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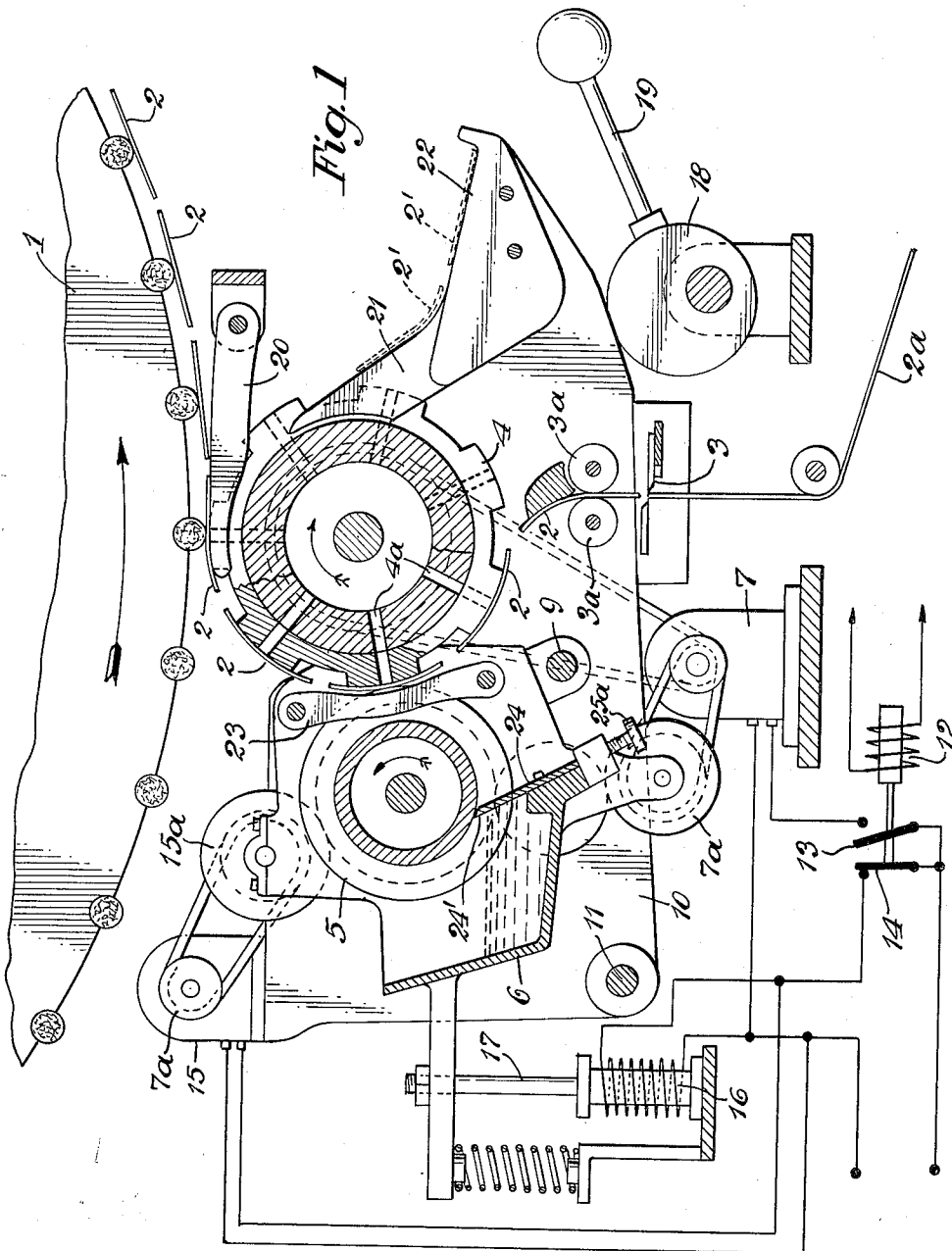
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MACHINES FOR PRODUCING FILTER TIP CIGARETTES

