March 18, 1958 H. FEHLMANN 2,827,092

RECIPROCATING CARRIAGE MEAT SLICER

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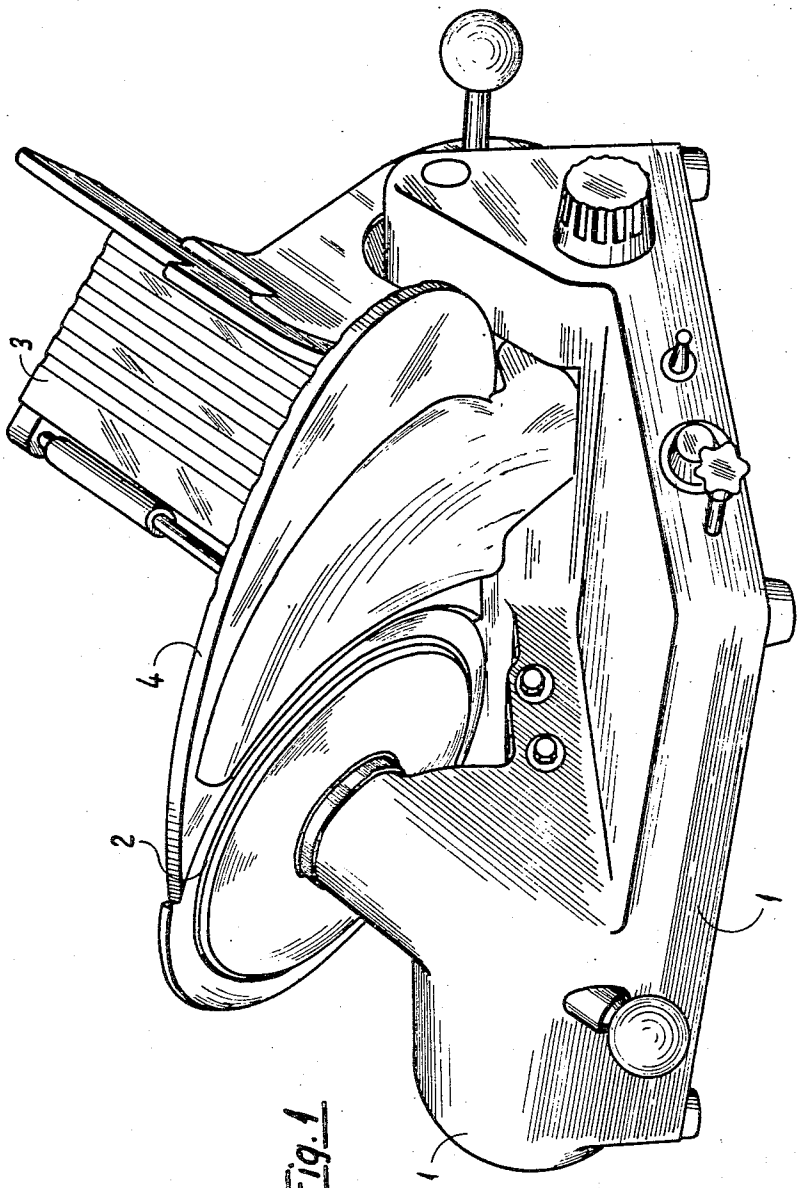


