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DEVICE IN CIGAR MACHINES FOR REMOVING TOBACCO WASTE

Filed June 10, 1965

2 Sheets-Sheet 1

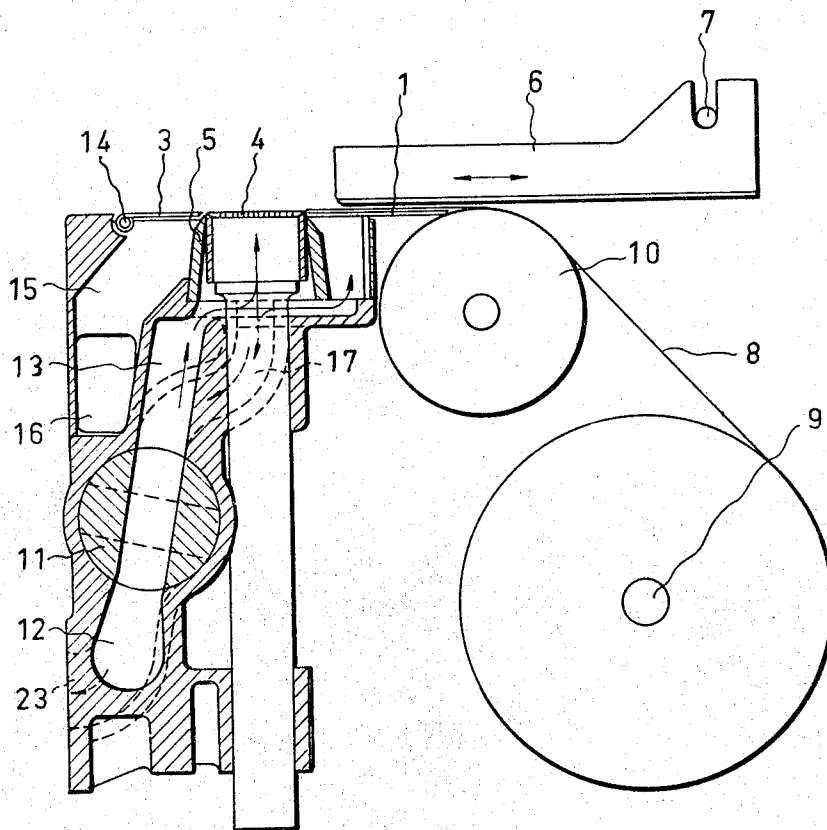


Fig. 1

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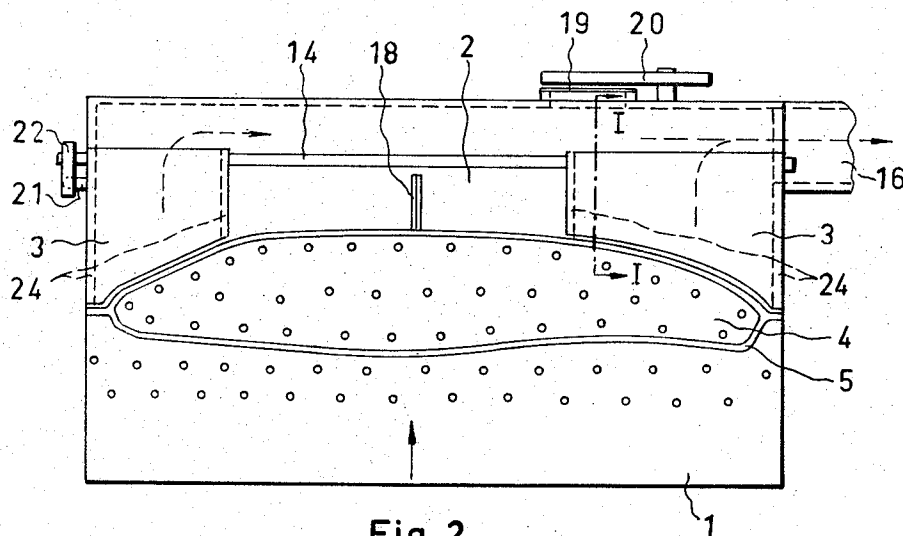


Fig. 2

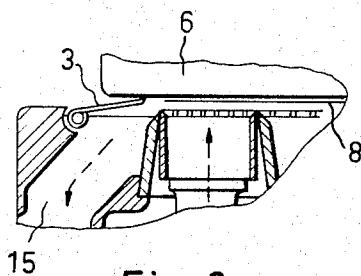


Fig. 3

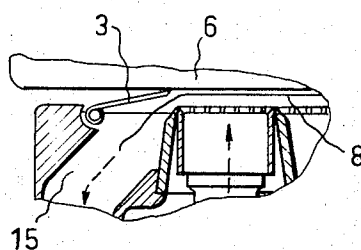


Fig. 4

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DEVICE IN CIGAR MACHINES FOR REMOVING TOBACCO WASTE

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8,536/64

5 Claims. (Cl. 83—100)

ABSTRACT OF THE DISCLOSURE

A device in cigar machines for removing tobacco waste occurring at the end portion of a strip of tobacco web material when cutting wrappers or binders from said strip, comprising a cutting die, a reciprocating strip carrier, at least one pivotable plate at the farther edge of the cutting die, in relation to the feeding direction of the strip, which plate in a non-inclined position lies substantially in the same plane as the cutting die and completely or almost completely closes an underlying stationary suction chamber and in inclined position forms a slot through which portions of the tobacco strip projecting over the cutting die are drawn by suction during the feeding motion of the strip.

