June 28, 1932. W. J. CAMPBELL 1,865,411

SLICING MACHINE

Filed Oct. 10, 1930 3 Sheets-Sheet 1

Fig. 1

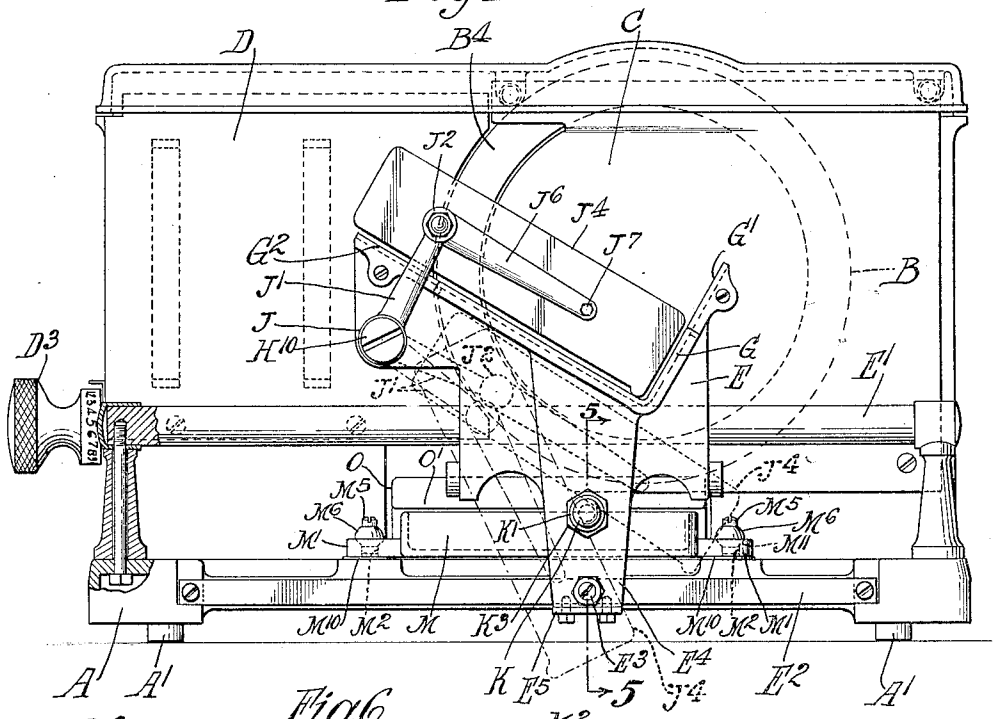


Fig. 6

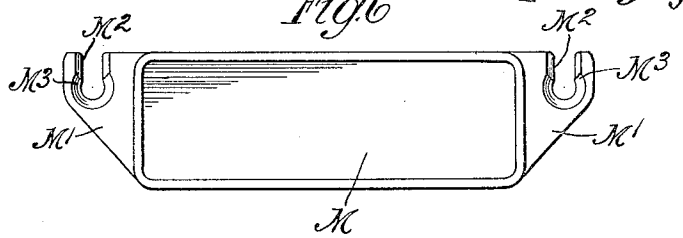


Fig. 5

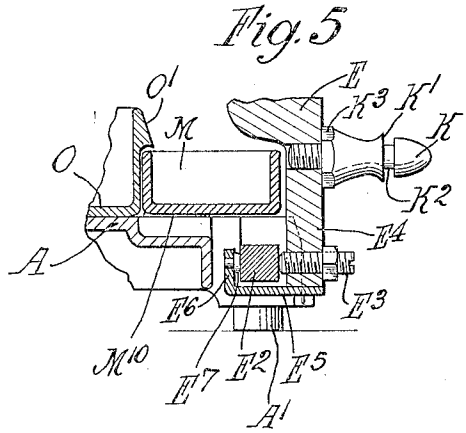
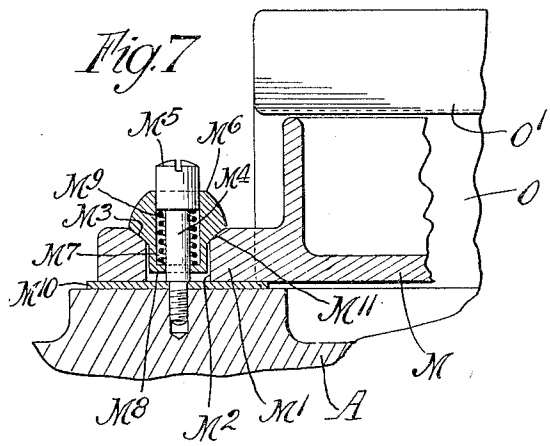


