

March 17, 1942.

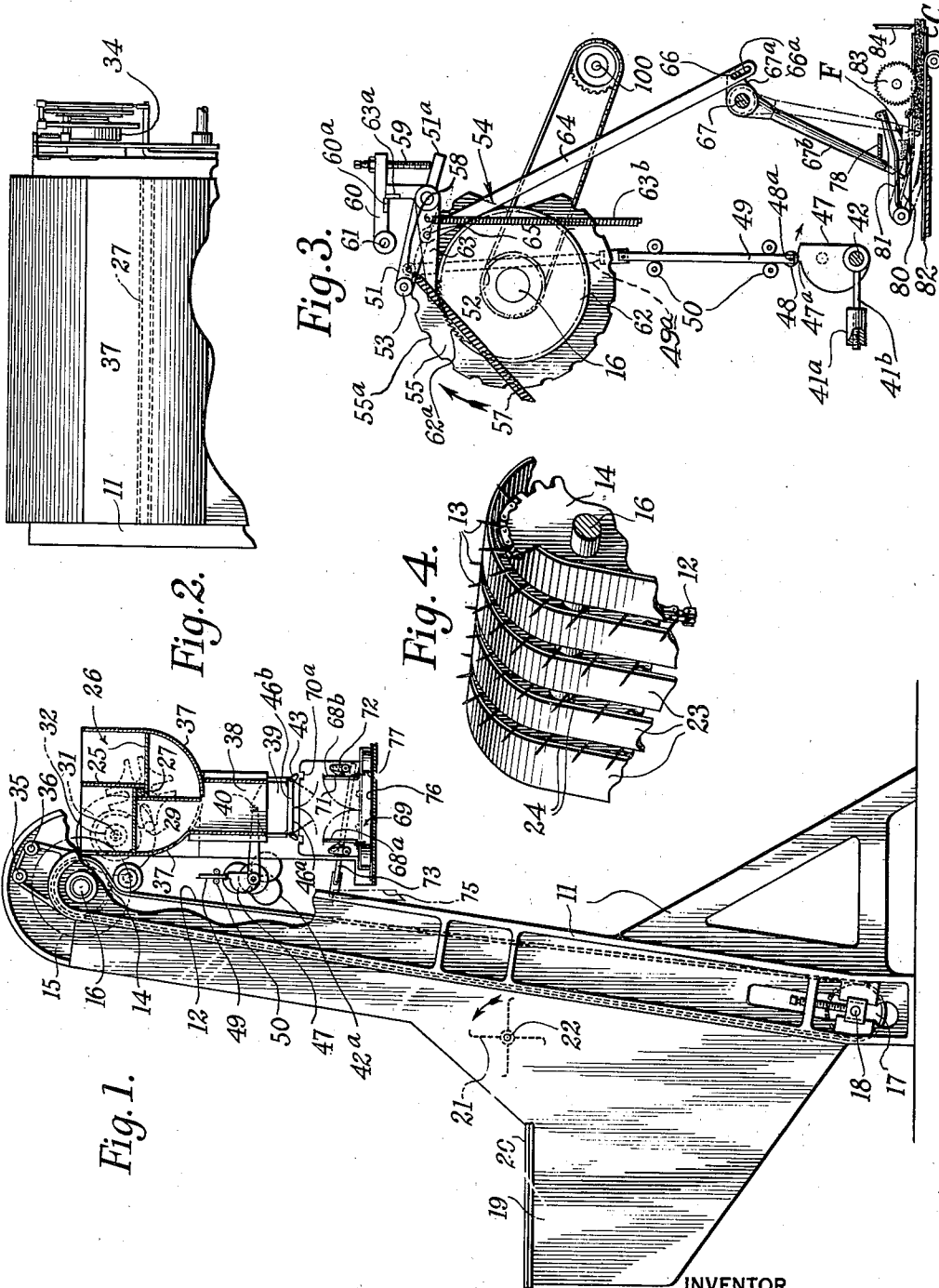
H. H. WHEELER

2,276,361

AUTOMATIC LONG FILLER FEED FOR CIGAR MACHINES

Filed June 8, 1937

4 Sheets-Sheet 1



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4 Sheets-Sheet 2

Fig. 5.

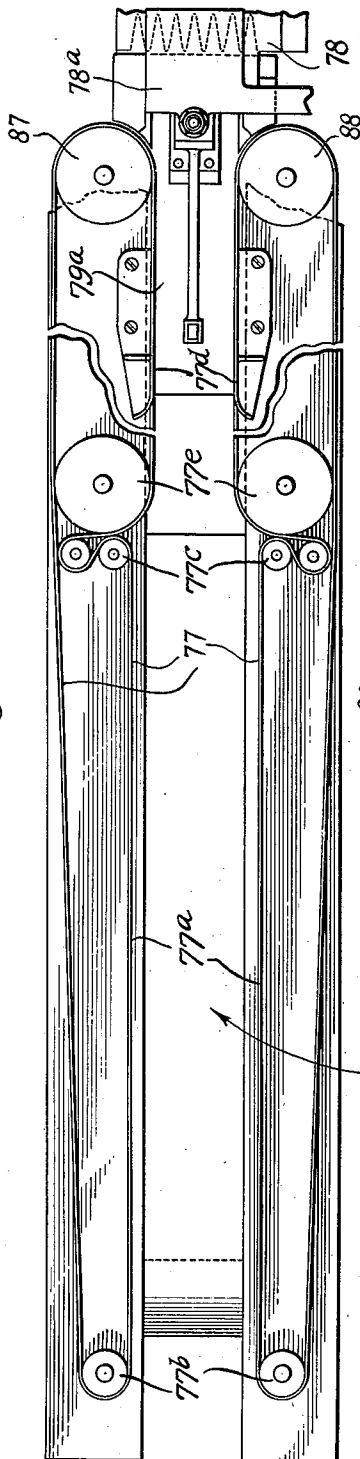


Fig. 9.

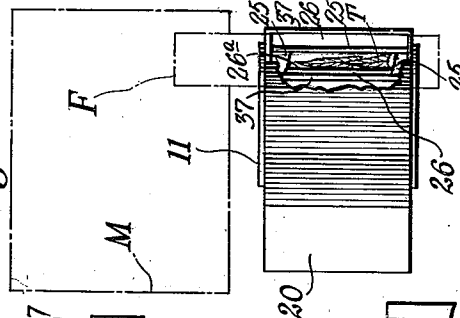


Fig. 10.

