May 25, 1937. V. LORENTZ 2,081,460

TOBACCO CUTTING DEVICE

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Fig. 1

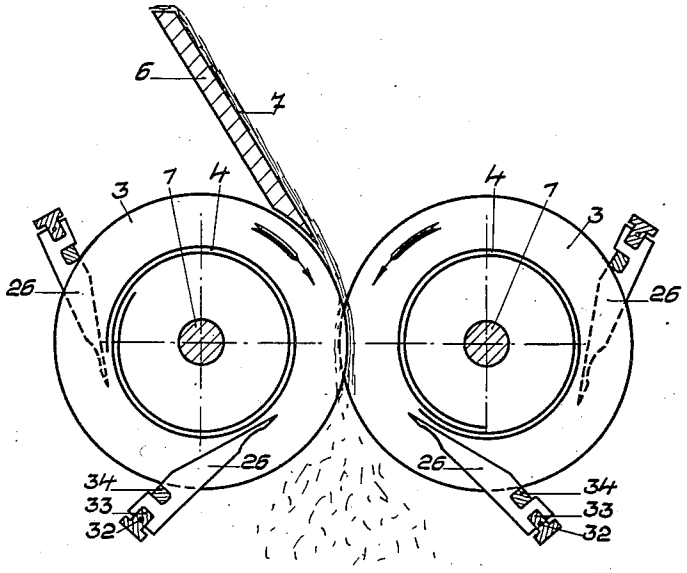
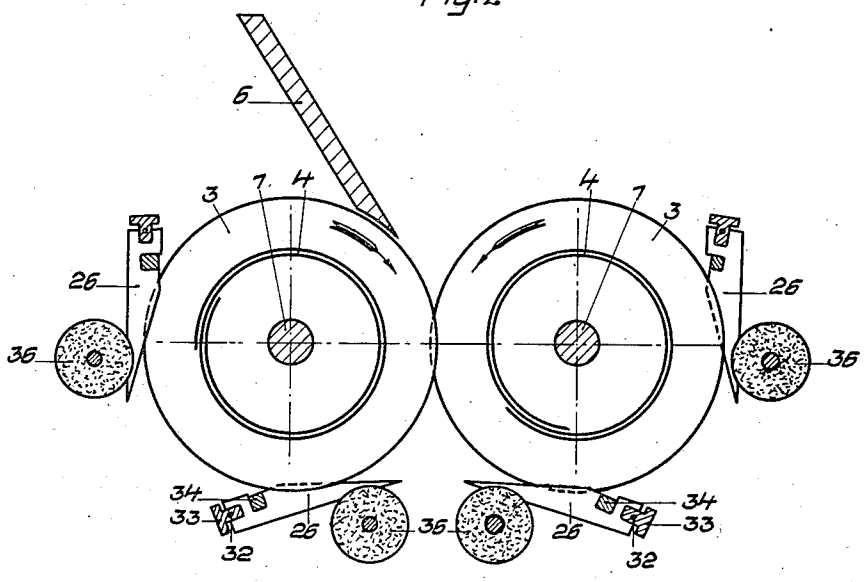


