Mar. 6, 1923. 1,447,715

G. C. EKSTROM ET AL.

MEANS FOR PORTIONING CIGARETTES OR OTHER STAFF SHAPED ARTICLES FOR THE PACKETING OF SAME

Filed July 7, 1921 3 sheets-sheet 1

Fig. 1

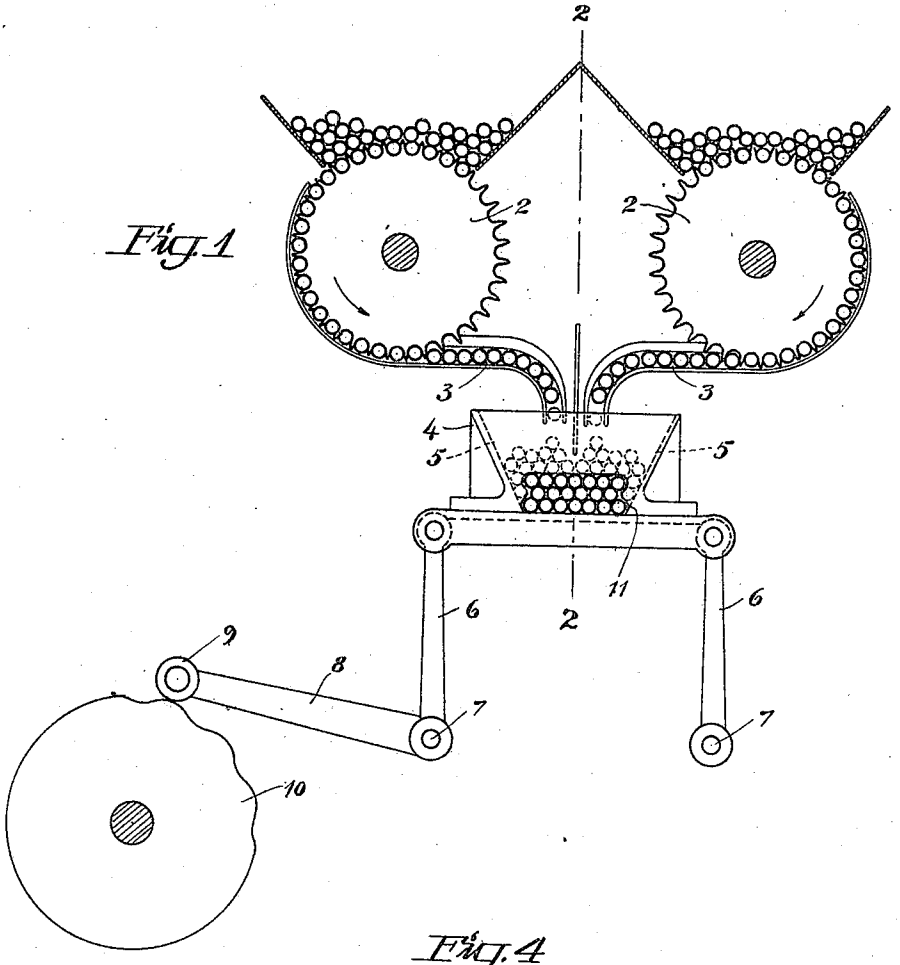
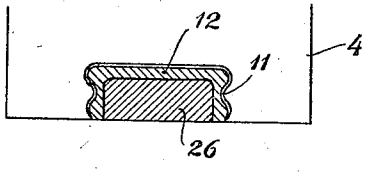


Fig. 4



Inventors
G. C. Ekstrom
G. Orstrom
By Marks & Clerk
Attys.

Mar. 6, 1923.