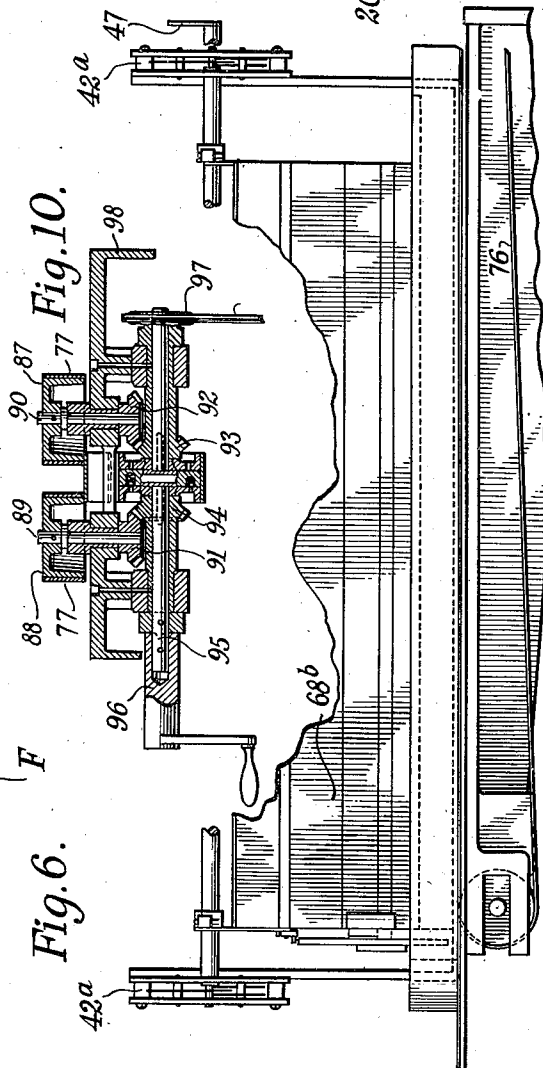


Fig. 6.

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4 Sheets-Sheet 3

Fig. 7.

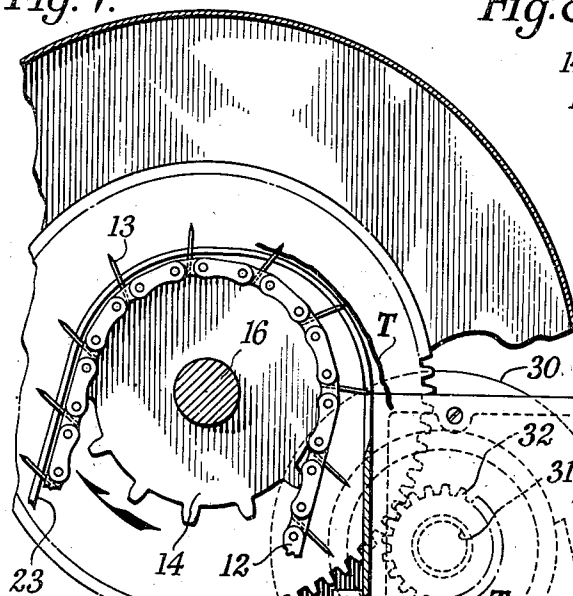
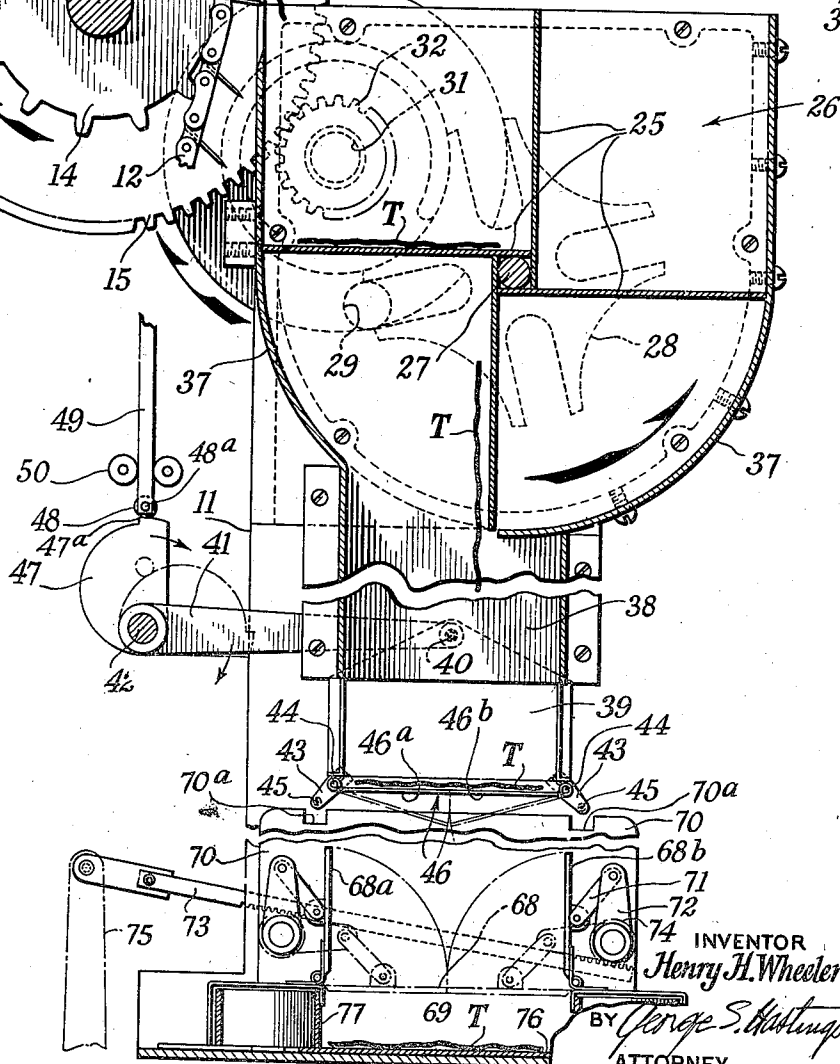
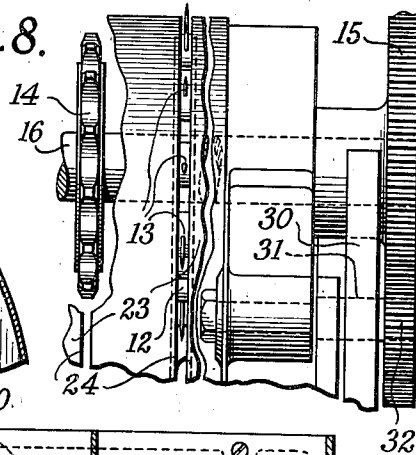


Fig. 8.



