March 31, 1925. 1,531,403

E. KOERNER

APPARATUS FOR CUTTING CIGARETTE MOUTHPIECE OR TIP FORMING MATERIAL

Filed Dec. 31 . 1923 2 Sheets-Sheet 1

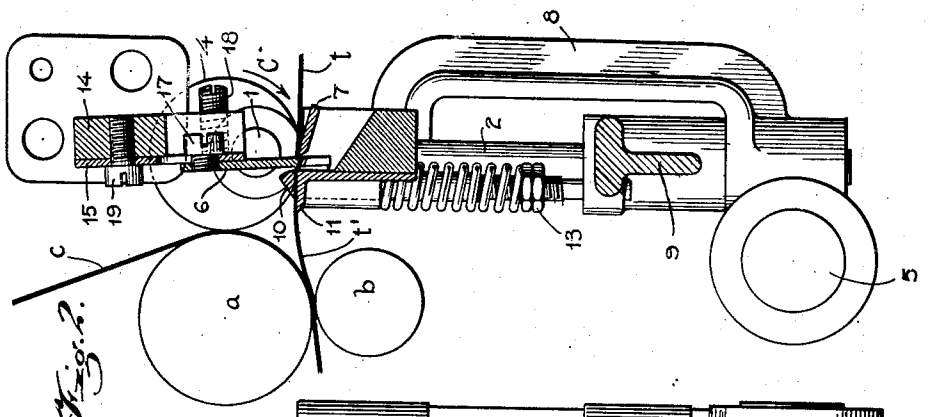


Fig. 2.

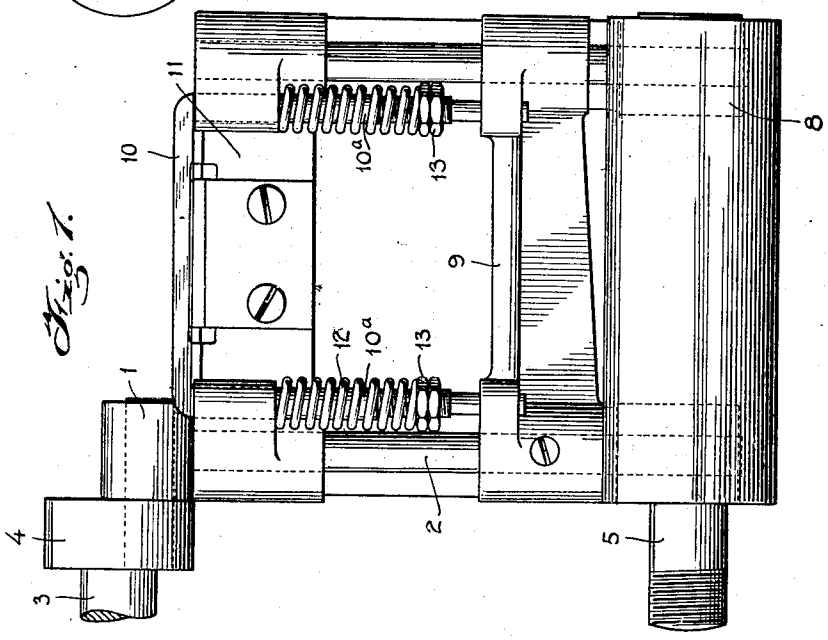


Fig. 1.

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Fig. 4.

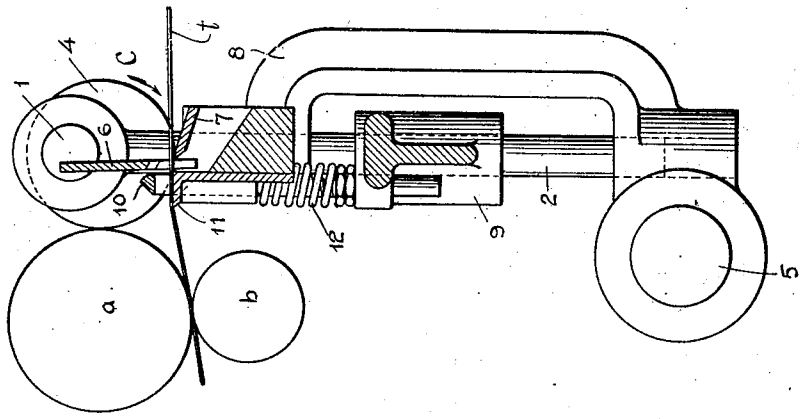


Fig. 3.

