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DEVICES FOR THE CONVEYANCE OF CIGARS
DURING THEIR MANUFACTURE
Filed Oct. 9, 1937

Serial No.
168,181

2 Sheets-Sheet 1

Fig. 1

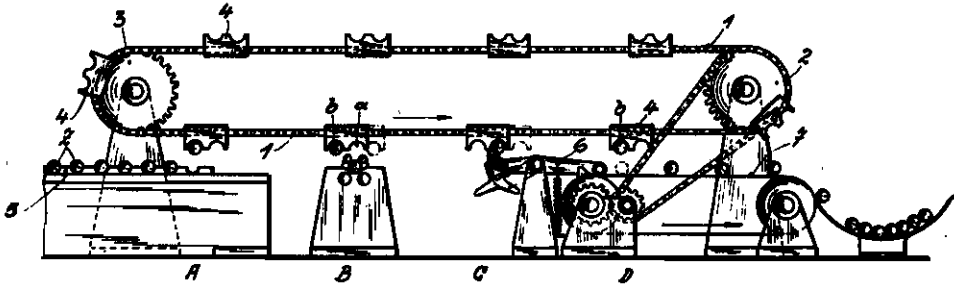


Fig. 2

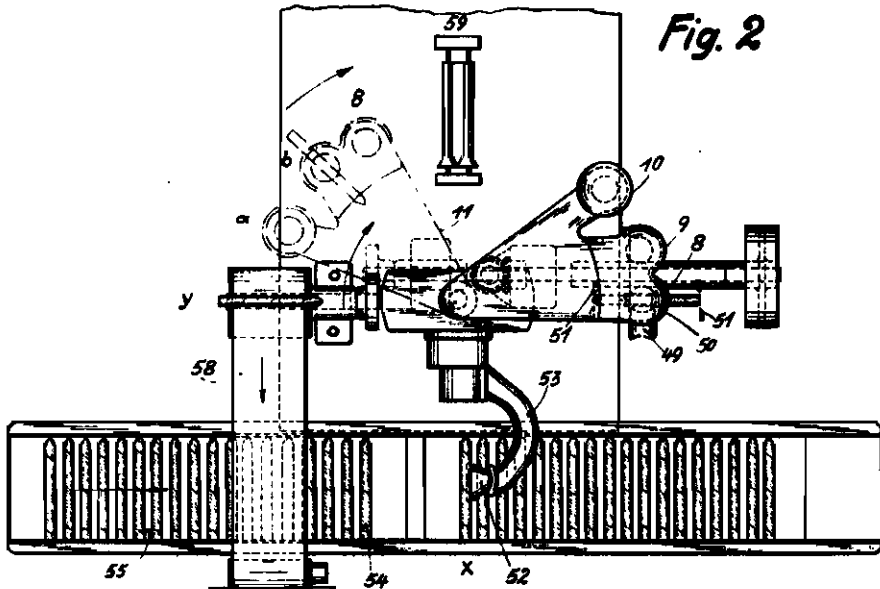


Fig. 5

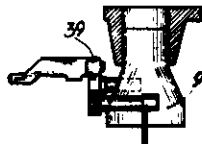
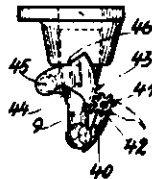


