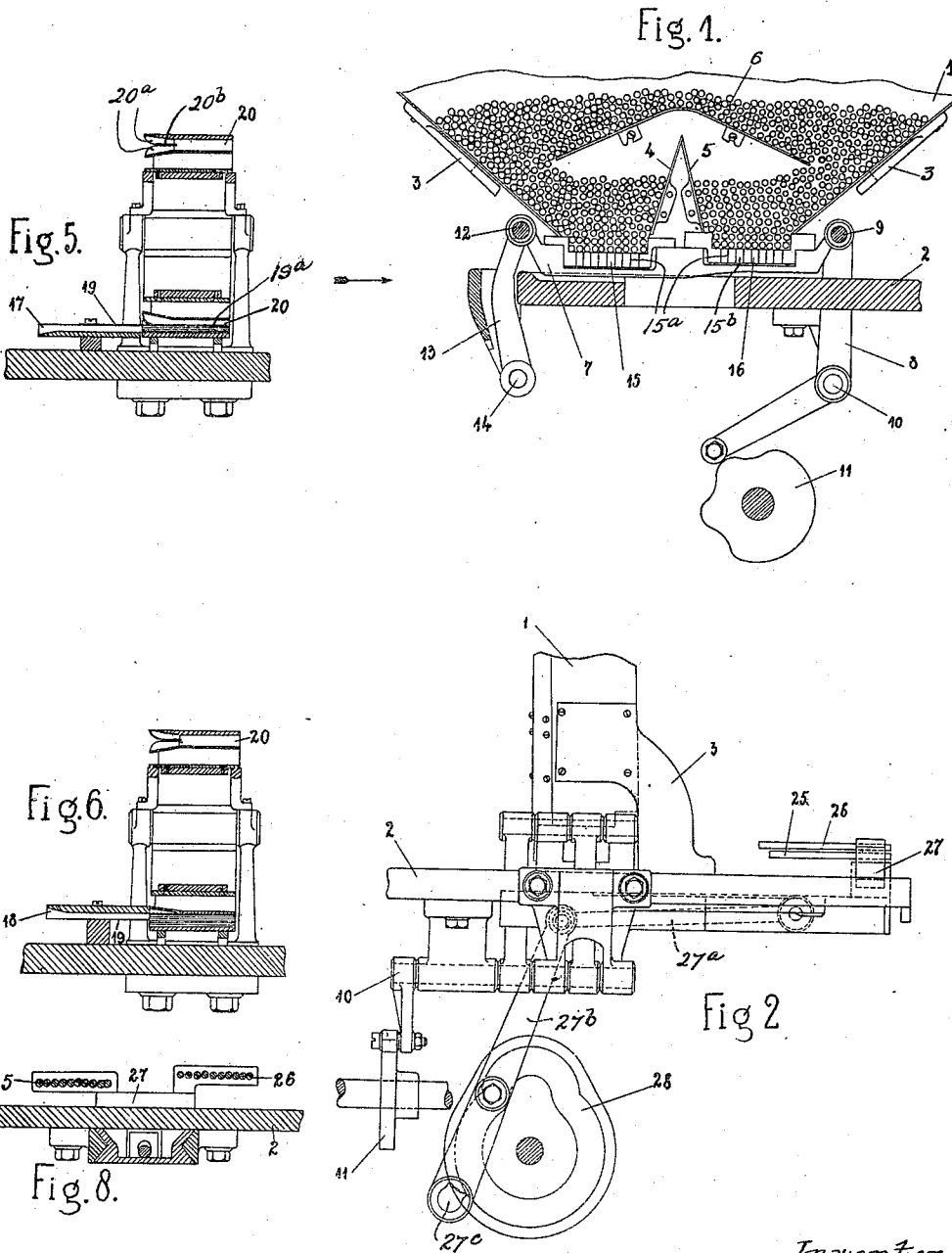


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 APPARATUS FOR PACKING CIGARETTES.
 APPLICATION FILED SEPT. 5, 1918.

1,295,722.

Patented Feb. 25, 1919.
 2 SHEETS—SHEET 1.