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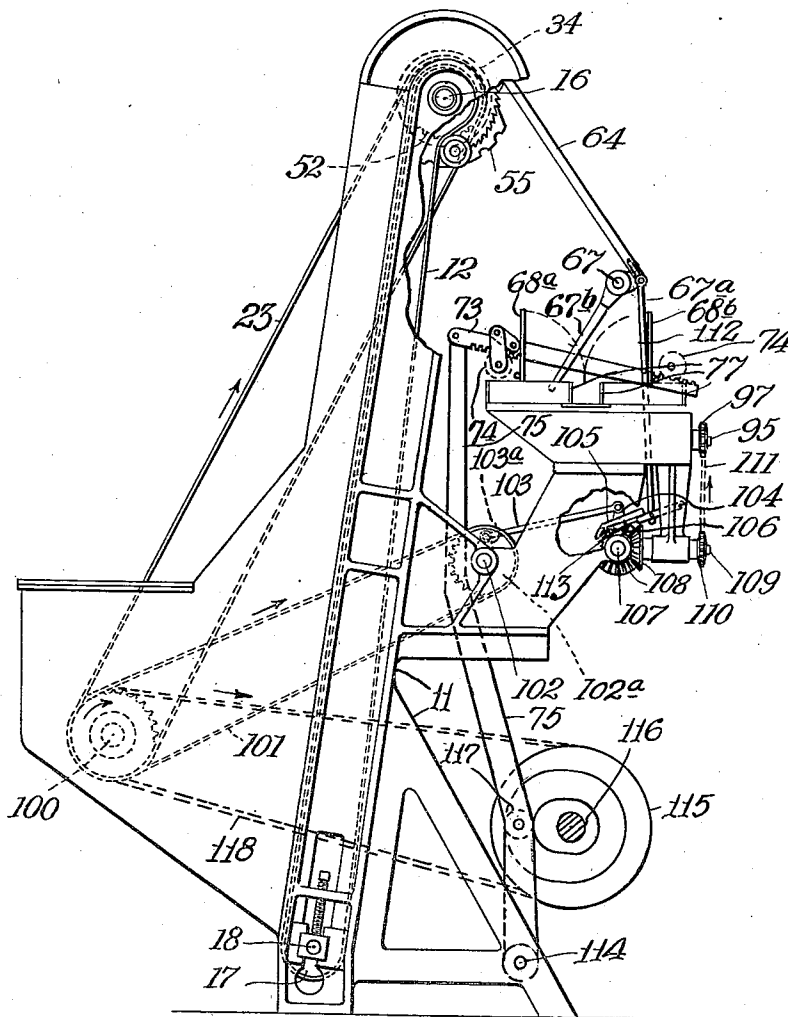
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4 Sheets-Sheet 4

Fig. 11.



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AUTOMATIC LONG FILLER FEED FOR CIGAR MACHINES

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Application June 8, 1937, Serial No. 147,022

24 Claims. (Cl. 131—22)

This invention relates to filler feeds for cigar machines, and more particularly to an automatic feed for long filler tobacco for such machines.

The conventional manner of feeding long filler tobacco is for an operator to lay the whole laminae of the filler tobacco leaves by hand in the trough of a cross feed, such for instance as that disclosed in the patent to Bronander, No. 1,740,571, dated December 24, 1929. With this type of feeding, the uniformity of the cigars made by the machine is largely dependent upon the uniformity and skill with which the operator feeds the tobacco leaves. The present invention contemplates the feeding of long filler tobacco without this feeding being subject to error in feeding by the operator and without handling the leaves manually which formerly was necessary. Since feeding of the long filler has required care and uniform laying to obtain uniform cigars, it has necessarily been a relatively slow operation, which in the past has been the main choke point of the cigar machines and has held up the speed of operation of the remaining parts. Hence, one of the objects of the invention is to speed up the entire cigar machine by rendering automatic and not subject to the limitations of speed of an operator, the critical operation of filler feeding.

Thus, the principal objects of the invention are to perform by mechanical means a number of operations to which it has hitherto been thought impossible to perform except by hand. Among these are the withdrawing or separating of the leaves individually from a source of supply, the straightening and arranging of the leaves with their lengths extending in the same direction, the approximate weighing of these leaves, and the depositing of the leaves in the cross feed of the cigar machine in a sufficiently uniform manner to make satisfactory cigars.

Other objects are: to remove surplus leaves entangled with those being fed without tearing the leaves being fed; to gently and effectively strip the leaves from the feeding conveyor without tearing, crumpling, or otherwise injuring the leaf; to first locate the lengths of the successive leaves approximately in one plane and then in a plane transverse to said plane so that successive leaves are similarly aligned.

Another important object of the invention is to so coordinate and synchronize the removal, feeding and delivering of the leaves in the cross feed and with relation to the tobacco used in forming the bunch charges that there will always be a sufficiency of tobacco fed, but whenever more

tobacco accumulates ahead of the charge forming means than is needed, the feeding will be checked till more tobacco is called for, whereupon the feeding will be started again.

5 In carrying out the invention, I have illustrated a somewhat inclined but generally vertical conveyor which forms one wall of a source of supply of tobacco. Pins on this conveyor, inclined upwardly, pick up such leaves as are im-
10 paled thereon. Surplus leaves are brushed off by a member rotating in the same direction to avoid tearing of the leaves, since, if an entangled leaf pulls off a leaf on the pins, it will pull in the direction of inclination of the conveyor pins.

15 The leaves hanging on the pins, which are picked up one, or occasionally a few at a time, tend to hang from one end or the other, or at a slant by gravity against the slightly inclined conveyor, and thus the leaf as a whole and its length
20 tends to lie in a plane parallel to that of the conveyor. This action is due to the fact that the pins are rather widely spaced both transversely and longitudinally of the conveyors, so that only a few pins are in position to engage the leaf at
25 any one time, and pass through a loose mass of the long filler tobacco leaves in the hopper 19. In practice only a few of the pins pick up and retain a leaf at any given time so that generally the leaf is hung from one or two pins. Since it
30 will be relatively rare that a leaf is impaled close to its center or balancing point, the tendency of the leaves on the pins 13 is to swing or hang from one end or the other, thus partially aligning the lengths of the leaves in the same general di-
35 rection. The successive leaves all generally in the plane of the conveyor are then gently stripped from the pins on the conveyor in such a manner as to avoid injury to the leaves, by rails which diverge from the conveyor so as to pro-
40 gressively wedge the leaves off the pins in the direction in which the pins point.