Fig. 7



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SLICING MACHINE

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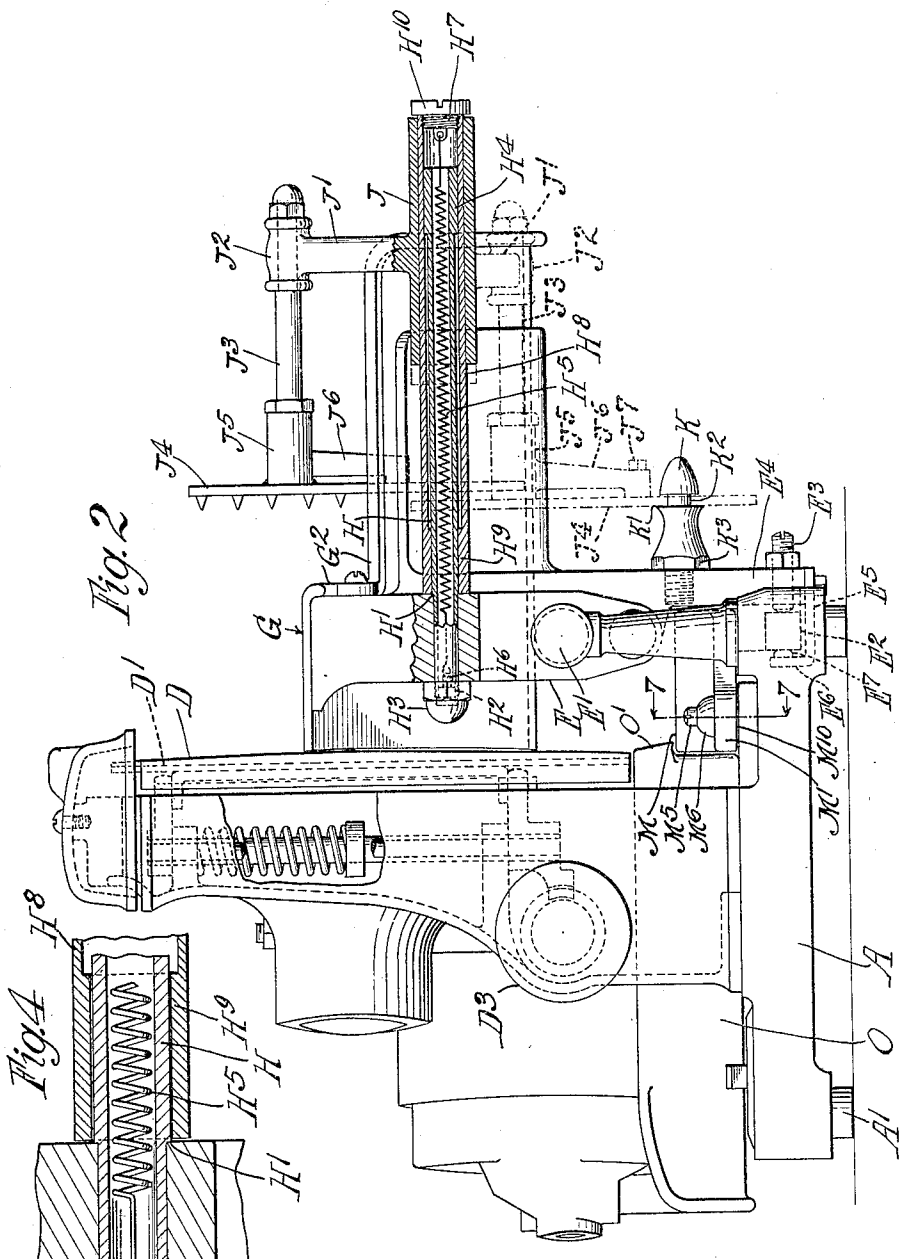


