CIGARETTE MACHINE FEED

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This invention relates to a feed for a cigarette making machine, and particularly to a method and apparatus for feeding shredded cigarette tobacco uniformly at a constant rate.

There have been a large number of cigarette feeding machines developed for feeding shredded cigarette tobacco. It has been the practice to shower tobacco onto a collecting belt as shown for example in U. S. Patent 2,230,195, granted to James W. Warren on January 28, 1941. It has been found that the winnowing fan delivers most of this tobacco to a concentrated area on a collecting belt.

One of the purposes of the collecting belt in conjunction with a winnower is to spread the particles of shredded tobacco and then combine them into a cigarette rod of consistent uniformity. Due to the fact that only one winnowing roller is employed to shower tobacco on to the collecting belt, it has been found that the tobacco so showered tends to be concentrated in one area.

It is an object of this invention to interpose between the winnowing fan and the front collecting belt a bed of rotating fans which will act to spread out the tobacco received from the winnowing fan more uniformly over a wider area than was herebefore obtainable.

Another object of this invention is to provide a method for feeding shredded cigarette tobacco which consists in interposing a row of rollers between the showered tobacco and the area to which the tobacco is delivered to render the tobacco more uniform in its distribution on to a collecting belt.

Other objects and features of the invention will appear as the description of the particular physical embodiment selected to illustrate the invention progresses. In the accompanying drawings, which form a part of this specification, like characters of reference have been applied to corresponding parts through the several views which make up the drawings.

The drawing shows a sectional side elevation of an automatic cigarette tobacco feed in conjunction with a row of tobacco distributor fans to assure an even layer of tobacco across the collecting belt.

For purposes of illustration I have shown how my invention can be readily employed with a cigarette machine feed of the type shown in U. S. Patent 2,230,195 referred to above. Such a feed comprises; a suitable frame work 10 and a hopper H for storing a supply of shredded tobacco T. The tobacco T rests upon a traveling belt 12 which travels in the direction indicated by the arrow around a pulley 14 so as to forward shredded tobacco in the hopper H up against a carded feed drum 16.

The carded feed drum 16 rotates in the direction indicated by the arrow and picks up tobacco by means of the carding 18 on its surface.

A refiner drum 20 is spaced from the feed drum 16 and in the direction indicated by the arrow to push back surplus tobacco from the carding teeth 18 of the feed drum 16. This allows only a predetermined quantity of tobacco to be continuously removed from the hopper H by means of the carding 18.

The tobacco picked up by the carding 18 is removed from the feed drum 16 by means of a picker roller 22 rotating in the direction indicated by the arrow. The teeth of the picker roller 22 interpass the teeth 18 of the carded drum 16. The tobacco so picked up is showered down upon the winnowing fan or roller 24 which rotates in the direction shown by the arrow and hurls the tobacco outwardly on to a row of rollers 26 to 36 having tobacco propelling elements formed thereon.

These rollers rotate in the direction indicated by the arrow and have either pins or fan blades formed thereon so as to spread the tobacco so received from the winnowing fan 24 uniformly across the collecting belt 40 over a wider area than that which is located directly beneath the showered tobacco as received from the winnowing fan 24.

The carded feed drum 16 is surrounded at its lower portion of travel by a concave 17 while the winnowing fan 24 is surrounded on its inside surfaces by a concave 25. These concaves 17 and 25 are held in place by means of a suitable retaining bracket 27.

If desired a conventional stem collecting box could be attached to the inside of the front wall 38 to receive any large stems thrown by the winnowing fan 24 in the direction of the stem box. This stem box has been omitted from the drawing because it is well known in the art and it is not believed necessary to show this in order to illustrate the present invention.

Part of the tobacco hurled on to the row of spaced rollers 26 to 36 falls downwardly between the rollers; other portions of the tobacco are moved outwardly on to adjacent rollers rotating in a direction away from the center portion of the row of rollers 26 to 36 until the balance of the tobacco remaining is discharged over the last rollers 26 and 36 on each side of the row.

As a result of this interposed row of rollers or fans the showered tobacco is spread over a much wider area of the collecting belt 40 than was possible heretofore.

As a consequence the ultimate cigarettes that are made from this showered tobacco will have a greater degree of uniformity.

The collecting belt 40 travels beneath said roller fans in thedirection indicated by the arrow over pulleys 42 and 44. A plate 46 is positioned under the underside of the upper run of the collecting belt 40 to support the same as it forwards the tobacco discharged thereon to the chute 48.

The showered tobacco is delivered by the belt 40 towards a pin roller 50 which is surrounded by a concave 52. A compression roller 54 pushes the tobacco received from the collecting belt 40 into the pins of the roller 50 which forwards it around the concave 52. A picker roller 56 rotating in the direction indicated by the arrow removes the tobacco from the teeth of the pin roller 50 and showers it down the chute 48 where it settles on to a conventional collecting tape 58. The collecting tape 58 may, if desired, carry the cigarette paper web which is formed into a cigarette rod or may be an intermediate belt on which it runs along and under the length of the chute 48 and delivers this tobacco to a paper web which is formed into a cigarette rod in a manner well known in the art.

The invention hereinbefore described may be varied in construction within the scope of the claims, for the particular device selected to illustrate the invention is but one of many possible embodiments of the same. The invention, therefore, is not to be restricted to the precise details of the structure shown and described.

