May 2, 1933. A. VAN DUYN 1,906,727

LUBRICATING MEANS FOR SLICING MACHINE GUIDES

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Fig. 2

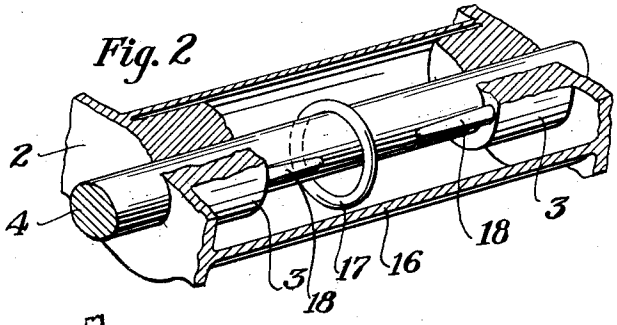


Fig. 5

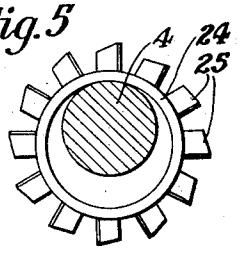


Fig. 4

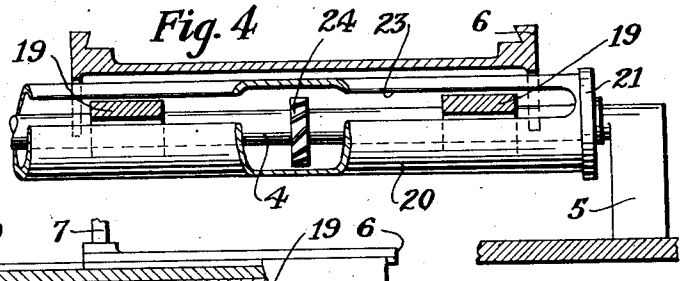


Fig. 3

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UNITED STATES PATENT OFFICE

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LUBRICATING MEANS FOR SLICING MACHINE GUIDES

Application filed January 31, 1929, Serial No. 336,522, and in Great Britain February 2, 1928.

The present invention relates to slicing machines, and particularly to that type of machine embodying a reciprocating carriage in which the bearing members on the carriage slide upon fixed guides on the base of the machine. It is very important in devices of this nature that the guides be lubricated and the present invention has for one of its objects the provision of efficient means for accomplishing this result.

Another object of this invention is to provide a simple automatic means for lubricating the rods during the reciprocating motion of the carriage.

Still another object of the invention is to provide lubricating rings surrounding the guides, which rings are adapted to be rotated by the reciprocation of the carriage and convey the lubricant from troughs to the surfaces of the guides.

Still another object of this invention is to provide a reservoir for the lubricant, which is a part of the carriage itself and reciprocates therewith.

Other objects of the invention will appear hereinafter, the novel features and combinations being set forth in the appended claims.

In the drawing—

Fig. 1 is a front elevation of the machine, with a portion of the carriage broken away to show a cross-section of some of the parts and to expose other parts to view;

Fig. 2 is an isometric view of the means for automatically rotating the lubricating ring on the guide rod;

Fig. 3 is a modification of the device shown in Fig. 1, with parts in section;

Fig. 4 is a fragmentary view showing how the bearings in Fig. 3 are connected to the guide rods, and this figure also shows a modified form of a lubricating ring for supplying oil to the guide rod; and

Fig. 5 is a detail view of the ring shown in Fig. 4.

The slicing machine comprises a base 1 and a carriage 2 which has formed integral therewith the bearings 3 slidable upon the guide rods 4 supported by the brackets 5 on the base member 1. A cross-slide 6 has uprights 7 carrying a clamping member 8 adapted to clamp the material 9 to the cross-slide. The cross-slide is adapted to be advanced with a step-by-step motion toward the knife 10 after each reciprocation of the carriage past the knife. The knife 10 is supported in a bearing 11 mounted on the base 1. The carriage is reciprocated upon rotation of the shaft 15 by means of a pitman 13 pivoted to the carriage 14 and to a crank 12, the latter being rotated by means of gears forming a connection between the shaft 15 and the crank.

