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1,926,554

APPARATUS FOR DEPOSITING GROUPS OR ROWS OF CIGARETTES IN RECEPTACLES

Filed Jan. 5, 1931

3 Sheets-Sheet 1

**Fig.1**

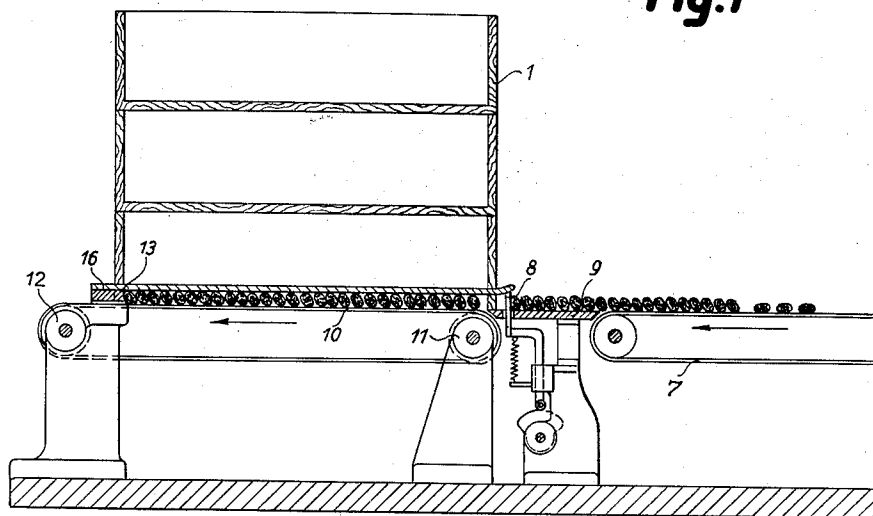
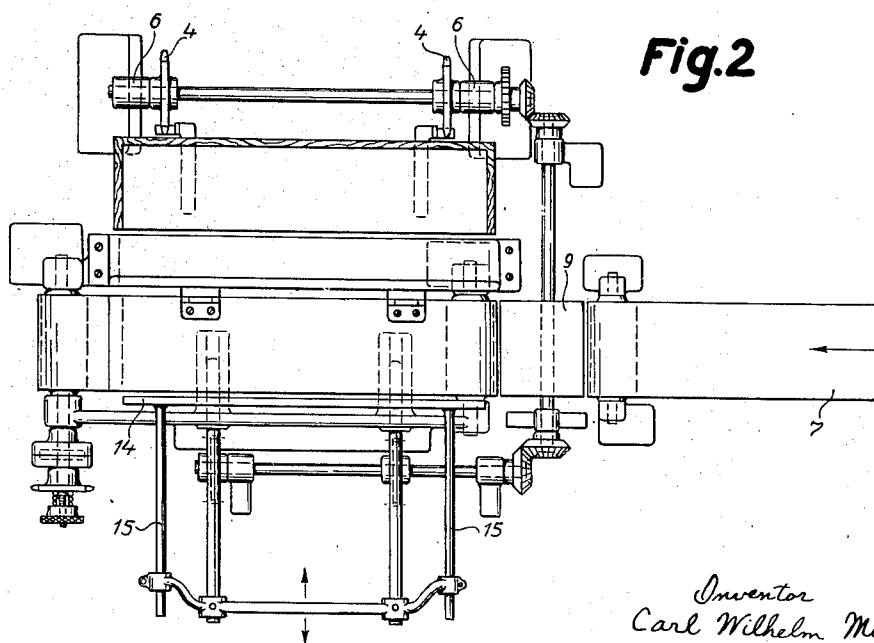