The present invention relates to a device in cigar machines for removing tobacco waste occurring at the end portion of a strip of tobacco web material when cutting wrapper or binders from said strip, whereby the strip is advanced stepwise by a feeding arrangement over a cutting bed provided with perforations, in which bed a cutting die having a width corresponding to the width of the strip is arranged.

It is previously known to remove such tobacco waste by using a perforated cutting bed, which together with underlying suction chambers is divided into two separate portions divided by a cutting die, of which one farther portion of the cutting bed, in relation to the feeding direction, is swung upwards and outwards from the cutting die after each cutting operation and thereafter back to its starting position, whereby a regulatable valve arrangement synchronized with the swinging movement, eliminates the suction action of a suction pipe through the perforations of the pivotable portion, at least when this portion is fully swung upwards and outwards. Tobacco waste is thus sucked fast onto the pivotable portion and ejected by the swinging movement of said portion. In many cases the tobacco has a tendency to adhere to the pivotable portion, which is why as a rule it is necessary to blow air, in conjunction with the swinging movement, through the perforations so that the tobacco waste is positively loosened from the pivotable portion. Despite this, in many cases, and particularly when using types of tobacco strips intended for wrappers, the tobacco waste has a strong tendency to adhere to the pivotable portion, which means that the machine must often be stopped and the tobacco waste removed by hand. Furthermore removal from the machine of the tobacco waste ejected by the pivotable portion has given rise to problems. The object of the present invention is to provide an effective removal of tobacco waste from the cutting bed as well as from the machine and this has been effected in that at least one pivotably mounted plate or shutter is arranged at the farther edge of the cutting die in relation to the feeding direction, which plate in a non-inclined position lies substantially in the same plane as the cutting bed and completely, or almost completely, closes an underlying stationary suction chamber, and in an inclined position forms together with the edge facing the cutting

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die a slot through which the portions of tobacco projecting over the edge of the cutting die during the advance of the tobacco strip, are sucked into the suction chamber and removed therefrom, subsequent to the closing of the plate and cutting of said strip, through a suction pipe connected to the suction chamber. The portions of the tobacco strip projecting over the cutting die thus hang free in the air stream flowing into the suction chamber. The only adhesion which can occur subsequent to the cutting operation is an adhesion to the cutting die and its knife and to the wrapper or binder. On closing the plate, however, a heavy vacuum arises in the suction chamber, which very forcefully draws in the tobacco waste into the suction chamber whereafter the tobacco waste is immediately removed from the machine through the suction pipe. To ensure that the tobacco waste shall be positively sucked into the slot, the plate is advantageously so designed and mounted that it abuts, substantially along the whole of its free edge, the under surface of a carrier for the tobacco strip, which carrier is movable in a reciprocatory fashion above the cutting bed.

The invention is illustrated in the attached drawings by an embodiment of the invention.

FIGURE 1 shows the machine in cross section taken through the line I—I in FIGURE 2,

FIGURE 2 is a plan view of the machine, and

FIGURES 3 and 4 diagrammatically show the position of the pivotable plate in two different working positions.

The cutting bed consists of a stationary portion, namely a perforated plate 1 and a nonperforated plate 2, and a movable portion, namely two nonperforated plates 3 and a perforated cutting die 4, which is surrounded by a knife blade 5 corresponding to the contours of the wrapper or binder. A strip carrier 6 provided with a flat under-surface is arranged to be moved backwards and forwards by means of an actuating lever 7. A tobacco strip 8, wound on a spool 9 runs over a roller 10 to the cutting bed. FIGURE 1 shows a starting position, where the free end of the strip 8 after a cutting operation rests on the plate 1. The strip carrier is moved to the left in FIGURE 1 for advancing the strip until leading edge of the carrier passes the edge of the strip. A valve slide 11 is then actuated and delivers compressed air from a compressed air pipe 12 through the channel 13 to the under-surface of the plate 1 and the cutting die 4, so that the air flowing out through the perforations lifts the free end of the tobacco strip 8 into abutment with the under-surface of the strip carrier 6. The strip, by means of friction against the under-surface of the carrier, is transported by said carrier to the position shown in FIGURE 3, where the plates 3 secured to a rotatable shaft 14, are pivoted upwards towards the under-surface of the carrier 6. A chamber 15 is situated under the plates 3, which chamber is connected to a suction pipe 16 connected with the suction side of a fan, not shown. The plates 3, when in the non-inclined position, completely close the chamber 15 with the exception of a small slit around the upper edge 24 of said chamber. In the inclined position air is sucked into the chamber 15 and upon continuous movement of the carrier to the position shown in FIGURE 4 the portions of the free end of the tobacco strip protruding over the cutting die 4 are sucked into the now wide slots between the edges of the plates 3 and the cutting die 4. By switching over the valve slide 11, the undersurfaces of the plate 1 and cutting die 4 are now connected to a suction pipe 23 via a channel 17, which in FIGURE 1 is situated in a plane behind the channel 13. The free end of the strip 8 is thereby sucked fast against the plate 1 and the cutting die 4, whereafter cutting of the wrapper or binder can be carried out in the usual manner. The tobacco waste, which in this case comprises two substantially triangular sections, is normally sucked into the suction