1,447,715

G. C. EKSTROM ET AL

MEANS FOR PORTIONING CIGARETTES OR OTHER STAFF SHAPED ARTICLES FOR THE PACKETING OF SAME

Filed July 7, 1921

3 sheets-sheet 2

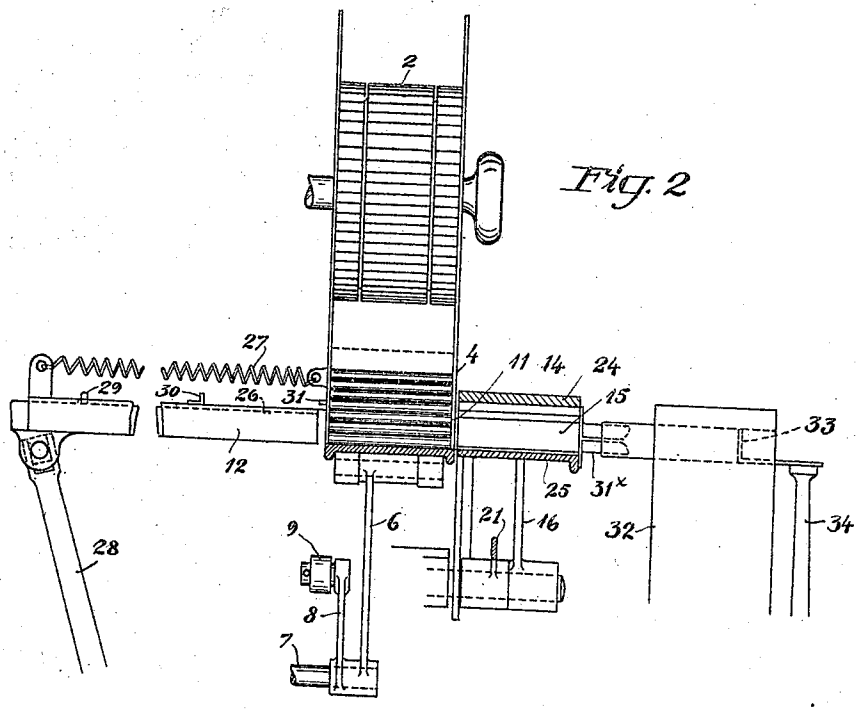
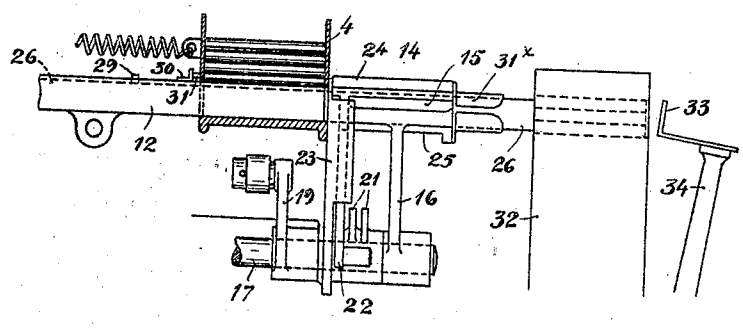


Fig. 2

Fig. 3



Inventors
G. C. Ekstrom
G. Orstrom
By Marks & Clerk
Attys.

Mar. 6, 1923. 1,447,715

G. C. EKSTROM ET AL

MEANS FOR PORTIONING CIGARETTES OR OTHER STAFF SHAPED ARTICLES FOR THE PACKETING OF SAME

Filed July 7, 1921 3 sheets-sheet 3

Fig. 5

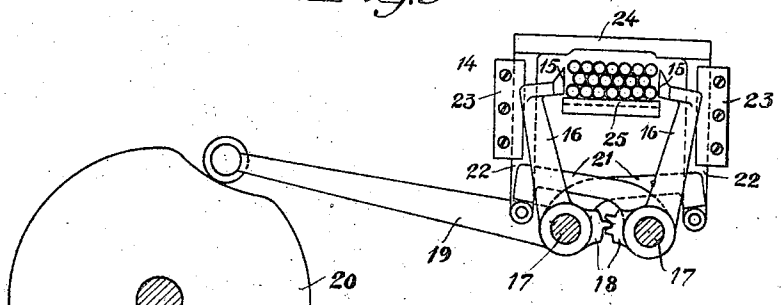
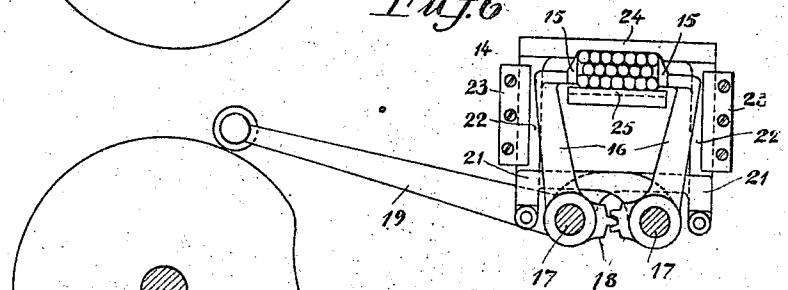


Fig. 6



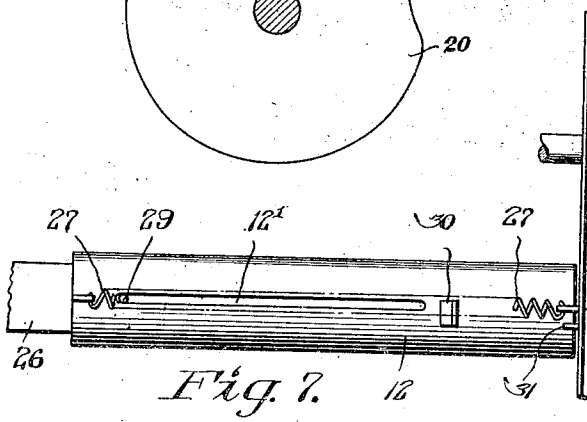


Fig. 7.