**Fig.2**



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**Fig.4**

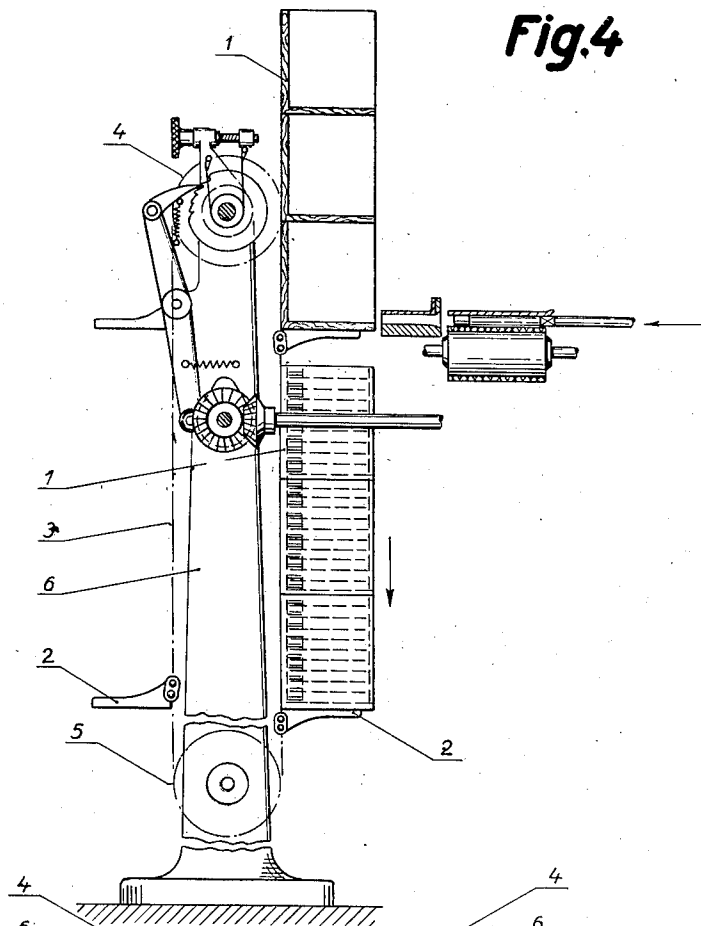
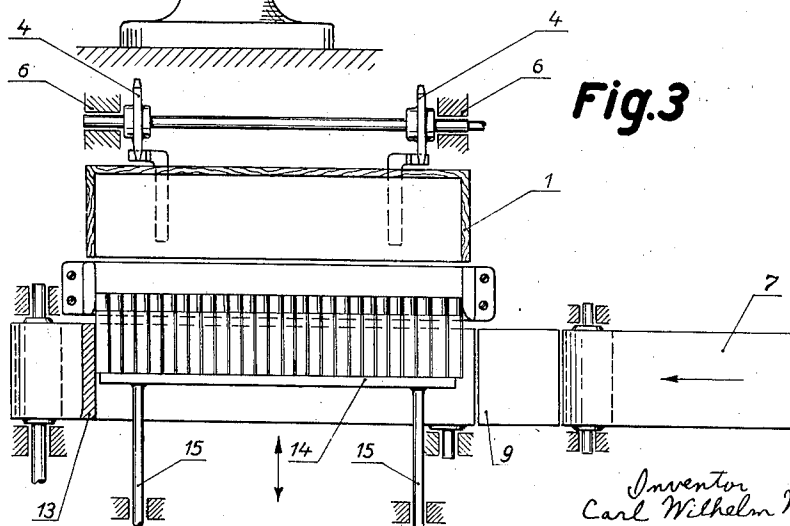


