Sept. 29, 1931. K. SHOPIS ET AL 1,825,132

MULTIPLE KNIFE FOR CUTTING MACHINE

Filed April 5, 1930

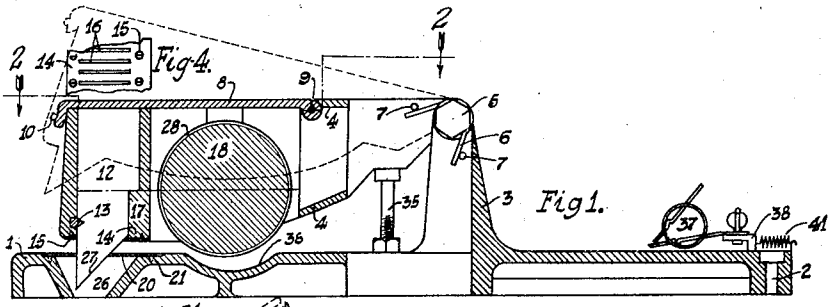


Fig. 4.

Fig. 1.

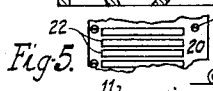


Fig. 5.

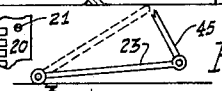


Fig. 6.

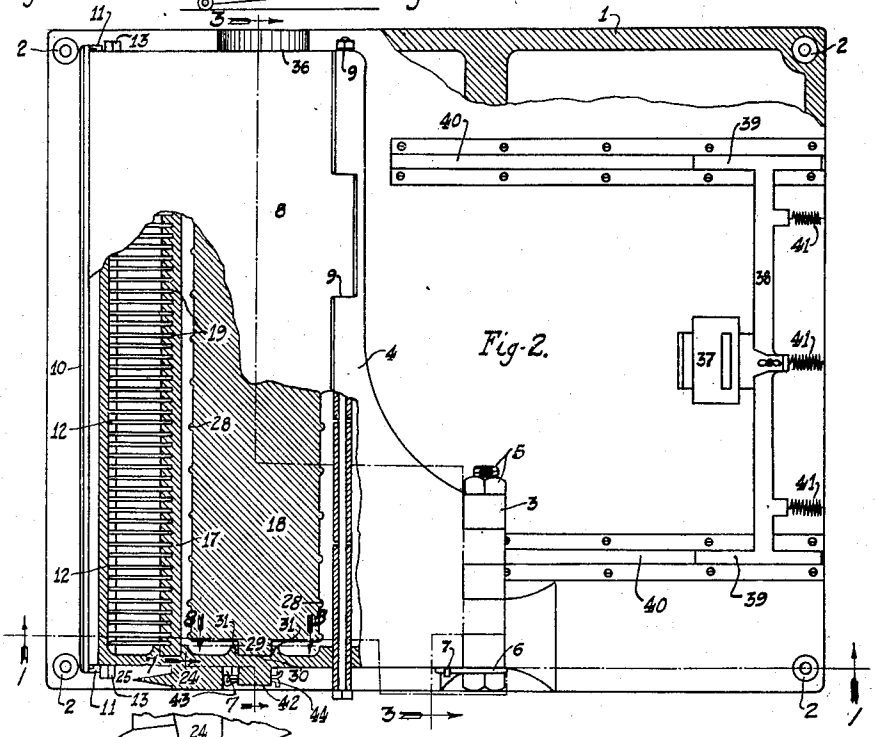


Fig. 2.

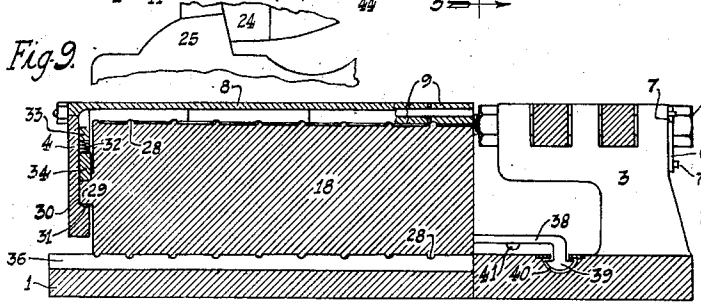


Fig. 9.

Fig. 3.

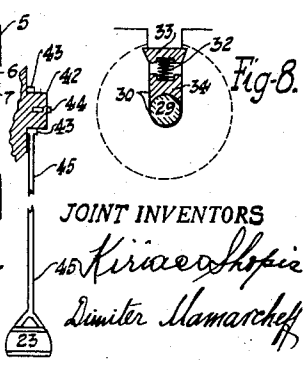


Fig. 8.

Fig. 7.

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UNITED STATES PATENT OFFICE

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MULTIPLE KNIFE FUR-CUTTING MACHINE

Application filed April 5, 1930. Serial No. 441,855.

The invention relates to a new multiple knife fur-cutting machine in which vertically set knives operate in conjunction with a stationary slotted die strip and a fur feed regulating mechanism consisting of a roller and a spring clip attached on a sliding frame; and the objects of the invention are, first, to provide a number of vertically arranged cutting knives, each one set independent from another; second, to provide a stationary die strip with slots corresponding to and receiving the sharp edge of each one of aforesaid knives; third, to afford means by a revolving roller for the correct pressure upon and feed regulation of the piece to be cut; fourth, to provide a sliding device to hold one end of the piece and thereby prevent any lateral movement throughout its cutting; and fifth, to afford means for the precise and unobstructed alignment of the sharp edges of the cutting knives into the corresponding slots of the stationary die strip.