Inventors
G. C. Ekstrom
G. Orstrom
By Marks & Clerk
Attys.

Patented Mar. 6, 1923. 1,447,715

UNITED STATES PATENT OFFICE.

GUNNAR CHRISTIAN EKSTRÖM AND GUSTAF ÖRSTRÖM, OF STOCKHOLM, SWEDEN, ASSIGNORS TO AKTIEBOLAGET GERK. AREHNS MEKANISKA VERKSTAD, OF STOCKHOLM, SWEDEN, A CORPORATION OF SWEDEN.

MEANS FOR PORTIONING CIGARETTES OR OTHER STAFF-SHAPED ARTICLES FOR THE PACKETING OF SAME.

Application filed July 7, 1921. Serial No. 483,066.

To all whom it may concern:

Be it known that we, GUNNAR CHRISTIAN EKSTRÖM, a subject of the King of Sweden, and resident of Stockholm, in the Kingdom of Sweden, and GUSTAF ÖRSTRÖM, a subject of the King of Sweden, and resident of Stockholm, in the Kingdom of Sweden, have invented certain new and useful Improvements in Means for Portioning Cigarettes or Other Staff-Shaped Articles for the Packeting of Same, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to a device for portioning cigarettes or other staffshaped articles for their introduction into packets, boxes or the like. The present portioning device is adapted especially to such machines, as stated in the U. S. Letters Patent No. 1,379,254. According to the invention the cigarettes, etc., are fed from a magazine into a receptacle in such manner, that the number of cigarettes, etc., in the said receptacle always is somewhat greater than the intended portion. The said receptacle is shaken, so that the cigarettes, which do not fill up the receptacle completely, are placed in regular rows, located one upon the other. A certain portion may then easily be separated in any suitable manner from the bulk of cigarettes, etc., thus put in order, which portion is moved into a chamber for their introduction into a packet, box or the like. In case of cigarettes the said chamber is provided with movable walls, so that the cigarettes are compressed to a compact bundle before their introduction into the packet, etc.

In the accompanying drawings Fig. 1 shows in a front view and Fig. 2 in a side view, partially in a vertical section on the line 2—2 of Fig. 1, a portioning and filling device arranged in accordance with this invention and adapted especially to cigarettes. Fig. 3 corresponds to Fig. 2 but shows the feed plunger in a different position. Fig. 4 shows the shape of an opening through which the cigarettes are fed and the feed plunger in cross section. Figs. 5 and 6 show the chamber in which the set of cigarettes is compressed with the parts in different positions, and Fig. 7 is a top plan detail of the plunger.

In Figs. 1 and 2 the cigarettes are fed in known manner from a funnel shape magazine 1 by means of two drums, which are provided in their peripheral surfaces with grooves and are rotated in the directions indicated by the arrows and move the cigarettes into the channels 3. According to the invention the said channels communicate with a small receptacle 4, into which the cigarettes are introduced leaving room for additional cigarettes. The side walls 5 of the said receptacle incline outwards and are carried by arms 6, pivoted at 7. An arm 8 is connected with one of the said arms 6 and provided with a roller 9 bearing against a cam disc 10, which is rotated in any suitable manner and at certain intervals shakes the said receptacle 4. Owing to the said shaking the cigarettes are placed in regular rows one upon the other, as shown in Fig. 1. The inclination of the side walls 5 is so adapted, that each row of cigarettes is complete and there is no room for further cigarettes in the row. If now, for instance, twenty cigarettes are to be separated from the bulk in the receptacle 4 in order to be introduced into a packet or box, a feed opening 11, provided in one of the end walls of the receptacle, is so shaped, that the bottom row, comprising seven cigarettes, six cigarettes in the second row and seven cigarettes in the third row from the bottom may be ejected, so that in the said second and third rows, which rows comprise eight and nine cigarettes respectively, two cigarettes in each row are retained in the receptacle. This is effected by the cigarette rows being complete and by the side edges of the said opening being so shaped, substantially S-shaped, that two cigarettes in the second and third rows are retained during the feed operation. The cross section of a plunger 12, adapted to eject the cigarettes from the receptacle 4, is the same as the opening 11 and for the said plunger 12 an opening of substantially the same shape is provided in the wall opposite to the said opening. The plunger 12 is moved in the manner stated below and pushes the set of cigarettes into a chamber 14, in which