**Fig.3**



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3 Sheets-Sheet 3

**Fig.5**

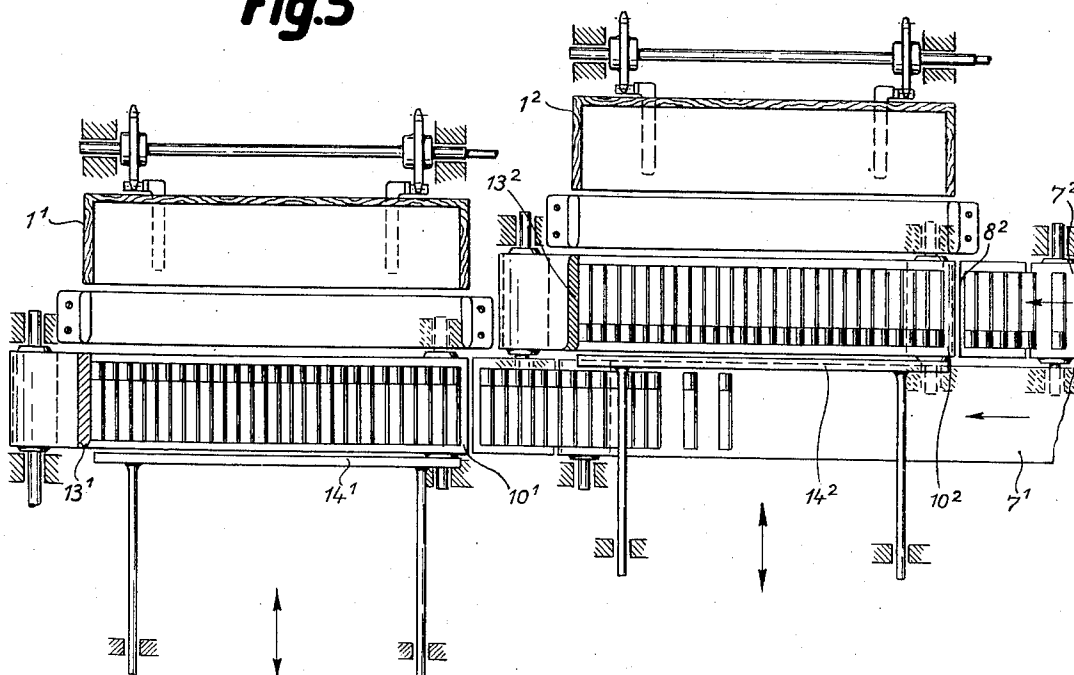
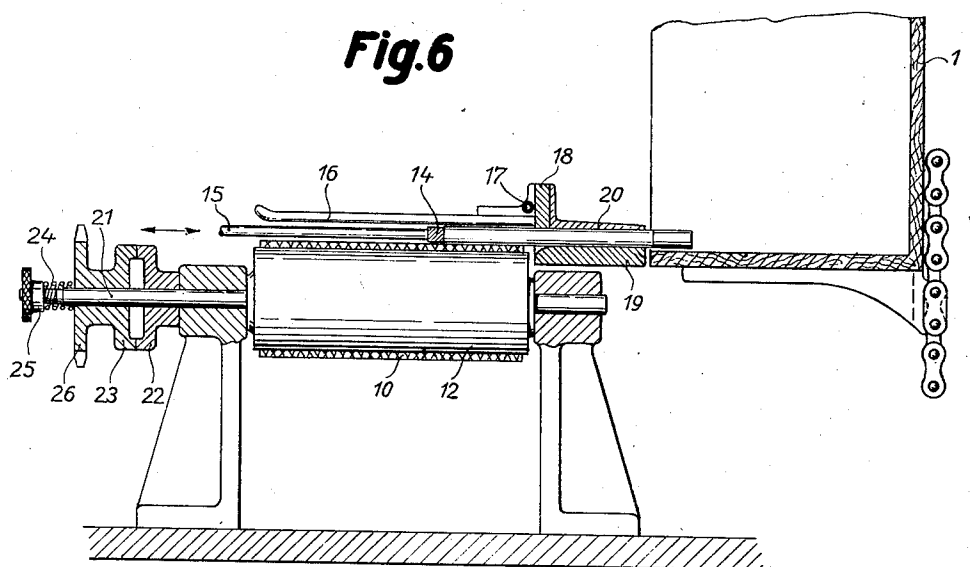


**Fig.6**



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## UNITED STATES PATENT OFFICE

1,926,554

## APPARATUS FOR DEPOSITING GROUPS OR ROWS OF CIGARETTES IN RECEPTACLES

Carl Wilhelm Müller, Dresden-Weisser Hirsch,  
GermanyApplication January 5, 1931, Serial No. 506,590,  
and in Germany July 18, 1930

8 Claims. (Cl. 226—5)

Many methods have been proposed for depositing cigarettes delivered by cigarette machines in receptacles.

For instance, it has been proposed to deposit the cigarettes serially on a conveyer belt having parallel longitudinal axes arranged one behind the other, and, by means of the conveyer band, to conduct them to a collector cloth fitted in a collector case. The gradual slackening of the sacklike passage of the delivered goods causes the collector to be filled. An orderly serial arrangement is not obtained, nor can the cigarettes be removed directly from the collector. On the contrary, the sack-like, sagging band must again be gradually raised (German Patent No. 123,741).

According to another series of proposals the cigarettes are separately deposited in receptacles by means of a sideway of a conveyer belt or the like fitted with chambers, which by means of an endless belt or the like is given a feeding action, in order thus to obtain a uniform arrangement of the cigarette receptacles. Apart from the fact that with this arrangement it must be constructionally troublesome to convey the cigarettes to the receptacles, and there is nothing to ensure that the cigarettes will be deposited in actual serial order, the further difficulty arises that the front and rear walls of the receptacles prevent the cigarettes from being deposited in the corners of the receptacles, and therefore special devices are necessary in order to overcome this difficulty (British Patent No. 13,288/1898, British Patent No. 13,489/1897, U. S. Patent No. 540,723, German Patent No. 450,897).

