studs may under some circumstances be dispensed with, but with other forms of receiving member, for example with a flat receiving member, such guides are preferable, if not essential. Referring to Figure 4, I may mount the trough E upon any suitable foot or support E^4 with its base E^5 which in turn may rest upon the base of the machine A, as shown in Figure 2. It may if desired be adjustable thereupon as for example by use of the bolts E^6 in the slot E^7, and the wing nuts E^8. It will be seen from reference to Figure 4 that the heads or studs E^3 may pass through apertures E^9 in the top

of the base E^4, whereby the base E^4 does not interfere with the movement of the block E^1.

G generally indicates a pivot, herein shown as vertical, mounted on the trough E. Pivoted thereto intermediate its ends is the lever G^1 to one end of which, as at G^2 is pivoted the slice engaging member G^3. The other end may be provided for example with a roller or any other suitable anti-friction member G^4. This roller is adapted to engage the cam member G^5 with its forward inclined surface G^6, the cam member being mounted on the carriage C^2. A tension spring G^7 extends from the lug G^8 on the trough E to the inner end of the lever G^1, as shown in Figure 1, and tends to draw the roller G^4 into contact with the cam G^5.

Referring to the form of Figures 5, 6 and 7, I associate with the trough E a rod H slidable in the bearings H^1 and normally spring thrust, as by the compression spring H^2, to urge the end of the rod in the direction of the reciprocating carriage C^2. H^3 indicates a collar or washer pin on the shaft H and adapted to limit its movement toward the carriage. H^4 is any suitable roller or anti-friction device on the collar adapted to engage the cam surface H^5 mounted on or associated with the carriage C^2. Extending upwardly from the rod is the pivot element H^6 upon which is pivoted the slice engaging member H^7. The carriage is slotted as at H^8 to permit the passage therethrough of the member H^6. This also serves to hold the rod in alignment, the rod being associated with or secured to the shaft H.

It will be realized that whereas I have described and shown a practical and operative device, nevertheless many changes might be made in the size, shape, number and disposition of parts without departing from the spirit of my invention. I therefore wish my description and drawings to be taken as in a broad sense illustrative and diagrammatic rather than as limiting me to my specific showing.

The use and operation of my invention are as follows:

Referring first to the form of Figures 1 to 4 the spring G^7 tends normally to move the lever G^1, and therefore the slice engaging member G^3, into the position in which they are shown in dotted line in Figure 1. Assuming that the carriage is at the left end of the track, referring to Figure 1, and that it is moved to the right end of the track, to its full line position, for the initiation of the cutting stroke. The cam member G^5 with its inclined surface G^6 engages the roller G^4, and moves the lever G^1 into its full line position, with the member G^3 closely hugging the rear of the knife. The parts are preferably so proportioned that the member G^3 is held in this withdrawn position until the carriage, on its return or cutting stroke, has passed so far to the left as to permit the slice to be severed. The slice in course of severance will therefore pass to the rear of the member G^3, as shown in Figure 1, and will drop into the trough E. Then, as the slice drops, or immediately thereafter, the roller G^4 is able to override the inclined surface of the cam G^5, and the spring G^7 then moves the lever G^1 into dotted line position, with the result that the slice is moved rearwardly toward the block E^1. As the slices accumulate the pressure of the lever G^1 and the member G^3 is sufficient to move the accumulated slices and the block to the rear, and the entire group of slices is therefore maintained in a stack, the stack being horizontal, the individual slices being in vertical position. It is an advantage of the V-trough that as the slices drop into it they engage the opposite sides of the trough in two-point support and the trough therefore has a sustaining or supporting effect and the slice does not tend to fall over or at least is delayed in falling. The flipping action comes rapidly enough to press the slice against the other slices before it has a chance to drop. As long as the slice is supported at its upper corners by contact with the opposite sides of the troughs it is difficult for it to fall over and in practice the tier or group of slices maintain their vertical position even when the member G^3 is withdrawn.

Referring to the form of Figures 5 to 7, in this embodiment the spring H^2 tends to move the member H^7 into the inoperative position in which it is shown in Figure 7. The cam surface H^5 is so proportioned and positioned that when the carriage C^2 is moved past the cutting edge of the knife and the slice has been severed and has dropped, then the roller H^4 engages the surface H^5 and the member H^7 is thereby moved against the slice, and pushes the slice into position against the follower block or the slices preceding the severing.

Because of the variations in length or width of the bread it may be desirable to adjust the position of the trough E^2. I have therefore provided the adjustment illustrated in Figure 4 and already described.

I claim:

1. In combination with a slicing machine, including a rotary knife and means for rotating it, a carriage and means for guiding it across the face of the knife, a slice receiver, positioned on the side of the knife opposite to the carriage and means for moving slices on said slice receiver, away from the cutting plane of the knife, including a lever member mounted adjacent the slice receiver, and a slice engaging member pivoted to said lever member, and means tending normally to rotate said lever and to

move said slice engaging member against the slices positioned on the slice receiver.

2. In combination with a slicing machine, including a rotary knife and means for rotating it, a carriage and means for guiding it across the face of the knife, a slice receiver, positioned on the side of the knife opposite to the carriage and means for moving slices, while lying in generally vertical planes on said slice receiver, away from the cutting plane of the knife, including a lever mounted adjacent the slice receiver, a slice engaging member pivoted to one end of said lever, and means tending normally to urge said lever and slice engaging member against the slices positioned upon the slice receiver, and means for withdrawing said lever and slice engaging member from the line of delivery of the successive slices, prior to their severance from the work.

3. In combination with a slicing machine which includes a rotary knife and means for rotating it the axis of rotation of the knife being normally fixed, a carriage and means for guiding it past the cutting edge of the knife, a V-shaped work support associated with said carriage, a V-shaped slice receiver positioned on the side of the knife opposite the carriage and adapted to receive and hold the slices in vertical position as they are cut, and means for moving said slices on said receiver, while still in vertical position, along a path generally perpendicular to the cutting plane of the knife including a lever, yielding means tending normally to thrust one end of said lever against the slices on the slice receiver and means, responsive to the movement of the carriage, for holding said lever in inoperative position prior to the delivery of each successive slice to the slice receiver.

4. In combination, a slicing machine having a rotary knife and means for rotating it, the axis of rotation of the knife being normally fixed, a carriage movable in relation to said knife and means for guiding it across the face of the knife, a slice receiving member positioned on the side of the knife opposite to the carriage, and extending outwardly and rearwardly from the cutting plane in general perpendicularity thereto, and means for moving slices, in generally upright position, rearwardly along said slice receiving member, including a lever mounted adjacent the cutting plane, a spring normally tending to move it into slice moving position, and means for holding said lever in inoperative position until the severing of the slice.

Signed at Atlanta, county of Fulton and State of Georgia, this 30th day of August, 1929.

ABNER LEMUEL MILLIGAN.