Filed March 23, 1955

2 Sheets-Sheet 1



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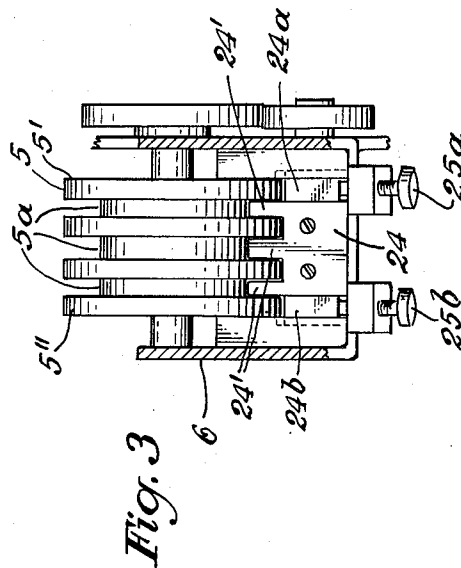
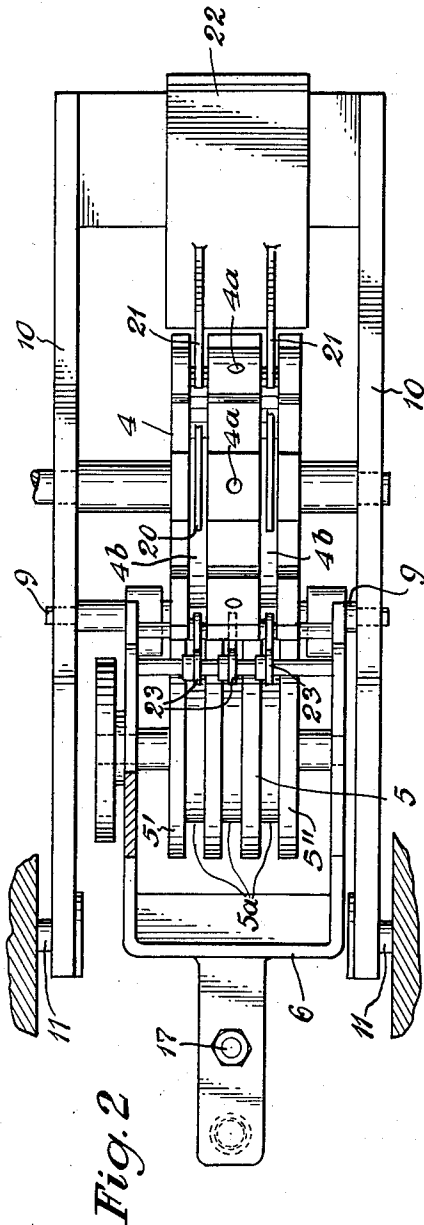
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MACHINES FOR PRODUCING FILTER TIP CIGARETTES

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4 Claims. (Cl. 131—94)

The invention relates to improvements in machines for producing filter tip cigarettes, or the like, and particularly a device for supplying the adhesive and conveying the connecting bands in said machines.

Machines are known for producing filter tip cigarettes or the like, in which cigarette-mouthpiece groups, each consisting of two spaced-apart cigarettes and one mouthpiece of double length interposed therebetween, are formed on rotating grooved drums. Connecting bands are moved against the butting points of the mouthpiece and cigarettes of each of the groups and are adhesively affixed thereon. For this purpose adhesive dispensing apparatus is provided on such machines by means of which adhesive is applied to the connecting bands that have been cut off from a paper tape unreeled from a bobbin and are deposited on a conveyer drum. The connecting bands are carried along by the conveyer drum to a point where they are adhesively affixed to the cigarette-mouthpiece groups on the grooved drum.

An object of the present invention is to solve a problem arising in the adhesive supplying and conveying devices during the positioning and the supplying of the connecting bands with adhesive at the time when the machine is put into action. According to the invention, the adhesive supplying and band conveying apparatus is adapted to be swung away and is also provided with an additional guiding plate which in turned away condition directs the glued bands into a depositing tray from which they may be removed for testing purposes.