Fig. 2



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Fig. 3

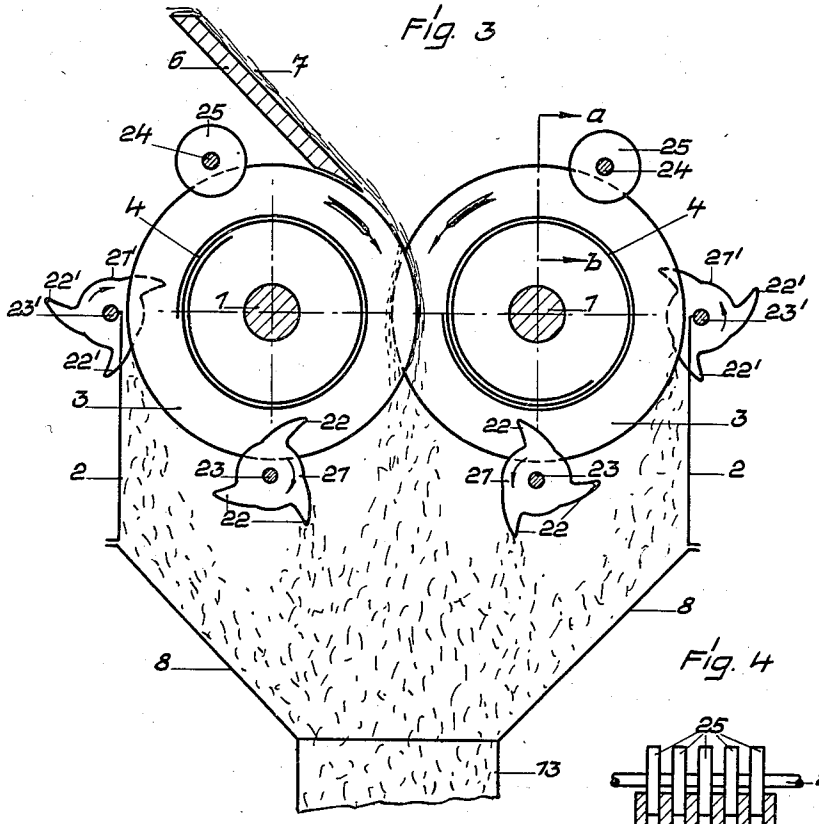


Fig. 4

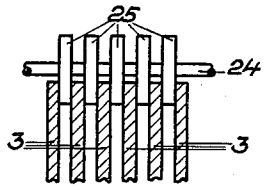


Fig. 5

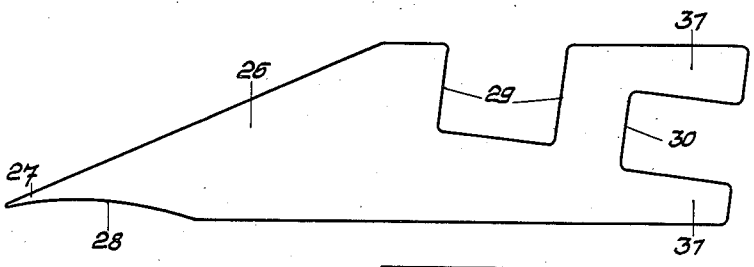
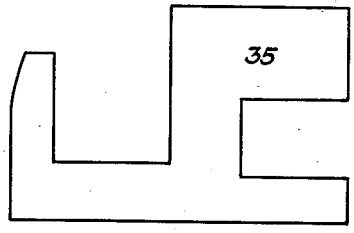


Fig. 6



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TOBACCO CUTTING DEVICE

Valentin Lorentz, Dolzschen, near Dresden, Germany

Application December 15, 1934, Serial No. 757,649
In Germany November 26, 1932

8 Claims. (Cl. 146—122)

This invention relates to a tobacco cutting device with rotating cutter blocks whose knives engage one another.

The knives used in cutting devices of this type are known to be quite thin, so that the spaces between them are correspondingly narrow and often filled up with tobacco fibers after short operation, which leads to the clogging of the entire cutting device and prevents further working. It was further known to employ clearers for the tobacco, but they were arranged in one row, which caused excessive heating of the knives and premature wear.

The invention provides a tobacco cutting device which completely eliminates the defects mentioned above by distributing the clearers or strippers over various parts of the circumference of the cutter discs.

It is of particular advantage if the strippers are provided directly behind the stripping edge with a recess or inward bulge which facilitates the lifting of the tobacco fibers. It is further advisable to construct the strippers disposed below the cutting point as rotary clearers and to provide them with a suitable drive.

As the strippers engaging between the knives are subjected to considerable wear on the stripping edge during operation of the cutting device, the invention provides suitable grinding means for the strippers or clearers, which cooperate with the latter outside the range of the cutting members.

To make the grinding of the clearers possible they can be taken or swung out of the cutting device. The clearers or strippers are preferably disposed on a common carrier which is movably arranged in the frame of the cutting device, and they are so closely adjacent to the knives or so dimensioned at their bearings that they will partly engage the gaps between the knives during the cutting process even if in swung-out position.

The clearers or the carrying device for them are advantageously so constructed that they can be exchanged independently of one another. For this purpose the carrier for the clearers comprises a fixed and a removable holder. The fixed holder is constructed so that the strippers can be moved with their shafts over and beyond the fixed holder, whereas the removable holder can be pressed against the shafts for direct cooperation therewith or for engaging corresponding recesses therein. The removable holder serves also as protection against withdrawal of the clearers from the fixed holder.

To insure correct spacing of the clearers, suitable distance members may be employed and disposed between the individual clearers on the carriers.

By way of example, the invention is illustrated in the accompanying drawings, in which Figure 1 is a diagrammatic side view of the cutting device, partly in section; Fig. 2, a similar view as Fig. 1, wherein the strippers are shown in grinding position; Fig. 3, a diagram of a modified construction of a cutting device; Fig. 4, a section of the upper part of a cutter block on the line *a—b*, of Fig. 3; Figs. 5 and 6 are detail views showing, respectively, the clearers and the intermediate discs between them.

Referring to the drawings, and particularly to Fig. 1, the shafts 1 are displaceably and adjustably arranged in the casing 2 and carry the circular knives 3 separated from each other by the shims or fillers 4. Below the cutting point clearers 26 are provided, the construction of which will be described later on and which engage between the knives to remove the tobacco fibers from the gaps between the knives. Above the cutting point suitable guiding surfaces 6 are provided on which the tobacco leaves, as indicated in Fig. 1, pass in a thin layer to the cutting station. Fig. 3 shows that the shafts 1 are arranged within the casing 2.

The lower part of the casing 2 is formed by a funnel 8 which extends into a discharge piping 13 (Fig. 3).

In the device shown in Figs. 1 and 2 a clearer of special construction and shown in detail again in Fig. 5 is used.

