Dec. 20, 1938. V. LORENTZ 2,140,637

DEVICE FOR FEEDING TOBACCO LEAVES TO CUTTING MACHINES

Filed Oct. 11, 1934 2 Sheets-Sheet 1

Fig. 1

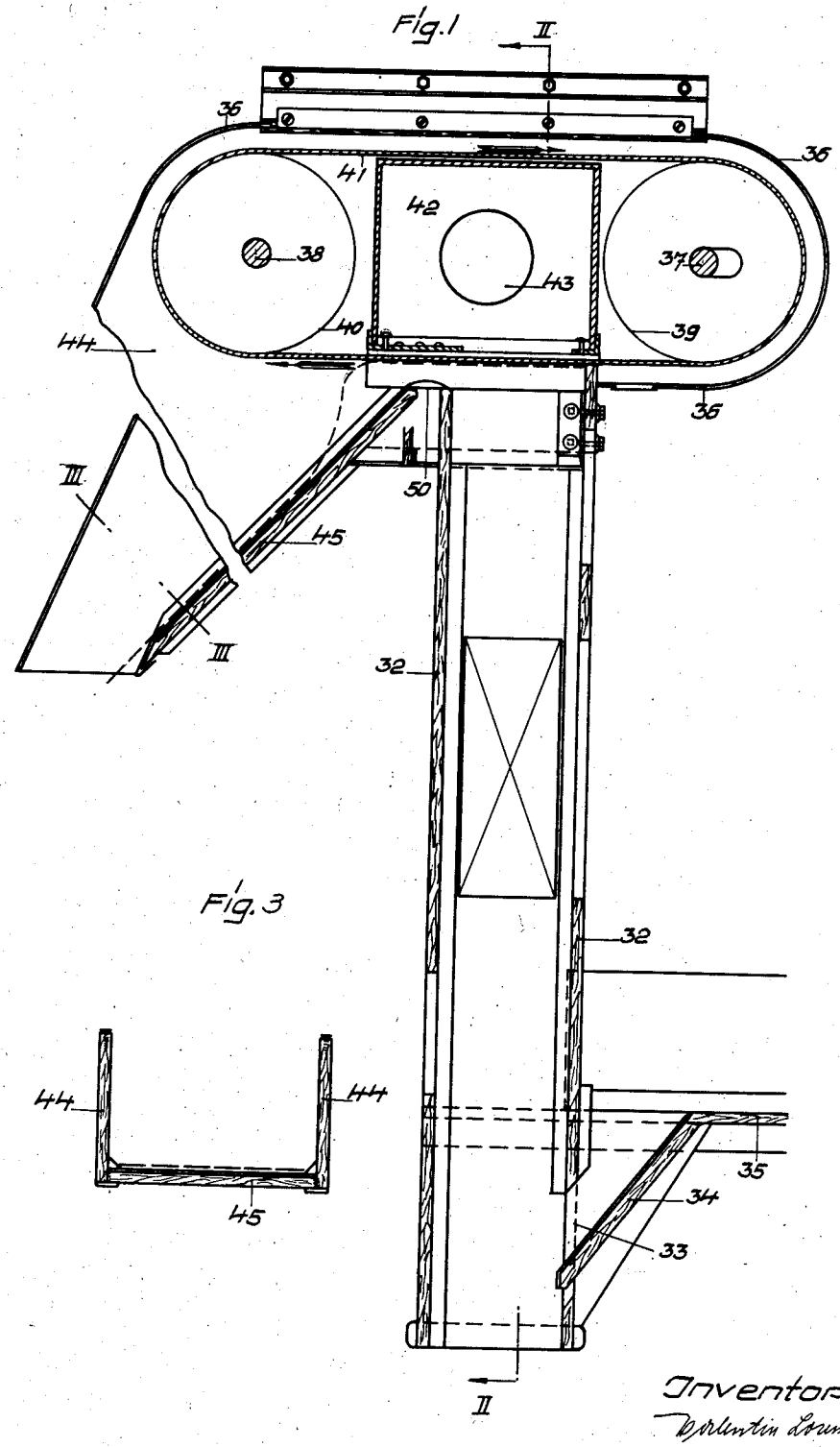


Fig. 3

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Fig. 2

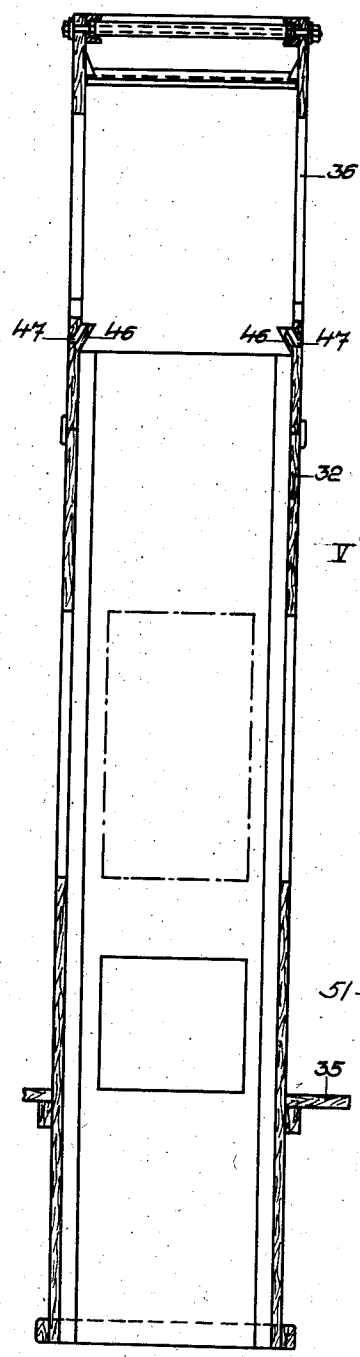


Fig. 4

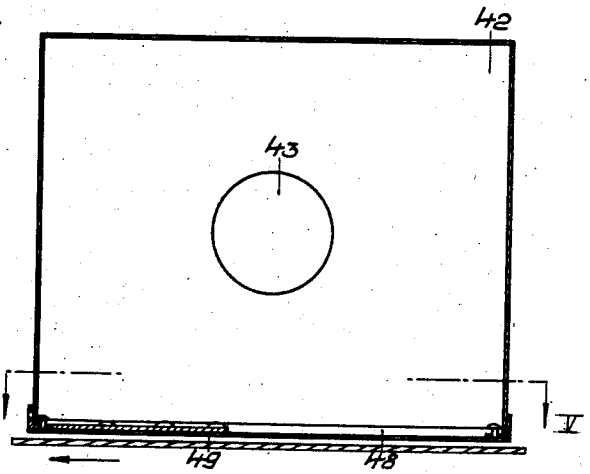
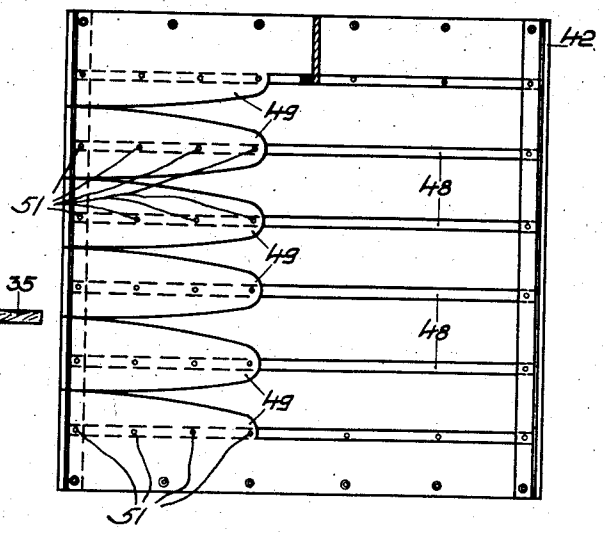


Fig. 5



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DEVICE FOR FEEDING TOBACCO LEAVES TO CUTTING MACHINES

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4 Claims. (Cl. 302—11)

This invention relates to a device for feeding tobacco leaves to cutting devices provided with rotating cutter blocks whose knives engage one another to carry out the cutting operation.

In the known feeding devices of this class the tobacco has to be conveyed by hand to the point of engagement of the knives and the cut tobacco must be manually removed from the cutting device. This working method involves the risk of permitting foreign substances, such as stones, nails, etc., often contained in leaf tobacco, to pass to the cutting station and to destroy the cutters. Furthermore, the dust produced during cutting is retained in the cut tobacco, whereby the quality of the final product is lowered.

Existing feeding devices are further open to the objection that several tobacco leaves together frequently pass to the cutting point, so that the individual leaves are compressed and the juice or volatile oils contained therein are pressed towards the outside of the leaves where the oils evaporate. This has a detrimental effect upon the aroma of the tobacco and renders the cut tobacco unsightly.

The invention eliminates all defects of known devices by providing a vertical conveying shaft or chamber for feeding the tobacco leaves to the cutting means. The conveying shaft receives the tobacco leaves and feeds them to a portion of a conveying means which is permeable to air and which holds the tobacco drawn to it by suction air, continuously passes the tobacco out of range of the induced draught or of the conveying shaft without requiring auxiliary means, such as locks, etc., and guides it over a pneumatic stripper directly into a space where atmoshpheric pressure prevails. The leaves are then preferably delivered to a chute which passes them in a thin layer or fleece to the cutting station.

The vertical conveying shaft has preferably a lateral inlet and, at the lower end, a corresponding opening for the separation of foreign substances and not properly loosened tobacco leaves.

To loosen or orderly arrange tobacco leaves adhering to the conveying means permeable to air, tongue-like adjustable coverings may be provided according to the invention for partly covering the conveying means.

