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CIGARETTE MAKING MACHINES

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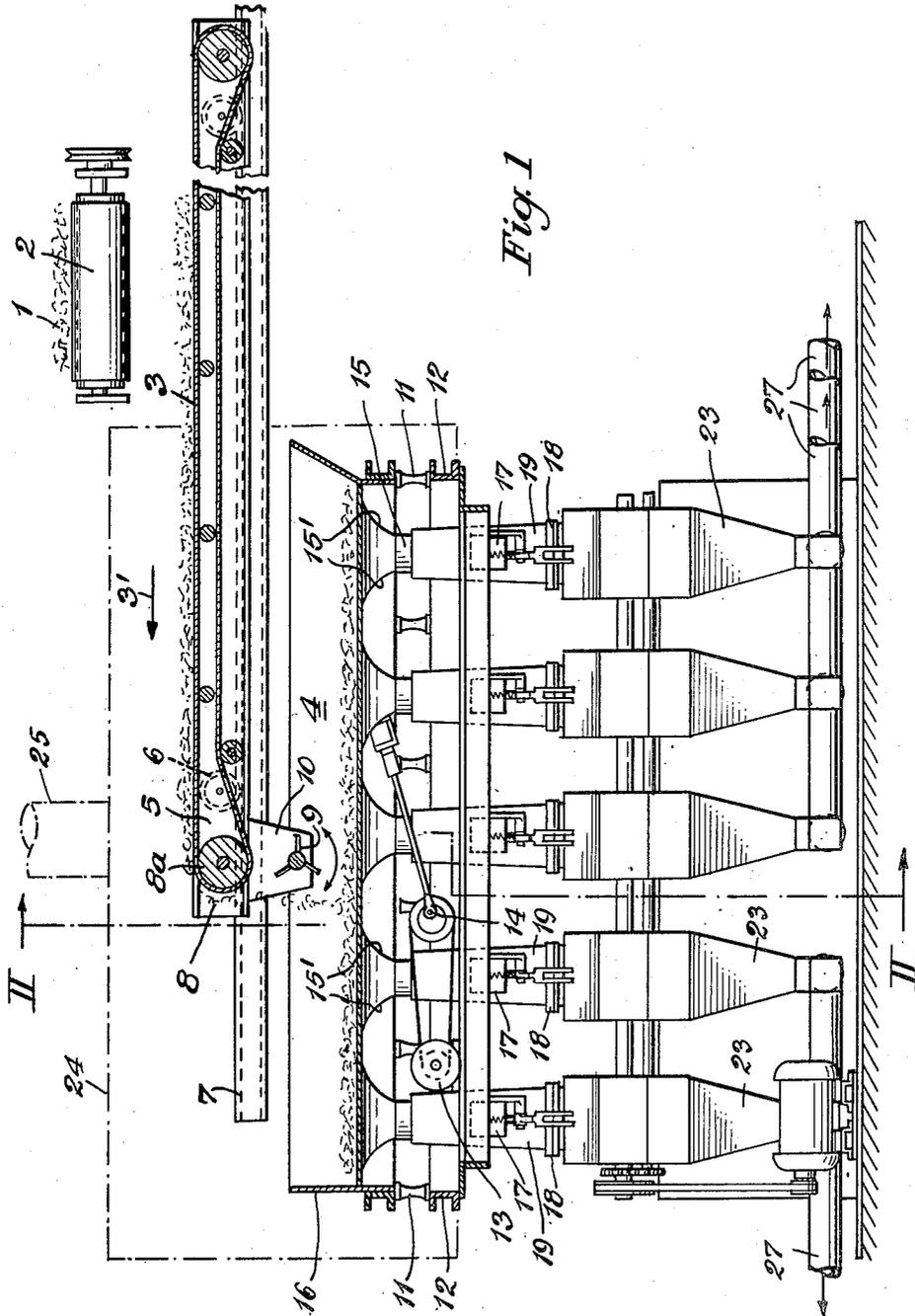