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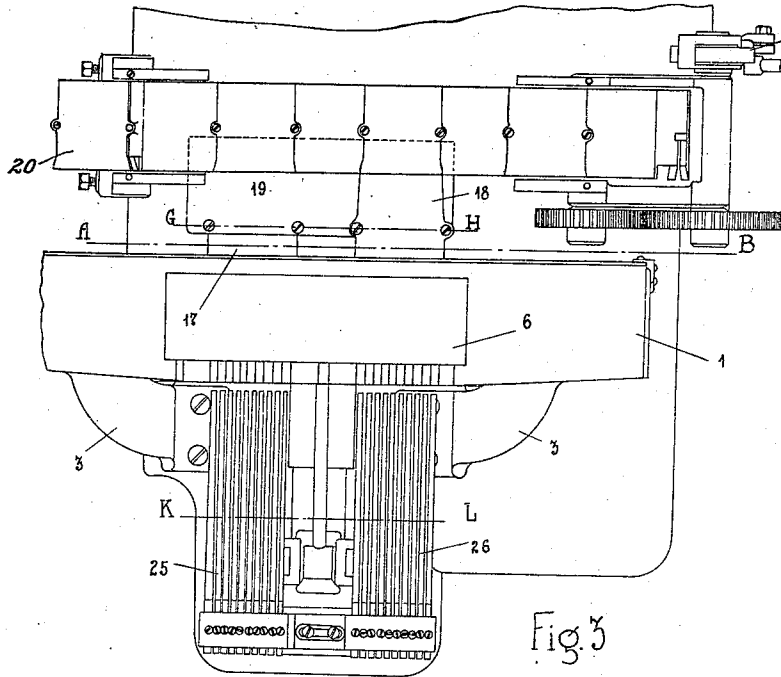


Fig. 3

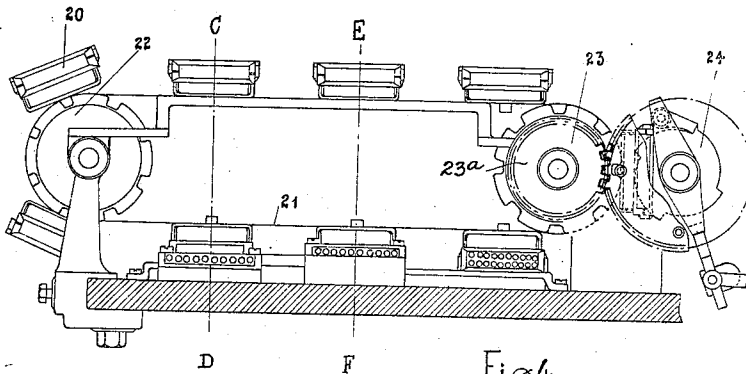


Fig. 4.

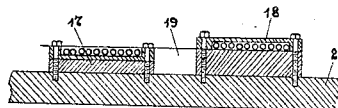


Fig. 7

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UNITED STATES PATENT OFFICE.

SHIMON FELDMAN, OF PETROGRAD, RUSSIA, ASSIGNOR TO J. M. AIVAZ SOCIETE PAR ACTION POUR CONSTRUCTION DE MACHINES, OF PETROGRAD, RUSSIA.

APPARATUS FOR PACKING CIGARETTES.

1,295,722.

Specification of Letters Patent.

Patented Feb. 25, 1919.

Application filed September 5, 1918. Serial No. 252,807.

To all whom it may concern:

Be it known that I, SHIMON FELDMAN, a citizen of Russia, and residing at Petrograd, Russia, have invented certain new and useful Improvements in Apparatus for Packing Cigarettes, of which the following is a specification.

In machines constructed for filling cigarettes in boxes in which a certain number of cigarettes is taken from a large quantity of cigarettes, the defect occurs that the cigarettes are damaged when being separated or when being packed, especially in the case when the cigarettes have to occupy two or more layers. This defect is due to the fact, that the quantity of cigarettes in the hopper gradually varies and thus the whole mass exerts an uneven pressure on the cigarettes which are being taken off from the bottom of the pile, and another defect resides in the arrangement between the hopper and the device which takes off the cigarettes.

The present invention obviates these defects and provides novel means for separating a certain fixed quantity of cigarettes from a pile and for transferring the separated articles to the mechanism, which conducts them into their box.

The accompanying drawings show by way of example one form of machine which embodies the present invention, and in which:

Figure 1 is a cross section through the hopper into which the cigarettes are charged, and the cigarette collecting device.

