

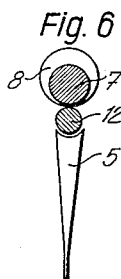
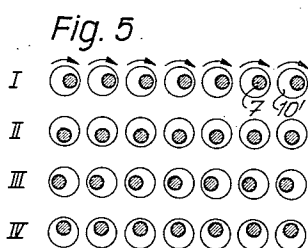
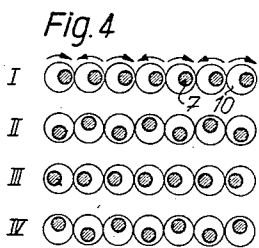
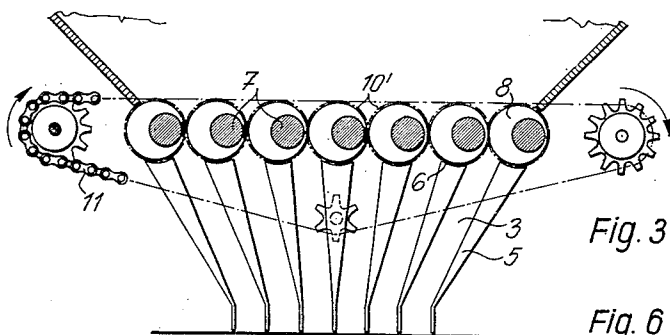
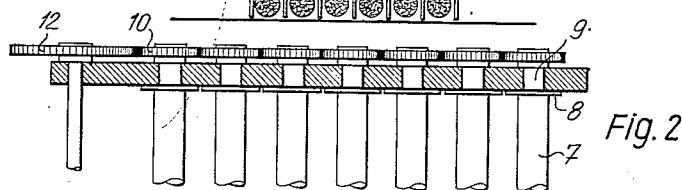
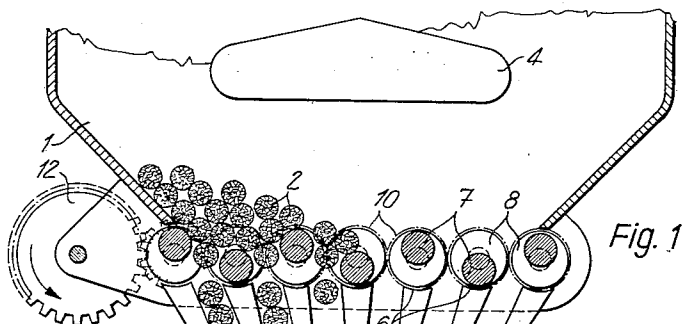
Oct. 15, 1957

M. POLLMANN ET AL
APPARATUS FOR WITHDRAWING ROD-LIKE ARTICLES
FROM A SUPPLY CONTAINER

2,809,768

Filed July 22, 1954

2 Sheets-Sheet 1



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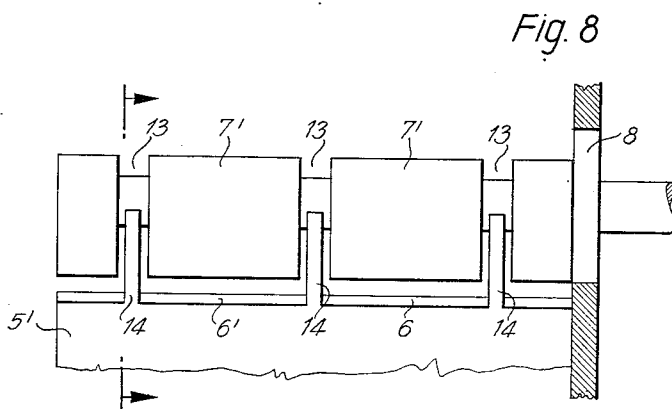
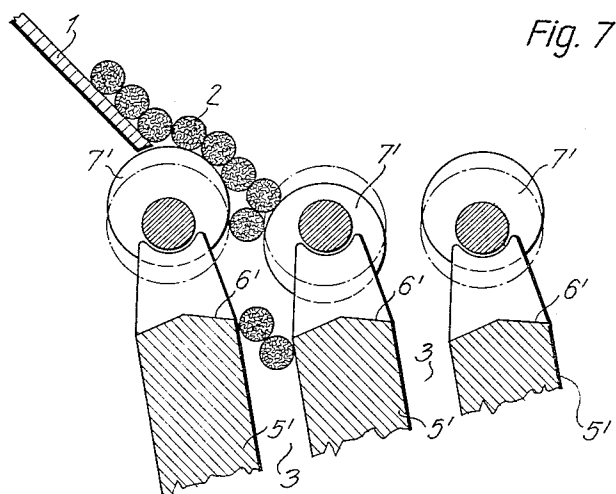
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APPARATUS FOR WITHDRAWING ROD-LIKE ARTICLES FROM A SUPPLY CONTAINER