By way of example, the invention is illustrated in the accompanying drawings, in which Figure 1 is a sectional view of a feeding device; Fig. 2, a section on the line II—II, of Fig. 1, with the conveying means permeable to air omitted; Fig. 3, a section on the line III—III, of Fig. 1; Fig. 4, a longitudinal section of the suction chamber inside the conveying means which is permeable to air; and Fig. 5, a section on the line V—V, of Fig. 4.

Referring to the drawings,

Figs. 1 to 5 show the tobacco feeding device. The construction comprises a vertical conveying shaft 32 with an opening 33 near its lower end, into which the hopper 34 for the tobacco opens. 35 is a tobacco charging table. The lower end of the conveying shaft 32 remains open to permit air to be drawn in and at the same time an outlet is provided for heavy matter, such as foreign substances or still cohering tobacco bundles. The member 32 terminates in a casing 36 in which the shafts 37, 38 are adjustable as to their relative distance and carry the guide rolls 39 and 40 over which an endless conveyor band 41 permeable to air is passed, which may also have suitable perforations, slots, bores, etc. for the passage of the suction air.

The conveyor 41 travels in the direction of the arrow in Fig. 1. Directly above the opening of the conveying shaft 32 between the band portions a suction chamber 42 is arranged which is at least as long as the width of the conveying shaft 32. The suction chamber 42 is open at its underside and is connected with a suction piping 43.

Below the rolls 40 the casing 36 is connected with a chute 45 provided with side walls 44, the connection being such that the suction chamber 42 projects with its front end beyond the first part of the chute 45 which leads to a cutting device, not shown.

Below the conveyor band 41 the side walls of the casing 36, directly at the point of entrance of the conveying shaft 32, are provided with ledges 46 the top edges of which extend under the lateral edges of the band 41 and contain the air inlet apertures 47. These apertures 47 permit additional air to be drawn in so as to permit the formation of a neutral zone at the edges of the band 41 to prevent tobacco from being aspirated at this place and thus from entering the suction chamber 42.

At the end of the suction chamber 42 the aspirated tobacco, owing to automatic interruption of the induced draught, is delivered in the form of a thin layer to the chute 45, the thin layer being indicated in Fig. 1 by a broken line.

The suction chamber 42 substantially consists of a casing connected with the suction piping 43 and open on the underside. The cross walls of the chamber 42 are connected at the underside by the cross braces 48 which extend in the direction of motion of the conveying member 41. At the delivery point for the tobacco tongue-like

covering plates 49 are displaceably disposed on the cross braces 48, as indicated in Fig. 5. The tongues 49 have a curviform shape and only partly cover the free spaces formed between the individual cross braces 48, the curved shape of the tongues insuring gradual loosening of the tobacco leaves adhering to the conveyor band 41. By displacement of the tongues 49 in conveying direction on the braces 48 the discharge point of the tobacco may be varied and the tobacco thus caused to pass earlier or later from the conveyor 41 to the slide 45. The tongues 49 are preferably displaced by a common adjusting mechanism.

Between the front wall of the conveying shaft 32 and the chute 45 a narrow air gap 50 is provided which permits the entrance of additional air and which serves for forming a thin layer of tobacco on the conveyor 41.

The tobacco leaves lying on the table 35 are fed through the hopper 34 and the opening 33 to the shaft 32 in which suction draught operates upwardly and attracts the loosened leaves, whilst the heavy tobacco parts or foreign matter drop out through the lower opening of the shaft 32. The tobacco is lifted by the conveying air current and thus passes up to the conveyor band 41 which is permeable to air and on which the tobacco leaves are formed into a thin layer which by the motion of the conveyor 41 is guided over the air gap 50 towards the chute 45.

The invention is not restricted to feeding tobacco leaves but can be applied to numerous other uses also.

I claim:

1. A device for feeding tobacco leaves in thin layers to a tobacco cutting machine, comprising a table for receiving the leaves, a chute for feeding the leaves to the cutting station, an endless substantially horizontal travelling apron above the table ending above said chute and a suction chamber arranged above the lower stretch of said apron for drawing the tobacco leaves from the table onto said apron and terminating above the opening of the chute receiving the leaves acted upon by said suction chamber.

2. In a device according to claim 1 a vertical open-ended shaft for feeding the leaves to the apron and a lateral inlet for the tobacco.

3. A device for feeding tobacco leaves in thin layers to a tobacco cutting machine, comprising a table for receiving the leaves, a chute for feeding the leaves to the cutting station, a vertical open-ended shaft with a lateral inlet near said table for the tobacco, an endless substantially horizontal travelling apron above the upper end of the shaft, a suction chamber above the lower stretch of said apron, said chamber subdividing the length of said apron into a suction zone above the shaft and a neutral zone above said chute into which the leaves are discharged and means for reducing suction on the tobacco approaching the delivery point.

4. A device according to claim 3, wherein the means for reducing suction comprise tapering tongues.

VALENTIN LORENTZ.