Fig. 2 is a side view as seen when looking in the direction of the arrow in Fig. 1.

Fig. 3 is a plan view of the apparatus.

Fig. 4 is a vertical section on the line A—B of Fig. 3.

Figs. 5 and 6 are section views on the lines C—D and E—F of Fig. 4 respectively.

Figs. 7 and 8 are sectional views on the lines G—H and K—L of Fig. 3 respectively.

Referring to the drawings and particularly to Figs. 1, 2 and 3 thereof, the table of the machine is designated 2 and this table supports brackets 3 which carry the cigarette hopper 1. The hopper is of frusto-conical shape and has an open top and a removable front cover (not shown in the drawings). Located in the hopper is a divider 6 which separates the cigarettes into two streams and located beneath the divider are two inclined plates 4 and 5 which separate the lower portion of the hopper into two

smaller hoppers. The cigarettes charged into the hopper fall by gravity past the dividing plate 6 and enter the small hoppers and the weight of the cigarettes on the lower cigarettes of the pile will be formed only by those cigarettes lying between the divider 6 and the bottoms of the smaller hoppers and thus an even pressure on the lower cigarettes is always insured.

Located beneath the hopper 1 is a shaking device 7, which is adapted to be reciprocated by means of a lever 8 connected at its upper end to one end of the shaking device by a pivot 9. The lever has a rocking movement about the axis 10 and is oscillated by the cam 11. In order that the shaking device shall be reciprocated in a substantially horizontal plane, its opposite end is connected by a pivot 12 with a link 13 rocking about an axis 14.

The shaking device 7 carries two open-ended trays 15 and 16 located at different levels and each provided with a series of thin vertical partitions 15^a. The bottoms of the trays are arranged in such manner that the difference in level between the two is equal to the thickness of a cigarette and the vertical partitions are separated from each other by pockets 15^b, which are of a thickness equal to the thickness of a cigarette. The number of partitions in each tray correspond to the number of cigarettes in each layer to be packed, for example 10, 20 or more, Fig. 1 showing an example in which 10 cigarettes form the bottom layer of each tray.

Owing to the small distance between the plate 6 and the end walls of the hopper 1 and on account of the small weight of the cigarettes, these latter fill both bottom halves of the hopper to a certain level, the height of which practically does not vary until all the cigarettes in the hopper are packed. When the shaking device 7 is at rest, the cigarettes from the hopper fall into the pockets 15^b between the partitions in the trays 15 and 16 and by periodically moving the shaking device 7 to and fro, the cigarettes are caused to form layers in the trays 15 and 16. When at least one cigarette occupies each pocket of each tray, the layers formed thereby are then ready for the next operation.

According to the present invention, the cigarettes are pushed from the trays not di-

rectly into boxes but into an intermediate member insuring the correct arrangement of the cigarettes in layers. This member consists of two open-ended channels 17 and 18 (Figs. 7 and 3), which are rigidly mounted on the table 2 in the rear of the trays 15 and 16 and are arranged end to end with said trays, so that when the latter are at rest the cigarettes occupying the bottoms of the trays can be forced endwise into said channels. A thin plate 19 extends across both channels and forms a top cover for the channel 17 and a bottom for the channel 18, as best shown in Fig. 7. The plate 19 projects rearwardly beyond the channels to form a partition 19^a which extends into the path of movable formers 20; (see Figs. 3, 4, 5 and 6). The formers 20 are carried by an endless belt 21, which is mounted upon rollers 22 and 23, the roller 23 being provided with a sprocket 23^a, which is intermittently rotated by means of ratchet mechanism 24. Each of the formers 20 have open ends and they are provided at their forward ends with inclined guides 20^a which are horizontally slitted as shown at 20^b. As the endless belt 21 is moved and the formers are brought into line with the channels 17 and 18, the walls of the slits 20^b will engage the partition 19^a and said partition will form a divider for the interior of the two formers, which happen to rest end to end with the channels 17 and 18. In this manner a layer of cigarettes carried by the channel 17 will be forced into the bottom of one former while a layer of cigarettes carried by the channel 18 will be forced into the upper portion of an adjacent former and as the endless belt moves beyond the plate 19 the two layers of cigarettes occupying a former will come together.

