March 31, 1931. F. SCHLETH 1,799,067

CUTTING MECHANISM FOR THE PAPER STRIPS OF RECORDING MACHINES

Filed Dec. 20, 1928 2 Sheets-Sheet 1

Fig. 1.

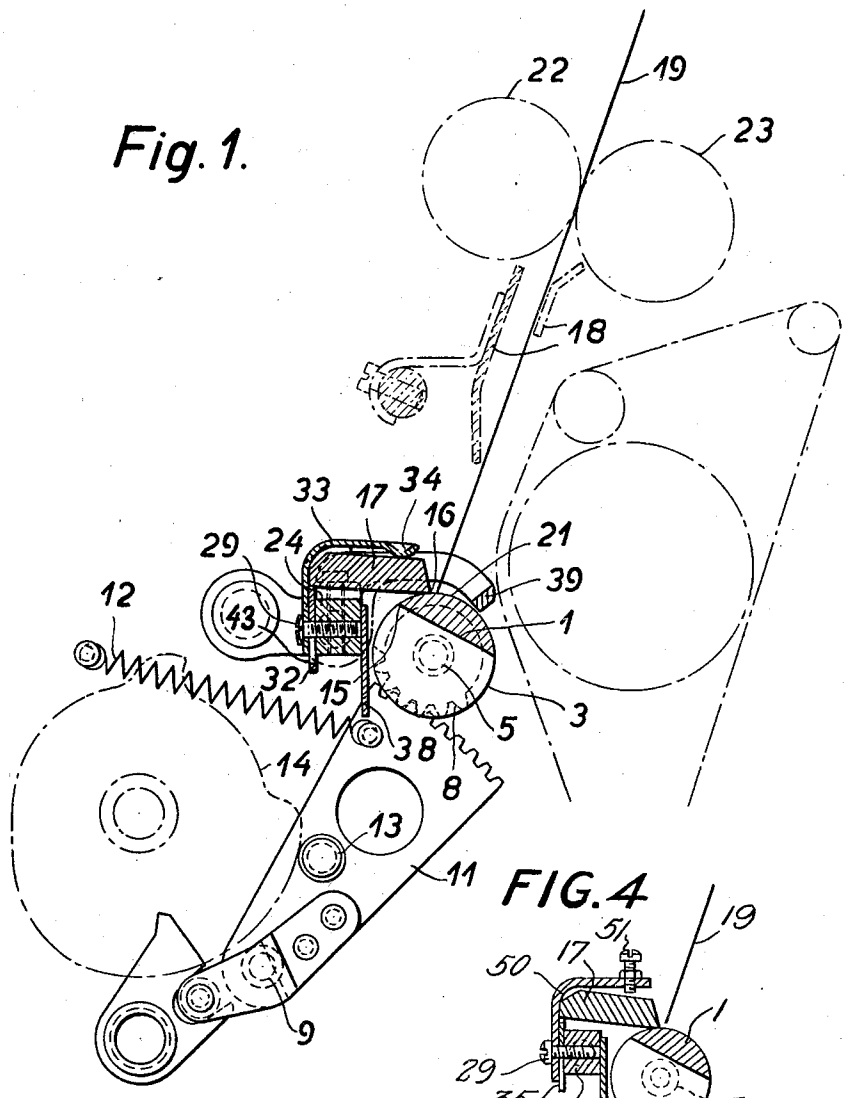


FIG. 4

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Fig.2.