Fig. 1

INVENTOR

HENRI FEHLMANN

BY Toulmin & Toulmin

ATTORNEYS

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Fig. 3

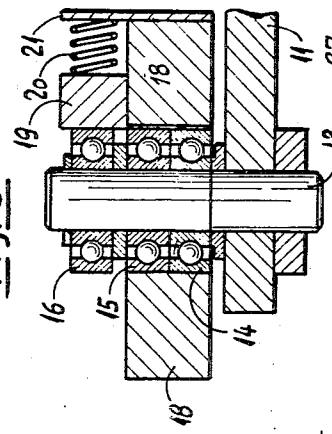


Fig. 4

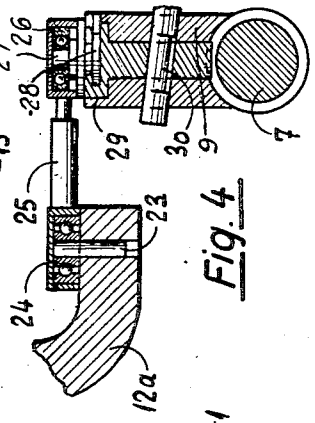
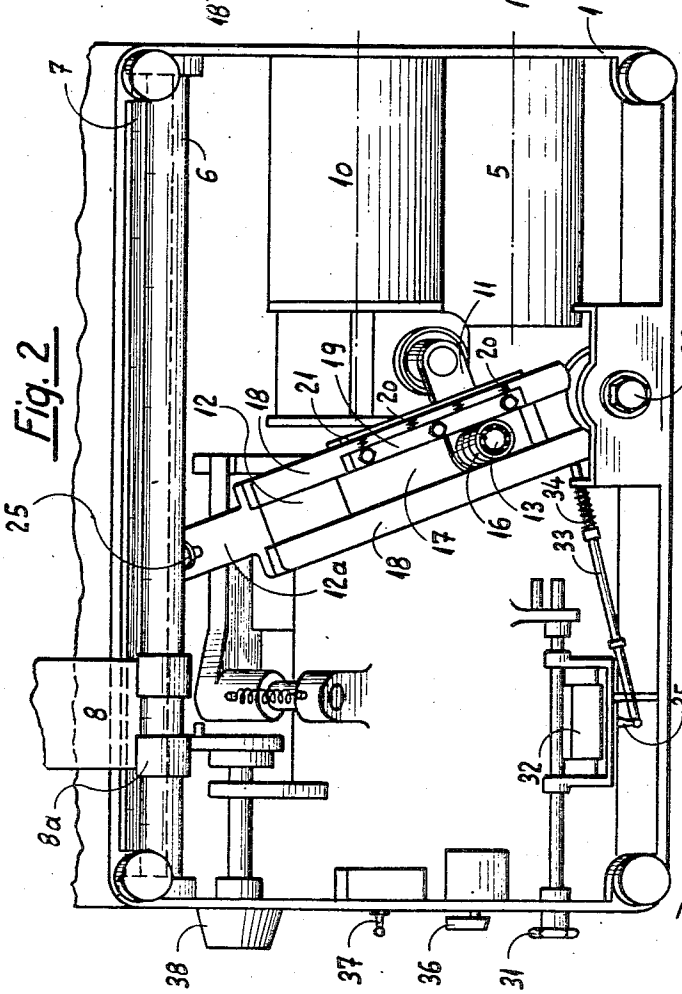


Fig. 2



INVENTOR

HENRI FEHLMANN

BY Toulmin & Toulmin

ATTORNEYS

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RECIPROCATING CARRIAGE MEAT SLICER

Henri Fehlmann, Courtelary, Switzerland

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6 Claims. (Cl. 146—102)

This invention relates to meat-slicing machines of the type based on gravity-feed and comprising a circular rotary knife and a reciprocating meat-carrier driven mechanically. According to an important feature of the invention, the reciprocating movement of the meat-carrier is transmitted thereto by an electric motor lodged in the housing of the machine through a crank gear, the crank and connecting rod of which are so designed and arranged as to convey to the meat-carrier faster return stroke than the advance or cutting stroke.

The driving motor of the meat-carrier may be the same as the driving motor of the rotary knife, or it can be independent from the former; a two-speed motor may for example be used, with or without speed reducer.

The accompanying drawings show by way of example a meat-slicing machine construction embodying the invention.

Fig. 1 is a general exterior view in perspective.

Fig. 2 is a plan view from below of the housing enclosing the driving mechanism of the meat-carrier, view in which are only shown the elements necessary for the comprehension of the invention.

Fig. 3 shows an enlarged section through a detail of construction.

Fig. 4 shows an enlarged section through another detail.

The slicing machine based on gravity-feed comprises an entirely closed housing 1, in which are mounted all the elements for driving the slanting circular knife 2 and for imparting a reciprocating motion to the meat-carrier 3 which is slidably mounted in front of an adjustable guide 4, in parallel relationship with the knife 2.

The rotary circular knife 2 is driven by an electric motor 5 mounted in the housing 1, the rotary power of which is imparted to knife 2 by way of the conventional means of transmission.

The meat-carrier 3 is slidably mounted on two guide-bars 6 and 7 arranged one above the other by means of a bracket 8 guided on the lower bar 6 by two sleeves 8*a* and on the upper bar 7 by a sliding bearing 9. The meat-carrier 3 is driven by a second motor 10, mouted in the housing 1 side by side with the motor 5, the shafts of the two motors 5 and 10 being parallel. The motor 10 drives the meat-carrier through conventional transmission means, and, in particular, by a curved crank 11 and a connecting rod 12. The head of the crank carries a stud 13 on which are mounted three ball-bearings 14, 15 and 16, located one above the others. The two lower ball-bearings 14 and 15 are fitted, with a slight play, in a guide slot 17 provided in the connecting rod 12 and formed by two flat irons 18. The third bearing 16 bears with one side only against a cheek 19 pressed from outside by springs 20, the latter bearing against a bar 21 fixed to one of the flat irons 18. This arrangement of the crank head in the guide slot 17 permits of a smooth and silent gliding action of the two co-acting elements. Opposite the two guide bars 6 and 7, the connecting rod 12 pivots on a stud 22 the axis of which coincides approximately with the axis of the rotary knife 2.

On the bent end 12*a* of the connecting rod 12, opposite the stud 22 is pivoted by means of a stud 23 and a ballbearing 24 a link 25, the other end of which carries a ballbearing 26 in which turns the shaft 27 to which is fixed a disc 28. This disc 28 may be introduced through a side opening into a coupling piece 29 mounted in a recess of the body of the sliding bearing 9, where it can be locked by an eccentric 30, thus assuring the coupling of the connecting rod 12 through the link 25 with the meat-carrier 3. When loosening the eccentric 30, the disc 28 may be withdrawn from its housing, thus making it possible to disconnect the link 25 from the meat-carrier, to turn it back over the connecting rod 12 so as not to hinder the movement of the carrier in case it is desired to operate the latter by hand as is the case in non-automatic slicing machines.