Another object of the invention is the provision of means to overcome a further disadvantage in that, if the machine is out of order or if interruptions in the supply of paper bands occur, the cylinder supplying the adhesive and the band conveying drum show a tendency to smear due to the fact that these machine parts continue to rotate. In the present device, the apparatus supplying the adhesive is automatically removed from the conveyer drum when the whole machine is stopped and an auxiliary motor is switched on to continue rotation of the swung-away adhesive dispensing cylinder. An additional advantage is obtained in that the adhesive distributed over the gluing cylinder or contained in the adhesive container is prevented from drying up since it is continuously kept in motion.

A further object of the invention is the provision of turned-out grooves on the gluing cylinder to subdivide it into circumferential zones independent of each other. A correspondingly subdivided scraper is moved against these zones and the members of the scraper are adjustable independently of each other so that the connecting bands receive at their two longitudinal edges a greater supply of adhesive than in the center thereof. This improvement is of considerable importance for establishing a perfect connection to the cigarette-mouthpiece groups since in this manner excessive accumulations of adhesive are avoided when the connecting bands are wrapped around the connection points of the cigarette-mouthpiece groups.

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The invention will now be more particularly described by way of example with reference to the accompanying drawings which illustrate a form of construction of the device for supplying the adhesive and conveying the connecting bands, in which:

Fig. 1 is a side elevation of the device, partly shown in section.

Fig. 2 is a partial top view of the device, and

Fig. 3 is a fragmentary plan view of the adhesive supplying cylinder and the scraper.

Referring to the drawings, the numeral 1 designates the drum provided around its circumference with grooves of which each carries two spaced apart cigarettes accommodating therebetween a mouthpiece of double length. The connecting bands 2, in a manner known per se, are adhesively affixed around these cigarette-mouthpiece groups, by cutting a paper or cork band 2a unreeled from a bobbin, not shown, into the proper length by a reciprocating cutting device 3, and by feeding these cut-off bands 2 to the drum 1 by means of conveyer drum 4 provided with suction ducts 4a. The drum 4 rotates faster than feeder rolls 3a so that interspaces are produced as required for the individual depositing of the bands onto the drum 1. The rolls 3a are controlled so that they release each of the individual bands 2 at a predetermined moment. Before feeding the connecting bands 2 to the drum 1 the drum 4 moves past an adhesive dispenser cylinder 5 which directly or via an intermediate cylinder, dips into a container 6 filled with adhesive. The adhesive dispenser cylinder 5 and coating drum 4 are driven by a motor 7 of the machine.

According to the invention, the adhesive container 6 is supported so it can be swung or rocked about pivots 9 (see also Fig. 2) provided in a supporting frame 10 for the conveyer drum 4. The frame 10 in turn is hingedly secured to the machine frame about the pivots 11 so that either the adhesive dispenser cylinder 5 alone can be swung away from the conveyer drum 4, or the entire supporting frame together with cylinder 5 and drum 4 can be swung away from the drum 1. The swinging away of the cylindrical adhesive dispenser 5 takes place automatically if the drive motor 7 of the machine is switched off. In this case a main switch 13 is opened by means of a control relay 12 and an auxiliary switch 14 is closed, so that on the one hand the adhesive cylinder 5 continues to rotate, driven by an auxiliary motor 15, while on the other hand a solenoid 16 is actuated which by the intermediary of a linkage 17 pulls the container 6 and together with it the adhesive cylinder 5 downwardly and away from the drum 4. Drive wheels 7a and 15a driven by the motors 7 and 15 respectively are each equipped with an overrunning clutch, not shown, so that the one wheel may rotate freely while the other wheel is engaged.

The electrical arrangement for switching in the auxiliary motor 15 may of course be replaced by a mechanical coupling arrangement in such a manner that when the motor 7 is uncoupled the auxiliary motor 15 is coupled in, and vice versa.