Fig. 1

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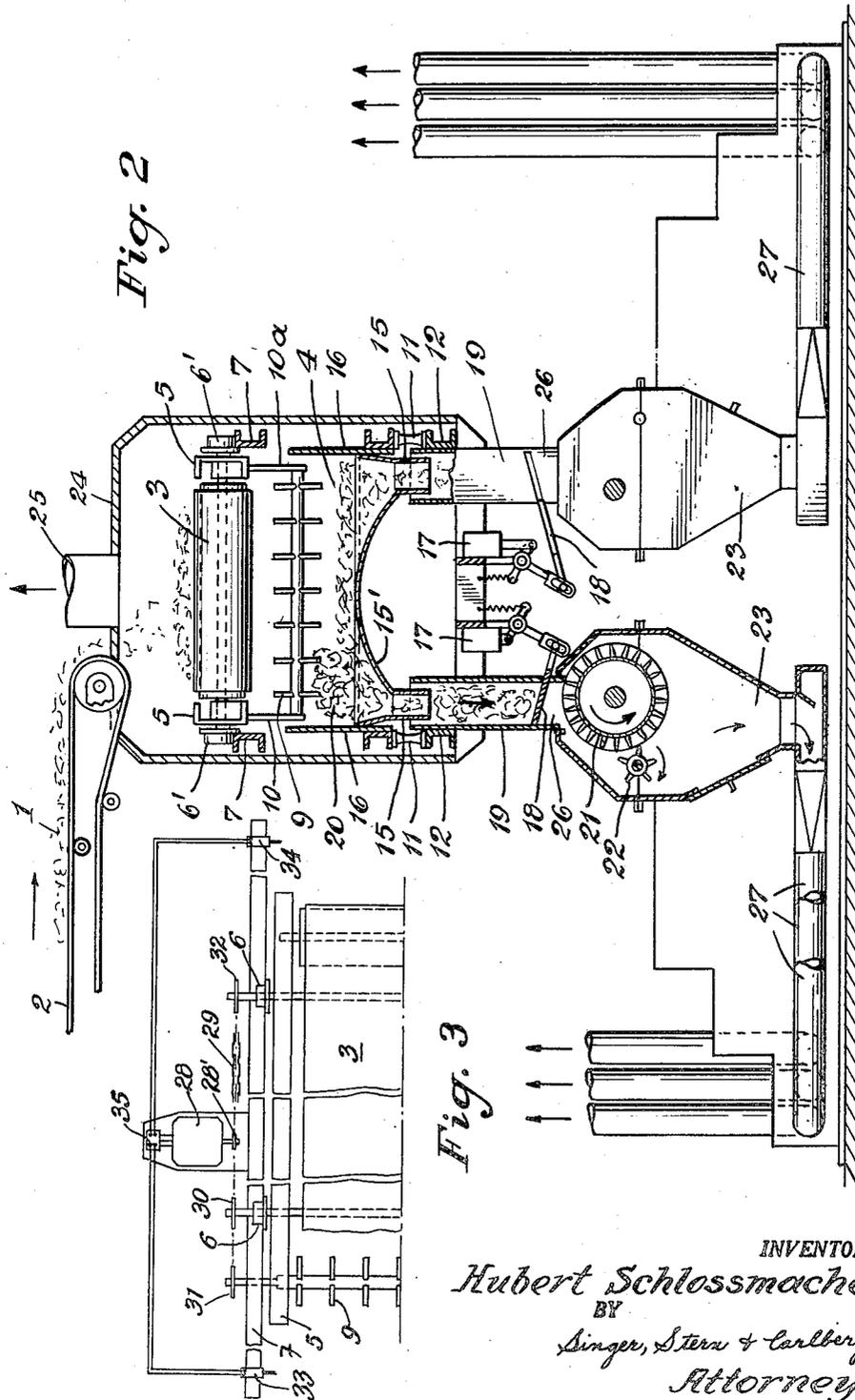
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CIGARETTE MAKING MACHINES

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4 Claims. (Cl. 131—108)

The invention relates to improvements in cigarette making machines and particularly is directed to a device for conveying and distributing of cut tobacco.

For the purpose of loosening cut tobacco, there are employed in many instances vibrating devices in the distributor of cigarette making machines. These vibrating devices are provided with a number of superimposed oscillating screens. Furthermore, such oscillating devices are also used for loosening and conveying cut tobacco which is discharged downwardly by a tobacco cutting machine.

In order to discharge large amounts of cut tobacco from a storage box or on a storage belt in uniform and loose condition to a group of cigarette making machines, it was heretofore necessary to provide a number of oscillating feeding devices corresponding to the number of cigarette making machines in order to avoid the employment of a great number of operators. These feeding devices, however, increase the cost of the plant, the servicing and maintaining of the entire cigarette making plant. It has also been proposed to employ for the mentioned purpose pneumatically operated feeding devices in which, however, the depositing of the cut tobacco at the starting positions has to be performed either by special operators, or by means of a series of parallel arranged feeding belts.

According to the present invention, the disadvantages of all of these known arrangements are eliminated by providing an oscillating conveyor which at the same time operates as a tobacco distributor, in that the cut tobacco, which is taken from a storage container or the like by a single conveyor belt is loosened by this oscillating distributor and then is distributed to a plurality of deposit points from which the properly treated and loosened tobacco is conveyed to the cigarette making machines by means of simple, for instance, pneumatically operated conveyor means.

