Feb. 9, 1960 M. POLLMANN ET AL 2,924,356

CIGARETTE MAGAZINE

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Fig. 1

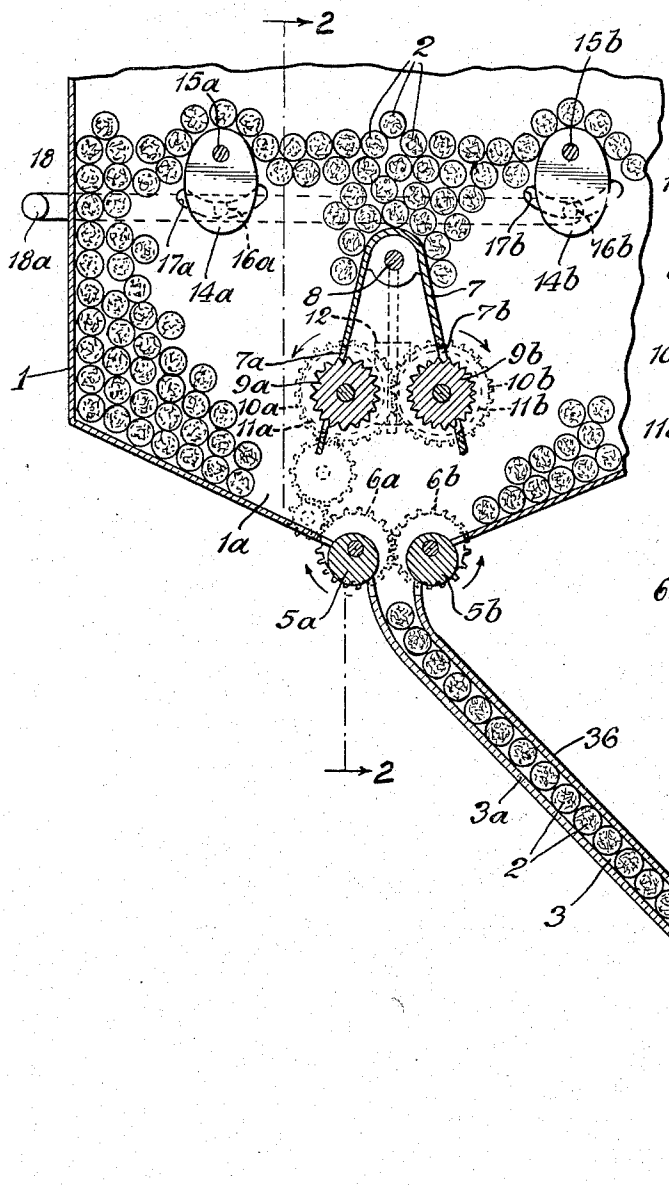
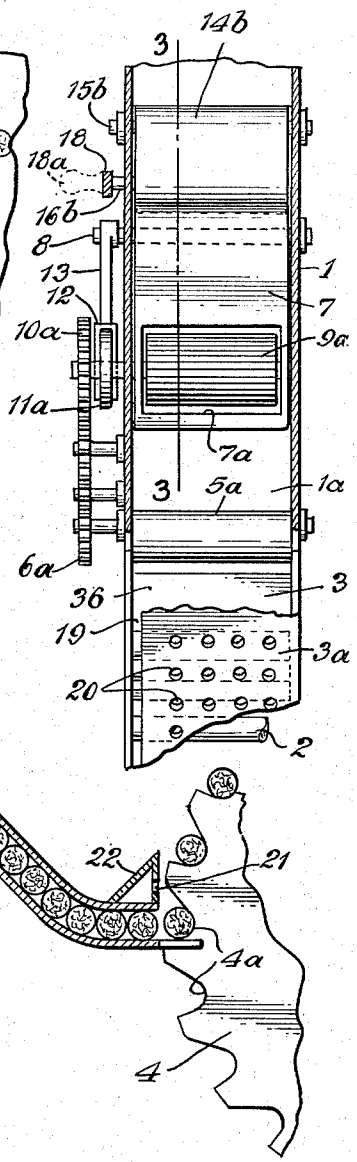