It has also been proposed to use special carrier boards with ledges for supporting the cigarettes, to fill these carrier boards separately, and to unite them to form a collector or collector shaft. This involves the difficulty that the separate carrier boards are passed from a supply shaft to the filling position by a control member, and then after the filling operation has taken place they must be brought into the collector shaft, in which operation it is also difficult to fill the various compartments of the carrier board with the separate cigarettes in a satisfactory manner (French Patent No. 537,313).

Finally, it has been proposed to unite a series of cigarettes corresponding to the breadth of the receptacles on a collecting position formed by an endless belt and to remove the cigarettes from this collecting position by means of a vertically reciprocating slide, which passes through spaces of the endless belt which is formed accordingly.

This slide by a corresponding further movement brings the series or groups of cigarettes removed therefrom into the receptacles, a controlled stop retaining the cigarettes in the receptacles when the slide is withdrawn (German Patent No. 426,381). In this operation each individual series of cigarettes must be removed separately from the collecting position and passed to the receptacle, whereby displacements easily occur on the way, although the slightest disarrangement in the sequence of the cigarettes renders the proper filling of the receptacle impossible.

In contrast to the arrangements described above, the invention relates to a device by which the cigarettes also are arranged on the collecting member in a row or group. This row or group of cigarettes is, however, passed by means of a slide or the like in the longitudinal direction of the cigarettes directly into the receptacle which is kept ready for their reception. Before the introduction of each group or row of cigarettes, this receptacle is raised or lowered a corresponding distance.

This ensures first the formation of a regular row or group of cigarettes, and secondly that this formation is passed, such as it is, directly to the receptacle, thus making it impossible for displacement or the like to occur; accordingly, thoroughly regular, superimposed series of cigarettes are formed.

This arrangement is more advantageous than the known arrangement in which, by means of a conveyer belt, the cigarettes are passed over a bridge into the receptacle, which by means of a screw spindle or the like is always lowered in accordance with the increasing filling (German Patent No. 445,572). It is very difficult to arrange the cigarettes in such manner that they are actually together in rows without gaps, as some of the cigarettes have travelled a long distance from the bridge to the back wall of the receptacle. Quite apart from the fact that experience has shown that it is best for the depth of the receptacle to be such that it just corresponds to the length of a cigarette, the cigarettes are placed in position with their longitudinal axes vertical to the back wall of the receptacle and not parallel to it.

According to this invention the cigarettes are conducted in known manner to the collecting position by means of an endless conveyer belt, while a controlled stop or like device is provided which holds the cigarettes on the conveyer belt, while the slide or like device transfers the group or row

of cigarettes previously arranged at the collecting position into the receptacle.

In the case of cigarettes with mouthpieces, two rows of cigarettes arranged uniformly in relation to their mouthpieces are, by means of two conveyer belts, conveyed to two delivery positions from which the groups of cigarettes are transferred into two corresponding receptacles, the two conveyer belts being side by side and parallel to one another and the receptacles located adjacent one another but staggered.

To enable the invention to be fully understood it will now be described with reference to the accompanying drawings in which:—

Fig. 1 is a front view of the new apparatus. Figs. 2 and 3 show two different positions of the slide in plan view.

Fig. 4 is an end view.

Fig. 5 shows in plan the arrangement of two delivery positions.

Fig. 6 is a vertical cross section, on an enlarged scale, of the collecting position with the mouthpiece by which the cigarettes are passed into the receptacle.

The receptacle 1 (which is subdivided in known manner into a plurality of compartments by horizontal bearer boards) bears on the supports 2, which are arranged in a chain 3 at suitable distances from one another. The chain 3 is in the form of an endless belt and runs over the guide rollers 4 and 5 which are mounted in vertical supports 6 which are arranged on both sides of the receptacle. One of these guide rollers is driven in such manner that the receptacle placed on the driven side of the chain is lowered in stages, namely every time a fresh group or series of cigarettes is introduced into the receptacle. The members for producing the step-by-step movement of the chain 3 are not shown in the drawings, but may be constructed in any manner desired.

