The present invention relates to a device for conveying cut tobacco to cigarette-making machines.

5 The device according to the invention insures absolutely automatic feeding of the tobacco to the spreader of the machine, the tobacco being automatically conveyed by suction and automatically and uniformly distributed on the spreader. This is effected by sucking the tobacco from distributing tables, which are separated from the machine and located at any distance above or below thereof, into a suction chamber positioned above the spreader of the machine, whence it drops by its own weight and the pushing action of the air pressure on the spreader of the machine at the end of the suction period. The tobacco is placed on special distributing tables disposed at any position and distance relative to the machine. The exhaust catches the tobacco anywhere, and the suction chamber above the distributor of the machine is subdivided by a sieve, a piece of fabric or a packing medium permeable to air so that the tobacco is sucked up to the sieve from which it drops down at the end of the suction periods.

20 The outlet opening of the suction chamber is shut off by a flap actuated by the exhaust by being aspirated thereby. At the end of a suction period the flap is opened by its own weight, the dropping tobacco, and the air pressure following the latter. To insure uniform pneumatic feeding of tobacco to the spreader of the machine, the suction chamber extends over the entire width of the spreader, whereby automatic uniform distribution of the tobacco is effected. In case of several devices, the suction chambers above the spreaders of the machines are each connected with a charging device for tobacco and with a common suction piping.

The device may be operated so that the current of suction air leading to the various reservoirs is interrupted alternately. If a continuously working suction current is to be employed and the tobacco thus to be removed from a space representing a permanent vacuum, the suction chamber is connected with an additional chamber adapted to alternately communicate with the suction chamber, the closing device being actuated by the exhaust.

The device can be connected to all sorts of cigarette-making machines, one form of it being diagrammatically shown in the accompanying drawings, in which Figure 1 is a side view of the suction chamber with the spreader; Fig. 2, a diagrammatic top view of the device; Fig. 3, a front view of the spreader and suction chamber; Fig. 4, a diagrammatic top view of the arrangement in case of a plurality of machines; and Figs. 5 and 6 are views of the suction chambers in continuously operating suction currents.

Referring to the drawings, 1, 1’, 1” are the cigarette-making machines provided with the spreaders 2, 2’, 2”. The tobacco is placed on the special distributing tables 3, 3’, 3” by suction pipes 4, 4’, 4” lead to the suction chambers or reservoirs 5, 5’, 5” disposed above the spreaders. From these suction chambers the pipes 6, 6’, 6” lead to the common suction piping 17 and thence to the suction fan 7. In the suction pipes 6, 6’, 6” the throttle valves 8, 8’, 8” are rotatably arranged and brought into closing position by means of the springs 9. The throttle valves 8, 8’, 8” carry on their axes the levers 10 connected with the operating levers 12, 12’, 12” on the distributing tables by the pulley devices 11, 11’, 11”.

The suction chambers are subdivided by means of the sieves 13, filters, widths of fabric or other means permeable to air acting as a separator and having a discharge opening 14 in front of which a rotatable flap is positioned bearing the reference numeral 15 and adapted to fully close the openings 14. The width of the reservoirs 5 (Fig. 3) corresponds to that of the spreaders 2. In this way uniform pneumatic supply of the tobacco is insured.

The device functions as follows:

The suction fan 7 sucks up air through the piping 17 from the piping 6. As soon as one of the valves 8 is opened by operating the corresponding lever 12, the exhaust draft can reach the distributing table 3 through the suction chamber 5 and the pipe 4 to suck up the cut tobacco which will accumulate in front of the sieve 13. Simultaneously, the flap 15 was aspirated by the exhaust and closed the opening in front of the discharge funnel 14. In this manner the exhaust has been utilized to aspirate the tobacco.

If the suction period is interrupted by pressing back the lever 12 and closing the valve 8, the tobacco will drop from the sieve 13 through the discharge funnel 14 by operating the lever 12. The device may be of an electrical or mechanical type, and the distributing tables may be disposed on a higher or lower level than the cigarette-
making machines. The pipes 4 may run through several stories, and a plurality of devices according to the invention may be arranged parallel or in series and operated by a common mechanism which controls the exhaust for the various units. The tobacco is conveyed perfectly automatically. The advantage afforded by the employment of several machines is that each machine may be charged with a different kind of tobacco by a common suction piping. Furthermore, each machine may be charged independently of all others, notwithstanding the common suction piping, so all or only a few units may be supplied with tobacco at the same time.

If the valves 8 are dispensed with to produce a continuously operating air current, the reservoir 5 may have the shape shown in Figs. 5 and 6. In this case, the reservoir 5 is connected with an additional reservoir 18 which can be closed by the flap 19 which is pivoted at 20, the suction chamber 5 and the chamber 18 being interconnected by a pipe or duct 21 containing a regulating device, such as a two-way cock or valve 22 whence a duct 23 leads to the chamber 18. 24 is the tobacco.

The mode of action of this arrangement is as follows:

The exhaust continually removes the air from the chamber 5 and thus from the supply pipes 4. Owing to the exhaust, the flap 15 is aspirated and closes the outlet opening of the space 5 (Fig. 5). The tobacco 24 caught by the filter 13 collects in the lower portion of the chamber 5. The chamber 18, by means of the regulating cock 22 and the duct 23, is in communication with the atmosphere so that the flap 19 hangs down and releases the outlet opening of the chamber 18. If the regulating cock is turned into the position shown in Fig. 6, the chamber 18 is brought into communication with the suction chamber 5 and the flags 15 is aspirated. Since the same vacuum pervails now in the chamber 16 and the space 5, the flap 15 will open (Fig. 6) and the tobacco drop into the lowest portion of the chamber 18. If the regulating cock 22 is returned again into the position shown in Fig. 5, the flap 15 is aspirated again and the chamber 5 closed, while the flap 19 will be opened by its own weight and that of the dropping tobacco 24 which strikes the spreader 2. During this entire time the chamber 5 maintained a vacuum, i.e., the suction current in the piping 8 was not interrupted.

1. A device for conveying cut tobacco to the spreaders of cigarette-making machines, comprising separate distributing tables arranged beside the machines at any distance therefrom, a suction chamber with an outlet disposed above each spreader, exhaust-actuated means for closing the said outlets of the suction chamber, a sievelike separator in the said suction chambers, an exhaustor, suction pipes between the distributing tables and the said suction chambers, a suction pipe for the said exhaustor, connecting pipes between the suction chambers and the suction pipe for said exhaustor, and a regulating device in each of the said connecting pipes for interrupting the suction of air and influencing the said closing means of the said suction chambers.

2. In a device of the class described a suction chamber having two separate compartments, each of the said compartments having an outlet and exhaust-actuated flap before the outlet, a suction pipe for the first of the two compartments, a connecting pipe between the two compartments, and a regulating device in the said connecting pipe, the said regulating device connecting the second with the first compartment or the atmosphere.

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