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DEVICE FOR FEEDING SCRAP TOBACCO

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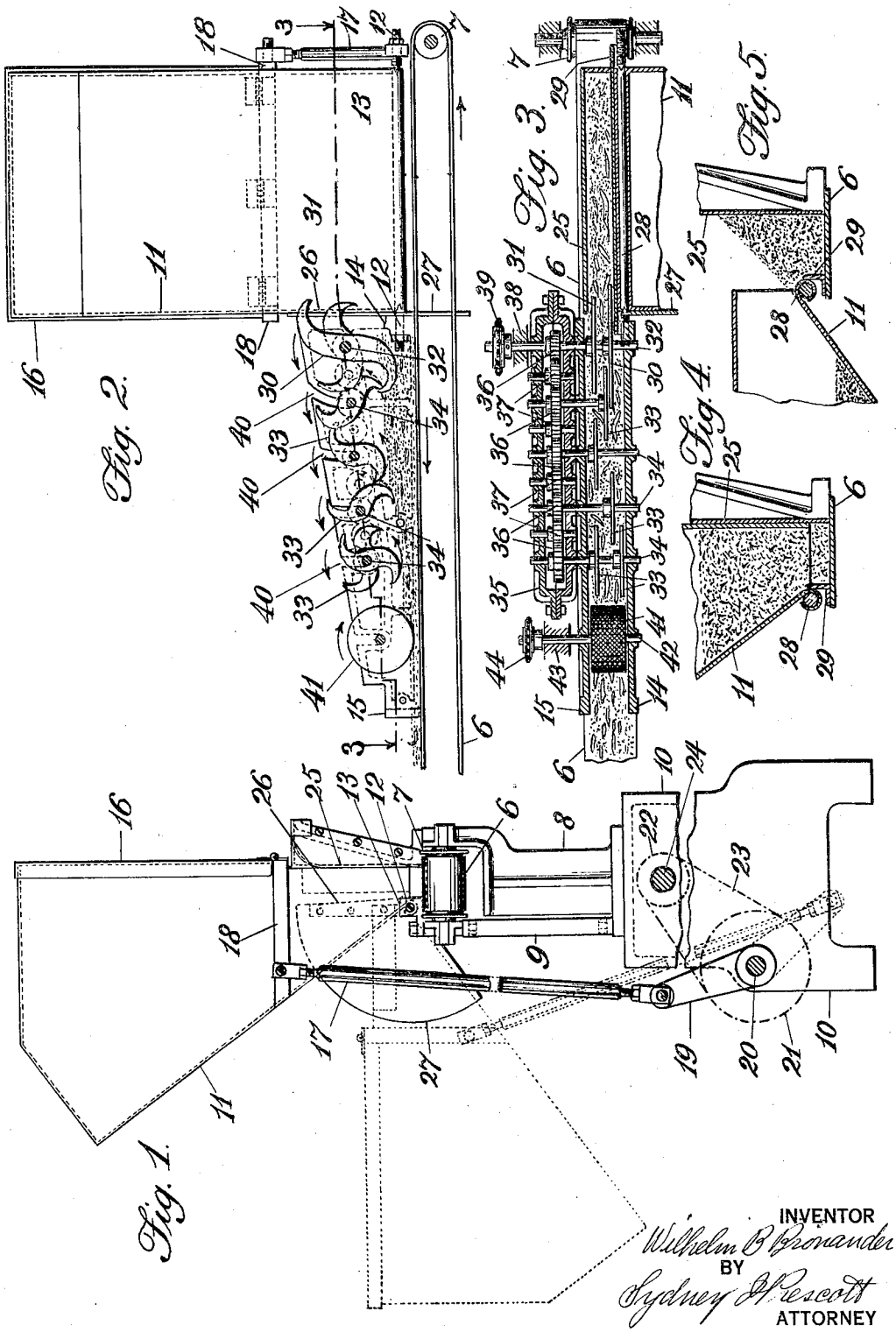


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

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DEVICE FOR FEEDING SCRAP TOBACCO.

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This invention relates to an improved device for feeding scrap tobacco, particularly to cigar making machines.

Devices for feeding small scraps of tobacco to cigar making machines are known and successful when the tobacco is in the proper order or condition. But, in the manufacture of certain kinds of cigars in certain climates, large scraps of tobacco are unavoidably produced and must be handled in a very damp condition. The machines which successfully feed small scraps of tobacco in a slightly damp condition will not handle these large and very damp scraps at all, for the latter tend to adhere one to another more than the former, and to resist the separation and re-assemblage which is necessary in taking the tobacco from a mass and re-arranging it in a sheet or stream from which charges for cigar filler may be separated. Moreover, in the mass, the larger scraps may lie pointed in many directions, while in the sheet or stream they must lie lengthwise, in order that they may so lie in the separated charges of filler. Neither of these difficulties is involved in the use of the known machines for feeding small scrap tobacco. The main object of the present invention is the production of a device which overcomes these difficulties and is capable of use in a hot and damp climate as well as in more temperate climates and which will handle not only small scrap tobacco in slightly damp condition but also large scrap tobacco in very damp condition. With this and other objects not specifically mentioned in view, the invention consists in certain constructions and combinations which will be hereinafter fully described and then specifically pointed out in the claims hereunto appended.