In the preferred embodiment illustrated, the successive leaves are then more fully straightened and aligned by dropping them in an horizontally elongated open topped chamber, the horizontal bottom wall of which is intermittently rotated to receive and discharge the aligned leaves. A leaf ejected into the chamber will ordinarily, whether one end or the other falls first, lay in the cham-
45 ber with its length extending lengthwise of said chamber.

At some stage, which may be on the discharge from the aligning chamber, the leaves are weighed in order to insure that approximately the desired surplus of leaves shall be deposited. Fur-

ther in the chosen embodiment it is contemplated that the measured leaves will be guided into the cross feed and held therein against curling, and that feeding, measuring and forwarding of the leaves shall be so coordinated that a surplus of leaves at the weighing point stops the feed and the dwindling of the supply at another point, as in a column or other supply from which the charges are separated, shall restart the feed.

Other objects and advantages will appear from the ensuing description and claims.

In the accompanying drawings:

Fig. 1 is a side elevation of the automatic long filler feed constructed in accordance with the preferred embodiment of the invention, selected for illustration;

Fig. 2 is a rear view of the same;

Fig. 3 is a side view of the scale controlled clutch mechanism, together with the connections to the main feed of the cigar machine;

Fig. 4 is a fragmentary perspective view of the guide plate with needles or pins projecting between the slots thereof and illustrates the staggered relation of the needles carried by the block chain;

Fig. 5 is a plan view of the cross feed mechanism;

Fig. 6 is a side elevation of the scale pan and cross feed mechanism;

Fig. 7 is an enlarged sectional view of the automatic feed mechanism;

Fig. 8 is a fragmentary rear view of the feed chain;

Fig. 9 is a diagrammatic plan view of my invention, with the overlying parts including the paddle 25 broken away to show a leaf passing through the opening 25a, shown in relation to a cross feed and cigar machine, both of which are indicated by dot and dash lines; and

Fig. 10 is an elevation partly in section of the cross feed shown in Fig. 3.

Fig. 11 is a side elevation showing drive and control parts, the main drive shaft being shown in a modified location.

Referring to Figs. 1, 4, 7 and 8 of the drawings, a frame 11 supports a series of block feed chains, one of which is indicated at 12, which carry impaling pins 13, and which travel over a sprocket 14 mounted together with a gear 15 on the drive shaft 16 of the long filler tobacco feed. The shaft 16 is driven by drive means controlled from the tobacco measuring and forwarding mechanism hereinafter described. The lower ends of the chains 12 are supported by a suitable sprocket 17 on a shaft 18.

A hopper 19, provided with a cover 20 to keep the tobacco from drying out too rapidly, is arranged to hold a supply of long filler tobacco. It will be noted that the rear wall of this hopper inclines downwardly toward the conveyors 12 which, together with the guide plates 23, serve to form the rear wall of a hopper and against which said inclined wall tends to push the filler.

The pins 13 of the conveyors 12 are directed somewhat upwardly and as the pins pass through the receptacle, they impale or engage the adjacent long filler leaves, and the individual leaves are picked up and carried on the upwardly and rearwardly inclined conveyor, with the leaves more or less separated, since an occasional leaf or sometimes small groups of leaves will attach themselves here and there along the flights of the conveyor. As the leaves are carried upwardly by the pins, other leaves entangled therewith sometimes follow along and a rotating paddle 22

provided with projecting paddle arms or sweeps 21 is furnished which rotates in a counter-clockwise direction but preferably at a greater peripheral speed than the linear speed of chain 12, as shown in Fig. 1, so that the paddle overtakes and passes the adjacent parts of the conveyor, thus sweeping upwardly and away the surplus leaves. The reason for having the paddles move upwardly is to prevent tearing of the leaves, since any surplus leaves partially attached to the upwardly inclined pins will be more readily removed if carried in the direction of inclination of the pins. The pins are upwardly inclined in order to have a hooking effect on the leaves so that the leaves do not readily fall from the pins after once being engaged. Thus, only the sparse layer of separated individual leaves will in general be fed by the pins 13. These leaves will tend to hang if caught at one end only along the plane of the guide plates 23, due to the inclination of the conveyor through which gravity causes the leaves to lay against said plates. Thus, in an approximate manner, the leaves are held in one plane with that of the plates 23, as they slide up the same, which constitutes the first step of aligning the tobacco leaves. It will be noted, incidentally, that the plates 23 are spaced to provide slots 24 between them for the passage of the pins 13, as shown in Fig. 4.

In order to strip the leaves from the pins at the delivery point, without damage to the leaves, the guide plates are directed along a path diverging from the conveyors 12 towards the ends of the pins, as shown in Fig. 7. Thus, the guide plates 23 gently cam the leaves away from and off the pins, where the leaves fall into an elongated chamber formed by two paddle elements 25 of the transfer wheel 26 and by the wall 37, which forms a continuation of the guide plates 23. Inasmuch as the successive leaves have already been confined to one general plane and the horizontal paddle 25, as shown in Fig. 7, constitutes a second plane transverse to the plane of the guide plates 23 and their continuation 37, the leaf in falling lays on the surface of said horizontal paddle and has now been aligned in two planes at right angles to each other, as, for example, a horizontal and vertical plane so that the lengths of successive leaves received by the transfer wheel are in substantial parallelism or alignment i. e., extending in the same direction. Of course, it is understood that this alignment need only be approximate, the general requirement being that the lengths extend generally in the same direction, so that the leaves may be delivered with their lengths in general alignment with the cross feed, hereinafter described.

The transfer wheel 26 is mounted on a shaft 27 and is rotated in timed relation to the shaft 16 driving the conveyors 12. A Geneva gear 28 on the shaft 27 is operated by a roller 29 on a wheel 30 mounted on a shaft 31 supported in the frame 11, which shaft is driven by a gear 32 which meshes in turn with a gear 15 secured to the shaft 16. The geneva arrangement is employed in order that the paddles 25 may be quickly moved from one leaf aligning operating position, as shown in Fig. 7, to another, so that there is no likelihood of the leaves falling while the paddles are in intermediate position, though in most cases that would do no harm, since the leaf would probably drop to one side or the other of the paddle. As presently described, the shaft 16 is driven through a clutch indicated generally by 34 through which the operation of the shaft

16 can be controlled to automatically discontinue feeding, when necessary, said clutch being similar to that disclosed in the patent to H. H. Wheeler, No. 2,124,219.

