

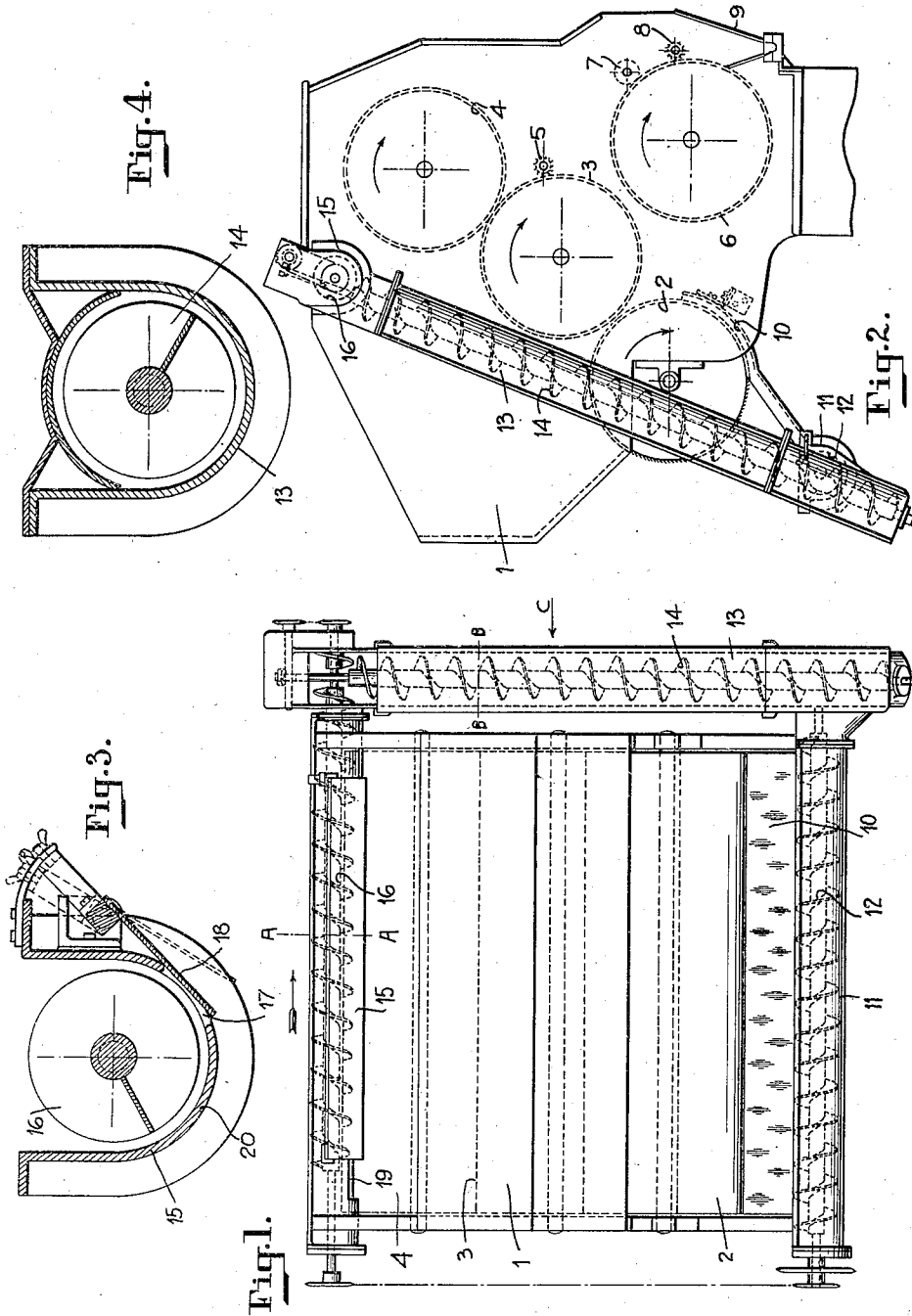
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CIGARETTE MAKING MACHINERY

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UNITED STATES PATENT OFFICE

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CIGARETTE-MAKING MACHINERY

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This invention is for improvements in or relating to cigarette making machinery and relates more particularly to a tobacco feeding apparatus wherein a feeding roller is located within the base of a hopper and is adapted to feed tobacco to a combing roller which automatically carries the same beneath a brushing roller arranged to remove the surplus tobacco from the surface of the combing roller and evenly distribute the remaining tobacco over the surface of the combing roller.

distributed over the surface of the tobacco located within the hopper.

One method of carrying the invention into effect will hereinafter be described with reference to the tobacco feeding apparatus set forth in Specification No. 249,575, wherein a smooth feeding roller is arranged in the base of the tobacco hopper and is operable to feed the tobacco to a carded combing roller which carries the tobacco forwardly beneath a brushing roller which evenly distributes the tobacco over the surface of the combing roller.