Fig. 6



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Fig. 3

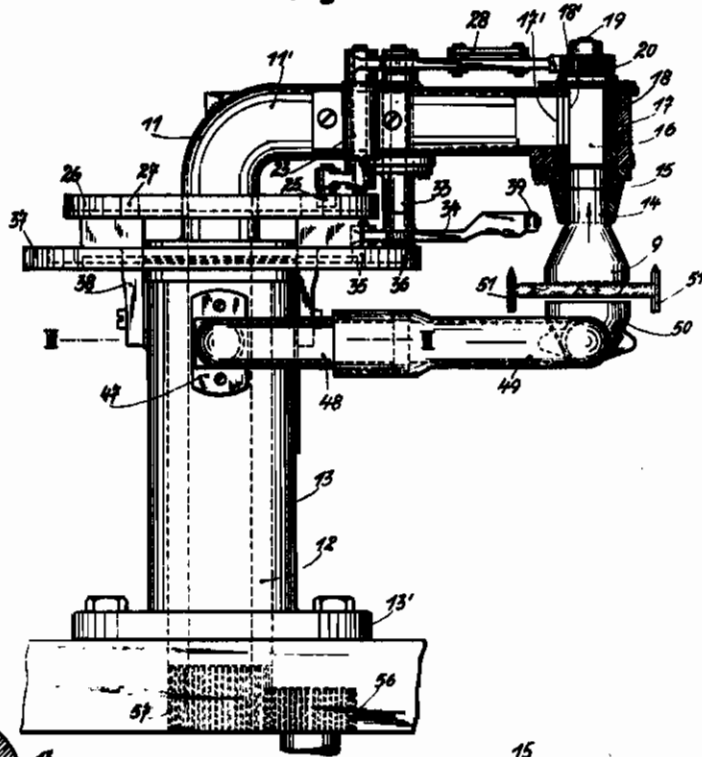


Fig. 7

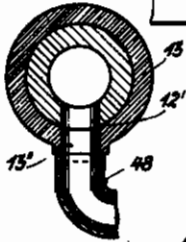
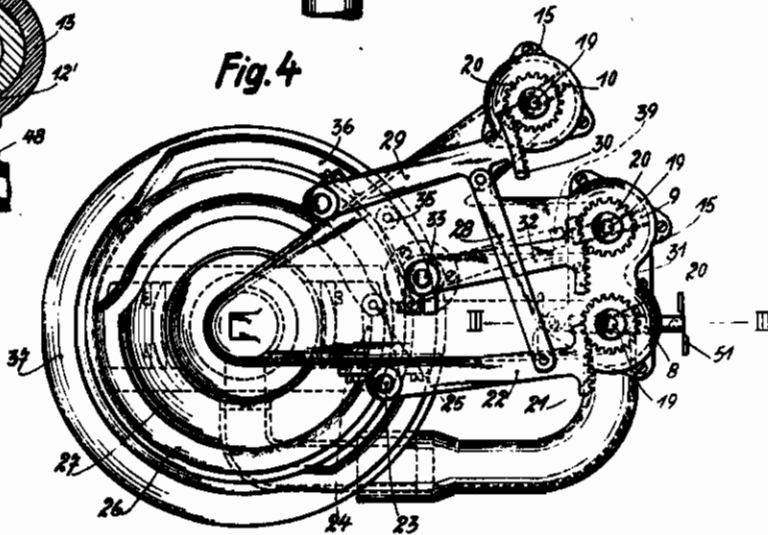


Fig. 4



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ALIEN PROPERTY CUSTODIAN

DEVICES FOR THE CONVEYANCE OF CIGARS DURING THEIR MANUFACTURE

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Application filed October 9, 1937

This invention relates to devices for the conveyance of cigars or fillers during their manufacture.

The invention has for its object to provide an efficient device by means of which the fillers of cigars may be transported by step by step operation, and during such conveyance have their ends cut and placed on a conveyor for further handling of such fillers or cigars.

The invention consists of means for conveying cigars, combined with means for cutting off the ends thereof, and keeping the cigar or filler under control during such operations.

The invention will be more fully described hereinafter, embodiments thereof shown in the drawings, and the invention will be finally pointed out in the claims.

In the accompanying drawings:

Figure 1 is a side view of one form of the device, this form consisting of an endless apron passing over different operating stations, and this side view is shown rather diagrammatically;

Figure 2 is another embodiment of the invention also shown somewhat diagrammatically, and shows a plan view of a device in which the carriers are arranged to travel in a circular direction;

Figure 3 is a side view partly in vertical section, taken on line III—III of Figure 4;

Figure 4 shows a plan view of Figure 3;

Figure 5 shows a part of Figure 3 showing details thereof;

Figure 6 shows a side view of Figure 5; and

Figure 7 shows a horizontal section taken on line VII—VII of Figure 3.

Similar characters of reference indicate corresponding parts throughout the various views.