In the accompanying drawings, which form a part of this specification and in which like characters of reference indicate the same or like parts, Fig. 1 is an end elevation of a device constructed in accordance with the invention; Fig. 2 is a side elevation of the upper part of the structure shown in Fig. 1, and shown in part in section; Fig. 3 is a section taken on the line 3—3 in Fig. 2; Fig. 4 is a fragmentary sectional view showing the swinging hopper in the position in which it delivers tobacco to the conveyor; and Fig. 5 is a similar view showing a predetermined quantity of tobacco which has been delivered to the conveyor, and showing the hopper in the position which it occupies when inactive for delivering tobacco to the conveyor.

In carrying the invention into effect, there is provided a source of scrap tobacco supply, and a conveyor receiving tobacco from said source. There is further provided mechanism for moving said source of supply to cause it to periodically deliver a predetermined quantity of tobacco to said conveyor and to retain all in excess thereof. It has been found that by so moving a source of supply, large and very damp scraps of tobacco contained therein, being constantly kept in motion and tumbled about during the movements of the source, will not adhere together and choke the delivery of the tobacco from said source, but will be freely delivered therefrom in predetermined quantities controlled by the formation of the parts adjacent the conveyor which in turn cause any excess over this predetermined quantity to fall back into the source of supply. This predetermined quantity is slightly in excess of the quantity required between successive deliveries of quantities, for a reason that will appear hereinafter.

In the best constructions contemplated, there is also provided means for uniformly re-arranging the tobacco delivered to the conveyor, in a uniform sheet or stream for delivery to a cigar making machine; this means including devices for leveling and straightening the tobacco scraps on said conveyor. In the best construction also, there is further provided means for compacting the re-arranged tobacco.

The foregoing means, mechanism, and parts, may be widely varied in construction within the scope of the claims, for the specific structure selected to illustrate the invention is but one of numerous possible concrete embodiments of the same. The invention, therefore, is not to be restricted to the precise details of the structure shown and described.

Referring to the drawings, there is provided a conveyor belt 6 which runs in the direction of the arrows in Fig. 2. This belt overrides a pulley 7 and another pulley not shown which is driven by one of the shafts of the machine in connection with which the device is used. The pulley 7 is supported by a pedestal 8 and bracket 9

from the bed 10 of the machine in connection with which the device is used.

The source of supply is in the form of a hopper 11 which is pivotally mounted alongside the belt 6 on trunnion screws 12, one of which is carried by a bracket 13 attached to the bracket 9, while the other is supported by a boss in the front wall 14 of the feed channel composed of the walls 14 and 15 rising alongside the belt 6 and running parallel therewith. The hopper 11 has a hinged cover 16 and is moved by a rod 17 attached to the cross frame 18 of the hopper. The rod 17 is connected with and operated by a crank 19 fast on a shaft 20 which is driven by means of the sprockets 21 and 22 and the chain 23 from a shaft 24 which is one of the main shafts of the machine in connection with which the device is used. By means of the structure so far described, the hopper is swung between positions over and at one side of the belt 6, and the crank 19 insures harmonious movements of the hopper which are sufficient to keep the tobacco therein in motion but without abrupt action.

In its vertical position over the belt 6, the hopper 11 bears against a stop 25 supported by the pedestal 8. A portion of the side wall 26 of the hopper adjacent the feed channel is cut away to permit the initial rakers to enter the hopper, a side flap 27, carried by the feed channel wall 14, being provided to close the cut away side of the hopper mouth as the hopper moves back and forth, and thus prevent spillage of tobacco through said cut away side. Spillage from the hopper front, below the axis 28 on which the hopper turns, is prevented by a guard 29 which is supported at one end from the wall 14 of the feed channel, and at the other end from the trunnion screw bracket 13.

When the hopper is in the position shown in Fig. 4. its back wall is in contact with the stop 25, and the tobacco within the hopper is free to fall upon the belt 6 which underruns the hopper when receiving tobacco therefrom. When the hopper is swung outwardly and downwardly to the position shown in Fig. 5, however, it carries with it all the tobacco within it except the quantity on the belt 6 which is predetermined by the capacity of the retaining walls 25 and 29, all in excess of this quantity falling back into the hopper, as indicated in Fig. 5. The device is so constructed and proportioned that this predetermined quantity is slightly more than is required before another deposit of tobacco on the belt 6 occurs. The purpose of this is to insure the delivery of a predetermined ultimate quantity in a given period to the cigar making machine. The excess over the proximate predetermined quantity falls back into the hopper as the latter swings downwardly. The excess over the ultimate predetermined quantity is thrown back into the hopper by devices which will be presently described.