Fig. 2

Fig. 4

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SLICING MACHINE

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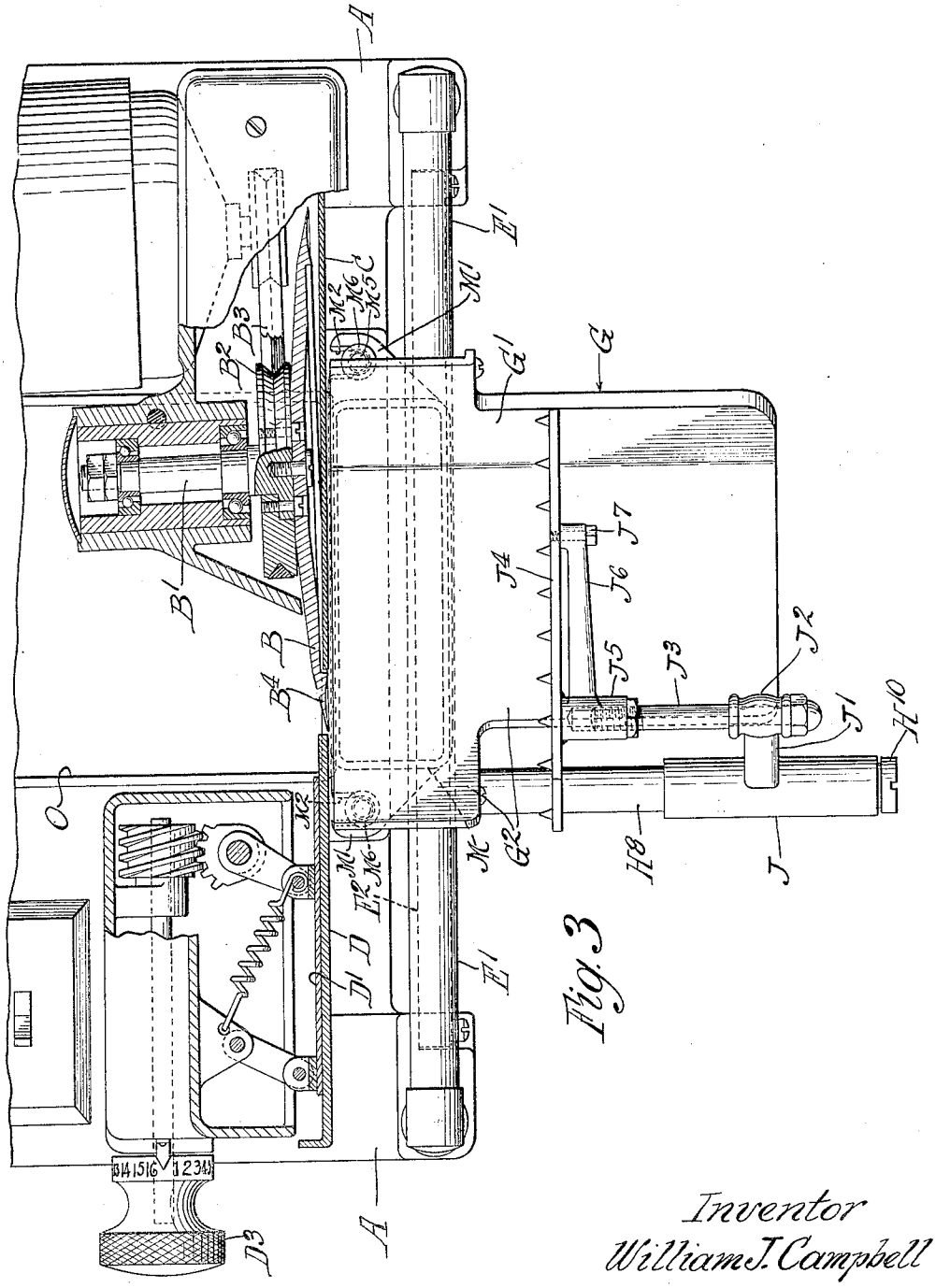


Fig. 3

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UNITED STATES PATENT OFFICE

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SLICING MACHINE

Application filed October 10, 1930. Serial No. 487,665.