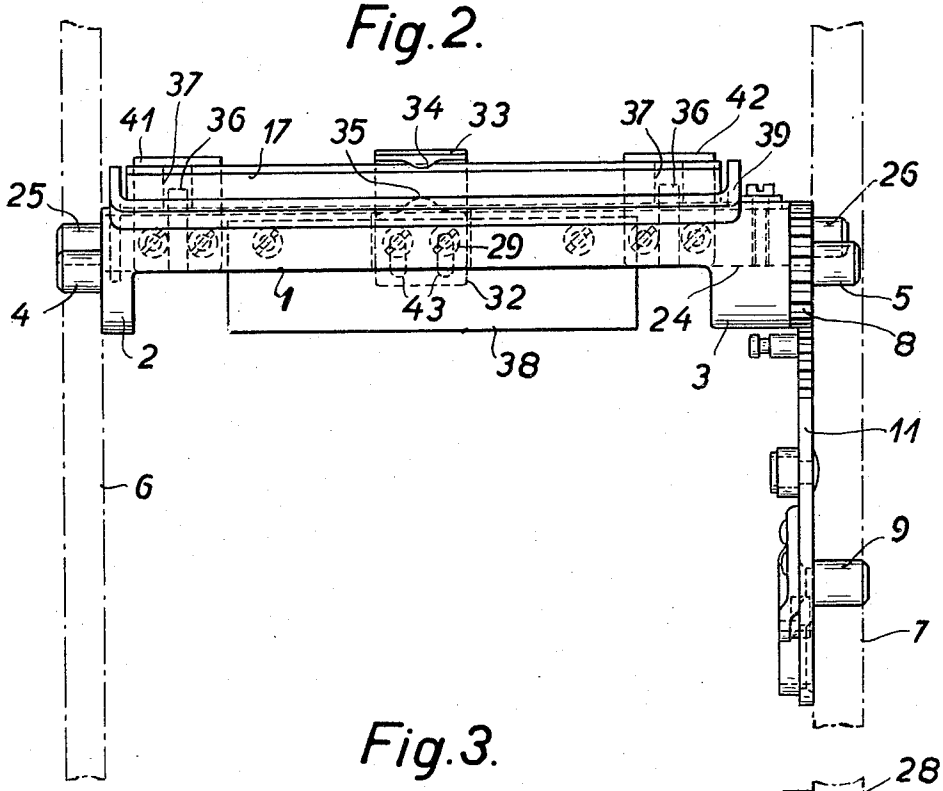
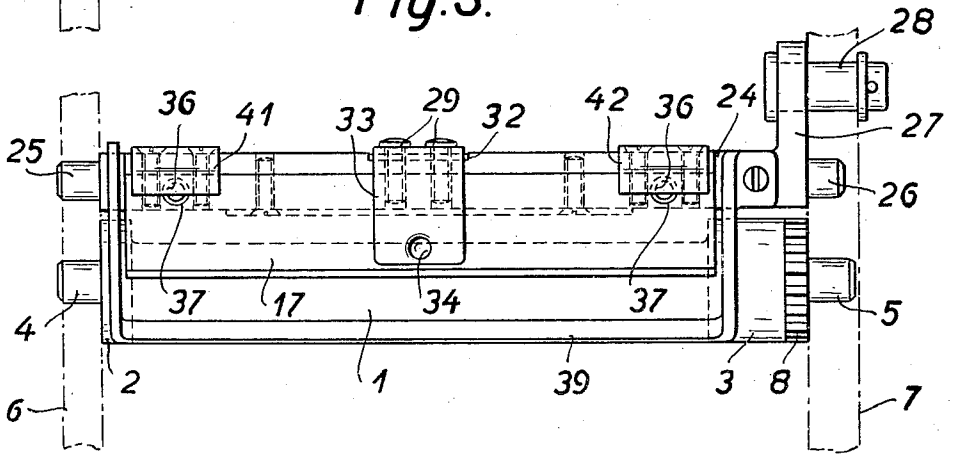


Fig.3.



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UNITED STATES PATENT OFFICE

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CUTTING MECHANISM FOR THE PAPER STRIPS OF RECORDING MACHINES

Application filed December 20, 1928, Serial No. 327,385, and in Germany March 22, 1928.

The invention relates to mechanisms for cutting off the paper strip of recording machines and more particularly has reference to mechanisms of the type having two knives the cutting edges of which are moved past one another.

The purpose of the invention is to arrange the knives in such a manner that they adjust themselves accurately in the correct mutual position and are maintained therein. To this end, according to the invention, there is arranged to cooperate with a movable knife, a substantially stationary companion knife, which rests upon the movable knife and upon a support, the surface of contact between the companion knife and the support being confined to a single point remote from the cutting edge of the companion knife. This enables the companion knife to execute a limited rocking motion in order to accurately adjust itself to the movable knife.

A preferred embodiment of the invention is illustrated by way of example in the drawing which accompanies and forms part of this specification, and in which

Figure 1 is an elevation, partly in section, of the improved cutting mechanism,

Figure 2 is the corresponding front view,

Figure 3 is the top view thereof, and

Figure 4 is a vertical section of a modified mounting for the companion knife.