The cigarettes which issue from the cigarette machines or from a reservoir are placed separately on a conveyer belt 7, the upper side of which carries the cigarettes, and which moves in the direction indicated by the arrows in Figs. 1-3. The speed of delivery is controlled in accordance with the speed at which the cigarettes are delivered to the belt, or vice versa.

At the front end of the belt 7, a stop 8 is provided in the path of the arriving cigarettes, which stop moves up and down and is so controlled that at the desired moment it arrives in the path of the cigarettes and is removed from this path at another desired moment.

The conveyer belt 7 passes the cigarettes over a bridge 9 to the collecting position. The collecting member is formed by the upper side of an endless belt 10 which is passed round the guide rollers 11 and 12 and rotates in the direction indicated by the arrow in Fig. 1. The delivery speed of this belt is preferably greater than the delivery speed of the belt 7. At the end of the upper side of the belt 10, a stop 13 is provided against which the first cigarette of the row or series to be formed rests, whereupon the cigarettes which follow and bear one against the other scale-wise, are arranged in a series. As soon as the series is complete the stop 8 again rises and prevents further cigarettes from being thrust on to the collecting member by the belt 7, and a slide 14, carried by the rods 15 then comes into operation. This slide is adapted to move horizontally, transversely to the longitu-

dinal direction of the cigarettes. It seizes the entire series or row and transfers it to the receptacle 1, which, accordingly, is placed so that the collecting position is immediately opposite to it. During the reciprocating movements of the slide the stop 8 remains in its locked position and on the completion of the slide operation, allows the cigarettes to continue to advance on the conveyer belt 7 to the collection member.

Above the collecting position, that is to say over the upper side of the endless belt, is a transparent plate 16, of glass or the like, in such a position that it just covers the cigarettes on the collecting member and, being transparent, the rows or groups of cigarettes can be observed while they are being formed. This covering plate is fixed to the frame 18 by means of a hinge 17, so that it can be raised to any height to enable the operator's hand to be inserted into the collecting position to remedy stoppages.

By means of the slide 14, the cigarettes are passed in their longitudinal direction into the receptacle 1 through a mouthpiece having a rigid base 19, and a cover in the form of a spring controlled tongue 20. Thus, when the series or group of cigarettes is once arranged it can be held together regularly in the receptacle, even during its passage from the collecting position.

In the event of stoppages or if too many cigarettes are forwarded to the collecting position by the movement of the conveyer belt, in order to prevent the cigarettes of a series or group from being crushed or displaced, a device is provided so that the guide roller 12, which is in the form of a feeding roller, is not driven directly but by an intermediate friction disc.

Thus a friction disc 22 is keyed to the axle 21, while a counter friction disc 23 is arranged freely rotatable on this axle. This counter disc is pressed against the rigid friction disc 22 by means of a spring 24 which surrounds the axle: the tension of this spring can be controlled by an adjusting nut 25.

The loose friction disc 23 is connected with the sprocket wheel 26, over which the driving chain runs. In the event of excessive resistance the loose friction disc rubs against the rigid friction disc 22 so that the guide roller 12 rotates.

In the mode of construction shown in Fig. 5, two conveyer belts 7' and 7'' are provided, each of which conveys cigarettes to mouthpieces similarly directed. In this case there are two collecting members 10' and 10'' which are placed opposite two receptacles 1' and 1''. As can be seen from the drawings, the receptacles are adjacent but are staggered to correspond with the width of the two parallel conveyer belts 7' and 7'' which run side by side, or the collecting positions 10' and 10'' which are correspondingly staggered. In this case also, transverse slides 14' and 14'' feed the groups of rows of cigarettes directly into the respective receptacles in the longitudinal direction of the cigarettes, in the manner already described.

What I claim is:

1. Apparatus for depositing a row of cigarettes in a receptacle, such apparatus comprising a collecting member, a conveyer belt for the transference of said cigarettes to said collecting member, a controlled stop cooperating with said conveyer belt, a slide located and movable externally of said receptacle and whereby said cigarettes are transferred longitudinally from said collector member to said receptacle, means for guiding the cigarettes as they are being trans-

ferred from said collector member into said receptacle and means whereby said receptacle is appropriately moved after said row is deposited in said receptacle so that the next succeeding row of cigarettes may be deposited in said receptacle.