My invention relates to an improvement in slicing machines and particularly to an improvement in slicing machines of the type wherein the knife is employed, associated with generally parallel guard and gauge plates, and a carriage is guided across the face of guard and gauge plates and past the cutting edge of the knife. One object is the provision of means for thrusting the meat, upon the carriage, toward the gauge and guard plates and toward the knife, as the carriage is moved toward and past the cutting edge of the knife. Another object is the provision of yielding means for urging the work toward the knife. Another object is the provision of a pusher plate, which may be yieldingly actuated, and which is removable into and supportable in inoperative position. Another object is the provision of means for holding the pusher plate in inoperative position when its use is not necessary. Another object is the provision of an improved crumb tray or receiving member removably positioned forwardly of the cutting plane. 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 front view of the machine;

Figure 2 is a side elevation with parts in section;

Figure 3 is a plan view with parts in section;

Figure 4 is an enlarged detail section;

Figure 5 is an enlarged section along the line 5—5 of Figure 1;

Figure 6 is a plan view of the crumb tray; and

Figure 7 is an enlarged section along the line 7—7 of Figure 2.

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

Referring to the drawings, A generally indicates the base portion of a slicing machine frame, which may be provided with yielding studs or supports A^1.

In the form of my device herein shown I illustrate a rotary knife B with the knife shaft B^1 and the actuating pulley B^2, about which passes the belt B^3 which may extend to a motor or any other suitable driving means. It will be observed that the axis of the shaft B^1 is somewhat tilted in a horizontal plane, as shown in dotted line in Figure 2.

The forward face of the knife is protected by a guard plate C, which serves to mask the knife save for the arcuate exposed portion B^4 as shown in Figure 1. The tilting of the knife shaft B^1 tilts the plane of the edge of the knife in relation to the plane of the guard plate C, whereby the exposed portion B^4 of the knife may be advanced forwardly of the plane of the guard plate C.

D indicates a gauge plate and may be mounted for example upon a support D^1, which support may be adjusted by means of the exterior knob D^3 and associated parts, whereby the gauge plate may be set at various positions, in order to regulate the thickness of the desired slice.

E generally indicates the carriage structure which is mounted for example upon the cylindrical supporting track E^1 and is held against rotation in relation thereto, for example by the rectangular track E^2 which is engaged by the adjustable contact member E^3 positioned in the arm E^4 which projects downwardly from the carriage E. Mounted on the bottom of the arm E^4 is a bracket E^5 with an upstanding member E^6 and a contact element E^7 opposed to the adjustable contact E^3, and engaging the opposite side of the rectangular track E^2. It will be understood that the tracks E^1 E^2 serve to guide the carriage along a path substantially parallel with the faces of the guard plate C and the gauge plate D.

In the form of my device herein shown I illustrate a meat or work support upon the carriage in the form of a V-trough generally indicated as G, having a short side G^1 and a long side G^2.

Associated with the work support G and adjacent the long side G^2, and somewhat below it, is the hollow guide rod H. It is provided with a shoulder as at H^1 which abuts against the carriage E. At its inner end it is screw-threaded as at H^2 and any

suitable securing nut H^3 may be employed, whereby the shoulder H^1 is drawn up against the carriage structure E. The rod H is also enlarged at its outer end as at H^4. Positioned within the hollow of the rod H is the coil spring H^5 one end of which is anchored as upon the anchoring member H^6. The opposite end is secured to a plug H^7 which is screw-threaded into the end of an outer sleeve H^8 which is slidable along the exterior of the sleeve H. Its inner aperture conforms generally to the exterior diameter of the member H^4, and its inner end is provided with an inwardly enlarged portion H^9 conforming generally to the reduced or general diameter of the shaft H. The members H^4 and H^9 also serve as travel limiting means, whereby outward movement of the shaft H^8 along the shaft H is limited.