A device of the invention is shown by way of example in the accompanying drawing, in which Fig. 1 illustrates a longitudinal section of a device in which the vibrating distributor is used for supplying ten cigarette making machines with cut tobacco, Fig. 2 is a sectional view along the line II—II of Fig. 1, and Figure 3 is a top elevational view of a fragmentary portion of the reciprocating frame and showing the control means for actuating said frame.

The cut tobacco 1 is discharged by a supply belt 2 upon an endless distributing belt 3, which moves in the direction of the arrow 3', and from the discharge end of this belt 3, the cut tobacco is rained in the form of a thin layer on to a vibrating distributor 4 arranged below said belt 3. The distributing belt 3 is mounted in a frame 5, as shown particularly in Fig. 2. This frame 5 is supported by means of pairs of traction rollers 6, 6' upon a pair of spaced horizontally positioned rail 7, and is moved by a well-known drive as shown in Fig. 3 back and forth along the rail 7, so that the discharge throat formed at one end 8 of the frame 5 between the end roller 3a and the end of the frame 5 is able to move

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along the entire top surface of the vibrating distributor 4. A rotary rake 9, mounted in the frame 5, below the discharge roller 8a of the distributing belt 3, assists in the uniform distribution of the cut tobacco. It should, however, be observed that this rake 9 will only then become effective when the cut tobacco rained upon the distributor 4, has reached such a height thereon that the rake 9 comes into engagement with the loose tobacco. The mentioned rotary rake 9 is rotatively supported in walls 10 and 10a which are secured to the sides of the frame 5 and extend downwardly therefrom. Obviously, when the frame 5 is moved back and forth along the rail 7, the rake 9 is likewise moved back and forth over the upper surface of the vibrating distributor 4. The arrangement is such that when the frame 5, as viewed in Fig. 1, moves to the left, that then the rotary rake 9 rotates counterclockwise, and when the frame 5 moves toward the right, the rotary rake 9 will be rotated clockwise. The control of the movement of the roller supported frame, first in one direction and then in the other direction, and also the control of the rotary rake 9, takes place by well-known control devices consisting, for instance, of stop-operated limit switches, or the like. For this purpose, a reversible electric motor 28 is mounted on the frame 7 by a suitable bracket (Fig. 3) and has its armature shaft provided with a sprocket wheel 28' in driving engagement with an endless sprocket chain 29. Shifttable sprocket wheels 30 and 32 are mounted on the respective shafts which carry the traction wheels 6 and a sprocket wheel 31 is mounted on the shaft of the rotary rake 9. The sprocket chain 29 is trained over said sprocket wheels to rotate their respective shafts simultaneously in the same direction. Limit switches 33 and 34 are mounted adjacent the ends of the frame 7 and have projecting actuators which project into the path of the reciprocating frame 5. The limit switches 33 and 34 are electrically connected to a motor reversing switch 35 by suitable conductors and said reversing switch is electrically connected to a source of electrical energy such that the polarity of the reversible motor will be changed each time one of the limit switches 33 and 34 are actuated.

The vibrating distributor comprises a frame oscillatably supported by means of oscillatable metallic supports 11 upon a stationary horizontal frame 12.

An electric motor 13 transmits vibrations to the vibrating distributor 4 by means of a crank drive 14, the frequency of which is so selected that the cut tobacco, which has been rained onto the distributor 4, is subjected to very short back and forth movements, which have the result that on one hand the tobacco is loosened, and on the other hand is caused to slide easily along the slightly curved surfaces 15', arranged at the bottom of the distributor, so that the cut tobacco is conducted by these slightly curved surfaces 15' into the vertical discharge conduits 15 which likewise perform a vibrating movement.

The vibrating distributor 4 is on all sides surrounded by a wall 16 which prevents a loss of cut tobacco and insures the maintenance of a predetermined height of tobacco layer above the distributor surface. An increase in the height of the tobacco layer will then be noticed when after the filling of the distributor of the cigarette making machine a well known electromagnetic device 17 becomes effective which operates a closure member, such as a flap 18 and closes the vertical supply conduit 19. This may happen sometimes simultaneously at a plurality of supply conduits 19. In such a case, the cut tobacco will accumulate above the discharge aperture of the discharge conduits 15, as indicated in Fig. 2 at 20. An increase in the height above a predetermined dimension will be prevented according to the present invention by the rotary rake 9, which owing to the back and forth

movement of the frame 5, distributes any increase in the height of the tobacco over the entire surface of the vibrating distributor 4.

When the vertical supply conduits 19 are not shut off by the flaps 18, the cut tobacco may move downwardly and will drop into individual casings 23 and onto the surface of a toothed roller 21 therein, which moves the cut tobacco toward a beater roller 22, from the latter of which the tobacco drops into the lower nozzle-shape funnel portions of the casing 23. From here, the cut tobacco is moved pneumatically by individual pipe lines 27 to the cigarette making machines.