Referring to the drawings and more particularly to Figure 1, the embodiment therein shown consists of an endless conveyor or belt 1 which passes over the chain wheels 2 and 3. Upon this belt 1 there are arranged a plurality of spaced carriers 4. The edge of the carriers 4 is provided with two suction heads *a* and *b*. Below the belt 1 there are arranged various stations, the filler receiving station A, the filler device B, the cutting device C, and the delivery station D. At the filler receiving station A the press forms 5 are moved in the press moulds on which the cigar fillers Z rest. As soon as the carrier arrives at a position corresponding to a position above the filler receiving station A, the foremost cigar filler is moved by suitable means, for example, a suction head, and swings upwardly and is given over to a suction head *b*. As soon as this

carrier reaches the position over the filler device B, the filler provided with a covering leaf is lifted and given over by suitable means to the suction head *a*. As soon as the carrier arrives in the position indicated by the dot dash lines, it gives up the filler carried by the suction head *b* and delivers it to the filler device. With a further movement of the carrier 4 in the direction indicated by the arrow, the suction head *a* arrives in a position over the cutting device C. In connection with this cutting device, there is arranged a gripper 6 which engages with the suction head, and this gripper 6 takes over from the suction head *a* the cigar carried thereby, and by means of a descending swinging movement into the position indicated by dot dash lines in Figure 1 holds the cigar in proper position in respect to the cutting means.

During this cutting process, the carrier moves further, and as soon as the suction head *b* arrives over the cutting position, the gripper 6 is swung upwardly and moves the cut cigar to the suction head *b* which then holds the cigar.

As soon as the carrier 4 arrives in the position of the delivery device D, the suction head *b* is operated to cut off the suction action, and the cigar falls upon an endless band 7 which guides the completed cigars to devices necessary for the further operation in the manufacture of cigars.

It is clear that the distance between the two suction heads *a* and *b* can be so devised that ample time is provided to permit the cutting operation to take place. It is, of course, true that in this case the time element between the delivery of the completed cigar from the filler device and the insertion of a new filler in the filler device is dependent upon the distance between the two suction heads *a* and *b*.

In Figures 2 and 7 a structure is shown which takes into consideration this time element, and in this structure the operation is such that the time element between the removal of the cigar out of the filler device and the insertion of a new cigar is independent of the time which the cigar requires while in the zone of the cutting operation C.

Referring more particularly to the structure shown in Figures 2 to 6, there are arranged three suction heads 8, 8, and 10, which are supported by a hollow arm 11 which in turn is supported by a vertically disposed pipe or tube 12. Between the arm 11 shown in Figure 2 and the tube 12 shown in Figure 3, a curved portion 11' is provided. The tube 12 is journaled in a cylinder 13

and is rotatable in respect thereto, the flange 13' serving as a fastening device.

The suction heads 8, 9, and 10, which have at their lower sides a slot like opening, are each provided with a tube like extension 14. These tube like extensions 14 engage with and are supported by sleeves 15 of the arm 11 and are fastened thereto. For each tube like extension 14 there is provided an upwardly extending bore 16 in which there is placed a cylinder 17. In the cylinder 17 is a sleeve 18 journaled so as to be able to rotate, which sleeve is open at the bottom and carries to its upper part an extension 19. In each of the extensions 19 there is arranged a pinion 20 which is secured to each extension 19. On the cylinder 17 and within the sphere of the hollow part of the arm 11', there is provided a slot 17'. With this slot 17' another slot 16' of a sleeve 18 may be brought into registration whereby the hollow space of the curved part 11' of the arm 11 is brought into connection with the suction head 8 or 9 or 10, as the case may be. On the other hand, the sleeve 18 may cover the slot 17', depending upon the actuation of the parts. A suction device is indicated with the lower part of the tube 12. This suction device is not shown in the drawings, as it is well known.

With each pinion 20 a gear segment 21 is engaged, which segment 21 is fastened to a lever 22. The lever arm 22 is, by means of a stud 23, journaled to the arm 11, and is indicated with a governing arm 24. The governing arm 24 grips by means of a roll 25 in the cam slot 26 which is provided in the ring like governing disc 27. The arm 22 is connected with a further lever 29 by means of a guide link 26, which lever 29 has at its end a gear segment 30. This gear segment 30 is connected with the pinion 20 which is disposed in position in respect to the suction head 10.

The pinion 20 which is disposed in position for the suction head 9 is engaged by a gear segment 31 which is fastened to the lever arm 32. The lever arm 32 is journaled on the stud 33 placed on the arm 11, and on the lower end of this stud 33 there is arranged a governing lever 34 as seen in Figure 3. One end of the governing lever 34 engages with a roll 35 into the cam slot 36. The cam slot 36 is arranged on a ring disc 37 which is common with the curve or cam slot disc 27, being joined thereto by an extension 38 on the cylinder 18 and fastened thereto. The other end of the governing lever 34 has a roll 39 which engages within the sphere of the suction head 9.