Slidable along the cylindrical exterior of the hollow shaft H^8 is a sleeve J. Its outward movement is limited by the enlarged portion H^{10} of the abutment or plug H^7. It will be understood that when the sleeve is moved against the portion H^{10} it may be employed to withdraw the shaft H^8 outwardly along the hollow shaft H until the members H^4 and H^9 engage. Associated with the sleeve J is the arm J^1 which terminates in a sleeve J^2 in which is mounted the forwardly extending pin J^3, upon the opposite end of which is mounted the pusher plate J^4. The pin J^3 may be screwthreaded into the hub or sleeve J^5 extending from the rear of the pusher plate J^4. The sleeve is provided with a lateral extension J^6 which may be secured to the rear of the pusher plate as by the screw J^7. It will be understood that the pusher plate J^4 conforms generally to the form of the trough defined by the members G^1 and G^2, as shown in Figure 1. Referring to the parts in the position in which they are shown in Figures 1 and 2, the pin J^3, and thus the pusher plate, are rotatable in relation to the sleeve J^2. The sleeve J is also rotatable about the shaft H^8. Thus when it is desired to move the pusher plate into inoperative position the pusher plate may be rotated in relation to the sleeve J^2, and the sleeve J^2 may be rotated about the shaft H^8. Normally the corner of the pusher plate J^4 will strike against the bottom of the member G^2, or against that portion of the carriage which supports it, as shown in the dot and dash line position in Figure 1. It will then naturally pivot in relation to the sleeve J^2, to take the dotted line position of Figure 1. The spring H^5 will then be effective to draw it inwardly toward the cutting plane. As it is so drawn its lower edge will engage the securing button K and will seat against the ledge K^1 and in the slot K^2, the structure as a whole being mounted upon or forming part of a member or support K^3, secured to the carriage E. The parts are so proportioned that when the pusher plate seats in the recess K^2 the spring is substantially relaxed, so that there is not any substantial continuing strain upon the spring, but the tension upon the spring, when the pusher plate is positioned substantially to the right of the member K, referring to the position of the parts as shown in Figure 2, is sufficient to tend to urge the pusher plate toward the member K and into the slot K^2, and at least makes its manual insertion by the operator easy and natural.

Referring to the securing means as shown for example at K, K^1, K^2, in Fig. 5, it will be understood that the edge of the pusher plate engaged by the securing member may be located at any point about or within the periphery of the pusher plate. It will be also understood that the parts are preferably so proportioned that the slot K^2 will not prevent escape of the pusher plate from the securing means in response to a direct pull of the operator. It may be convenient to have the slot of sufficient depth to prevent unintended movement but of insufficient depth or of rounded or other contour to hold the pusher plate against an intended pull on the part of the operator.

Mounted forwardly of the cutting plane, and upon the base A is a receiving dish or crumb receiver generally indicated as M. Extending from each end thereof are lugs M^1 M^1 forwardly slotted as at M^2, the upper surface of the lug M^1 being slightly cupped or recessed as at M^3. Mounted upon the frame A are the pins M^4, headed as at M^5 and surrounded by the securing buttons M^6. Each such button is centrally apertured as at M^7, the aperture being of such size as to permit the button to slide upwardly about the head M^5. The aperture is closed by a bottom portion M^8 conforming to the diameter of the reduced portion M^4 of the pin. M^9 indicates a spring in the space between the pin M^4 and the button M^6, adapted normally to urge the button downwardly toward the frame or toward the washer or wear taking element M^{10}. It will be seen that the lower surface of the button M^6 is formed, as at M^{11}, to conform generally or to slide easily in relation to the surface M^3 of the lugs M^1. It will thus be seen that the dish may be positioned upon the frame, forwardly of the cutting plane, and beneath the forward edge of the carriage, by being merely thrust against the buttons M^6. The tray may be removed by simply withdrawing it against the buttons, or it may be pivoted about either button, by removing it from the other.

As will be seen in Figure 2, a slice receiving tray O is provided, most of which is positioned to the rear of the cutting plane. It includes, however, a slight forward projection O^1 which overlies the inner edge of the member M, so that any material which fails to drop into the tray O and falls over

its forward edge O^1, will be received in the tray M.