Fig. 2



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FIG. 3

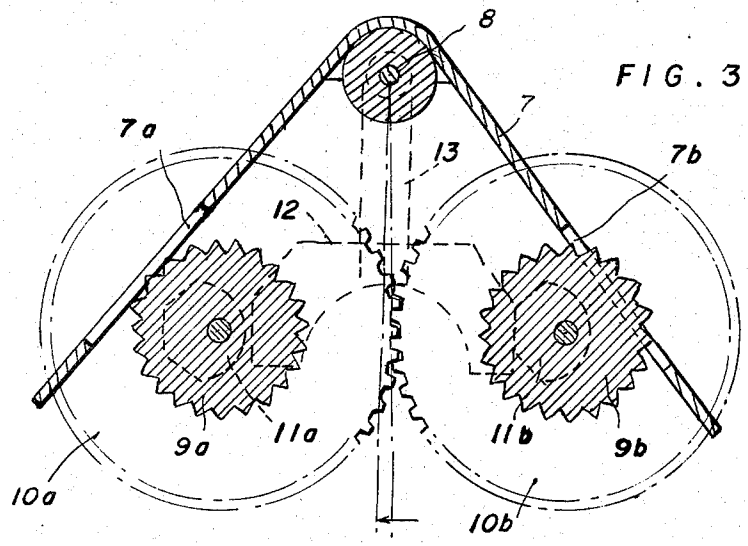
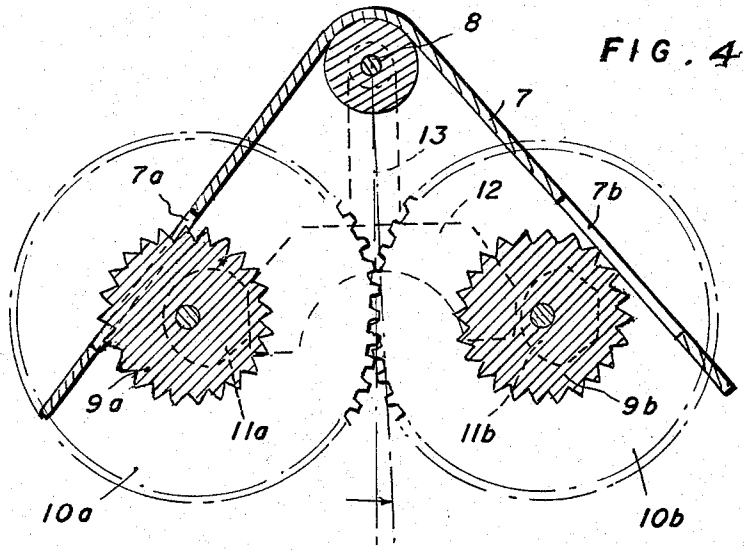


FIG. 4



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CIGARETTE MAGAZINE

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Claims priority, application Germany July 21,1954

9 Claims. (Cl. 221—175)

This invention relates to cigarette magazines of the kind having a substantially hopper shaped bottom with one or more chutes, or channels, for discharge of the cigarettes to subsequent treating devices.

In order to enable the cigarettes to enter said chutes in an orderly fashion hitherto it has been known to provide bridge-like devices above the chute openings adapted to permit the cigarettes to slide into the chute from the sides. This arrangement does, however, not operate without disturbances since the cigarettes slide on an inclined surface and not vertically.

Therefore, it has been suggested that said bridge-like devices be made movable in order to ensure a better delivery of the cigarettes to the chutes through the additional vibration which causes the cigarettes to be fed to the chute without becoming packed. The known movable devices of this kind have the disadvantage that through the swinging movement, for instance, a lateral pressure is exerted on the cigarettes which frequently causes considerable damage to the cigarettes. In addition, said bridges lead to considerable tobacco fines.

The cigarette magazine according to the invention avoids said disadvantages and ensures a uniform, undisturbed and orderly delivery of the cigarettes into the chutes by the provision of eccentrically journalled transfer means which are rotated in opposite directions, such as a pair of grooved rollers, in the lower portion of the swinging bridge which preferably has a parabolic top surface while, within the cigarette pile, pendulum-like means are provided which, when required, can be given a swinging movement from the outside.

Thereby, in the first place, the cigarettes in the region of the nozzle of the magazine hopper are protected against excessive lateral strain and, in the second place, a uniform level of the cigarettes sliding downwards in the magazine is insured. In practice, it has been found that both said conditions must exist in order to achieve a uniform feed to any subsequent treatment machine. This is particularly important in connection with so-called double magazines from which every time two cigarettes are guided to a receiver drum and in the further production process a double filter piece is inserted between the two cigarette pieces. Said double filter piece is connected by means of a cover strip with the two cigarette pieces in a winding drum and then severed at its middle by means of a circular knife, so that two filter cigarettes are obtained.

An embodiment of the invention is illustrated in the accompanying drawing, in which—

Fig. 1 shows a partial cross-section through the magazine with an associated chute for delivery of the cigarettes to a drum provided with troughs on its circumference.

Fig. 2 shows a section on line 2—2 in Fig. 1 with only the one half of the double magazine illustrated.