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Application July 22, 1954, Serial No. 445,143

Claims priority, application Germany August 6, 1953

1 Claim. (Cl. 221—68)

The invention relates to a device for withdrawing cigarettes or other rod-like articles from a supply container and for arranging the cigarettes or the like in a chamber provided with partition walls over which rotary drums are arranged at distances one from the other such that at one time only a single cigarette can pass between adjacent rolls into the compartments of the chamber located below it.

In packing machines as is known at present, the cigarettes are deposited into supply containers and pass upon their downward movement into a chamber generally provided with intermediate spaces. On the lower side of the chamber is located one or more plungers which discharge out the cigarettes from the chamber in the required number for packing. During the downward movement of the cigarettes disturbances often occur particularly when the cigarettes pass from the supply container into the chamber with its intermediate walls especially since by even a slight inclination of the individual cigarettes over the chamber the next following cigarette is prevented from passing into the individual compartment.

Many proposals have already been made to avoid these disadvantages in which for example various forms are utilised for the upper edges of the intermediate partition elements. Thus for example all the upper edges lie either at one level or they have a trough-shaped form, also they may be alternately high and low or they may show a step-like formation from one side, in some cases with a chain above it. Further constructions are known in which the partition walls or the whole chamber receives a shaking or vibratory movement. Further it is also known to give the partition walls an alternately up and down movement. Also at the commencement of the entry into the chamber rolls have been provided between the partition walls with a longitudinal opening on one side for receiving a single cigarette which then by a short rotation of the rolls is transferred downwardly into the individual compartments. Finally several parallel rolls provided with grooves have been fitted above the individual partition walls in the chamber which receive a reciprocatory movement. All these constructions especially the latter have however not provided a disturbance-free introduction of the cigarettes into the chamber.

In order to avoid and overcome these disadvantages it is therefore proposed according to the invention that the rolls located above the chamber at the lower end of the supply container shall have during the rotation a movement in the vertical and horizontal directions. For this purpose the rotating rolls are arranged eccentrically to their driving elements for example gear wheels with either opposite or similar rotation for the adjacent rolls.

This movement of the rolls in the horizontal and particularly the vertical direction has the advantage that a movement is imparted to the cigarettes by which they are introduced to the individual chambers when supplied to and arranged in the compartment. The partition walls

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of the chamber lying below the rolls and preferably of conical form are rigidly connected with the machine and according to the spacing of the cigarettes at the lower ends of the chamber are more or less inclined to the vertical. The upper surfaces of the chamber walls are preferably made concave. The spacing between the individual rolls is constant and remains unvaried even during the rotation of the individual rolls. If the rolls rotate in the same direction they make altogether a more or less parallel movement, but if they rotate oppositely the rolls move in the manner of a wave below the cigarettes. In this case the outer surfaces of the rolls for one channel move upwardly and those for the adjacent channels move downwardly, those for the third channel upwardly and so on. By this opposed rotation and by the alternating position of the individual rolls at various levels one to the other the result is obtained that always sufficient cigarettes are disposed over the individual chamber compartments. This back and forth and up and down movement and the consequent rotation of the individual rolls taken together with a simultaneous determination of the peripheral speed insures disturbance-free operation.