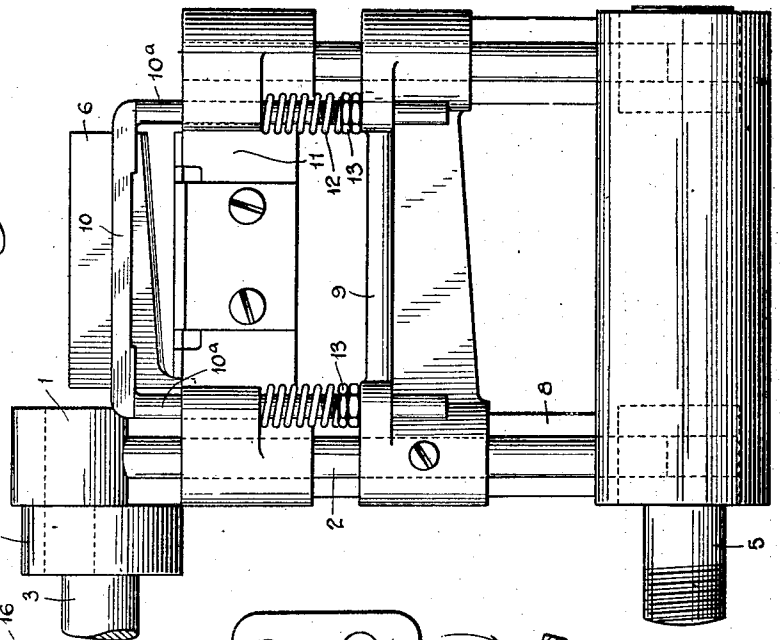


Fig. 5.

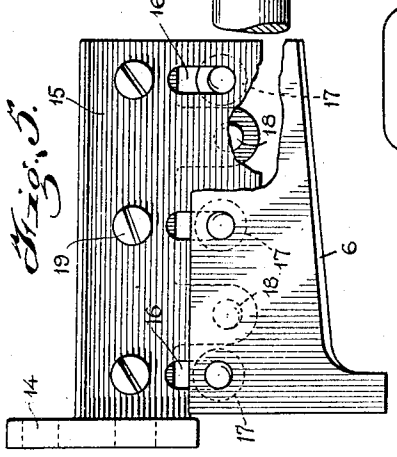
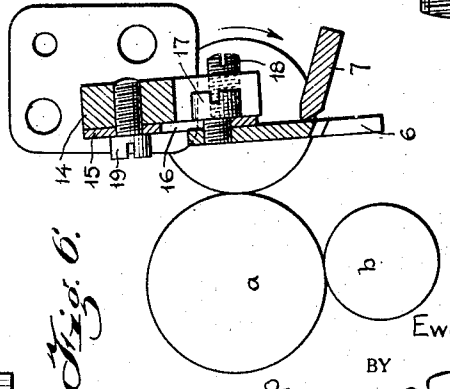


Fig. 6.



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Patented Mar. 31, 1925. 1,531,403

UNITED STATES PATENT OFFICE.

EWALD KOERNER, OF DRESDEN, GERMANY, ASSIGNOR TO UNITED CIGARETTE MACHINE CO., INC., OF LYNCHBURG, VIRGINIA, A CORPORATION OF VIRGINIA.

APPARATUS FOR CUTTING CIGARETTE MOUTHPIECE OR TIP FORMING MATERIAL.

Application filed December 31, 1923. Serial No. 683,838.

To all whom it may concern:

Be it known that I, EWALD KOERNER, a citizen of the Republic of Germany, and resident of Dresden, Germany, have invented certain new and useful Improvements in Apparatus for Cutting Cigarette Mouthpiece or Tip Forming Material, of which the following is a specification.

This invention relates to continuous rod cigarette machines, and relates more particularly to an apparatus for cutting mouthpiece or tip forming material into strips and for feeding the same for application to the strip of cigarette paper employed in such machines.

In continuous rod cigarette machines for the making of tipped or mouthpiece cigagettes, a strip of mouthpiece material is severed into short pieces or strips which are applied to a continuous strip of cigarette wrapper at spaced intervals in advance of the point where the cigarette wrapper receives the tobacco for the formation of the continuous rod. The mouthpiece material is severed by means of an apparatus which cuts the material into the small strips, clamps the cut strips and advances the same between feeding and presser rollers between which the cigarette paper is moved. To effect an efficient coordination between the cutting and clamping mechanism and the feeding and presser rollers, it is highly desirable to produce a compact organization of the parts, and more specifically to so construct and coordinate the operating means that the latter may be brought closely to the rollers, this so that the short tip forming strips are properly advanced and applied to the cigarette wrapper; and a principal object of the present invention comprehends the provision of an improved apparatus of this nature.