the said set is compressed to a compact bundle. The side walls 15 of the said chamber are carried by arms 16, fixed to shafts 17. The said arms are provided with toothed segments 18, engaging each other, and to one of the shafts 17 an arm 19 is fixed, acted upon by a cam disc 20. To the shafts 17 arms 21 are fixed, bearing against rollers journaled on rods 22, which are movable in guides 23 and at their top ends carry a plate 24, forming the ceiling or top wall of the chamber 14. The bottom wall of the chamber 14 is stationary. While the piston 12 pushes the set of cigarettes into the chamber 14, its parts have the position, shown in Fig. 5. When the cigarettes have been put into the chamber, the cam disc 20 actuates the lever 19, Fig. 6, so that the arms 16 are swung towards each other, the arms 21 forcing simultaneously the rods 22 and the plate 24 downwards against the action of one or more springs not shown. In this manner the set of cigarettes is compressed in the chamber 14. The outer top edges of the side walls preferably are beveled and enter a recess provided in the lower side of the plate 24, so that a closed chamber round the set of cigarettes is obtained. Within the plunger 12 a second plunger 26 is provided, the shape and size of which transversely substantially correspond to the shape of the chamber 14. To the outer plunger 12 one or more springs 27 is fixed, which tends to move the plunger toward the right, Figs. 2 and 3. The inner plunger 26 is actuated by a lever 28, acted upon for instance by a spring and cam disc, not shown. A pin 29 extends upwards from the plunger 26 and is movable in a longitudinal slot provided in the plunger 12. In the position of the parts shown in Fig. 2, the plunger 12 bears against the pin 29 of the plunger 26, the operative or right end surfaces of the plungers being then flush. As the lever 28 and the inner plunger 26 are moved toward the right, the outer plunger 12 accompanies the same acted upon by the spring 27, so that the cigarettes are pushed into the chamber 14. When this has been done, an abutment 30 provided on the outer plunger 12 strikes a stationary abutment 31, so that the plunger 12 is stopped in its motion. At the same time also the plunger 26 stops. After the compression of the set of cigarettes in the chamber 14 the inner plunger 26 is moved for a further distance toward the right, during which movement the pin 29 slides in the slot provided in the plunger 12. The plunger 26 thus moves the compressed bundle through a mouth piece 31× and into a paper packet (box or the like), which from one of the pockets provided in a rotatable drum 32 previously has been pushed on the said mouth piece by a piston 33 provided on a swingable arm 34, actuated in any suitable manner. The cigarettes put into the said packet, strike the closed bottom of the same and bring the packet with themselves, so that the packet is returned into the drum. The plunger 26 is then returned by the lever 28 and returns the outer plunger 12 by means of the pin 29, so that the parts again occupy the position shown in Fig. 2. The drum 32 is then rotated until the next pocket together with the packet located in the same is placed in front of the mouth piece. During the rotary motion of the drum the packet is closed in any suitable manner.

By means of this invention each packet is filled with a complete number of cigarettes.

The invention may evidently be modified in many respects without exceeding the limits of the same.

We claim:

1. A device for portioning cigarettes or other staff-shaped articles including a receptacle, means to introduce cigarettes into the said receptacle in such quantities that the number of cigarettes in the receptacle always is only somewhat greater than the intended portion, means to shake the receptacle to place the cigarettes in regular superposed rows, so that they form a compact bulk, and an outlet opening in one side wall of the receptacle permitting a distinct set of cigarettes to be moved from the said bulk.

2. A device according to claim 1, characterized by the fact that the sides of the receptacle incline outwards and upwards, the inclination being so adapted, that each row of cigarettes completely fills up the space between the said sides.

3. In a device for portioning cigarettes or other staff-shaped articles the combination of a receptacle, means to introduce cigarettes into the said receptacle in such quantities, that the number of cigarettes always is somewhat greater than the intended portion, means to shake the receptacle to place the cigarettes in regular superposed rows, so that they form a compact bulk, an outlet opening in one side wall of the receptacle, permitting a distinct set of cigarettes to be moved from the said bulk, and a chamber into which the cigarettes are introduced and the walls of which are movable, so that by moving the walls inwards the set of cigarettes is compressed previously to its introduction into a packet, box or the like adapted to receive the same.

4. A device according to claim 3, characterized by the fact that a feed plunger, effecting the separation of the set of cigarettes, has an inner part serving also as feed plunger and adapted in combination with the outer plunger to feed the cigarettes from the portioning receptacle into the compress-

ing chamber and alone to feed the compressed set of cigarettes from the said chamber into the packet.

5. A device for portioning cigarettes including a receptacle having an outlet opening in one side smaller than the side of the receptacle so that the receptacle may hold more cigarettes than are ejected through the opening and means to shake the receptacle to place the cigarettes in regular superposed rows.

In testimony whereof we have affixed our signatures in presence of two witnesses.

GUNNAR CHRISTIAN EKSTRÖM.
GUSTAF ÖRSTRÖM.

Witnesses:
INEZ SWERSON,
STINE LARSON.