On the suction head 9 there is arranged a gripping finger 40 as seen in Figure 6, which is fastened to the shaft 41. The shaft 41 is journaled in a journal arranged on the suction head 9, and is provided with a pinion 42. The pinion 42 is engaged by a toothed segment 43 which is on a pivoted plate 44. The plate 44 is pivoted on a pivot shaft 45 on the other side of the suction head 9, and is also provided with a curved cam surface 46 which is acted upon by the roller 39. By means of the flange 47, there is secured to the cylinder 13 a tube 48.

As is seen in Figure 7, the wall of the cylinder 13 is provided with a bore 13'' which connects with the bore 12' of the tube 12 and thereby a communication between the interior of the tube 12 and the interior of the tube 48 is provided. Upon the free end of the tube 48 there is applied by suitable screw means a further tube 49 which terminates in a suction head 50 as shown in Figure 3. The slot of the suction head 50 faces upwardly, as shown in Figure 3.

Next to the suction head 50 the two cutting devices 51 are arranged, each of which consists of a member which cooperates with the governing means described in order to operate the cutting device, but which connections are not indicated in the drawings.

It is here to be noted that the suction head 50 immediately comes under the action of suction when the suction head 8 arrives in a position immediately above the suction head 50. The suction action remains so long until the suction head 10 is moved over the suction head 50. For this purpose, the tube 12 cooperates as above described by means of its bore 12' with the bore 13'' as shown in Figure 7.

The operation of the arm 11 results from the cooperation of a pinion 66 which engages with a geared wheel 57 arranged on the tube 12, as shown in Figure 3. Suitable means not shown cooperate with the pinion 66 in order to rotate it.

The operation of the device is as follows: As soon as the arm 11 has been turned so far that the suction head 9 arrives in the position indicated in Figure 2 by *x*, then the suction head 52 which is fastened to the swinging arm 53 gives to the suction head 9 a cigar taken out of the press form 54. The press forms 54 are moved step by step on the track 55 in the direction of the arrow shown in Figure 2. The press forms 54 move in such a manner that with every rotation of the arm 11' new filler is placed within the reach of the grippers 52—53 of Figure 2.

When the suction head 10 arrives in the position indicated by *y* in Figure 2, then by means of the curved cam slot 28 the air of the suction head 10 is cut off, so that the cigar carried by the suction head or gripper 10 is placed upon the conveying band 58 which then conducts the cigars to a collecting place.

When, as a result of the swinging arm 11, the suction head 8 is placed over the central part or center of the filler device 59, then in a well known manner, by means of a lever, the finished cigar is taken out of the filler device and pushed on to the suction head 8. At this point of time, the suction head 8, by means of the curved cam slot 26 is again placed under suction action so that by the further movement the completed cigar is again taken up by the suction head 8. As soon as the suction head 9 reaches a position over the central part or center of the filler device 59, then the air is cut off from the suction head by means of the curved guide 36 so that the cigar carried thereby is given over to the carrier of the filler device. As soon as the suction head 8 has arrived over the suction head 50 (see, for instance, the extended position in accordance with Figure 2), then the suction air of the suction head 8 is again cut off and the suction of the suction head 50 is placed under actuation. During the further movement of the arm 11, the cutting portions of the devices 51 enter into activity and bring about the cutting off of the ends of the cigars. As soon as the arm 11 has been moved so far that the suction head 10 is over the suction head 50, then the suction air of the suction head 50 is cut off, and the suction head 10 is set into suction activity so that the cigar can be taken along by the suction head 10.

The fillers coming out of the press forms 54 are very often somewhat rough on their outer surface. Thus, they contain loose leaf portions. In view thereof, it can happen that the filler may fall off from the suction head 9 due to the relatively rapid movement of the arm 11. In order

to overcome this objection, a holding finger 40 is provided as shown in Figure 6, which after the filler has been taken over and supported by the suction head 9, moves out of the dot dash lines position shown in Figure 6 into the full line position, and thereby supports the filler and prevents its falling off from the suction head. The swinging movement necessary for this finger 40 is brought about by means of the arm 34, which at the same time, with a corresponding transposi-

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tion of the tube 18, is given a suitable relative movement in respect to the suction head, and by means of the curve the finger is brought into the necessary and desirable position of operation. This finger 40, after the suction head 9 is brought within the sphere of the filler device, is swingable upwardly through a corresponding similar relative movement of the arm 34.

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