Further principal objects of the present invention include the provision of a simplified cutting and clamping mechanism wherein the parts are resiliently carried, guided and provided with a fine adjustment; the further provision of an improved cutting device constructed so that the movable or upper cutter may pass the feeding and pressing rollers as closely as possible; and the still further provision of an improved cutting device in which the upper or movable cutter is adjustable for wear and is made resiliently adjustable with respect to a lower cutter.

To the accomplishment of the foregoing and such other objects as may hereinafter appear, my invention consists in the elements and their relation one to the other, as hereinafter particularly described and sought to be defined in the claims, reference being had to the accompanying drawing which shows a preferred embodiment of my invention, and in which:

Fig. 1 is an elevational view of the apparatus of my invention with the upper cutting device detached, showing the same in one stage of operation,

Fig. 2 is a cross-sectional elevational view of the same,

Fig. 3 is a view similar to Fig. 1 with the parts shown in another stage of operation displaced one half of a cycle from that shown in Fig. 1,

Fig. 4 is an elevational cross-sectional view of the apparatus of Fig. 3, and

Figs. 5 and 6 are front and side elevational views respectively showing improvements in the upper cutting device of the apparatus.

Referring now more in detail to the drawings, the strip cutting and feeding apparatus comprises generally the cutting and clamping mechanism C which operates upon a strip of tipping material t fed therethrough to cut the same into small strips such as t', which latter are advanced for application to the cigarette paper strip c which moves between the feeding and presser rollers a and b respectively.

The cutting and clamping mechanism C comprises in the preferred embodiment of the invention an arm 8 oscillatably mounted on the bolt or stud 5 carried by a fixed part of the cigarette machine, the said arm forming a frame providing the feed table 11 for the mouthpiece or tipping material and a lower cutter or cutting device 7. Cooperating with the lower cutter 7 there is provided the complemental upper cutter 6 mounted on a movable support 14 in a manner described more in detail hereinafter, the cutters 6 and 7 forming in effect a pair of shears extending transversely across for clipping or cutting the tipping material t into the mouthpiece strips t'. For holding the severed mouthpiece strips, the mechanism

C further includes the clamping device 10 which is movable to and from the table 11 above the feeding plane thereof into and out of clamping engagement with the cut strips t'.

The operating means for the cutting and clamping devices comprises a continuously rotating shaft 3 carrying a crank disk 4 upon which crank pin 1 is fixed, the said crank pin pivotally carrying the cutting rod 2. To the rod 2 the upper cutter support 14 is attached and the said rod extends below the feeding plane of the table 11 and is slidably mounted in suitable guideways in the arm 8. In the operation of this construction upon rotation of the shaft 3 the arm 8 will be oscillated about the shaft or stub 5 and the rod 2 will be given an ascending and descending reciprocatory motion for operating the upper cutter 6 relatively to the lower cutter for severing the mouthpiece strip t and for effecting a feeding movement of the table 11 to feed the cut strips t' to the rollers a and b.

To effect an efficient coordination between the cutting and clamping mechanism C and the feeding and presser rollers a and b, it is highly desirable as heretofore stated to produce a compact organization of the parts, and more specifically to construct and coordinate the operating means for the clamping device so that the latter may be brought closely to said rollers. To accomplish this the clamping device 10 is made L shaped or inverted U shaped, and is made to comprise the preferably profiled transverse clamping arm 10 and one or more operating arms 10^a suitably guided below the feeding plane of the table 11 by guideways in the table 11 and in a transverse actuating member 9 connected to the connecting rod 2. The clamping device 10 is normally resiliently urged into engagement with the cut strips on the table 11 by means of the compression springs 12 surrounding the arms 10^a, one end of the springs engaging the table 11 and the other end engaging nuts 13 adjustable on the arms 10^a for effecting a fine adjustment of the tension of the clamping device. Upon rotation of the shaft 3 the clamping device 10 will be moved from the descended or clamping position shown in Figs. 1 and 2 to the ascended or releasing position shown in Figs. 3 and 4, the actuating transverse member 9 engaging the nuts 13 and operating the clamping device against the pressure of the springs 12. With this structure the transverse clamping arm 10 may be desirably brought closely to the line of contact of the two rollers a and b.