The vibrating distributor 4 is provided with a hood or a dust cover 24, made preferably of a transparent material, for instance, Plexiglas. Any dust which is created as a result of the vibration will be removed by a suitable suction line 25.

What I claim is:

1. A device for conveying and distributing cut tobacco to a plurality of cigarette making machines, comprising a movable horizontal frame, traction rollers attached to said frame, means forming a stationary horizontal support upon which said traction rollers are adapted to roll for moving said movable horizontal frame back and forth relatively to said horizontal support, a discharge member on one end of said horizontally movable frame having a discharge throat, an endless distributing belt mounted for horizontal movement in said frame and adapted to discharge cut tobacco deposited upon said belt at a discharge throat formed at one end of said frame, a rotatable rake supported in said movable horizontal frame below the discharge end of said endless distributing belt in said movable horizontal frame, a vibrating tobacco distributor spaced below said stationary horizontal support to receive the tobacco discharged by said distributing belt in said frame, said vibrating distributor being constructed and arranged to feed cut tobacco received from said distributing belt simultaneously to a plurality of downwardly extending discharge conduits, each of which is associated with a cigarette making machine.

2. A device for conveying and distributing cut tobacco to a plurality of cigarette making machines, comprising a movable horizontal frame, traction rollers attached to said frame, means forming a stationary horizontal support upon which said traction rollers are adapted to roll for moving said movable horizontal frame back and forth relatively to said horizontal support, a discharge member on one end of said horizontally movable frame having a discharge throat, an endless distributing belt mounted for horizontal movement in said frame and adapted to discharge cut tobacco deposited upon said belt at a discharge throat formed at one end of said frame, a vibrating tobacco distributor spaced below said stationary horizontal support to receive the tobacco discharged by said distributing belt in said frame, said vibrating distributor being constructed and arranged to feed the cut tobacco received from said distributing belt simultaneously to a plurality of downwardly extending discharge conduits, each of which is associated with a cigarette making machine, a plurality of upright casings, one for each said plurality of discharge conduits for receiving the cut tobacco from the latter, a toothed roller in each of said casings for receiving the tobacco, and a beater roller in each said casings for receiving the tobacco from said toothed rollers, and pipe lines leading the lower ends of said upright casings to the cigarette making machines.

3. A device for conveying and distributing cut tobacco to a plurality of cigarette making machines, comprising a movable horizontal frame, traction rollers attached to said frame, means forming a stationary horizontal support upon which said traction rollers are adapted to roll for moving said movable horizontal frame back and forth relatively to said horizontal support, a discharge member on one end of said horizontally movable frame having a discharge throat, an endless distributing belt mounted for horizontal movement in said frame and adapted to discharge cut tobacco deposited upon said belt at a discharge throat formed at one end of said frame, a vibrating tobacco distributor spaced below said stationary horizontal support to receive the tobacco discharged by said distributing belt in said frame, said vibrating distributor being constructed and arranged to feed the cut tobacco received from said distributing belt simultaneously to a plurality of downwardly extending discharge conduits, each of which is associated with a cigarette making machine, a plurality of upright casings, one for each said plurality of discharge conduits for receiving the cut tobacco from the latter, a toothed roller in each of said casings for receiving the tobacco, and a beater roller in each said casings for receiving the tobacco from said toothed rollers, and pipe lines leading the lower ends of said upright casings to the cigarette making machines, a transparent hood covering the discharge end of the movable horizontal frame and the vibrating distributor, and a suction line connected to said hood for removing the dust from the interior thereof.

4. A device for conveying and distributing cut tobacco to a plurality of cigarette making machines, comprising a movable horizontal frame, traction rollers attached to said frame, means forming a stationary horizontal support upon which said traction rollers are adapted to roll for moving said movable horizontal frame to and fro relative to said horizontal support, an endless distributing belt mounted for horizontal movement in said frame and adapted to discharge cut tobacco deposited upon said belt at one end of said belt, a vibrating tobacco distributor spaced below said stationary horizontal support to receive the tobacco discharged from the the end of said distributing belt in said frame, said vibrating distributor being constructed and arranged to feed the cut tobacco received from said distributing belt simultaneously to a plurality of downwardly extending discharge conduits each of which is associated with a cigarette making machine, said vibrating distributor including a stationary horizontal frame, an oscillatable frame spaced above said stationary frame, oscillatable supports connecting said stationary and oscillatable frames, a bottom in said stationary frame provided with a plurality of discharge conduits and pneumatic casings under each discharge conduit for receiving said tobacco and conveying the same through individual ducts to each of said plurality of said cigarette making machines.

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