On the under side of the carriage 2 adjacent opposite outer edges thereof are two substantially semi-circular troughs 16 adapted to form a means to hold lubricant for a purpose presently to be described. The downwardly extending flanges 16′ at opposite ends of the carriage form the end portions of the troughs 16. Surrounding the guide rods 4 are the rings 17 adapted to extend down into the troughs 16 so that when they are rotated the lubricant is carried to the surfaces of the guide rods. To rotate each of the rings 17, projections 18 are provided on the bearings 3 and project inwardly toward the ring, as best illustrated in Fig. 2. As the carriage reciprocates, first one of the projections 18 engages a ring 17 and then the other projection 18 engages a ring, and as each projection comes into engagement with the ring, the ring is raised slightly on one side and as the pin is withdrawn the ring tends to rotate slightly as it resumes its normal position on the guide rod. The engagement of the projection 18 with the ring 17 also causes it to rotate slightly due to the fact that it is pulled to one side and it is also caused to slide along the rod due to the push given it by the projection 18. This movement of the ring dis-

tributes the lubricant over the surface of the guide rod in a very efficient manner and the construction is simple and rugged and will not easily get out of order. From the above description, the operation of the device is apparent.

In Fig. 3 is shown a modification in which the base 1, the carriage 2, guide rods 4, supports 5 and cross-slide 6 carrying the uprights 7 are the same as the corresponding parts shown in Fig. 1, but in this modification the troughs 20 are not supported upon the carriage, but are supported on the guide rods and extend substantially the length thereof to form in addition to a lubricant trough, a covering means to protect the guide rods from foreign matter which has a tendency to accumulate thereon. The troughs 20 are in the form of tubular members which are supported by members 21 on the guide rods 4 at the opposite ends thereof. Each tubular member has a slot 23 through which a portion of the bearing member 19 extends so as to form a connection between the bearing and the carriage. This slot is located on one side of the tubular member so as not to provide an opening which will come directly over the guide rod 4, but it will be understood that the slot may be located in other positions than the one shown to accomplish the same result, or if the tubular member is used just as a cover, the slot may be located at the lower portion of the tubular member, and if used only as a lubricant trough, the slot may be placed on the upper side of the tubular member. In this instance, the carriage is reciprocated by the crank 12 and pitman 13, the latter being pivotally connected to an extension 13′ of the bearing 19. The bearings 19 carry pins 18′ to engage the rings 17′ mounted in the same manner as shown in Fig. 1.

Fig. 4 is a section taken between the extension 13′ on the bearing 19 and the tubular member 20 shown on the left in Fig. 3 and is a view looking toward the left in that figure, but a different form of lubricating ring is shown in this figure. The lubricating ring comprises the circular member 24 which may be rectangular in cross-section, but is not necessarily so. On the outer surface of said ring are the projections or vanes 25 and these vanes are set at an angle, as illustrated. In this figure, the projections 18 and 18′ shown in Figs. 1 and 3 are omitted since the vanes 25 cause the ring to rotate and carry the oil or other lubricant in the trough 20 to the surface of the guide rod. As the carriage reciprocates, the bearings 19 at opposite ends of the carriage alternately strike the ring 24 and carry it along the rod and the reaction of the vanes 25 against the lubricant in the trough 20 causes the ring to rotate slightly and carry the oil to the surface of the guide rod, as will be readily understood.

It will be noted that the flat faces of the bearings 19 which engage the corresponding flat faces of the ring 24 provide a means whereby the ring is maintained with its axis in substantially a horizontal position parallel to the guide rod 4 as the ring rotates about the guide rod.

While applicant has illustrated the ring in Figs. 4 and 5 as applied to a machine in which the trough is stationary, it is obvious that the ring shown in Figs. 4 and 5 can be used in place of the rings shown in Figs. 1, 2, and 3, and when so used, the projections strike the rings, tilting the rings, and the vanes 25 bring a considerable quantity of lubricant onto the guide rod which is to be lubricated.