In order to force the cigarettes from the trays 15 and 16, through the channels 17 and 18 and into the formers 20, I have provided the pusher rods 25 and 26. These pusher rods are carried by a shoe 27, which is slidably mounted in the table 2 and is reciprocated by means of a link 27^a having one of its ends connected to the shoe and its other end pivotally connected to a lever 27^b. The lever 27^b rocks about an axis 27^c and is oscillated by means of a cam 28, which is mounted upon the driving shaft of the machine. The rods 25 are equal in number to the cigarettes forming a layer and they are mounted at a lower level than the rods 26 in order that they may move through the pockets 15^b of the tray 15 and force the lower layer of cigarettes from said pocket into the channel 17 and through said channel into the lower portion of the particular former which rests with its end opposite the end of the channel 17. The rods 26, on the other hand, are mounted above the rods 25 and are adapted to force the lower layer of cigarettes from the tray 16 through the channel 18 and into

the upper portion of the particular former, which lies adjacent said channel.

In operation the hopper 1 is charged with cigarettes and the cam 11 is rotated to cause layers of cigarettes to be deposited in the trays 15 and 16. After a layer of cigarettes has been placed in each tray the shaker 7 is stopped and the pusher rods 25 and 26 then come into operation and move endwise through the trays. The pushing rods 25 and 26 force the lower layers of cigarettes from the trays, through the channels 17 and 18 and into the formers which occupy positions directly in the rear of the channels. It will be seen in this operation, that the layer from the channel 18 is deposited in the upper portion of one of the formers while the layer from the channel 17 is forced into the lower portion of the other former, and that in the next movement of the machine the former receiving the layer from the channel 18 is moved forward one step in order to take the same out of alinement with said channel. The next former which received cigarettes from the channel 17 is moved into alinement with the channel 18, while a following former is moved into alinement with the channel 17. After two layers of cigarettes are placed in a former they are forced from the same into a package by any ordinary means.

The present apparatus may be constructed so as to give not two, but three or even four layers of cigarettes, and to this end the pockets in the trays would necessarily have to be made deep enough to accommodate more than one layer of cigarettes. It is also obvious that a greater number of cigarettes may be formed in layers by simply enlarging the length of the trays 15 and 16.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. Apparatus for the purpose described, comprising in combination, a cigarette containing hopper, oscillating trays beneath the mouth of the hopper, said trays being arranged at different levels, an intermediate member with fixed guiding channels each in line with a tray, formers adapted to receive layers of cigarettes, and means for transferring the cigarettes in the trays to the formers, whereby a bottom layer of cigarettes is fed into one of said formers and an upper layer of cigarettes is fed into the other.

2. Apparatus for the purpose described, comprising in combination, a cigarette containing hopper, oscillating trays beneath the mouth of the hopper, said trays being arranged at different levels differing by the thickness of a cigarette, fixed intermediate members in line with the trays when the latter are in the central position, a separating plate extending across said intermediate members, a series of intermittently moving

formers adapted to contain layers of cigarettes, and means for transferring the cigarettes in the trays to the formers in such a way that while into one of them a bottom layer of cigarettes is fed, an upper layer of cigarettes is fed into the other.

3. Apparatus for the purpose described, comprising in combination, a cigarette containing hopper, a double inclined plate spaced above the mouth thereof, whereby an approximately constant level of cigarettes in the mouth of the hopper is produced, oscillating trays beneath the mouth of the hopper, said trays being arranged at different levels, an intermediate member with fixed guiding channels each in line with a tray, formers adapted to contain layers of cigarettes, and means for transferring the cigarettes in the trays to the formers in such a way that while into one of them a bottom layer of cigarettes is fed, an upper layer of cigarettes is fed into the other.

4. In a cigarette packing machine the combination with a hopper adapted to contain

the cigarettes to be packed, of a shaking device located beneath said hopper and carrying a plurality of trays arranged at different levels, channels arranged adjacent one end of said trays, said channels being arranged in planes corresponding to the levels of the trays, a plate extending across said channels and forming the top of the lowest channel and the bottom of a higher channel, a plurality of formers arranged adjacent said channels and having slotted portions in which said plate rests for dividing the interiors of the formers into a plurality of chambers, and pushing devices adapted to force layers of cigarettes from said trays, through said channels and into said formers.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SHIMON FELDMAN.

Witnesses:

BORIS CEDSOKY,
MOSES SUISAREAKO.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."