It is very advantageous, as heretofore pointed out, that the cut-off knife or upper cutter pass the feeding and pressing rollers as closely as possible, and to this end the upper cutting device 6 (see particularly Figs. 2, 5 and 6) is resiliently mounted on the support 14, and in the preferred construction I provide a flat spring 15 secured or attached to the support 14 by means of the screws 19, the said flat spring carrying the upper cutter 6 by means of the screws 17. Preferably to adjust for wear, the upper cutter is adjustably mounted in the spring 15, the latter being to this end provided with the slots 16 adjustably receiving the screws 17. For effecting a lateral adjustment of the upper cutter with respect to the lower cutter, I provide the set screws 18 adjustable in the support 14 and operative upon the flat spring 15 for effecting a resilient lateral adjustment. The elastic mounting of the knife 6 produces a clean cut of the mouthpiece or tip forming material, and permits the knife to pass more closely to the feeding and pressing rollers a and b.

The operation of the cutting and clamping apparatus of my invention will in the main be apparent from the above detailed description thereof. It will be further understood that while I have shown my device in the preferred form, many modifications and changes may be made in the structure disclosed without departing from the spirit of the invention, defined in the following claims.

I claim:

1. An apparatus for cutting mouthpiece or tip forming material into strips and for feeding the same for application to a strip of cigarette paper comprising a feed table for the tip forming material, a cutting device for cutting the material into strips, means for feeding the cut strips for application to the cigarette paper, a clamping device movable to and from said table above the feeding plane thereof, and mechanism including an actuating means mounted below the said feeding plane for operating the clamping device and springs between the clamping device and the actuating means under compression when the clamp is riveted.

2. An appartus for cutting mouthpiece or tip forming material into strips for application to a strip of cigarette paper comprising means for guiding the feed of the tip forming material, a cutting device for cutting the material into strips, a clamping device in advance of said cutting device movable to and from the tip forming material and above the feeding plane thereof, mechanism including an actuating means mounted below the said feeding plane for operating the clamping device, and a resilient connection between the device and the actuating means under compression when the device is in operation.

3. An apparatus for cutting mouthpiece

or tip forming material into strips for application to a strip of cigarette paper comprising a frame providing a feed table for the tip forming material and a cutting device, a complemental cutting device, a clamping device including a U shaped piece providing a transverse clamp arm movable to and from said table and above the feeding plane thereof and two arms guided in said frame and extending below the said table, resilient means for normally urging the clamping device against said table and operating means for the clamping device including a crank, a connecting rod operated thereby and a transverse member connected to the rod and arranged for engaging the clamping device below the table and for moving the same against the pressure of said resilient means.

4. An apparatus for cutting mouthpiece or tip forming material into strips for application to a strip of cigarette paper comprising a table oscillatably mounted for feeding the tip forming material, a cutting device, a clamping device, said devices being slidably mounted for movement above said table and mechanism for operating the table and said cutting devices including an actuating means for the clamping device arranged below the table and a spring between the actuating means and the clamping device under compression when the said device is inoperative.

5. An apparatus for cutting mouthpiece or tip forming material into strips for application to a strip of cigarette paper comprising a frame providing a feed table for the tip forming material and a cutting device, a resiliently mounted complemental cutting device and a clamping device movable to and from said table above the feeding plane thereof, mechanism for moving the complemental cutting device and clamping device including an actuating means for the clamping device mounted below the said feeding plane and a spring between the actuating means and the clamping device under compression when the device is inoperative.

6. A cutting mechanism for cigarette mouthpiece or tip forming material comprising a lower cutter, a complementary upper cutter and means resiliently mounting the upper cutter for movement laterally relatively to the lower cutter, said means including a support and a flat spring carrying the upper cutter attached to the support.

7. In a machine of the class described, a cutting device comprising cutters having cutting edges and mounted to move said edges past each other, a resilient support for one of the cutters for permitting movement of the cutting edge thereof laterally with respect to the cutting edge of the other cutter, and means for limiting the movement of said cutter toward the other cutter.

8. In a machine of the class described, a cutting device comprising cutters having cutting edges and mounted to move said edges past each other, a resilient support for one of the cutters for permitting movement of the cutting edge thereof laterally with respect to the cutting edge of the other cutter, means for limiting the movement of said cutter toward the other cutter, and means for adjusting one of the cutters with respect to the other to vary the distance traveled by the cutting edges toward and from each other.

Signed at Dresden, Germany, this fifth day of December, A. D. 1923.

EWALD KOERNER.