One form of the invention is illustrated in the accompanying drawings in which Figure 1 is a vertical section, side elevation, of the entire machine on the line 1 1 of Figure 2. Figure 2 is a plan view of the machine, a part of this view on the lower side of the figure showing a horizontal section on line 2 2, Figure 1. Figure 3 is a front elevation, vertical section of the machine on line 3 3, of Figure 2, as looked at from the front of the machine. Figure 4 is a plan view of a portion of a strip with slots serving to provide for the correct separation of the knives. Figure 5 is a plan view of a portion of the stationary slotted die strip. Figure 6 represents a side view of a part of the foot pedal and lever rod operating the vertical movement of the cutting knives, while Figure 7 is a vertical section of same pedal and rod on line 7 7, Figure 2, shown as disattached from the machine. Figure 8 is a vertical section on line 8 8, Figure 2 of one of the two identical ends of the roller shaft, and Figure 9 represents side view of the male and female key device as a part of the machine and effecting the perfect alignment of the knives into the slots of the stationary die strip.

The table or plate 1, its holes 2 2, for securing by means of screws or bolts to any desk or platform, and its rising cantilever support 3, constitute the framework of the machine. On the cantilever support 3 hinges box 4 by means of a bolt 5 holding both tight together, while a main spring 6 with its two ends each one resting respectively on pins 7 7 which are secured one on the box 4 and the other on cantilever support 3, keeps the box normally lifted in position as shown in dotted lines on Figure 1.

A box cover 8, on hinges 9 9 is kept closed tight by a cover holder 10, its ends 11 11 being attached to box 4. When cover 8 is opened free access is gained to the cutting knives 12 12 all of these identical in size and each one of these being firmly and tightly held independent from another in respective location by a removable long key 13, the removal of which permits taking out from box 4 one more of knives 12. The upper slotted strip 14, secured with countersunk screws 15 15 to box 4 has slots 16 16, each one cut of size corresponding and exactly fitting to hold one knife 12, slots 16 16 having an equal separation distance between center lines of every two adjacent slots, see Figures 2 and 4. A wall 17 which is a part of box 4 separates compartment for roller 18 from that for knives 12 12 and serves to further provide a number of vertical slots 19 19 each one corresponding and fitting to hold respective side of one knife 12, every two adjacent slots 19 19 having between their center lines a separation distance equal to that between center lines of every two adjacent slots 16 16. The stationary slotted die strip 20 secured to table 1 by means of countersunk screws 21 21 has slots 22 22, each one cut of size larger than the size of the cross section of a corresponding knife blade 12 which is to be received by slot 22, the center lines of slots 22 22 being precisely aligned in a vertical plane to match against the corresponding center lines of slots 19 19 and the corresponding center lines of knives 12 12, Figure 2, so that when box 4 and its side projection 42, attached through annular connection 43 and pin 44 to lever rod 45, and to pedal 23, is moved downwards when operated by foot pressure upon the latter

against action of main spring 6, each one knife 12 will freely pass through its corresponding slot 22 without any obstruction and a male key 24 part of box 4 will tightly fit in and lock into a female key 25 part of table 1. A hollow chamber 26 as part of table 1 serves to receive the sharp edges 27 27 of knives 12 12 and any loose hair or matter during the cutting operation. The roller 18 with circumferential projections 28 28 fits with its two shaft ends 29 29 into recesses 30 30 in box 4 which contain grooves 31 31 for lubrication purposes, while springs 32 32 held on top by removable dove-tailed keys 33 33, press upon partial surface bearings 34 34 resting on roller shaft ends 29 29. A set screw 35 regulates the minimum separation between the roller surface and the corresponding curved recess 36 in table 1 when foot pedal 23 operates box 4 downwards. One or more spring clips 37 (one shown in the present instance), secured on a frame 38 with slides 39 39 moves in linear grooves 40 40 in table 1 and operates against tension of spring 41 41.

Procedure of fur-cutting operation with this machine, is as follows: A piece of fur, leather, or canvas or any similar fabric that is desired to be cut into long strips of equal width throughout the length of cut, is inserted (with the box 4 normally lifted) under the sharp edges 27 27 of knives 12 12, already set at the desired separation, leaving a small margin of the piece outside of the front of the box for free access of the operator standing in the front of the machine and taking hold of the near end of the piece. The other end of the same is clipped to spring clip 37. On pressing the foot pedal the operator partly closes down the box and sets the regulating set screw 35 according to the thickness of the piece. Next, on further pressing down the foot pedal the sharp edges of the knives will cut the piece underneath, the box will rest on the set screw while the roller will make contact on the piece against the table curvature. Presently the operator starts to pull out with his hands the end of the piece which he is already holding, which results in longitudinal cutting into straight strips of equal width throughout the length of cut.

We claim:

1. A fur cutting machine, comprising in combination a base over which the material to be cut is positioned, and a box member pivotally mounted on said base, means for regulating the position of the box member with respect to the base, said box member including two compartments, one of which forms an enclosure for a plurality of knives and the other of which contains a roller, a die strip countersunk to take a position over a channel in the base member, said strip having slots through which the ends of the knives are adapted to extend when in operative position, the roller being adapted to press the material firmly against the base and guide the same through the knives during the cutting operation.

2. A fur cutting machine, comprising in combination a base over which the material to be cut is positioned, and a box member pivotally mounted on said base, means for regulating the position of the box member with respect to the base, said box member including two compartments, one of which forms an enclosure for a plurality of knives and the other of which contains a roller, a die strip countersunk to take a position over a channel in the base member, said strip having slots through which the ends of the knives are adapted to extend when in operative position, the knives having cutting edges angularly disposed to the die strip so that the upper surface of the material passing through the same is uniformly pressed by the die strip against the cutting edges, the roller being adapted to press the material firmly against the base during the cutting operation.

April 4th, 1930.

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