According to the present invention, the smooth feeding roller is replaced by a carded feeding roller or rollers, wherein the cards on the upper surface of the said roller or rollers are directed away from the surface of the combing roller and the combing roller is rotated faster than the adjacent feeding roller with the adjacent surfaces of the feeding and combing rollers moving in opposite directions, so that the action of the said rollers is to separate the shreds of tobacco before the same are fed forwardly by the combing roller.

It is found, however, that by this method of separation, that the short shreds of tobacco are separated from the long shreds and that if the feeding and combing rollers were not spaced apart from one another, the short shreds would accumulate between these two rollers, and when the accumulation had attained certain proportions a mass of short shreds of tobacco would be fed forwardly by the combing roller and the consistency of the cigarettes varied, and these variations would be found to recur periodically during the production of the cigarettes.

The feeding roller and combing roller are separated from one another and the short shreds of tobacco are permitted to fall between the same down an inclined chute into a trough in which is arranged to rotate a worm feed which moves all the shorts to one end of the said trough. The shorts are thereafter automatically removed from the end of the trough and carried upwardly and delivered to an auxiliary hopper located above the main hopper which is adapted to feed the short shreds of tobacco over the surface of the tobacco in the main hopper and

The invention has for its object the provision of means whereby the tobacco is fed from a hopper into the rod forming mechanism of the machine in quantities wherein the short and long shreds of tobacco are substantially evenly divided throughout the tobacco and no accumulation of short shreds is allowed to form in the hopper, thus ensuring that the density and distribution of the tobacco throughout the rod is more consistent than is possible when employing the tobacco feeding apparatus at present used upon such machines.

In cigarette making machines of the continuous rod type, the tobacco is placed in a hopper from which it is automatically fed by means of carded rollers to the rod forming mechanism of the machine, and it is found in practice that with tobaccos of different consistencies the cigarettes produced are liable to vary between wide limits, due to the fact that some tobacco has a preponderance of long shreds of tobacco, whereas in other tobaccos the presence of short shreds is more marked.

The object of the present invention is to provide means whereby a more or less substantially constant ratio is maintained throughout the rod between the short and long shreds of tobacco present in the rod produced by the machine.

The present invention consists of a tobacco feeding apparatus of the type referred to wherein the tobacco is fed to a combing roller by a carded feeding roller so arranged within the base of a hopper that short shreds of tobacco are permitted to pass between the carding on the feeding roller into a trough from which they are automatically conveyed and

preferably at a point adjacent to where the combing and brushing rollers meet and along a line parallel to the axial displacement of the cigarette rod so that an even layer of short shreds of tobacco is carried forwardly by the combing roller and delivered to the rod forming mechanism.

The said apparatus is so constructed that the length of the line along which the short shreds are fed varies directly with the quantity of short shreds fed to the apparatus.

The auxiliary hopper preferably comprises a trough having a rotatable worm operable to feed short shreds of tobacco, fed to one end of the trough, along the entire length of the trough so as to enable the same to fall in a shower through a discharge opening formed in one side of the trough. The discharge opening is preferably constructed in such a manner that as the worm feeds the tobacco along the trough some of the tobacco is conveyed up the side of the trough, and is allowed to slide down the same under the force of gravity, through the discharge opening formed by two overlapping portions of the side wall of the trough. The discharge opening is formed adjustable so as to regulate the thickness of the shower of tobacco which falls therefrom.

It is found in practice that if a considerable quantity of short shreds of tobacco is fed to one end of the trough, the worm will feed the tobacco along the entire length of the trough and cause the tobacco to fall in a shower through the discharge opening along the entire length of the trough. If, however, the supply of short shreds is diminished, the worm will convey the same along the trough, but due to the smaller amount of tobacco present, the same will have been discharged through the discharge opening in the trough before the short shreds have been conveyed to the end of the trough. Thus with a worm rotating at a constant speed, the length of the shower of tobacco which falls from the trough depends upon the quantity of short shreds which is fed to the trough. The feed end of the trough is preferably arranged so that the short shreds of tobacco are always fed to that side of the hopper where the moving web of cigarette paper leaves the filling trough of the same.

The invention is more particularly described with reference to the accompanying drawings, in which:—

Fig. 1 is an elevation of the back of a tobacco feeding hopper.

Fig. 2 is a side elevation of Fig. 1 in direction of arrow C.

Fig. 3 is a section on line A—A, Fig. 1.

Fig. 4 is a section on line B—B, Fig. 1.