I claim:

1. In a slicing machine which includes a knife and means for actuating it, and a carriage including a work supporting portion thereon, and means for guiding the carriage past the cutting edge of the knife, a pusher plate mounted upon said carriage, an extensible guide therefor, said guide including a member normally fixed in relation to the carriage and a member movable toward and away from the cutting plane of the knife, yielding means adapted normally to urge said pusher plate toward the cutting plane, said pusher plate being slidably mounted upon said movable guide member and being rotatable about said guide into inoperative position below the work supporting portion of the carriage, and securing means for holding said pusher plate in inoperative position, including a member mounted upon the carriage underneath the work supporting portion thereof, said member being slotted to receive an edge of the pusher plate, said guide being extensible against the tension of said yielding means to a length such that the pusher plate will clear the work supporting portion of the carriage for rotation about said guide to a position below said work support for operative association with said last mentioned member.

2. In a slicing machine which includes a knife and means for actuating it, and a carriage including a work supporting portion thereon and means for guiding the carriage past the cutting edge of the knife, a pusher plate mounted upon said carriage, an extensible guide therefor, said guide including a member normally fixed in relation to the carriage and a member movable toward and away from the cutting plane of the knife, yielding means adapted normally to urge said pusher plate toward the cutting plane, said pusher plate being slidably mounted upon said movable guide member and being rotatable about said guide into inoperative position below the work supporting portion of the carriage and securing means positioned under the work supporting portion of the carriage for holding said pusher plate in inoperative position beneath the carriage, said guide being extensible against the tension of said yielding means to a length such that the pusher plate will clear the work supporting portion of the carriage for rotation about said guide to a position below said work support for operative association with said securing means, said securing means being adapted to prevent movement of said pusher plate toward and away from the cutting plane and to prevent accidental rotation of said pusher plate when in inoperative position.

3. In a slicing machine which includes a knife and means for actuating it, and a carriage including a work supporting portion thereon and means for guiding the carriage past the cutting edge of the knife, a pusher plate mounted upon said carriage, an extensible guide therefor, said guide including a member normally fixed in relation to the guide and a member movable toward and away from the cutting plane of the knife, yielding means adapted normally to urge said pusher plate toward the cutting plane, said pusher plate being slidably mounted upon said movable guide member and being rotatable about said guide into inoperative position below the work receiving portion of the carriage and securing means for holding said pusher plate in inoperative position underneath the work receiving portion of the carriage, said guide being extensible against the tension of said yielding means to a length such that the pusher plate will clear the work supporting portion of the carriage for rotation about said guide to a position below said work support for operative association with said securing means, said securing means, including a tapered stud mounted upon the carriage, the tapered head of said stud facing outwardly away from the cutting plane, said stud being slotted to receive an edge of the pusher plate.

4. In a slicing machine which includes a knife and means for actuating it, and a carriage including a work supporting portion thereon and means for guiding the carriage past the cutting edge of the knife, a pusher plate mounted upon said carriage, an extensible guide therefor, said carriage including a member normally fixed in relation to the carriage and a member movable toward and away from the cutting plane of the knife, yielding means adapted normally to urge said pusher plate toward the cutting plane, said pusher plate being slidably mounted upon said movable guide member and being rotatable about said guide into inoperative position below the work receiving portion of the carriage and securing means for holding said pusher plate in inoperative position underneath the work supporting portion of the carriage, said guide being extensible against the tension of said yielding means to a length such that the pusher plate will clear the work supporting portion of the carriage for rotation about said guide to a position below the work support for operative association with said securing means, said securing means including a tapered stud mounted upon the carriage, the tapered head of said stud facing outwardly away from the cutting plane, said stud being slotted to receive an edge of the pusher plate, said slot being bounded, on the side toward the cutting plane by an abutment portion of greater height than the height of said stud above the slot bottom.

5. In a slicing machine which includes a

knife and means for actuating it, and a carriage and means for guiding the carriage past the cutting edge of the knife, a work supporting member associated with said carriage, and including a rearwardly overhanging trough, a pusher plate associated with the trough, a guide for said plate, said plate being slidable on said guide for movement in the trough to and from the cutting plane of the knife and being rotatable, in relation to the axis of said guide, into and out of alignment with said trough, and means, positioned below said trough, for receiving said pusher plate and for holding it in inoperative position below said trough, and intermediate the ends of said trough, said plate being movable on the guide rotatably and slidably into operative engagement with said plate receiving means in a position underlying said trough.