Obviously those skilled in the art may make various changes in the details and arrangement of parts without departing from the spirit and scope of the invention as defined by the claims hereto appended and I wish therefore not to be restricted to the precise construction herein disclosed.

Having thus fully disclosed an embodiment of my invention, what I desire to secure by Letters Patent of the United States is:

1. A slicing machine comprising guides, slide members for said guides carrying a reciprocating table, a ring for lubricating said guides surrounding said guides, a lubricant receptacle into which said ring extends, and vanes on said ring for causing the ring to rotate about said guides as the table reciprocates.

2. A slicing machine comprising a reciprocating carriage, a guide bar for guiding said carriage as it reciprocates, a lubricating ring surrounding said guide bar, a lubricating trough adjacent said guide bar and adapted to hold a lubricant for said guide bar, and means on said ring cooperating with said lubricant when the same is in said trough for rotating said ring about said guide bar, said ring being adapted to convey lubricant from said trough to said guide bar.

3. A slicing machine comprising a guide rod, a table having a bearing engaging said guide rod, means for reciprocating said table along said guide rod, a lubricant trough adjacent said guide rod, a lubricating ring surrounding said guide rod, means on said table adapted to engage said ring as said table reciprocates and move said ring along said guide rod, and means on said ring engageable by the lubricant in said trough for rotating said ring about said rod.

4. A slicing machine comprising a guide bar, a table reciprocable along said guide bar, a bearing surface on said table engaging said guide bar, a lubricating ring surrounding said guide bar having means thereon engageable by a quantity of lubricant mov-

ing relatively to said ring and for the purpose of rotating said ring about said guide rod as said lubricant moves relatively to said ring.

5. A slicing machine comprising a support, guide rods on said support, a reciprocating table, slides on said table engaging said guide rods, a lubricant carrying trough carried by said table, rings on said guide rods extending into said lubricant trough, and projecting surfaces on said rings adapted to engage the lubricant in said trough for rotating said rings as said table reciprocates.

6. A slicing machine comprising a guiding surface, a carriage guided by said guiding surface as said carriage reciprocates, an endless lubricating element extending over said guiding surface, a lubricating trough adjacent said guiding surface and adapted to hold a lubricant for said guiding surface, and projections on said endless lubricating element adapted to co-operate with lubricant in said trough for moving said endless lubricating element over said guiding surface as said carriage reciprocates, said endless lubricating element being also adapted to convey lubricant to said guiding surface.

7. A slicing machine comprising a guiding surface, a table reciprocable along said guiding surface, a bearing surface on said table engaging said guiding surface, a lubricating element extending over said guiding surface and having raised portions thereon engageable by a quantity of lubricant moving relatively to said element as said table reciprocates and for the purpose of moving said element over said guiding surface as said lubricant moves relatively to said element.

8. A slicing machine comprising a reciprocating carriage, a guide rod adapted to cooperate with suitable bearings on said carriage, a lubricating ring surrounding said guide rod, means for rotating said ring as said carriage moves along said guide bar, and means for maintaining the axis of the ring parallel to the axis of said guide rod while said ring is rotating.

9. In a slicing machine, the combination with a guide rod, a carriage having bearings engaging said guide rod, a lubricating trough extending substantially the entire operative length of said guide rod and extending over said guide rod to protect the upper surface of said guide rod from foreign material, said trough having an opening through which said bearings extend, a lubricating ring on said guide rod adapted to rotate about said guide rod during reciprocation of said carriage, and means for rotating said ring about said guide rod as said carriage reciprocates.

10. A slicing machine comprising a reciprocating carriage, a base, guides on said base, slide members on said carriage engaging said guides, tubular members having slots therein mounted on said guides, said slide members having portions thereof extending through said slots for connecting said slides to said carriage, a lubricant in each of said tubular members, a ring on each of said guides engaging said lubricant, and means on said rings engaging said lubricant for rotating the ring as the carriage is reciprocated.

In testimony whereof I have signed my name to this specification on this 9th day of January A. D. 1929.

ADRIANUS VAN DUYN.