The features of the present invention are shown on the accompanying drawings by way of constructional examples in which:

Fig. 1 is a fragmentary vertical cross-sectional view of the first example with eccentrically arranged oppositely rotating adjacent rolls,

Fig. 2 is a fragmentary horizontal cross-sectional view taken through the bearings of the rollers in Fig. 1 looking in a downward direction section,

Fig. 3 is a fragmentary vertical cross-sectional view of a second embodiment with rolls operating in the same direction,

Fig. 4 shows diagrammatically the rotating rolls in four different phases according to Figs. 1 and 2,

Fig. 5 shows the same diagram for the rolls according to Fig. 3,

Fig. 6 is a fragmentary vertical cross-sectional view of a partition wall and a rotating roll with an intermediate additional roll according to a third example, and

Figs. 7 and 8 show on a larger scale partial cross and longitudinal sections respectively of a fourth embodiment.

The parallel disposed cigarettes 2 from a supply container 1 move slowly downwards to a chamber 3 over which at a certain distance is preferably arranged an inclined strip 4 which eliminates excessive pressure of the cigarettes on the chamber 3. The strip can itself additionally receive a vibratory movement in known manner. The chamber is divided by partition walls 5 which altogether are more or less inclined downwardly. The partition walls themselves are conically formed in the downward direction and have on their upper end face a concave shape or form 6. A roll 7 is arranged above each partition wall which is eccentrically mounted in the discs 8. The discs 8 embody on their other sides bearing pins 9 which are rotatably supported in the side walls of the supply container 1. Each pin 9 carries at its end a gear wheel 10 which engages with the gear wheel of adjacent pins (Figs. 1 and 2). The drive of the rolls is effected for example by means of a driving gear 12. In this case therefore the rolls rotate alternately to the left and to the right. The spacing between the rotating rolls 7 and the spacing of the individual partition walls 5 is about 2 mm. more than the diameter of the cigarettes. The partition walls are conveniently made as wide in the upper part as the diameter of the rolls. The partition walls are separate and spaced from the rolls, that is to say they are not in contact therewith. The spacing between the upper concave surface of the partition walls and

the lowermost point of the eccentrically rotating rolls amounts to about $\frac{1}{2}$ mm. in order to prevent the tobacco fibres from collecting therebetween.

Where the rolls 7 are to rotate in the same direction the pins 9 carry chain wheels 10 over which an endless chain 11 runs (Fig. 3).

In order to facilitate entry into the individual compartments 3 there may additionally be provided further rotary rolls 12 (Fig. 6) between the upper concave faces 6 of the partition walls 5 and the rotating rolls 7.

If also the intermediate space between the rolls 7 in their raised position and the upper edges 6 of the partition walls 5 only amounts to about $\frac{1}{2}$ mm. it has been found in practice that during operation of the machine tobacco dust collects on the upper faces of the partition walls so that stoppages occur and also by the released tobacco dust the cigarettes are soiled. Moreover it may occur that in the upper position of the rolls 7 a cigarette is pressed between one roll and the surface 6 of the partition wall concerned.

In order to avoid these disadvantages the rolls 7 according to Figs. 7 and 8 have two or more grooves 13 on their periphery in which engage fingers 14 associated with the partition walls 5'. Further the upper surfaces 6' of the partition walls 5' have a concave or roof-shaped form so that no tobacco dust can collect thereon. By the fork or comb-shaped fingers 14 of the partition walls 5' free sliding off of the cigarettes is obtained.

What we claim is:

In an apparatus for feeding rod-like articles, a supply hopper having a discharge opening in its bottom wall, a receiving container mounted beneath said discharge opening, a series of partition walls in said container spaced apart a distance equal to the diameter of said rod-like articles, the upper surfaces of said partition walls being convex, a plurality of eccentrically mounted rollers rotatably mounted between the hopper and said receiving container in spaced apart relation and with one roller positioned above each partition wall, additional rotary rolls arranged between said eccentric rolls and said partition walls to prevent the accumulation of foreign particles.

References Cited in the file of this patent

UNITED STATES PATENTS

1,683,918	Riddell	Sept. 11, 1928
1,941,147	Johlige	Dec. 26, 1933
2,087,675	Peterson	July 20, 1937
2,167,049	Maurath	July 25, 1939
2,284,975	Horner	June 2, 1942
2,472,563	Bourland	June 7, 1949

FOREIGN PATENTS

566,441	Germany	Dec. 19, 1932
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