Dec. 1, 1936. G. J. CALAME 2,062,862

GUIDE FOR BLADE FRAMES OF SLICING MACHINES

Filed Feb. 16, 1935 2 Sheets-Sheet 1

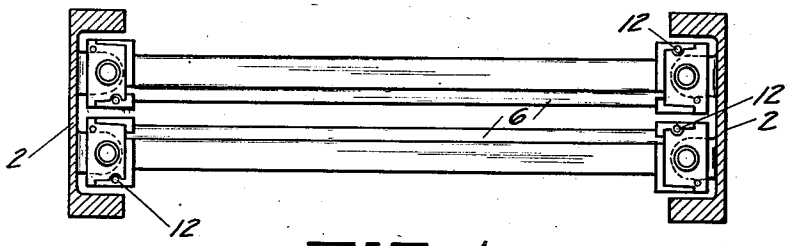


FIG-1

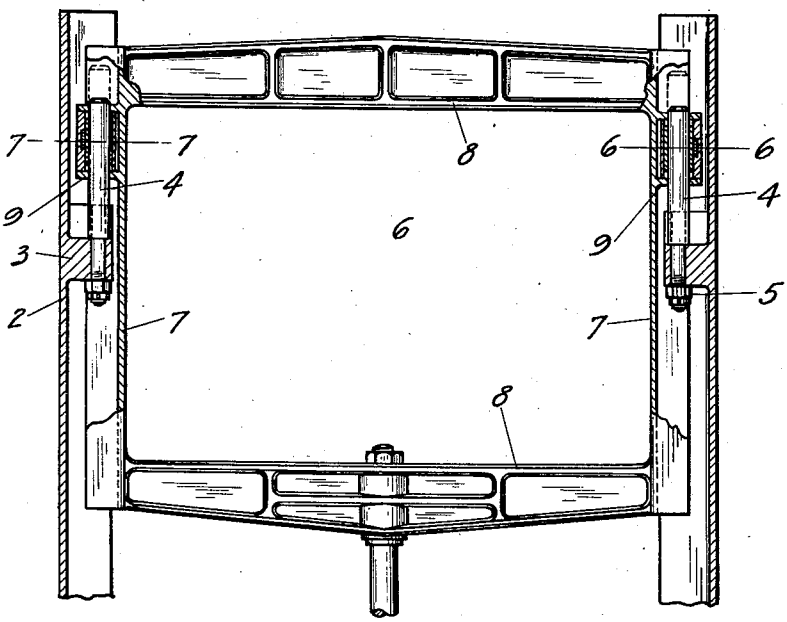


FIG-2

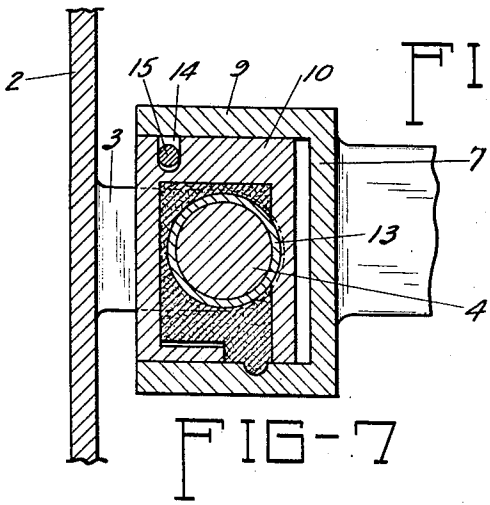


FIG-7

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GUIDE FOR BLADE FRAMES OF SLICING MACHINES

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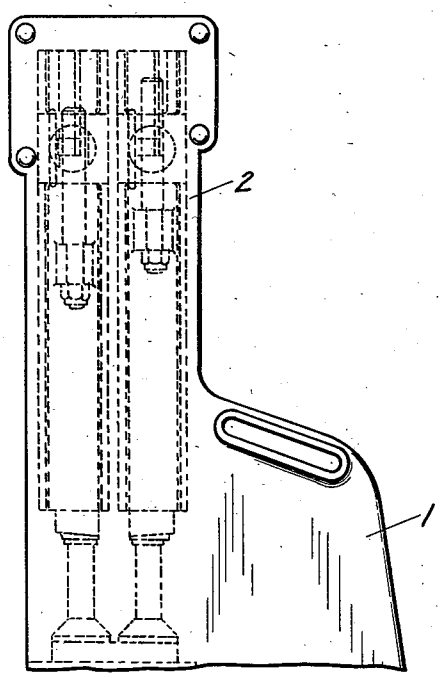