By an inspection of Fig. 5, it will be noted that there is more tobacco on one side of the belt 6 than on the other. This tobacco must be leveled on the conveyor, and the long scraps must be turned so that they will lie along the conveyor if they are not already lying in that direction. This is accomplished as follows: As the charge deposited on the belt 6 by the hopper 11 is carried by the belt between the walls 14 and 15 of the feed channel, it comes within the range of action of a series of S-shaped rakers which gradually level the stream of tobacco, straighten long scraps which need it, and throw back all tobacco in excess of the ultimate quantity required for final delivery. First, two rakers 30 and 31 fast on a shaft 32 of the raker unit revolve near the entrance of the feed channel, raking back excess tobacco and leveling the charge, the front raker 30 being made extra long and being set close to the feed channel wall 14, so as to always keep a clear passage for the entering tobacco. Next a number of rakers 33 mounted on shafts 34 and staggered about with respect to the width of the feed channel are encountered by the advancing tobacco, the successive shafts 34 being nearer the feed belt as the tobacco advances, thereby gradually trimming or leveling the tobacco down to the required thickness, all excess tobacco at any given point being thrown back towards the hopper and ultimately discharged thereinto. The raker shafts 32 and 34 are mounted in a split gear box 35, each shaft having mounted on it a spur gear 36 meshing with an intermediate gear 37.

The driving shaft 32 of the raker unit, which passes through the outside wall of the gear box and beyond the bearing 38, carries a sprocket 39 which is driven by a chain not shown but deriving its motion from one of the shafts of the machine in connection with which the device is used. The raker shafts 34 operate in arcuate slots 40 in the walls 14 and 15 of the feed channel, so that the whole raker unit may be swung upwardly about the axis of the shaft 32 for inspection purposes when desired, or for adjusting the rakers nearer or farther from the belt 6 when desired.

After the sheet or stream of tobacco has been properly leveled and otherwise uniformly re-arranged on the advancing conveyor, it passes under a compacting roller 41 which has a knurled perimeter, and which is as wide as the feed channel. This roller is mounted on a shaft 42 supported by the channel walls 14 and 15 and by a bearing 43.

It is driven by a sprocket 44 in the direction of the arrow in Fig. 2, said sprocket deriving its motion from one of the shafts of the machine in connection with which the device is used.

The belt 6 carries the measured, leveled, straightened, and compacted tobacco to a final delivery point not shown, as to a cigar making machine.

What is claimed is:

1. A device for feeding scrap tobacco, comprising a source of supply, a conveyor receiving tobacco from said source, and mechanism for moving said source to cause it to periodically deliver tobacco in excess of a predetermined quantity to said conveyor and to remove the excess therefrom.

2. A device for feeding scrap tobacco, comprising a source of supply, a conveyor receiving tobacco from said source, mechanism for moving said source to cause it to periodically deliver tobacco in excess of a predetermined quantity to said conveyor and to remove the excess therefrom, and means for uniformly re-arranging the tobacco on said conveyor.

3. A device for feeding scrap tobacco, comprising a source of supply, a conveyor receiving tobacco from said source, mechanism for moving said source to cause it to periodically deliver tobacco in excess of a predetermined quantity to said conveyor and to remove excess therefrom, and means for uniformly re-arranging the tobacco on said conveyor and for throwing back any excess tobacco not removed by said mechanism.

4. A device for feeding scrap tobacco, comprising a source of supply, a conveyor receiving tobacco from said source, mechanism for moving said source to cause it to periodically deliver tobacco in excess of a predetermined quantity to said conveyor and to remove the excess therefrom, and means for leveling and straightening the tobacco scraps on said conveyor.

5. A device for feeding scrap tobacco, comprising a source of supply, a conveyor receiving tobacco from said source, mechanism for moving said source to cause it to periodically deliver tobacco in excess of a predetermined quantity to said conveyor and to remove the excess therefrom, means for uniformly re-arranging the tobacco on said conveyor, and means for compacting the re-arranged tobacco.

6. A device for feeding scrap tobacco, comprising a source of supply, a conveyor receiving tobacco from said source, and mechanism for moving said source to cause it to periodically deliver tobacco in excess of a predetermined quantity to said conveyor and to remove the excess therefrom, said conveyor including a belt which underruns said source when receiving tobacco.

7. A device for feeding scrap tobacco, comprising a source of supply, a conveyor receiving tobacco from said source, and mechanism for moving said source to cause it to periodically deliver tobacco in excess of a predetermined quantity to said conveyor and to remove the excess therefrom, said mechanism including an actuating crank for producing a harmonious movement of said source.

8. A device for feeding scrap tobacco, comprising a source of supply, a conveyor receiving tobacco from said source, and mechanism for moving said source to cause it to periodically deliver tobacco in excess of a predetermined quantity to said conveyor and to remove the excess therefrom, said source including a hopper pivotally mounted alongside said conveyor to swing between positions over and at one side of said conveyor, and said mechanism including a crank and a rod connecting said crank with said hopper.

In testimony whereof, I have signed my name to this specification.

WILHELM B. BRONANDER.