The transfer wheel 26 is enclosed by the side-walls 37 which retain the leaf as it is being transferred in its rotation to a feed chute 38 opening into a scale pan 39 pivotally supported at 40 by a balance arm 41 mounted on balance shaft 42. It should be noted that as the paddles 25 swing downwardly towards delivery position, there is a strong tendency to align the length of the leaves parallel to the shaft 27 as the leaf slides along the surface of the wall 37 in the angle between said wall and said paddle.

The aligned leaf then drops down the chute 38 onto the scale pan 39 (Fig. 7) which pan is provided with a split bottom consisting of two gate sections 46a and 46b mounted on rock shafts 44, to which are secured levers 43.

The scale beam shaft 42, mounted on rotatable disks 42a, is provided with a cam 47 which supports a roller 48 connected at 48a to a vertical plunger rod 49 reciprocable between two sets of guide rollers 50 and connected at its upper end to a cam lever 51 (Fig. 3) by an adjustable link 49a. This cam lever 51 is lifted at spaced intervals by a continuously rotating cam 55 loosely mounted on the shaft 16 and secured to sprocket 52, in order to permit the over-balancing of the scale pan 39, by releasing the pressure on the cam 47, to rotate the raised portion of the cam 47 from under the roller 48. Continued rotation of cam 55 trips a ratchet 63 and permits the ratchet to engage the ratchet teeth 62a, thereby stopping the rotation of disk 62 of said clutch 34. This serves to declutch the clutch 34, as is clear from the disclosure set forth in said Patent No. 2,124,219, permitting the shaft 16 to come to a stop and the feeding of the long filler leaves to terminate.

Thus, when the depressed or cutout portion 54 reaches the cam roller 53, the lever 51 through the link 52 and plunger 49 pushes the cam 47, causing the same to rotate the shaft 42 and scale beam 41 still farther downwardly, depressing the scale pan and camming the gate opening levers 43 to open position by engagement with the notches 70a. This permits the leaf on the pan to drop downwardly to the cross feed. A spring 57 anchored at 58 on the lever 51 and suitably attached to frame 11 will maintain the roller 53 in engagement with the cam 55.

The declutching of the clutch 34 to stop the automatic filler feed is caused as follows: An extension 51a on the lever 51 engages an adjustable screw 59 secured to the lever 60 on the pivot pin 61 suitably secured to the frame of the machine. Thus, when the lever 51 is permitted by the cam 47 to lower into the cutout 54 of the cam 55, extension 51a on said lever is lifted pushing up set screw 59 and lifting lever 60, together with latch piece 60a, which trips or unlatches latch piece 63a secured to ratchet lever 63, thus permitting the ratchet lever 63, urged by spring 63b, to drop into engagement with the teeth 62a of ratchet wheel 62 of the clutch, to declutch shaft 16 from the drive sprocket 52 which is connected to the main drive of the machine, causing the shaft 16 and the feed mechanism connected thereto to stop.

The ratchet wheel 62 is loosely mounted on the shaft 16 and is provided with suitable control prongs which operate jam rollers which form the driving connection between an outer flange of

the clutch 34 connected to a sprocket 52, which is driven from the main drive of the cigar machine, and an inner driving disk which is keyed to the shaft 16, the arrangement of the parts being similar to that described in the Patent No. 2,124,219 above referred to.

Once the clutch 34 has been declutched, feed of the long filler tobacco leaves ceases. Thereafter the clutch will remain declutched and there will be no feeding as long as there is a sufficiency of tobacco for forming charges at the main feed of the cigar machine. When, however, the supply of tobacco at this point gets below normal, the feeding is restarted and the cross feed also starts. The means for accomplishing this result is shown in Fig. 3. It consists of a link 64 connected at 65 to the ratchet 63 and connected through an elongated slot to a lever 67a having a pin 66 engaging in the slot, the lever being secured to a rock shaft 67 which supports the rake 67b which serves to sweep tobacco cut from the forward end of the cross feed into the column of tobacco from which the charge is cut. As will be seen from Fig. 3, if, on the forward movement of the rake 67b, it encounters a mass of tobacco in the column ahead of same such that the rake can move only a relatively limited distance, then the rake will not operate to disengage the ratchet 63 from the ratchet teeth 62 and the feeding will not start, there being already enough tobacco available. If, however, the rake moves well forward, then the pin 66 reaches the end of the slot 66a and pushes the ratchet lever 63 out of engagement with the ratchet teeth. At the same time this re-latches the latch 60a and latch-pieces 63a until such time as the over-balancing of the scale pan stops the feeding operation again. When the ratchet lever is withdrawn from the ratchet wheel 62a driving of the shaft 16 is resumed and feeding of the long filler tobacco leaves restarts. It may be stated that the construction of the rake and cross feed and main feed is generally similar to that shown in Patent No. 1,740,571 to Wilhelm B. Bronander, issued December 24, 1929, to which reference is made for details of the construction. As clearly set forth in said patent, the intermittent feeding cycle of the cross feed also is omitted when the rake 67 encounters a surplus of tobacco and is restarted when the rake encounters an insufficiency.

Accordingly, when a sufficient weight of leaves of filler tobacco has fallen into the scale pan 39, gates 46a and 46b open and the leaves fall between the raised gates 68a and 68b, constituting a cover 68 which, when open, form a chute into the trough or channel 69 of the cross feed mechanism F and which when closed form a cover to hold down the ends of the longitudinally extending leaves in said channel. Vertical plate 70 with notches 70a is secured to the cross feed mechanism F and serves to open the gates 46a and 46b. For the purpose of opening the cross feed cover gate 68a and 68b, lever arms 71 and 72 secured to said gates are provided and operated by a rack and pinion 73 and 74 from lever 75 which is oscillated by cam 115 in timed relation to the operation of the long filler feed mechanism and cross feed so that these gates are maintained in open position when tobacco is delivered from the scale pan, and in closed position during the intermediate forward motion of the bottom belt 76 and the side belts 77 of the cross feed. Preferably the feeding of the leaves to the scale pan is proportioned to deliver the desired weights of tobacco leaves thereto successively before the cross feed

belt 76 has advanced an extent equalling the length of the tobacco leaves, thereby causing a shingled relationship of successive weight thereon.