The clearers comprise in the main a plate disc 26 fitted at its front end with a nose 27. Directly behind the nose 27 the clearer 26 possesses a recess 28 for facilitating the discharge of the fibers of cut tobacco. In its base the clearer 26 has a recess 29 and another recess 30, the latter being formed between the two projections 31. The recesses 29 and 30 and the projections 31 serve for properly securing the clearers to their carriers. In the casing 2 of the cutting device carriers 33 are movably disposed about the pin 32. The clearers 26 are pushed onto these carriers 33 by means of the recesses 30. There is further a removable holder 34 which, after all clearers have been brought upon the holder 33, is introduced into the recess 29 and then suitably secured in the machine frame. In this way the clearers 26 are immovably fixed in position. The distance between the various clearers is maintained by suit-

able intermediate members **35** shown in Fig. 6 and provided with recesses corresponding to those of the clearers **26**.

In the construction of the machine according to Figs. 1 and 2 the clearers **26** are staggered relative to one another by means of a corresponding number of carriers **33** and **34**. On a level with the clearers **26** suitable grinding rollers **36** are arranged which are rotated by a drive, not shown. The grinding rollers **36** serve for grinding the recess **28** of the clearers **26**. This recess must always have sharp edges, as otherwise the tobacco fibers will pass between the clearer and the knife and cause jamming of the machine.

To make possible the grinding of the clearers **26** the carriers **33, 34** of the clearers **26** are swingingly or rotatably arranged in the machine frame. In the construction shown in Fig. 1 the clearers are in working position, i. e., in the position at which cutting takes place. In Fig. 2, however, the clearers are shown in swung-out position, i. e., in the position at which they are reground by the discs **36**. As a comparison of the two figures will disclose, the clearers **26** have been swung out from the knives **3** through a certain angle for carrying out the grinding process, but they are nevertheless so arranged and shaped that they partly engage between the knives to insure proper engagement between the knives when they are turned back.

In the construction according to Fig. 3 the clearers are rotatable and consist mainly of the discs **21** fitted with appropriate noses or grippers **22**. The clearers **21, 22** rest below the cutting point on suitable shafts **23** and are moved in the direction of the arrow by a drive, not shown, whereas the clearers **21', 22'** operate above the cutting point or on a level therewith on the outer circumference of the knives **3**. The clearers **21', 22'** are located on suitable shafts **23'** and are moved in the direction of the arrow by a drive, not shown. On a level with the place where the tobacco leaves are inserted the intermediate discs **25** are loosely displaceably and freely rotatably disposed on the shafts **24** and engage between the knives **3** for maintaining the correct spacing thereof. In Fig. 4 the arrangement of the intermediate discs **25** is shown again in detail, the clearers **21** or **21'** being positioned so that while the clearer **21** works in a gap below the cutting station the clearer **21'** operating in the adjacent gap is displaced 90° and thus works on a level with the cutting station. This staggered arrangement of the clearers prevents excessive wear of the knives or clearers or clamping of the knife discs.

Various other forms of the device are possible. For example, the clearers may have another shape or the knife discs may be arranged or driven differently.

I claim:

1. A tobacco cutting device, comprising rotary cutter blocks formed of thin knife discs alternately disposed with intermediate members on a common shaft, cleaning members engaging the gaps between the individual knife discs, said cleaning members being distributed over different parts of the circumference of the knife discs, and grinding means for said cleaning members, said cleaning members cooperating with said grinding means outside the range of the knife discs.

2. A tobacco cutting device according to claim 1, comprising a common carrier for the cleaning means rotatably arranged in the machine frame.

3. A tobacco cutting device, comprising rotary cutter blocks formed of thin knife discs alternately disposed with intermediate members on a common shaft, cleaning members engaging the gaps between the individual knife discs, said cleaning members being distributed over different parts of the circumference of the knife discs, grinding means for said cleaning members, said cleaning members cooperating with said grinding means outside the range of the knife discs, means for adjusting the cleaning members for grinding, and a common carrier for the cleaning means swingingly arranged in the machine frame, said carrier being located so closely to the knife discs that said cleaning members extend partly between the discs in grinding position.

4. A tobacco cutting device, comprising rotary cutter blocks formed of thin knife discs alternately disposed with intermediate members on a common shaft, cleaning members engaging the gaps between the individual knife discs, said cleaning members being distributed over different parts of the circumference of the knife discs, grinding means for said cleaning members, said cleaning members cooperating with said grinding means outside the range of the knife discs, means for adjusting the cleaning members for grinding, and a common carrier for the cleaning means swingingly arranged in the machine frame, said carrier being located so closely to the knife discs that said cleaning members extend partly between the discs in grinding position and comprising a fixed and a removable holder to permit exchange of the cleaning members independently of one another.

5. A tobacco cutting device according to claim 4, wherein the removable holder secures the strippers to prevent their removal from the fixed holder.

6. A tobacco cutting device according to claim 4, wherein a stationary and a removable holder bar are provided in the machine frame below the circular knives and the strippers have projections forming recesses for cooperation with said bars.

7. A tobacco cutting device according to claim 4, wherein the holders are of rectangular cross section and the projections of the strippers form corresponding rectangular recesses.

8. A tobacco cutting device according to claim 4, wherein between the strippers distance pieces are provided adapted to the form of the lower part of the strippers and disposed with the strippers on a common carrier.

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