Referring to the drawings, tobacco is placed in the hopper 1 and carried by a carded feeding roller 2 beneath the combing roller 3. A brushing roller 4 brushes back any

superfluous tobacco fed by the roller 3 and thus controls the quantity of tobacco which passes, and a picker roller 5 removes the tobacco from the cards of the combing roller 3 and it falls on to the surface of a distributing roller 6. A pressure roller 7 presses down the layers of tobacco on the distributor roller and the tobacco is removed from the surface of the carded distributor by another picker roller 8 and falls down the chute 9 on to the cigarette paper.

The carded feeding roller 2 and the combing roller 3 are spaced apart sufficiently to allow the short shreds of tobacco to fall downwards into the tray or chute 10. This chute leads into a trough 11 in which a worm conveyor 12 is mounted. As the worm rotates the short shreds are fed along to an inclined trough 13 in which another conveyor 14 rotates. This conveyor carries the short shreds up to the top of the hopper and feeds them into another horizontal trough or hopper 15 in which a third worm 16 rotates. The bottom of the trough 15 is provided with a slot 17 through which the short shreds of tobacco can fall on to the carded rollers. The auxiliary hopper is so placed that it feeds the tobacco down where the combing and brushing rollers meet and in a line parallel to the axial displacement of the cigarette rod.

An adjustable plate 18 is fitted to the trough 15 to enable the operator to alter the effective width of the slot 17. At the extreme end of the trough remote from the inclined conveyor, the slot 17 is widened to permit any tobacco reaching this end of the trough to fall, thus preventing packing. This is shown at 19, Fig. 1, and by the dotted line 20, Fig. 3.

Thus it will be seen that according to the present invention there is provided means whereby the short shreds of tobacco may be separated from the long shreds and continuously supplied in a constant quantity to the hopper of a cigarette making machine, and should the quantity of short shreds of tobacco increase, the length of the shower will be automatically increased.

What I claim as my invention and desire to secure by Letters Patent is:—

1. In apparatus for feeding tobacco, the combination with a combing roller, of a carded feeding roller for feeding tobacco thereto and spaced therefrom to permit short shreds of tobacco to fall, means for receiving the falling shreds and distributing them uniformly on the combing roller and over the tobacco carried thereby.

2. In apparatus for feeding tobacco, the combination with a combing roller, of a carded feeding roller for feeding tobacco thereto and spaced therefrom to permit short shreds of tobacco to fall, means for receiving the falling shreds and distributing them uniformly over the tobacco carried by the combing roller, said means comprising a trough

disposed below the rollers, a hopper arranged above the rollers and having a discharge opening therein extending in a direction substantially parallel to the axes of the rollers, and a conveyor for transferring the tobacco from said trough to said hopper.

3. In apparatus for feeding tobacco, the combination with a combing roller, of a carded feeding roller for feeding tobacco thereto and spaced therefrom to permit short shreds of tobacco to fall, means for receiving the falling shreds and distributing them uniformly over the tobacco carried by the combing roller, said means comprising a trough disposed below the rollers, a hopper arranged above the rollers and having a discharge opening therein extending in a direction substantially parallel to the axes of the rollers, said discharge opening being adjustable in width, and a conveyor for transferring the tobacco from said trough to said hopper.

4. In apparatus of the class described, the combination with a trough for receiving and distributing tobacco and provided with a discharge opening extending longitudinally thereof, of a screw conveyor arranged longitudinally of and within said trough for feeding tobacco along said trough and through said opening, and means for regulating the width of said discharge opening to ensure uniform distribution of tobacco through substantially the entire length of said opening.

5. In apparatus of the class described, the combination with a trough for receiving and distributing tobacco and provided with a discharge opening extending longitudinally thereof, of a screw conveyor arranged longitudinally of and within said trough for feeding tobacco along said trough and through said opening, and means for regulating the width of said discharge opening to ensure uniform distribution of tobacco through substantially the entire length of said opening, said means comprising a movable plate extending lengthwise of said opening.

6. In apparatus of the class described, the combination with a trough for receiving and distributing tobacco and provided with a discharge opening extending longitudinally thereof, of a screw conveyor arranged longitudinally of and within said trough for feeding tobacco along said trough and through said opening, and means for regulating the width of said discharge opening to ensure uniform distribution of tobacco through substantially the entire length of said opening, said means comprising a swinging plate arranged outside of said hopper, and means for securing said plate in different positions of adjustment toward or away from said opening.

7. In apparatus for feeding tobacco, the combination with a combing roller adapted to receive long shreds of tobacco, of means for distributing short shreds of tobacco on

the long shreds carried by said roller in uniform quantity along substantially the entire length of the roller.

8. In apparatus for feeding tobacco, the combination with a combing roller adapted to receive and transfer long shreds of tobacco only, of a carded roller for delivering tobacco to said combing roller, and means for conveying short shreds of tobacco from said carded roller and depositing the same uniformly on the combing roller and over the long shreds carried thereby.

In testimony whereof I hereunto affix my signature.

WALTER EVERETT MOLINS.

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