Figure 3 is an enlarged fragmentary vertical cross-sectional view taken on line 3—3 of Figure 2 and looking in the direction of the arrows to illustrate the bridge

member and rollers in which the feed or transfer rollers are operated and the manner in which the bridge member is oscillated while the feed roller is projecting in a direction on one side of the bridge member to feed cigarettes toward the discharge chute; and,

Figure 4 is an enlarged fragmentary cross-sectional view similar to Figure 3, but showing the feed roller projecting from the opposite side of the bridge-like member.

The cigarettes 2 in the magazine 1 are to be transferred through the magazine hopper 1*a* and a chute, or channel, 3 to the troughs 4*a* on the periphery of the conveyor drum 4. At the entrance to the chute 3, two rollers 5*a* and 5*b* are arranged in a known manner which, during their rotation, perform a movement in vertical and horizontal directions due to the fact that they are eccentrically mounted and driven by gear wheels 6*a* and 6*b*. Thus the cigarettes entering the chute are brought to said chute 3 in a properly arranged condition connected by the swinging movements imparted to them.

In order to prevent the weight of the cigarettes above the entrance to the chute from packing the cigarettes adjacent the entrance and to insure safe entry therein, according to the invention, at a suitable distance from the entrance, a parabolic cover bridge 7 is mounted by means of a shaft 8 which is rockably journalled in the magazine 1 as shown in Figure 2. In the lower region of the bridge 7 there are two grooved rollers 9*a* and 9*b* which extend out of the bridge through two openings 7*a* and 7*b* therein and are mounted eccentrically in relation to the magazine walls (Figures 3 and 4). The eccentric roller pair 9*a*, 9*b* rotate in opposite directions as indicated by arrows in Figure 1 and are driven by the gear wheels 10*a*, and 10*b* indicated by dotted lines in Figure 1 to convey the cigarettes downwards in the region of the bridge 7 and said cigarettes are thus given a swinging movement thereby.

Between the grooved rollers 9*a*, 9*b* and the gear wheels 10*a*, 10*b* driving the same there are, either within the bridge 7 or, as shown, outside of the magazine, eccentric rolls or cams 11*a* and 11*b* on the shafts of the rollers 9*a* and 9*b*. Located in the space between said two eccentric rolls 11*a*, 11*b* a slide block 12 is suspended on a lever 13 and is engaged by the cams 11*a* and 11*b* to effect the swinging movement of the parabolic bridge 7. Thus, the rotation of the eccentric rolls or cams 11*a*, 11*b* imparts to the bridge 7 a lateral swinging movement in such a way that the grooved rollers through their own rotation either extend equally far through the openings 7*a*, 7*b* in the bridge 7 or through the swinging movement of the bridge perform an additional eccentrical movement superimposed thereon. Thereby a change of the penetration height is caused so that the cigarettes will be positively moved downward on the bridge 7 and onto the grooved rollers 9*a* and 9*b* and will be moved in a direction downwards towards the discharge chute. The rotational speed of the rollers 9*a*, 9*b* is slower by a multiple than that of the chute inlet rollers 5*a*, 5*b*.

Above the parabolic bridge 7 and laterally offset relative thereto are two elliptical bodies 14*a*, 14*b* which are swingable on pins 15*a* and 15*b*, respectively. Each of said bodies is provided with a pin 16*a* and 16*b*, respectively, which extends through an arcuate opening 17*a* and 17*b*, respectively, in the rear wall of the magazine 1.

The pins are interconnected through a lever 18 which is extended at one end to form a handle 18*a*. In the event it is desired to oscillate the bodies 14*a* and 14*b*, the handle 18*a* is manually operated to impart a to and fro movement thereto. Through the swinging movement such disturbances are removed as may occur in the downward movement of cigarettes are removed. Through the combination of the movement means 9*a*, and 9*b* and the

means 14*a*, 14*b* the most satisfactory transfer imaginable of the cigarettes to the chute 3 is achieved. However, it is thereby also necessary to provide means for the removal of tobacco fines settling in the chute 3, since through said fines the friction between cigarettes and the chute wall is increased which also may lead to disturbances in the downward sliding of the cigarettes. According to the invention, this is avoided by making the lower chute wall 3*a* (see also Fig. 2) terminate short of the rear wall of the magazine. The tobacco fines can then fall down through the slot 19 thus formed. Additional perforations 20 give this possibility across the entire width of the chute. Tobacco fines carried along to the end of the chute 3 are held back from the conveyor drum 4 through a trap step 21 disposed at the end of the chute roof 36, and said fines are sucked away to the side by a suction conduit 22.

What we claim is:

1. In a cigarette magazine including a hopper for cigarettes having a bottom, means defining a discharge chute extending downwards from the bottom of said magazine hopper, bridge-like means rockably mounted in said magazine above said discharge chute, a pair of depending walls on said bridge-like means, a pair of transfer rollers rotatably mounted in the magazine within said bridge-like means and each having at least a portion of its periphery extending partly through an opening in the corresponding wall to engage the cigarettes in said magazine hopper, gear means connected with said transfer rollers for rotating said transfer rollers in opposite directions, and cam means drivingly connected with said rollers and engageable with a portion of said bridge-like means for oscillating said bridge-like means to and fro so that the cigarettes in said magazine on opposite sides of said bridge-like means will be alternately engaged and fed toward said discharge chute.