What is claimed is:

1. A carded feed drum for continuously removing a
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3 predetermined quantity of tobacco from a source of supply of cigarette tobacco, means for picking said tobacco from said carded feed drum, a winnower for winnowing said picked tobacco, a collecting belt for receiving draped tobacco from said winnower, a row of fans interposed between said winnower and said collecting belt said row of fans being divided into at least two groups with each group rotating in a direction opposite to an adjoining group, and the longitudinal axis of each of said fans lying in a plane parallel to said collecting belt for dispersing said draped tobacco over a wide area of said collecting belt, and a transverse tape for receiving the tobacco on said collecting belt and forwarding the tobacco so received from said collecting belt to a rod forming mechanism of a cigarette making machine.

2. A feed for a cigarette making machine comprising a source of supply of shredded cigarette tobacco, a carded feed drum for removing tobacco from said source of supply, a refiner drum spaced from said carded feed drum for limiting a quantity of tobacco removed by said carded feed drum, means for shaving tobacco from said feed drum on to a collecting belt, a row of rollers having tobacco propelling elements formed thereon said rollers being divided into at least two groups with each group rotating in a direction opposite to an adjoining group and the longitudinal axis of each of said rollers lying in a plane parallel to said collecting belt for uniformly distributing the draped tobacco over a wider area of the collecting belt than an area directly beneath the draped tobacco, a transverse tape for receiving the draped tobacco in an elongated stream from said collecting belt and leading said tobacco to a rod forming mechanism of a cigarette making machine.

3. A feed for a cigarette making machine comprising a source of supply of shredded cigarette tobacco, a carded feed drum for removing tobacco from said source of supply, a refiner drum for limiting a quantity of tobacco removed by said carded feed drum, a winnower for shaving tobacco received from said feed drum, a plurality of rollers positioned to receive the draped tobacco and spread it over a wider area than that directly below tobacco shaved from said winnower, said plurality of rollers being divided into at least two groups with each group rotating in a direction opposite to an adjoining group and the longitudinal axis of each of said plurality of rollers lying in a plane parallel to a collecting belt positioned below said plurality of rollers for receiving the draped tobacco therefrom, and a tape running below and crosswise of said collecting belt for receiving tobacco discharged from said collecting belt and forwarding it in an elongated stream to a cigarette rod forming mechanism.

4. A tobacco feed comprising a source of supply of draped tobacco, means for removing continuously a substantially uniform quantity of tobacco from said source of supply, a winnower for winnowing the tobacco so removed, a row of paddle rollers formed into groups, each group rotating in a direction opposite to the adjoining group, and positioned to receive the draped tobacco at substantially the center of the rollers to cause said tobacco to be equally distributed thereacross for discharge, a collecting belt for receiving discharged tobacco being located below said row of rollers, means for moving said collecting belt to a point of discharge and a collecting tape for receiving said tobacco in an elongated stream, adjacent rollers of said paddle rollers being spaced apart sufficiently to permit tobacco to fall freely therebetween.

5. Means for winnowing a continuous stream of metered tobacco, comprising a plurality of paddle rollers interposed in said stream for uniformly spreading out said winnowed tobacco, said paddle rollers being divided into at least two groups with each group rotating in a direction opposite to an adjoining group and the longitudinal axis of each of said paddle rollers lying in a plane parallel to a collecting belt for receiving the winnowed tobacco spread out by said rollers and an elongated narrow tape traveling crossways relative to said collecting belt for receiving tobacco from said belt and forwarding it in an elongated stream to a rod forming mechanism of a cigarette making machine.

6. In a cigarette making machine, feeding mechanism for feeding a continuous quantity of shredded tobacco from a source of supply, a winnowing element for transforming the fed tobacco into a shower of tobacco, a plurality of rollers having paddles formed thereon the paddle rollers being divided into at least two groups with each group rotating in a direction opposite to an adjoining group, and the longitudinal axis of each of said plurality of rollers lying in a plane parallel to a collecting belt for receiving the showered tobacco and dispersing it uniformly over a wider area than that of a cross section of the showered tobacco, adjacent rollers being spaced apart sufficiently to permit tobacco to fall freely therebetween, a belt for collecting said tobacco as it falls downwardly between said rollers, and a tape running crosswise of said belt for receiving and forwarding tobacco collected from said belt in an elongated stream to a cigarette maker.

7. A cigarette machine feed comprising a source of supply of shredded cigarette tobacco, means for feeding and showering a continuous stream from said source of supply, paddle rollers interposed in the stream of showered tobacco for uniformly dispersing said showered tobacco over a widened area, said paddle rollers being divided into at least two groups with each group rotating in a direction opposite to an adjoining group and the longitudinal axis of each of said plurality of rollers lying in a plane parallel to a collecting belt positioned below said paddle rollers for receiving tobacco discharged therefrom, and means for receiving tobacco from said collecting belt in an elongated stream and forwarding it to a rod forming mechanism of a cigarette making machine.

8. Means for feeding a uniform quantity of tobacco in a cigarette making machine comprising a winnower for receiving and showering continuously shredded cigarette tobacco in a stream having a broad base, a plurality of paddle rollers positioned to receive and uniformly spread out the showered tobacco over a broader area than the base of the stream, said paddle rollers being divided into at least two groups with each group rotating in a direction opposite to an adjoining group and the longitudinal axis of each of said plurality of rollers lying in a plane parallel to a collecting belt for receiving tobacco from said paddle rollers and forwarding it to a point of discharge, a collecting tape running transversely to a direction of travel of said collecting belt to receive tobacco therefrom and forward the same to a cigarette rod former.

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