April 16, 1929. A. BARGEBOER 1,709,299

TOBACCO FEEDING DEVICE

Filed June 22, 1925

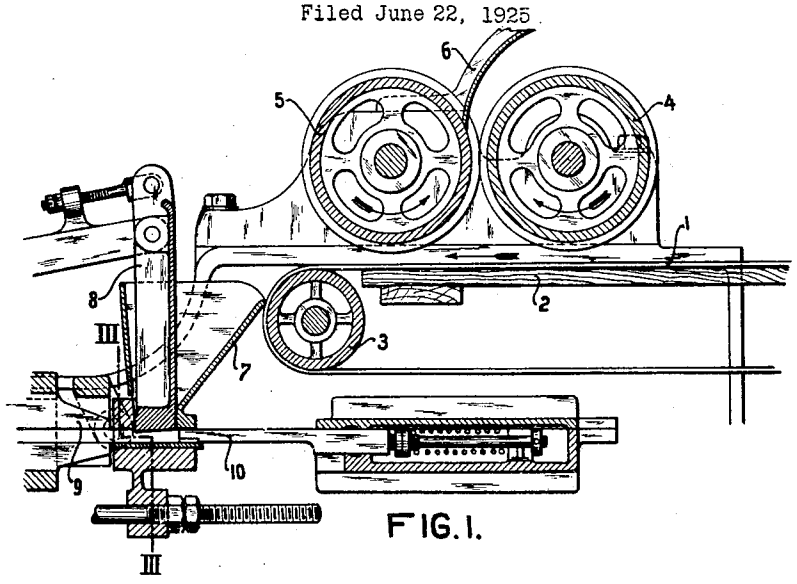


FIG. 1.

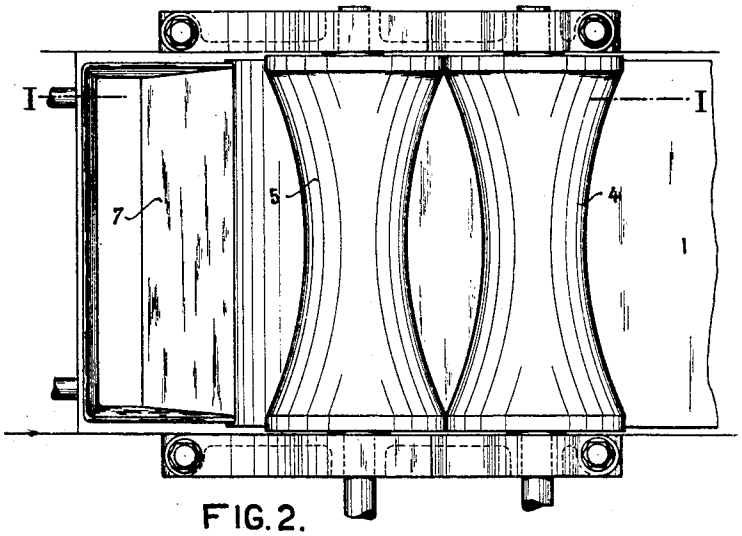


FIG. 2.

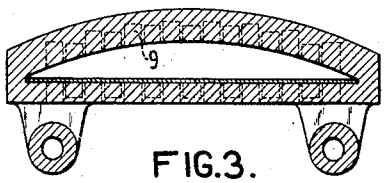


FIG. 3.

A. Bargeboer
INVENTOR

By: Marks & Clark
Attys.

Patented Apr. 16, 1929. 1,709,299

UNITED STATES PATENT OFFICE.

ADOLF BARGEBOER, OF SCHEVENINGEN, NETHERLANDS.

TOBACCO-FEEDING DEVICE.

Application filed June 22, 1925, Serial No. 38,867, and in the Netherlands May 6, 1925.

It is well known in the art that the tobacco feeding device used in conjunction with a machine for making bunches of tobacco for cigars should be constructed in accordance with and responsive to the model of the cigars to be made, i. e. with the variation in the cross sectional shape of the cigar from the tip to the fire end thereof. The object of my present invention is to provide certain additional means for improving the operation of feeding devices of this character.

In accordance with my present invention, the said additional means, adapted to be used with well known forms of feeding mechanism, comprises a suitable conveyor such as an endless belt, or a drum of relatively large diameter, onto which the material to be handled (hereinafter referred to as "tobacco") is deposited manually or automatically. Mounted vertically above said conveyor are two horizontally spaced rollers rotatable in opposite directions about axes crosswise of the direction of motion of the feeding part of the conveyor, the first roller (as viewed in the feeding direction) revolving in a direction opposite to that of said conveyor. The first roller serves in conjunction with the conveyor to press the tobacco against the second roller, the configuration of which corresponds to the profile of the tobacco bunch to be made and which throws the excess of tobacco over the first roller back onto the conveyor. Consequently, the first roller could be an ordinary, cylindrical roller. Nevertheless, I prefer to also shape the first roller in accordance with the profile of the tobacco bunch to be made, whereby the tobacco is driven up and back of the first roller at a maximum rate near the end portions where the second roller has to remove a maximum quantity of it, assuming that the tobacco is fed to the conveyor 1 in a layer of substantially uniform thickness.