2. A cigarette magazine as set forth in claim 1, in which said pair of transfer rollers comprises a pair of grooved, eccentrically mounted rollers.

3. A cigarette magazine as set forth in claim 1, in which the top surface of said bridge-like means is parabolic.

4. In a cigarette magazine including a hopper for cigarettes having a bottom, means defining a discharge chute extending downwards from the bottom of the magazine hopper, bridge-like means having a parabolic top surface rockably mounted in said magazine above said discharge chute, a pair of depending walls on said bridge-like means, a pair of eccentric rollers rotatably mounted in said magazine within said bridge-like means and each partly extending through an opening in the corresponding one of said depending walls, means connected with said eccentric rollers for rotating said eccentric rollers in opposite directions, a shaft secured to each of said eccentric rollers, a roller means eccentrically secured to each of said shafts, a slide block movably mounted between said eccentrical roller means for operative engagement therewith, means drivingly connecting said slide block to said bridge-like means to swing the same to and fro, a pendulum-like means swingably mounted in said magazine on a level above said bridge-like means, the eccentricity of said eccentric rollers being so related to the eccentricity of said roller means as to cause said eccentric rollers to extend equally far out through said openings in said walls of the bridge-like means and to alternately engage the cigarettes on opposite sides of said bridge-like means and vibrate the cigarettes in said hopper to feed the same in a direction toward said discharge chute.

5. In a cigarette magazine including a hopper having a bottom, means defining a discharge chute extending downwards from the bottom of the magazine hopper, bridge-like means having a parabolic top surface rockably mounted in said magazine above said discharge chute, a pair of depending walls in said bridge-like means, a pair of rollers rotatably mounted in said magazine within said bridge-like means and each partly extending through an opening in the corresponding one of said depending walls, means connected with said rollers for rotating said rollers in opposite directions, a shaft secured to each of said rollers, a roller means eccentrically secured to each of said shafts, a slide block movably mounted between said eccentrical roller means for operative engagement with said bridge-like means to rock the same to and fro, a pendulum-like means swingably mounted in said magazine on a level above said bridge-like means, the eccentricity of said rollers being so related to the eccentricity of said roller means as to cause said rollers to perform a movement superimposed upon the swinging movement of said bridge-like means, whereby the cigarettes on opposite sides of said bridge-like means will be alternately engaged to feed the cigarettes in said hopper in a direction toward said discharge chute

6. A cigarette magazine as set forth in claim 2, including a pair of eccentric rollers rotatably mounted adjacent the entrance to said discharge chute, the rotary speed of said eccentric rollers being greater than that of said pair of grooved transfer rollers.

7. A cigarette magazine as set forth in claim 1, including a pin projecting laterally from each of said pendulum-like means into an arcuate slot in the wall of said magazine, means interconnecting said pendulum-like means, and an operating handle connected to said interconnecting means.

8. A cigarette magazine as set forth in claim 1, including a longitudinal slot in the bottom of said discharge chute adjacent one side wall of said discharge chute, perforations in the bottom of said discharge chute, and a trap step at the lower end of said discharge chute forming a suction conduit for removal of tobacco fines.

9. In a cigarette magazine, a hopper having a bottom wall adapted to communicate with a feed chute for conveying cigarettes to a cigarette machine, an inverted U-shaped bridge member rockably mounted in said hopper and arranged above the discharge opening thereof leading to said feed chute, a pair of rollers rotatably mounted in said hopper adapted to be driven in opposite directions and arranged within said bridge member with a peripheral portion of each roller adapted to extend through an opening in the legs of said bridge member, shafts for said rollers journaled in the hopper walls, a pair of cooperating grooved eccentric rollers mounted on said shafts, said grooved rollers being eccentrically mounted on said shafts, a slide block mounted between said grooved rollers, and an arm connecting said slide block to said bridge member whereby rotation of said grooved eccentric rollers will cause said bridge member to be rocked to and fro on its pivot axis and permit the first named rollers therein to alternately project through said openings and assist in feeding the cigarettes toward said discharge opening.

References Cited in the file of this patent

UNITED STATES PATENTS

1,601,257	Molins	Sept. 28, 1926
1,993,619	Neff et al.	Mar. 5, 1935
2,239,589	Chalmers et al.	Apr. 22, 1941
2,550,616	Stephano	Apr. 24, 1951

FOREIGN PATENTS

385,852	Great Britain	Jan. 5, 1933