2. Apparatus for depositing cigarettes in a group receptacle, such apparatus comprising a collecting member in the form of an endless conveyor belt having a stop at one end, the effective side of such belt moving in the same direction as the cigarettes, a conveyor belt for the transference of said cigarettes to said collecting member, means located and movable externally of said receptacle and whereby said cigarettes formed into a group on said collecting member are transferred longitudinally from said collector member to said receptacle, means for guiding the cigarettes as they are being transferred from said collector member into said receptacle and means whereby said receptacle is appropriately moved after each group of cigarettes is deposited in said receptacle so that the next succeeding group of cigarettes formed on said collecting member may be deposited in said receptacle.

3. Apparatus for simultaneously depositing two rows of cigarettes having mouthpieces in two receptacles comprising two collecting members, two conveyor belts, said two conveyor belts being arranged side by side and parallel to one another, said receptacles being adjacent to one another, but staggered, means located and movable externally of said receptacle and whereby said cigarettes formed into a row on said collecting members are simultaneously transferred longitudinally from their respective collecting members to their respective receptacles and means whereby said receptacles are appropriately moved after each respective row of cigarettes has been deposited therein in order that the next succeeding rows of cigarettes may be deposited in their respective receptacles.

4. Apparatus for depositing cigarettes in a group receptacle, such apparatus comprising a collecting member in the form of an endless belt, friction discs by means of which such belt is driven, a stop at one end of said belt, a conveyor belt for the transference of said cigarettes to said collecting member, means located and movable externally of said receptacle and whereby said cigarettes formed into a group on said collecting member are transferred longitudinally from said collector member to said receptacle, means for guiding the cigarettes as they are being transferred from said collector member into said receptacle and means whereby said receptacle is appropriately moved after each group of cigarettes is deposited in said receptacle so that the next succeeding group of cigarettes formed on said collecting member may be deposited in said receptacle.

5. Apparatus for depositing a row of cigarettes in a receptacle, such apparatus comprising a collecting member, a transparent plate arranged above said collecting member, a conveyor belt for the transference of said cigarettes to said

collecting member, means located and movable externally of said receptacle and whereby said cigarettes formed into a row on said collecting member are transferred longitudinally from said collector member to said receptacle, means for guiding the cigarettes as they are being transferred from said collector member into said receptacle and means whereby said receptacle is appropriately moved after said row is deposited in said receptacle so that the next succeeding row of cigarettes formed on said collecting member may be deposited in said receptacle.

6. Apparatus for depositing a row of cigarettes in a receptacle, such apparatus comprising a collecting member, a guide mouthpiece having a cover located between said receptacle and said collecting member, a conveyor belt for the transference of said cigarettes to said collecting member, means located and movable externally of said receptacle and whereby said cigarettes formed into a row on said collecting member are transferred longitudinally from said collector member to said receptacle through said guide piece, and means whereby said receptacle is appropriately moved after said row is deposited in said receptacle so that the next succeeding row of cigarettes formed on said collecting member may be deposited in said receptacle.

7. Apparatus for depositing a row of cigarettes at a time in a receptacle comprising a collecting belt for said row, a conveyor for bringing cigarettes to said belt, means for regulating the number of cigarettes delivered to said belt, means for forming said row of cigarettes on said belt through motion of the latter, means for pushing said collected row of cigarettes transversely of said belt and in the direction of their longitudinal axes to said receptacle, bridging means between said collecting belt and said receptacle, means on said bridging means for preventing displacement of said cigarette row and means for moving said receptacle the height of said row of cigarettes after the depositing thereof to permit depositing of a succeeding row of cigarettes.

8. Apparatus for depositing a row of cigarettes in a receptacle comprising a collecting belt, a conveyor belt for bringing cigarettes to said collecting belt, stop means for regulating the quantity of cigarettes delivered to said collecting belt, stop means on said collecting belt to effect formation of a row of cigarettes on said collector belt through the movement of the latter in the direction of said stop means, slide means located and movable externally of said receptacle for pushing said cigarettes transversely off said belt in the direction of their longitudinal axes into the said receptacle, a bridge between said collector belt and said receptacle over which said cigarettes are pushed in their travel from said belt to said receptacle, means on said bridge for preventing displacement of said cigarettes and means for moving said receptacle the thickness of a cigarette row after each succeeding row is deposited in said receptacle, to permit depositing the succeeding cigarette row in said receptacle.

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