The disengaging of the entire adhesive dispenser and conveyer device by swinging it away from the drum 1 is accomplished by operating a cam 18 by means of a handle 19. This swing away action is required when the machine is started in order to be able to control not only the adhesive coating but also the correct feed of the connecting bands 2. The conveyer drum 4, according to Fig. 2, is provided with two annular grooves 4b into which project two guide plates 20 fixedly attached to the machine. Two guide plates 21 secured to the rocking frame 10 also project into the grooves 4b, the plates 21 being arranged in connection with a depositing tray 22.

In the swung-in position of the device indicated in Fig.

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1, the connecting bands 2 provided with adhesive are deposited on the drum 1 by the guide plates 20. However, when the device is swung away from the drum 1 upon rotation of the cam 18 by the handle 19, the guide plates 20 are positioned outside of the grooves 4b. Glued bands 2' are then passed by the guide plates 21 into the depositing tray 22.

The periphery of the adhesive dispensing cylinder 5 is preferably provided with three annular grooves 5a (see Figs. 2 and 3), thus dividing the cylinder into four circumferential zones. Within the grooves 5a are positioned three transferring segments 23 fixedly secured to the machine frame to prevent the connecting bands 2 from being withdrawn from the drum 4 if the adhering force of the glue should become greater than the suction force exerted by the ducts 4a.

A scraper plate 24 is provided with three tongues 24' which project into the grooves 5a. The scraper plate 24 represents the stationary center portion of the scraper device as shown in Fig. 3 and serves for the purpose of regulating the layer of adhesive deposited on the two middle circumferential zones of the adhesive dispensing cylinder 5. Positioned on each side of the scraper plate 24 are narrow scraper plates 24a and 24b which can be moved towards or away from the outer zones of the cylinder 5 by adjusting means 25a and 25b. In actual practice it has been found that, in using a thick layer of adhesive as required for intimately connecting the band folded around the cigarette-mouthpiece groups, there exists a tendency for formation of incrustations of glue in the grooves 5a of the cylinder 5 applying the adhesive, and especially in the corners between the guide plates 21 and the peripheral area of the conveyor drum 4.

These incrustations are avoided by the action of the central scraper plate 24 which with its tongues 24' is set in close proximity to the adhesive cylinder 5, while the two outer scraper plates 24a and 24b are preferably adjusted at a greater distance from the cylinder 5. A layer of adhesive is thus applied to the cylinder 5 that is heavier on the two marginal zones 5' and 5'' (see Fig. 3) than in the two middle zones so that the edges in particular of the connecting bands are firmly adhesively affixed or connected to the abutting ends of the cigarettes contained in the respective cigarette-mouthpiece group, while excessive amounts of adhesive are avoided in the central portion of the connecting bands.

What I claim is:

1. In combination with a machine for producing filter tip cigarettes and the like including a rotatable drum in which cigarette mouthpiece groups are positioned in grooves of said rotatable drum and secured together by mouthpiece bands, an adhesive depositing and conveying device for said mouthpiece bands, comprising a frame, a suction conveyor drum journaled for rotation in said frame, said conveyor drum having a plurality of annular grooves in its periphery, a plurality of stationary guide plates extending into said drum grooves, a second set of guide plates extending into said grooves, a depositing tray adjacent said second guide plates, a reservoir for adhesive and an adhesive depositing cylinder journaled for rotation in said reservoir, and pivot means swingably supporting said frame, whereby when said frame is rocked about said pivot in one direction the first guide plates direct the connecting bands toward the group holding drum, and when said frame is rocked in the opposite direction the second guide plates direct the connecting bands into said depositing tray.