6. In a slicing machine which includes a knife and means for actuating it, and a carriage and means for guiding the carriage past the cutting edge of the knife, a work supporting member associated with said carriage, and including a work receiving trough, a guide mounted on the carriage adjacent said trough, a pusher plate movable in said trough toward and away from the cutting plane of the knife, means for mounting the pusher plate upon said guide including an arm, upon which said pusher plate is mounted, extending radially from said guide and mounted thereon for sliding and rotary movement with respect thereto, said pusher plate being rotatable in relation to said arm, about an axis parallel with the axis of said guide, and means positioned out of alignment with and intermediate the end of said trough for supporting said pusher plate and for holding it in inoperative position, said pusher plate being slidable relative to the guide and rotatable relative to both the arm and the guide for movement into operative engagement with the pusher plate supporting means.

7. In a slicing machine which includes a knife and a means for actuating it, a carriage and a rearwardly overhanging work supporting member thereon, and means for guiding the carriage past the cutting edge of the knife, a pusher plate operatively associated with the work support, and an extensible guide for the pusher plate, including cooperating members one of which is normally fixed in relation to the carriage and the other is readily movable in relation to the normally fixed member toward and away from the cutting plane, yielding means adapted normally to urge said movable guide member toward the cutting plane, the pusher plate being mounted on the movable guide member, for sliding and rotary movement with respect thereto, and a connection between said member and the pusher plate adapted, when the pusher plate is at one limit of its movement in relation to said member, to move the pusher plate, with said movable guide member, in response to said yielding means, toward the cutting plane, and means for holding said pusher plate in inoperative position, said means being positioned underneath the work supporting member of the carriage and being adapted to prevent accidental movement of said pusher plate when the pusher plate is positioned in operative association therewith and underneath said work supporting member, said guide being extensible against the tension of said yielding means to a length such that the pushed plate will clear the work supporting member of the carriage for rotation about said guide to a position below said work support for operative association with said pusher plate holding means.

8. In a slicing machine which includes a knife and means for actuating it, and a carriage including a rearwardly overhanging work supporting portion, means for guiding the carriage past the cutting edge of the knife, a pusher plate and a guide therefor, said plate being slidably and rotatably movable in relation to said guide, yielding means effective to urge the pusher plate toward the cutting plane, said pusher plate being rotatable, about said guide, from operative position above the upper face of said work supporting member to inoperative position underneath the lower face of the work supporting member, and means for holding said pusher plate against accidental movement, in said inoperative position beneath the work supporting member and in close proximity to the lower face of said member, said plate being readily removable from said holding means in response to movement of the plate, by the operator, outwardly away from the cutting plane, said holding means including a stud having an abutment portion adapted to limit movement of the pusher plate toward the cutting plane and a holding member adapted to overlap the opposite side of the pusher plate sufficiently normally to prevent unintended displacement of the pusher plate.

9. In a slicing machine which includes a knife and means for guiding it, a carriage, and means for guiding it past the cutting edge of the knife, a pusher plate mounted upon said carriage and a telescoping guide therefor, said guide including a fixed member and a member longitudinally movable therealong, the pusher plate being slidably mounted in relation to said movable member, a stop on said movable member adapted to be engaged by the pusher plate upon withdrawal of the pusher plate a predetermined distance from the cutting plane, said movable member being extensible a sufficient distance to permit the pusher plate to be withdrawn from above the carriage, and holding means adapted to support the pusher plate in position underneath said carriage.

10. In a slicing machine which includes a knife and means for actuating it, a carriage, and means for guiding it past the cutting edge of the knife, a rearwardly overhanging work supporting member for the carriage, a pusher plate mounted upon said carriage and an extensible guide therefor, said pusher plate being mounted for rotation about the longitudinal axis of the guide, and means for positioning said pusher plate underneath the work supporting surface of the carriage, including a pusher plate support underneath the work supporting member of the carriage, and yielding means, associated with the extensible guide, urging the pusher plate toward the cutting plane of the knife, said guide being extensible against the tension of said yielding means to a length such that the pusher plate will clear the work supporting member of the carriage for rotation about said guide to a position below said work support for operative association with said pusher plate support.

Signed at Indianapolis, county of Marion and State of Indiana, this 27th day of Sept., 1930.

WILLIAM J. CAMPBELL.