Referring to Figure 11 it will be seen that the cross feed and lever 75 which controls the movement of gates 68a and 68b of the cross feed are operated in timed relation from common drive shaft 116, which drives shaft 100 through sprocket chain 118 and suitable sprockets (not shown) on shafts 100 and 115. The drive from shaft 100 is transmitted to shaft 102 by means of sprocket chains 101 and suitable sprockets on shafts 100 and 102 (not shown). Once during each cycle of the machine, by means of cam 115 and cam follower 117 carried by lever 75, gates 68a and 68b will be opened in order that tobacco in scale pan 39 may be discharged into the cross feed. It will be seen, therefore, that by means of cam 115 and cam follower 117, lever 75 will hold gates 68a and 68b open cyclically so that whenever the scale pan dumps the charge, the cross feed will receive it.

The cam structure 114-118 for operating the gates 68a and 68b in timed relation with the scale release mechanism is merely illustrative of one well known form of mechanism for performing this operation and constitutes no part of the invention in this application. It should be noted in this connection that the cutout portion 54 of the cam 55 is also driven from the same main drive shaft 100 of the cigar machine, and hence operates the bottom gates 46a and 46b of the scale pan in timed relation with the gate operating mechanism, since the opening of these gates is ultimately controlled by said cutout through downward pressure of the rod 49 on the cam 47.

At the forward end of the cross feed, as shown in Fig. 5, there is provided a vertically reciprocating knife carrying plunger 78a which carries a corrugated knife 78 and which serves to cut from the length of tobacco advanced by the cross feed a bunch length section of tobacco which is supported on a vertically swinging shelf 80 during the cutting operation. After the length has been cut, the shelf, together with an overlying lever 81, is swung downwardly to a position where the rake 67 may sweep the cut length from said shelf onto the main feed belt 82 and into association with the tobacco column C which is forwarded by said main feed through movement of said belt 82 and a star wheel 83. This column is thus forwarded under the knife 84 which periodically cuts charges sufficient for one bunch from the column, which charges are then delivered by the bunch charge transfer into the rolling apron wherein the bunch is formed.

It is noted that inasmuch as the cross feed is controlled by the operation of the rake 67b and the starting of the feeding operation of the long filler leaves is also controlled by said rake, that the two will be operated in proper timed relation as shown in Figure 11. The cross feed will be open to receive the leaves delivered by the scale when the scale is in position to deliver same.

While the operation of the embodiment selected to illustrate the invention has been described in connection with the description of the several parts, it may be briefly summarized as follows: The long filler tobacco leaf portions, generally the leaves with the stems removed, are deposited in the hopper 19. The pins 13 on the conveyors 12 pick up the leaves in the hopper one by one, or occasionally two or three at a time, and deliver them into the pocket formed

by the stripper sections of the guide bars 23 and the paddles 25. While I have shown pins, it is obvious that any pointed members or edged or hooked members which will engage and carry with them the leaves, may be employed.

While I have shown the paddles 25 for aiding and straightening out the leaf as the leaf falls into an elongated pocket formed thereby, this part while useful can be dispensed with, the successive leaves being arranged with their lengths generally parallel by simply dropping them through a narrow elongated opening such as provided at the upper edge of the pocket, or such as would be provided by the vertical chute walls being wide enough to accommodate the width of the leaf but not wide enough to accommodate a leaf extending lengthwise, to arrange the leaves with their lengths parallel as they drop through to the scale pan and cross feed below. One reason for providing the paddle is to furnish a bare smooth surface along which the lower end of a leaf falling at an angle one end first may slide said end so that the end moves to a position nearer the end of the aligning chamber. The leaves dropped by the rapidly indexed paddles 25 then fall onto the scale pan 46a-46b overbalancing the arm of the scale 41. When the raised portion 47a of the cam 47 swings out from under the cam follower 48, the pressure of the cam follower on the inwardly inclined cam surface 47 forces the scale pan down the rest of the way. The scale pan is balanced by a suitable weight 41a which is adjustable radially on a threaded arm 41b on the scale shaft 42. Thus, this weight may be set for any desired weight of leaves. This pan is not intended to weigh the leaves exactly but is for the purpose of providing a predetermined excess of leaves, and is set to feed a substantial but controlled excess of leaf weight over that required by the cross feed to insure that there will always be a sufficient weight of leaves deposited. Since the weight of the cam follower 49 and the pressure produced by the spring 57 will hold the delicately balanced scale arm 41a, 41b against rotation, it is important that this can be periodically released, and this is done by providing the continuously rotating cam member 55 with a series of depressions 55a into which a follower 53 drops periodically. Thus the raised portion between the depressions lifts the cam follower and releases the cam, yet as long as the cam follower on its downward movement feels the raised portion 47a, no change in the feeding cycle occurs.

When, however, the raised portion of the cam 47 passes from under the cam follower 48 and the scale pan is depressed, nothing holds the lever 51 in upward position except the cam 55, and when the cutout portion 54 thereof is reached, the lever drops, terminating the operating cycle of the automatic long filler feed through rotation of shaft 16, as already described.

The lifting of the ratchet lever 63 starts the feeding cycle through the relatching of the latch 60a and the latch pieces 63a holding the ratchet 63 out of declutching or drive stopping position on the ratchet wheel 62.

It is noted that even though the return of the scale pan after dumping of the leaves through overbalancing of the same by the weight 41a, otherwise places the parts in condition to restart the feeding motion of the parts, feeding will not be started until the rake 67b lifts the latch 63. This is because lifting of the cam follower 48a and lever 51, and in consequence the lowering

of the latch piece 60, is insufficient to hold the ratchet 63 out of drive stopping position until said ratchet is lifted through link 64 by the rake 67b encountering an insufficiency of tobacco in the column C. Since the rake 67b also controls the operation of the cross feed, the two will be started in timed relation so that the cross feed and the automatic long filler feeding devices will operate in proper synchronism.

In connection with the cross feed, it is noted that as also disclosed in Patent No. 1,740,571, the cross feed consists of three sets of belts, the operative runs 77 and 76 of which form a channel into which the tobacco leaves are deposited. As shown in Fig. 10, the belts 77 are driven by pulleys 87 and 88 on shafts 89 and 90 respectively, which are driven in turn through bevel gears 91 and 92, and thence by gears 93 and 94 through shaft 95 and sprocket 97, from which a chain extends to the same drive controlled by the rake, as is disclosed in said Patent No. 1,740,571.