FIG-3

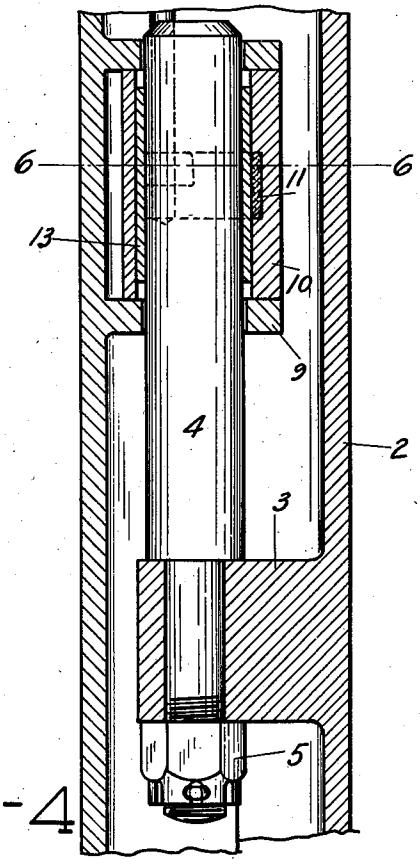


FIG-4

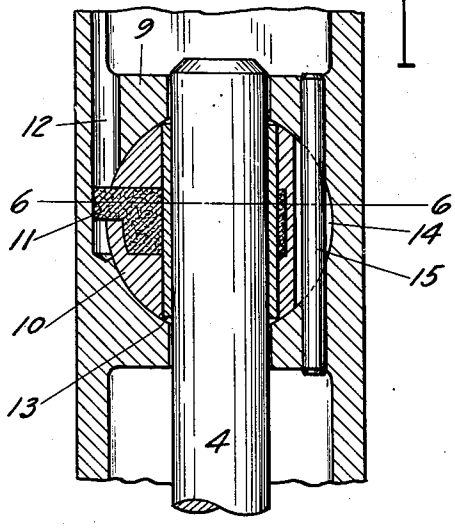


FIG-5

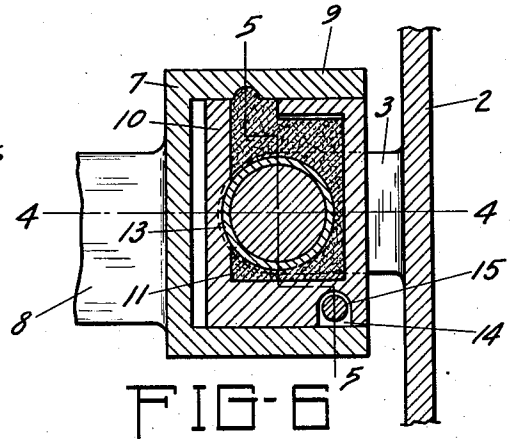


FIG-6

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2,062,862

GUIDE FOR BLADE FRAMES OF SLICING MACHINES

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Application February 16, 1935, Serial No. 6,827

19 Claims. (Cl. 308—3)

The present invention relates to slicing machines and more particularly to slicing machines for producing a plurality of slices in a single operation. In certain types of slicing machines, there is provided a supporting and guiding frame within which reciprocates a blade-carrying frame which must be held in a reasonably certain and predetermined position and yet be free to move to a certain extent, due to expansion and contraction, resulting from changes in temperature. Among the objects of this invention are to provide a machine of the character indicated in which the guides for the reciprocating frame will automatically adjust themselves so that any friction between the moving parts will be reduced to a minimum; to provide a structure of the character indicated which can be readily assembled and which will adjust itself so as to reduce friction to a minimum; to provide an improved form of guide bearing in a machine of the character indicated; and such further objects, advantages, and capabilities as will hereafter appear and as are inherent in the construction disclosed herein. My invention further resides in the combination, construction, and arrangement of parts illustrated in the accompanying drawings and, while I have shown therein what is now regarded as the preferred embodiment of this invention, I desire the same to be understood as illustrative only and not to be interpreted in a limiting sense.