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chamber 15 as soon as it is released from the wrapper or binder on cutting. Prior to the cutting operation the carrier 6 is returned to its start position and the plates 3 are swung down to the position shown in FIGURE 1. If for some reasons subsequent to the cutting operation tobacco waste should adhere to the cutting die 4, the knife 5 or the cut strip, said tobacco waste is thrown loose on the downward swinging of the plates 3 due to the strong vacuum which is then built up in the chamber 15.

If the tobacco strip should happen to be advanced so far that the centre portion of its edge passes the farthest edge of the knife 5, a continuous strip of tobacco waste is formed during the cutting. To assure positive removal of such tobacco waste, an upwardly projecting knife 18 is suitably mounted on the plate 2 at right angles to the same and parallel with the feed direction of the strip 8, so that upon stretching of the continuous strip of tobacco waste it is cut into two sections which can be drawn into the chamber 15. Instead of two pivoted plates 3 and a stationary plate 2, the machine can obviously be provided with only one pivoted plate which might extend along the whole width of the cutting die, or more than two plates depending on the shape of the wrapper or binder.

It is an advantage to increase the suction action of the suction chamber 15 in conjunction with the closing of the plates 3 and for this purpose the chamber 15 is provided with a valve in the form of an opening 19 and a rotatably mounted disc 20 for example, through which opening 19 air can flow into the chamber 15 depending on the position of the disc 20. The disc 20 is actuated by the driving motor, not shown, of the machine so that the opening 19 is covered at that time immediately as or just before the plates 3 are swung downwards by means of an actuating lever 21 similarly actuated by the driving motor of the machine, which actuating lever actuates a lever arm 22 securely mounted on the shaft 14, and is uncovered when the plates are swung upwards.

The invention is naturally not restricted to the shown embodiment but can also be modified in a number of ways within the scope of the invention. Thus the arrangement for advancing the tobacco strip 8 can be designed in another way, for example it may have a perforated strip carrier, which in a usual way, by means of a suction effect, engages the end of the strip and moves the strip forwards to the cutting die, here however care must be taken that the portions of the strip to be drawn into the

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chamber 15 are not held fast by the carrier during the final phase of the feeding movement.

What is claimed is:

1. A device in cigar machines for removing tobacco waste occurring at the end portion of a strip of tobacco web material when cutting wrappers or binders from said strip, comprising a cutting bed, a cutting die in said cutting bed, a reciprocating strip carrier above said cutting bed adapted to feed the end portion of said strip to said cutting die after each cutting, a pivotable plate adjacent an edge of said cutting die, means for pivoting said plate, a stationary suction chamber under said plate, a suction pipe connected to said chamber, said plate substantially closing said chamber when in a noninclined position lying substantially in the same plane as said cutting bed and when in inclined position forms, with its edge facing said cutting die, a slot through which portions of the tobacco strip projecting over the cutting die during the feeding motion of the strip are drawn by suction into said suction chamber from which they are automatically removed, subsequent to the cutting of said strip, through said suction pipe.

2. A device as set forth in claim 1 wherein said plate is located at the farther edge of said cutting die in relation to the feeding direction of said strip.

3. A device as claimed in claim 1, wherein said plate in its inclined position along substantially the whole of its elevated edge abuts the under surface of said strip carrier.

4. A device as claimed in claim 1, wherein said suction chamber is connected to a valve device for regulating the suction force, said valve device being operated in synchronism with the pivoting movement of said plate.

5. A device as claimed in claim 1 wherein a pivoted plate is located at each end of said cutting die and a stationary portion of said cutting bed is located between said plates, said stationary portion having an upwardly projecting knife blade fastened on said stationary portion at right angles to said cutting bed and parallel to the feeding direction to cut in two a continuous strip of tobacco waste, which may occur on the stationary portion and said plates.

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