It is noted further that the sprocket 52 and cam 55 are driven from the main drive of the cigar machine, as for example a shaft 100. The cross feed, for example, the shaft 102 of my construction corresponding to the crank shaft 79 of said Patent No. 1,740,571, may be driven from the same shaft 100 so as to insure their being driven in proper timed relation. For convenience in correlating the cross feed of Patent No. 1,740,571 with rake 67b and its cooperating structure, it is noted that the part 82 of the patent is the same part that is shown at 67a in Fig. 3 and my rake 67b is similarly actuated by a counter-weight (not shown) when released by a cam-actuated arm, not shown, loosely mounted on the shaft 67 whereon the rake 67b is fastened. The driving connections between the cross feed and the long filler hopper feed are shown in Fig. 11. As already noted, the sprocket 52 which drives the long filler leaf feed is connected by a chain 23 to a sprocket on the drive shaft 100. A chain 101 connected to a sprocket on the shaft 100 drives sprocket 102a on the shaft 102 from which a connecting rod 103 actuated by a crank 103a on the shaft 102 actuates the drive shaft 107 of the cross feed. This drive shaft is provided with a bevel gear 108 rotating a shaft 109 and driving a chain 111 through a sprocket 110 which in turn drives sprocket 97 on shaft 95 shown in Fig. 10. The control of the cross feed from the rake 67b, which as already stated also controls the long filler hopper feed, is by means of a connecting rod 112 secured to a crank 67a (see Fig. 3). This connecting rod 112 corresponds to the connecting rod 83 in the Bronander Patent No. 1,740,571 and, in the same manner a knock-out piece 113 trips a pawl 105 on the oscillating arm 104 into engagement with the ratchet 106 and thus initiates the intermittent forward feeding movements which are terminated when a knock-out pin (not shown) disengages the pawl from the ratchet.

The leaves dropped by the scale pan 46a are guided by the open covers 68a and 68b of the cross feed 76, 77, the leaves being dropped in the broad portion between the rear runs of the belts 77, as shown in Fig. 5. The forward runs of said belts are positioned by the pulleys 87 and 88 closer together than the rear ones and hence there is a sidewise compacting of the leaves in addition to the normal vertical compacting prior to their passing to the corrugated cutter 78. It will be noted that the cross feed

side belts 77 are provided with rear runs 77a traveling over pulleys 77b and 77c and with forward somewhat narrower runs 77d passing over pulleys 77e and 87 and 88. Compressor foot 79a is shown between the runs 77d which is similar in all respects to that disclosed in the Bronander Patent No. 1,740,571, above referred to.

What is claimed is:

1. In a cigar bunch machine, the combination with a main feed for feeding a layer of long filler tobacco for cigar bunches, a cross feed for delivering filler transversely of said main feed a bulk source of supply of said filler, and means for separating the leaf portions from said supply and delivering them to said cross feed, said means including a measurer for measuring the amount of leaves delivered to said cross feed, and control devices actuated by said measurer arranged to stop the operation of said means when a predetermined quantity of tobacco has been fed for delivery to said cross feed.

2. In a cigar bunch machine, the combination with a bulk source of supply of long filler tobacco, of means for accumulating a column of tobacco from which tobacco portions are to be separated, means for removing tobacco from said source and assembling it for delivery to said column, and control devices coacting with said removing means to stop the operation of said removing means when more than a predetermined excess of tobacco over that required for forming the bunch has been removed.

3. In a cigar bunch machine, the combination with a source of supply of long filler tobacco, of means for accumulating a column of tobacco from which tobacco portions are to be separated, means for removing tobacco from said source for delivery to said column, and control devices coacting with said removing means to stop the operation of said removing means when more than a predetermined excess of tobacco over that required for forming the bunch has been removed, said control devices including a weighing scale for weighing tobacco removed from said source.

4. In a cigar bunch machine, the combination with a source of supply of long filler tobacco, of means for accumulating a column of tobacco from which tobacco portions are to be separated, means for forwarding tobacco from said source for delivery to said column, and control devices coacting with said forwarding means to stop the operation of said forwarding means when more than a predetermined excess of tobacco over that required for forming the bunch has been forwarded, said control devices including a weighing scale for weighing tobacco removed from said source, and connections between said scale and said forwarding means for stopping the operation of said forwarding means when a predetermined excess of tobacco over that required for forming the bunch has been received by said scale.

5. In a cigar bunch machine, the combination with a source of supply of tobacco, of means for accumulating a column of tobacco from which tobacco portions are to be separated, means for forwarding tobacco from said source for delivery to said column, and control devices coacting with said forwarding means to stop the operation of said forwarding means when more than a predetermined excess of tobacco over that required for forming the bunch has been forwarded, said control devices including a weighing scale for weighing tobacco removed from said source, and con-

nections between said scale and said forwarding means for stopping the operation of said forwarding means when a predetermined excess of tobacco over that required for forming the bunch has been received by said scale, and means engaging said column coacting with said removing means to start the operation thereof when the amount of tobacco in said column is decreased below a certain amount.

6. A tobacco leaf feed comprising in combination a bulk source of supply of long filler tobacco leaves, a conveyor forming one side of said supply and against which part of the leaves in said supply rest, elements on said conveyor arranged to engage and carry with the conveyor substantially individual leaves from said source of supply, and rotating leaf brushing elements traveling in the direction of movement of the conveyor but at a greater peripheral speed.

7. A feed for long filler tobacco leaves including an endless conveyor, forwardly directed pins on said conveyor for impaling and forwarding the tobacco leaves, and means for sweeping off surplus leaves from said conveyor including sweeping elements traveling in an endless moving path in the direction of inclination of the pins at a greater speed.

8. The combination with a cigar bunch machine of a cross feed of a long filler cigar bunch machine, of means for weighing long filler tobacco and delivering the same in weighed increments onto said cross feed with the lengths of the leaves extending lengthwise of the cross feed.

9. The method of forming long filler tobacco charges which consists in weighing the tobacco leaves to get successive increments of a predetermined weight and laying the weighed increments successively in shingled relation to form a continuous stream of tobacco from which portions for forming charges may be cut.

10. The combination with a long filler cigar machine having a cross feed, of a tobacco leaf carrier for aligning and delivering tobacco leaves in substantial alignment, a weighing scale for receiving the aligned tobacco leaves, and mechanism coacting with said scale and carrier successively to deliver weighed increments of said aligned leaves to said cross feed.