The control knob 31 controls the switch 32 of the electric supply to the motor 10 for the meat-carrier. This switch may be operated by means of a rod 33 provided with a spring 34, its one end being hinged to a control lever 35 and its other end bearing against the connecting rod 12.

The motor 10 driving the meat-carrier may be preferably of the two-speed type. The throw-over cut-out switch 36 is intended for controlling the motor 10. The switch 37 controls the driving motor 5 for the rotary knife, whereas the button 38 controls the device permitting to adjust the thickness of the slices to be cut by the machine.

The reciprocal position of the crank 11 with respect to the connecting rod 12 is calculated in such a manner as to have the crank describe one third of a revolution for the return stroke and two thirds of a revolution for the cutting stroke of the meat-carrier so that the speed of the meat-carrier during the return stroke is twice its speed during the cutting stroke.

What I claim is:

1. A meat slicing machine of the gravity feed type comprising a casing, a rotary circular knife mounted on said casing in such a manner that the axis of said rotary circular knife and the main plane in which said casing extends form and angle of about 45°, a meat carrier adapted for reciprocating movement, mounted in front of said rotary circular knife in said casing, a first electric motor within said casing for rotating said knife, a second electric motor within said casing for reciprocating said meat carrier, a first and second driving shaft, pertaining to said first and second electric motor respectively, said driving shafts being parallel to one another, a curved crank and connecting rod device for transmitting power from said second electric motor to said meat carrier, the axis of rotation of said connecting rod substantially coinciding with the axis of said rotary knife, said connecting rod comprising a guide slot, a stud mounted on said crank, three ball bearings mounted on said stud in successive arrangement one above the other, the two lower bearings being fitted with a slight play within said guide slot, and said machine comprising means for pressing at least a portion of one side wall of said guide slot resiliently against the third of said ball bearings.

2. A meat slicing machine of the gravity feed type comprising a casing, a rotary circular knife mounted on said casing in such a manner that the axis of said rotary circular knife and the main plane in which said casing extends form an angle of about 45°, a meat carrier adapted for reciprocating movement, mounted in front of said rotary circular knife on said casing, electric motor means within said housing for rotating said knife and reciprocating said mean carrier, a curved crank and connecting rod device for transmitting power from said electric motor means to said meat carrier, the axis of rotation of said connecting rod substantially coinciding

with the axis of said rotary knife, and wherein the connecting rod comprises a guide slot, a stud mounted on said crank, three ball bearings mounted on said stud in successive arrangement one above the other, the two lower bearings being fitted with a slight play within said guide slot, and said machine comprising means for pressing at least a portion of one side wall of said guide slot resiliently against the third of said ball bearings.

3. A meat slicing machine as described in claim 1, wherein a link is pivotally mounted at the curved end of said connecting rod, said link having a ball bearing at its opposite end, a shaft and a coupling disc, said shaft being rotatably mounted within said ballbearing pertaining to said link, and said coupling disc being affixed to said shaft, an eccentric device upon the loosening of which the coupling disc can be withdrawn, thus making it possible to disconnect said link from the meat carrier and to turn said link back over said connecting rod, whereupon the meat carrier can be operated by hand.

4. A meat slicing machine as described in claim 2, wherein a link is pivotally mounted at the curved end of said connecting rod, said link having a ball bearing at its opposite end, a shaft and a coupling disc, said shaft being rotatably mounted within said ballbearing pertaining to said link, and said coupling disc being affixed to said shaft, an eccentric device upon the loosening of which the coupling disc can be withdrawn, thus making it possible to disconnect said link from the meat carrier and to turn said link back over said connecting rod, whereupon the meat carrier can be operated by hand.

5. A meat slicing machine as described in claim 1, wherein a link is pivotally mounted at one end of said connecting rod, said link having a ball bearing at its opposite end, a shaft and a coupling disc, said shaft being rotatably mounted within said ball bearing pertaining to said link, and said coupling disc being affixed to said shaft, an eccentric device upon the loosening of which the coupling disc can be withdrawn, thus making it possible to disconnect said link from the meat carrier and to turn said link back over said connecting rod, and whereupon the meat carrier can be operated by hand.

6. A meat slicing machine as described in claim 2, wherein a link is pivotally mounted at one end of said connecting rod, said link having a ball bearing at its opposite end, a shaft and a coupling disc, said shaft being rotatably mounted within said ball bearing pertaining to said link, and said coupling disc being affixed to said shaft, an eccentric device upon the loosening of which the coupling disc can be withdrawn, thus making it possible to disconnect said link from the meat carrier and to turn said link back over said connecting rod, and whereupon the meat carrier can be operated by hand.

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