Referring to these figures, 1 denotes the movable knife of the mechanism, which, in this case, is a rotary one and the cutting portion of which has a sector-shaped cross section, Figure 1. On both its ends the knife 1 has a full cylindrical portion 2, 3, Figure 2, and is mounted for rotation in the side walls 6, 7 of the cabinet of the printing mechanism of the machine by means of journals 4, 5. A rim of teeth 8, Figure 1, of the end portion 3 of knife 1 is in mesh with a toothed segment 11, mounted on a journal 9, fixed in the cabinet wall 7, Figure 2. The segment 11 is under the influence of a spring 12, Figure 1, and is provided with a roller 13, which is held against a cam disk 14 by the spring 12. One full revolution is imparted to disk 14 in each operation of the machine. The cam disk 14 is so designed that during this revolution the knife 1 executes two successive oscillating motions in clockwise direction and back again, its cutting edge 15 passing the cutting edge 16 of a companion knife 17 co-operating with knife 1.

In the position of rest of the mechanism the lower end of the paper strip 19, which is fed from above and passes through a guide 18, Figure 1, abuts on the peripheral surface 21 of knife 1. When the latter rotates this peripheral surface 21 releases the paper strip, which thereupon can be forwarded by the length of a check. When knife 1 returns its cutting edge 15 arrives at the paper strip 19, that has been fed in the meantime, and cuts off the fed section thereof, in co-operation with the cutting edge 16 of the companion knife 17. To support the knife 17, a transverse bar 24, Figures 2 and 3, is mounted in the side walls, 6, 7 of the cabinet, by means of journals 25, 26. This bar is secured against rotation by an extension 27, Figure 3, fixed to the wall E by means of a bolt 28. In the middle of the rear side of the transverse bar 24 are fixed, by two screws 29, an abutment plate 32 and a rectangularly bent flat spring 33. The latter has, at the middle of its front end a depression 34, Figures 1 and 2, which is in contact with knife 17 and urges it both against the shell surface 21 of knife 1 and the abutment plate 32, which latter has a lip 35 on its upper edge, Figure 2. Owing to this arrangement the cutting edge 16, Figure 1, exactly adjusts itself to the peripheral surface 21 of knife 1, which would not be the case under all conditions if the companion knife 17 were supported at several points by the transverse bar 24.

The knife 17 has a length such as to overlap, in part, the full cylindrical extremities 2, 3, Figure 2, of knife 1, so that it is held in the position shown in Figure 1 by them when knife 1 rotates and thus releases knife 17.

In order to limit the lateral movement of the knife 17, two pins 36, Figures 2 and 3, are provided on the transverse bar 24, which engage holes 37 of knife 17. The pins fit loosely in the holes 37 so as not to prevent knife 17 from adjusting itself to the peripheral surface of knife 1. A plate 38, Figures

1 and 3, screwed on the front face of the transverse bar 24, and a yoke 39, embracing knife 17 and likewise screwed on bar 24, serve to guide the paper strip 19. Two sheet metal pieces 41, 42, Figures 2 and 3, bent over the knife 17, protect it from springing out.

In place of the flat spring 33 a rigid abutment 50 may be provided, as shown in Figure 4, which has a set screw 51 in contact with knife 17, instead of by the depression 34.

The holes 43, Figure 2, receiving the screws 29, of the abutment plate 32, are slot-shaped, in order to permit plate 32 to be shifted in vertical direction, to impart to knife 17 different inclined positions and to thereby obtain the best cutting angle of the cutting edge 16.

What I claim and desire to secure by Letters Patent, is:—

1. In a cutting mechanism, a movable knife, a support, a substantially stationary companion knife resting upon said movable knife and said support, the contact between said support and said companion knife being confined to a single point about which said companion knife is free to rock to conform to said movable knife.

2. In a cutting mechanism, a movable knife, a support, a substantially stationary companion knife resting upon said movable knife and said support, the contact between said support and said companion knife being confined to a single point about which said companion knife is free to rock to conform to said movable knife, and means exerting a force on said companion knife tending to hold the same against said support and said movable knife.

3. In a cutting mechanism, a rotary knife, a support, a substantially stationary companion knife resting at its cutting edge upon the periphery of said rotary knife and at its opposite edge upon said support, the surface of contact between said support and said companion knife being confined to a single point substantially at the middle of said opposite edge, and spring means exerting a force on said companion knife at a single point between said cutting edge and said opposite edge.

4. The combination with a cutting mechanism as described in claim 1 of means for limiting lateral motion of said companion knife comprising stationary pins, said companion knife having holes in which said pins engage with such play as to offer no hindrance to the rocking of said companion knife.

5. A cutting mechanism as described in claim 1, in which said support is mounted so as to be adjustable in a direction substantially normal to said companion knife, whereby the angle between said knives can be adjusted.

The foregoing specification signed at Cologne, Germany, this 30th day of November, 1928.

FRIEDRICH SCHLETH.