11. In a long filler cigar bunch machine, the combination with a cross feed constructed and arranged to receive and forward an endwise moving stream of long filler tobacco leaves deposited in said feed with the leaves extending lengthwise of the feed, and cover means for said feed arranged to overlie the leaves at the position at which they are deposited to hold down the same as they are forwarded, said means including a hinged door hinged on an axis parallel to the length of the cross feed.

12. A cross feed for cigar machines, having a tobacco receiving channel and a hinged cover element hinged on an axis arranged lengthwise of said feed, and means for intermittently operating said cover to open and close the feed to first receive and then hold down tobacco deposited therein.

13. A cross feed for cigar machines having a tobacco receiving channel and a hinged cover element hinged on an axis arranged lengthwise of said feed, and means for intermittently operating said cover to open and close the feed to first receive and then hold down tobacco deposited therein, said cover being arranged when open to act as a chute to guide the deposited tobacco into said channel.

14. The combination with mechanism for feeding a stream of long filler tobacco leaves for forming long filler bunch charges, of filler forwarding devices for forwarding substantially full length tobacco leaves, and means including a weighing scale with a leaf receiving pan of substantially the same length as the leaves arranged to receive said leaves from said forwarding devices and to accumulate the same until a predetermined weight of tobacco has been received, for delivering weighed increments of tobacco to said mechanism.

15. The combination with mechanism for forming long filler bunch charges, of filler forwarding devices for forwarding aligned substantially full length tobacco leaves, means including a weighing scale of a size to receive the leaves without crumpling thereof arranged to receive said leaves from said forwarding devices and to accumulate the same until a predetermined weight of tobacco has been received, for delivering weighed increments of tobacco to said mechanism, and means for starting and stopping said forwarding devices, and connections between said scale and said means for stopping said forwarding devices when said predetermined weight of tobacco has been received on the scale.

16. The combination with a cigar machine cross feed having a leaf receiving channel, of means for depositing tobacco leaves into said cross feed, and guides extending along said channel for directing the leaves deposited by said means into said channel, said guides being movable to and from a position in which they cover the cross feed channel.

17. In a cigar machine having mechanism for forming long filler bunch charges, and filler forwarding devices for forwarding long filler leaf portions, means including a weighing scale arranged to receive leaves from said forwarding devices and to accumulate the same until a predetermined weight of tobacco has been received for delivering weighed increments of tobacco to said mechanism, said weighing scale including a scale shaft, a cam on said scale shaft, a cam follower resting on said cam, connections between said cam follower and said filler forwarding devices for controlling the operation of the same, and means for intermittently lifting the cam follower to release the cam and thereby permit rotation of the scale shaft unimpeded by the pressure of the cam follower on said cam.

18. In a machine having mechanism for forming long filler bunch charges, and filler forwarding devices for forwarding long filler leaf portions, means including a weighing scale arranged to receive leaves from said forwarding devices and to accumulate the same until a predetermined weight of tobacco has been received for delivering weighed increments of tobacco to said mechanism, said weighing scale including a scale shaft, a cam on said scale shaft, a cam follower resting on said cam, connections between said cam follower and said filler forwarding devices for controlling the operation of the same, and means for intermittently lifting the cam follower to release the cam and thereby permit rotation of the scale shaft unimpeded by the pressure of the cam follower on said cam, said cam follower lifter comprising a cam having a series of depressions in the same.

19. In a cigar bunch machine, the combination with a main feed having means for forwarding a layer of tobacco of a width substantially equal to the length of the bunch, of a relatively narrow feed channel, a hopper adapted to contain a supply of long filler tobacco of greater length

than the bunch, a relatively long narrow chute having side walls extending along said channel on either side thereof for directing the long tobacco into said channel while retaining the filler in a position in which the long dimension of the filler portions extends lengthwise of the channel, and means cooperating with said hopper and said chute to deliver said long filler tobacco from the hopper into said chute with the long dimension extending lengthwise of the channel to form a continuous stream of tobacco therein, and means for cutting bunch lengths from the forward end of said channel and transferring them onto the main feed with their lengths extending transversely of the main feed.

20. The combination with a feed for feeding a layer of long filler tobacco for cigar bunches to a cigar machine, of a bulk source of supply of said filler, means for separating the leaf portions from said supply and delivering them to said feed in amounts forming a column of tobacco from which bunch charges may be separated, said means including a measurer for measuring the amount of the leaf portions delivered to said feed, control devices actuated by said measurer arranged to stop the operation of part of said means when a predetermined quantity of tobacco has been fed for delivery to said feed, and mechanism controlled by said feed for restarting said separating means when there is less than a predetermined quantity of tobacco in said column.

21. An automatic long filler cigar tobacco feed comprising in combination a hopper of such size as to hold a supply of long filler tobacco consisting of leaf portions of substantially greater than bunch length, of a leaf carrier movable into engagement with some of the leaves in said hopper for taking individual leaf portions from said hopper substantially one at a time, a device coacting with said leaf carrier to remove surplus leaves which may be entangled with said leaves, means for assembling said substantially individual leaves in a column, and means for separating bunch charges from said column.

22. The method of aligning whole tobacco leaves which consists in moving substantially separate leaves or small groups of leaves over a guide surface to locate the successive leaves, generally in one plane, and thereafter dropping said leaves and assembling them on a flat generally horizontal plane surface extending transversely of said first mentioned surface while preventing substantial movement of the long dimension of the leaves out of parallelism with the first mentioned plane to substantially align said successive leaves or groups of leaves deposited on said horizontal surface.

23. A tobacco leaf feed comprising in combination a hopper constructed and arranged to hold a mass of long filler tobacco leaves of substantially greater than bunch length, and an inclined conveyor forming one side of said hopper and against which part of the leaves in said supply rest by gravity, said conveyor having elements adapted to be moved upwardly from the bottom of the hopper and out of the top of said hopper, and means for actuating said conveyor so as to move said elements thereon arranged to engage and carry substantially individual leaves from said source of supply, and means for stripping said leaves from the conveyor after they have been conveyed away from said hopper.

24. The combination with cigar bunch charge separating means, of means for aligning elongated long filler leaf portions comprising opposed walls providing a narrow elongated opening between them of a width substantially less than the length of the leaves, means for dropping said leaf portions through said opening to arrange the leaf portions with their lengths extending in the same direction, mechanism for forwarding the aligned leaves to said charge separating means while maintaining said leaf portions in aligned relation, and devices cooperating with said leaf dropping means and said forwarding means to arrange the leaf portions in shingled relationship on said leaf forwarding mechanism.

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