If cylindrical tobacco bunches are to be made, for instance, for cigarillos (cigar-cigarettes), both rollers may be cylindrical, when they serve to spread the tobacco on the conveyor in a layer of approximate uniform thickness so as to relieve the feeding device proper, mounted in the further path of the tobacco. If desired, ordinary cylindrical rollers can also be employed when profiled tobacco bunches are to be manufactured, viz, when the belt conveyor is made of very flexible material such as rubber and its upper part is supported by a table having in cross section the required profile, or when the conveyor is a drum having this profile.

The relative speeds of the rollers and of the conveyor are not tied down to fixed values. The rollers may be driven at equal or at unequal speeds and the linear speed of the conveyor may be greater or smaller, as circumstances require. However, I recommend—although this is not strictly necessary—to impart to the conveyor the same general kind of motion (continuous or intermittent) as to the rollers.

The annexed drawing illustrates, by way of example only and not of limitation, an auxiliary feeding device in accordance with my invention and designed to cooperate with a known feeding device fitted to a machine for making tobacco bunches. In this drawing:

Fig. 1 is a vertical sectional elevation along the line I—I in Fig. 2,

Fig. 2 is a top or plan view,

Fig. 3 is a cross sectional view of the feeding chamber on line III—III of Fig. 1 to show the profile of said chamber in accordance with that of the feed rollers.

The belt conveyor 1 is driven in the direction of the arrow, i. e. with its upper part, which is supported by a flat table 2, moving to the left. Said conveyor is passed around drums, one of which only is shown and designated by 3. Mounted vertically above the conveyor 1 are two feed rollers 4 and 5, revolving in opposite directions on parallel axes as indicated by the arrows and having a profile as shown in Fig. 2. The roller 5 can be driven by any suitable mechanism from the shaft of drum 3. Roller 4 is provided with cylindrical end portions in contact with similar cylindrical end portions of roller 5, the contact pressure between these portions being sufficient to drive roller 4.

The filler tobacco deposited on the belt conveyor at the right hand end thereof in any desired manner is pressed against the belt by the roller 4, which thereby prevents the tobacco from remaining stationary owing to the action of roller 5, i. e. prevents the belt 1 from idly passing below the rollers without feeding.

Tobacco is thus fed between the roller 4 and the conveyor belt 1 and is somewhat compressed by the action of the roller but is released when reaching the space between the two rollers 4 and 5. It continues to travel in the direction of the conveyor belt owing to the pushing action of the tobacco following

it and is pressed against the surface of the roller 5 rotating in a direction opposite to that of the movement of the tobacco. It will thus be seen that only a layer of tobacco can pass beneath the roller 5 having a profile on its upper surface similar to that of the roller 5, the remainder being pushed back into the space between the rollers and, if a sufficient quantity banks up in this space, it will pass upward between the two rollers and be removed by the shield or doffer 6 having its edge shaped to the profile of roller 5, whereupon it falls upon the roller 4 and is carried back onto the central portion of the belt 1, where it is most desired that the thickness of the layer of tobacco be a maximum.

The layer of tobacco which has passed beneath the roller 5 has a profile imparted to it by the roller and the belt, i. e., is flat on the bottom and convex on the top. It is carried forward by the belt 1 and finally slides down along an inclined plane 7 into a conventional feeding mechanism which heretofore has not been supplemented by the above-described auxiliary feed. At the bottom of the inclined plane 7 the tobacco assumes a position below a stamper 8 having a bottom face profiled like the upper surface of the layer of tobacco fed to it, said stamper being reciprocated vertically into and out of the feed chamber 9. From this chamber the tobacco is pushed by a reciprocating impeller 10 into position within reach of feed bars, not shown, which thereupon convey it to suitable mechanism which cuts off uniform portions which are subsequently made into rolls adapted to be provided with wrappers and formed into completed cigars.

I wish it to be well understood that the auxiliary feed device comprising in combination the rollers 4, 5 and the belt 2 or its equivalent such as a drum having a relatively large diameter only serves to ensure an average uniformity in the profile of the layer of filler tobacco to be fed towards the machine for making the bunches. The practically absolute uniformity in said profile results from the operation of the device 9, 10, and associated parts which directly feed the tobacco into the said machine. The well-known feeding device as represented by the parts 9 and 10 is enabled to perform its duties more rapidly and more effectively to insure a more absolute uniformity of configuration of the tobacco layer by reason of what may be termed the average uniformity imparted to the layer by the auxiliary feeding mechanism comprising the parts 1, 4 and 5. This combination of two feeding devices ensuring an average uniformity and an absolute uniformity, respectively, is a very important feature of my present invention.

As to the device 9, 10, I refer to my copending application for patent Ser. No. 739,435 in which the same has been described in further detail, but I wish to emphasize that in combination with my novel means constituted substantially by the rolls 4, 5 and the conveyor 2 any other known or approved feeding device for bringing about a practically absolute uniformity in the profile of the layer of tobacco or like material could be employed.

What I claim is:

In a device for feeding tobacco to a machine to be rolled and bound, the combination with a feeding means adapted to feed a layer of tobacco of uniform cross-sectional shape and density, of a pre-feeding means for said feeding means adapted to feed thereto a layer of tobacco of uniform cross-sectional shape, said pre-feeding means comprising an endless conveyor and two profile rollers arranged above said endless conveyor, rotatable in opposite directions relative to each other and with the axis of rotation of said rollers extending crosswise to the direction of movement of the endless conveyor.

In testimony whereof I affix my signature.

ADOLF BARGEBOER.