In the drawings annexed hereto and forming a part hereof,

Fig. 1 shows a horizontal sectional plan view of a machine embodying my present invention, the same being taken just above the blade frame;

Fig. 2 is a fragmentary vertical section taken through a pair of guide pins for the blade frame;

Fig. 3 is a fragmentary side elevation of a machine embodying my present invention;

Fig. 4 is a fragmentary vertical section taken substantially along the plane indicated by the line 4—4, Fig. 6;

Fig. 5 is a fragmentary vertical section taken substantially along the plane indicated by the broken line 5—5, Fig. 6;

Fig. 6 is a fragmentary transverse section taken substantially along the plane indicated by the lines 6—6, Figs. 2, 4, and 5;

Fig. 7 is a fragmentary transverse section taken substantially along the plane indicated by the line 7—7, Fig. 2.

In the present drawings I have shown a bread-slicing machine somewhat fragmentarily because it does not appear necessary to illustrate all of the details of such a machine in order to illustrate this particular invention. In the drawings illustrating the present invention, the ends of the main frame are denoted generally by the numeral 1. From these project upwardly supporting and guiding extensions 2 at the two sides of the machine, which extensions carry inwardly projecting lugs 3 in which are mounted and secured guide pins 4. These are held tightly in place in the lugs 3 by means of the nuts 5. The blade-holding frame 6 has side members 7 and upper and lower crossheads 8 which, together, constitute a rigid frame for the holding of the slicing blades. Upon the outer side of the side-elements 7 are hollow bosses 9 in which fit substantially cylindrical bushing guides 10.

The bushing guides 10 are substantially cylindrical in form and fit closely in the hollows of the bosses 9 and are therefore rotatable therein. These bushing guides are hollow and have wicking therein, as illustrated at 11. Oil holes 12 extend downwardly to connect with the hollows in the bosses so that oil may reach the guide pins 4 and lubricate the surfaces in contact with the bushings 13. As illustrated in Figs. 5 and 6, a groove 14 is cut in one of the bushing supports 10 for the reception of the dowel pin 15. This groove is cut of a depth to permit slight rotary motion of the bushing support so that the bushing may line up with the guide pin, thus reducing to a minimum the amount of friction between the guide pin and bushing. The groove 14 is also shown as being cut wide enough to permit a certain amount of endwise movement of the boss 9 with relation to the pin 4. This is necessitated by virtue of the fact that the crossheads 8 expand and contract with changes in temperature, resulting in a change in spacing between the bosses 9. If the blade frame 6 has been removed from the main frame and it is desired to remove a bushing support 10, it is only necessary to drive the dowel pin 15 out of its opening in the boss 9 and then the bushing support 10 may be moved longitudinally out of the hollow in the boss. The slot 14 in the other bushing support is similar to that already described except that its width is such that the dowel pin 15 fits closely therein. The openings in the bosses 9 for the reception of the pins 4 are made sufficiently oversize to permit the relative movement of the bosses 9 and pins 4, described above.

It is of course understood that the specific description of structure set forth above may be departed from without departing from the spirit of my invention as set forth in this specification and the appended claims.

Having now described my invention, I claim:

1. In a slicing machine, a blade holding and reciprocating frame, a pair of frame members to laterally support and guide said frame, said frame and frame members having cooperating guiding means for guiding the frame in its reciprocation with relation to the frame members, said guiding means comprising guide pins and guide bushings, carried by the frame and frame members, the bushings being mounted for limited rotary movement in a direction transverse to the plane of the blade frame whereby they may adjust themselves into axial alignment with the guide pins.

2. A structure as defined by claim 1 in which one of the guide bushings is mounted for slight motion in the direction of the plane of the blade frame.

3. A structure as defined by claim 1 in which the guide bushings are provided with lubricant absorbing means whereby lubricant may be supplied to the guide pins and guide bushings.

4. In a slicing machine having a guide frame and a reciprocating blade-holding frame, in combination, guide pins and bushings connecting the blade-holding frame and the guide frame to guide the former with relation to the latter, said bushings being exteriorly cylindrical and mounted for sliding motion upon said guide pins longitudinally thereof.

5. A structure as defined by claim 4 in which one of the bushings is constructed and arranged to have limited motion laterally of the blade frames.

6. In a slicing machine having a guide frame and a reciprocating blade-holding frame, in combination, guide pins and bushings connecting the blade-holding frame and the guide frame to guide the former with relation to the latter, the bushings being capable of limited rotary motion in a direction transverse to the plane of the blade frame and relatively to the part in which they are mounted, one of the bushings being fixed against movement in the direction of the plane of the blade frame and the other being mounted for slight motion in that direction.