2. In combination with a machine for producing filter tip cigarettes and the like including a rotary drum in which cigarette mouthpiece groups are positioned in grooves of said rotatable drum and secured together by mouthpiece bands, an adhesive depositing and conveying device for said mouthpiece bands comprising a frame, a suction conveyor drum journaled for rotation in said frame, said conveyor drum having a plurality of annular grooves in its periphery, a plurality of stationary guide

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plates extending into said drum grooves, a second set of guide plates extending into said grooves, a depositing tray adjacent said second guide plates, a reservoir for adhesive, an adhesive depositing cylinder journaled for rotation in said reservoir, said adhesive depositing cylinder having a plurality of annular grooves in its periphery providing separate zones on said periphery, stationary transferring segments extending into said cylinder grooves, and pivot means swingably supporting said frame, whereby said segments normally transfer said connecting bands from the peripheral zones of said adhesive depositing cylinder to said conveyor drum, said first guide plates being arranged to direct said bands toward the group holding drum when the frame is swung in one direction, and said second guide plates being arranged to direct said bands into the depositing tray when the frame is swung in the opposite direction.

3. In combination with a machine for producing filter tip cigarettes and the like including a rotary drum in which cigarette mouthpiece groups are positioned in grooves of said rotatable drum and secured together by mouthpiece bands, an adhesive depositing and conveying device for said mouthpiece band, comprising a frame, a suction conveyor drum journaled for rotation in said frame, said conveyor drum having a plurality of annular grooves in its periphery, a plurality of stationary guide plates extending into said drum grooves, a second set of guide plates extending into said grooves, a depositing tray adjacent said second guide plates, a reservoir for adhesive, an adhesive depositing cylinder journaled for rotation in said reservoir, said adhesive depositing cylinder having a plurality of annular grooves in its periphery providing separate zones in said periphery, stationary transferring segments extending into said cylinder grooves, a stationary scraper member adjacent inner zones of said cylinder, tongues on said scraper projecting into said cylinder grooves, adjustable scraper plates located on each side of said stationary scraper opposite outer zones of said cylinder, and pivot means swingably supporting said frame, whereby said segments normally transfer said connecting bands from the peripheral zones of said adhesive depositing cylinder to said conveyor drum, said first guide plates being arranged to direct said bands toward the group holding drum when the frame is swung in one direction, and said second guide plates being arranged to direct said bands into the depositing tray when the frame is swung in the opposite direction.

4. In combination with a machine for producing filter tip cigarettes and the like including a rotary drum in which cigarette mouthpiece groups are positioned in grooves formed in the peripheral surface of said rotatable drum and secured together by mouthpiece bands, a mechanism for conveying said bands and depositing adhesive thereon, comprising a frame rockably mounted and positioned adjacent said rotatable drum, a suction conveyor drum journaled for rotation in said frame, said conveyor drum having a plurality of annular grooves in its periphery, a plurality of stationary guide plates mounted adjacent said rotatable drum and extending into said drum grooves, a second set of guide plates extending into said grooves, a depositing tray adjacent said second guide plates, a reservoir for adhesive rockably mounted on said frame, an adhesive depositing cylinder journaled for rotation in said reservoir, said adhesive depositing cylinder having a plurality of annular grooves in its periphery providing separate zones in said periphery, stationary transferring segments extending into said cylinder grooves, a stationary scraper member adjacent inner zones of said cylinder, tongues on said scraper projecting into said cylinder grooves, adjustable scraper plates located on each side of said stationary scraper opposite outer zones of said cylinder, power means drivingly connected to said conveyor drum and said depositing cylinder, auxiliary power means drivingly connected to said depositing cylinder, pivot means swingably mounting said reservoir in said frame, a solenoid adapted to swing said reservoir

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about its pivot means, a circuit for said reservoir including a source of electrical energy and a magnetically controlled switch adapted to alternately connect said source of electrical energy to said power means and solenoid, whereby upon stopping of said first power means said solenoid will be operated to rock said adhesive reservoir away from said grooved drum and simultaneously interrupt operation of said first power means such that upon stopping of said first power means said auxiliary power means will be actuated to continue rotation of said depositing cylinder while said solenoid is actuated to swing said reservoir and depositing cylinder away from said conveyor drum.

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