7. In a slicing machine, a reciprocable blade-holding frame having sockets extending laterally into its lateral members, members in said sockets capable of rotary motion transverse to the plane of the said frame, and means for limiting the rotary movement of said members.

8. A structure as defined by claim 7 in which one of said members in said sockets is held against movement longitudinally of its socket.

9. A structure as defined by claim 7 in which one of said members in said sockets is capable of limited motion longitudinally of its socket.

10. A structure as defined by claim 7 in which one of said members in said sockets is held against movement longitudinally of its socket and the other of said members is capable of limited motion in that direction.

11. In a slicing machine, a blade-holding frame having lateral members and transverse top and bottom members, the lateral members having substantially cylindrical sockets extending laterally therein for the reception of bushing retainers, similarly shaped bushing retainers in said sockets, said retainers having openings therethrough at right angles to their axes for the reception of bushings, bushings in said openings, and guide pins in said bushings, said slicing machine having a supporting and guide frame for said blade frame, and said guide pins being mounted and rigidly held in said guide frame.

12. A structure as defined by claim 11 in which the bushing retainers are provided with grooves for the reception of dowel pins, said structure having dowel pins mounted in the blade frame and passing through said grooves to limit movement of the bushing retainers with respect to the sockets.

13. In a slicing machine having a guide frame and a reciprocating blade-holding frame, in combination, guide pins and cooperating sleeves connecting the blade-holding frame and the guide frame to guide the former with relation to the latter, one of the sleeves being capable of limited motion in the direction of the plane of the blade frame and perpendicular to the axis of the guide pins to render possible expansion and contraction thereof without substantial increase in the friction between the moving parts, and the sleeves being rotatable to a limited extent in a direction transverse to the planes of the frames.

14. In a slicing machine having a guide frame and a reciprocating blade-holding frame, in combination, guide pins and cooperating sleeves connecting the blade-holding frame and the guide frame to guide the former with relation to the latter, one of the sleeves being capable of limited motion in the direction of the plane of the blade frame and perpendicular to the axis of the guide pins to render possible expansion and contraction thereof without substantial increase in the friction between the moving parts, the movable sleeve being mounted in a hollow boss on the blade frame and being capable of moving longitudinally of the boss.

15. In a slicing machine, a supporting and guiding frame, a reciprocating blade frame, lugs on the first named frame, between said frames, hollow bosses on the second named frame, between said frames, bushing supports within said bosses, said supports being capable of endwise motion in said bosses, one of said supports being normally fixed against such motion, and guide pins rigidly secured to said lugs and passing through said supports and bosses, the openings in said bosses for the guide pins being large enough to make possible relative movement of the pins and bosses in the direction of the central plane of the blade frame.

16. A structure as defined by claim 15 in which the bushing supports are constructed and mounted to have slight rotary motion within the bosses.

17. A slicing machine comprising, in combination, a guide frame for a blade-carrying frame, said guide frame having lugs upon opposite sides and directed toward each other, guide pins mounted in said lugs and serving to guide the blade-carrying frame, a blade-carrying frame within the guide frame and guided thereby, bosses on the sides of said last mentioned frame facing the guide frame, said bosses having apertures therethrough and said guide pins passing through said apertures, bushing supports within said bosses and capable of slight rotary motion with respect thereto, said bushing supports having grooves therein, and dowel pins extending through the bosses and the grooves and permitting said rotary motion.

18. In a slicing machine having a guide frame and a reciprocating blade-holding frame, in combination, guide pins and bushings connecting the blade-holding frame and the guide frame to guide the former with relation to the latter, bushing guides between the bushings and the blade-hold-

ing frame and extending laterally into the blade frame, said bushing guides being capable of limited rotary motion in a direction transverse to the plane of the blade frame, one of the bushings being constructed and arranged to have limited motion laterally of the blade frame.

19. In a slicing machine, a blade-holding frame having lateral members and transverse top and bottom members, the lateral members having substantially cylindrical sockets therein for the reception of bushing retainers, an end of each cylindrical socket opening laterally, similarly shaped bushing retainers in said sockets, said retainers having openings therein for the reception of bushings, bushings in said openings, and guide pins on which said bushings reciprocate, said slicing machine having a supporting and guide frame for said blade frame, and said guide pins being mounted and rigidly held in said guide frame.

GORDON J. CALAME.