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[11] 3,540,570

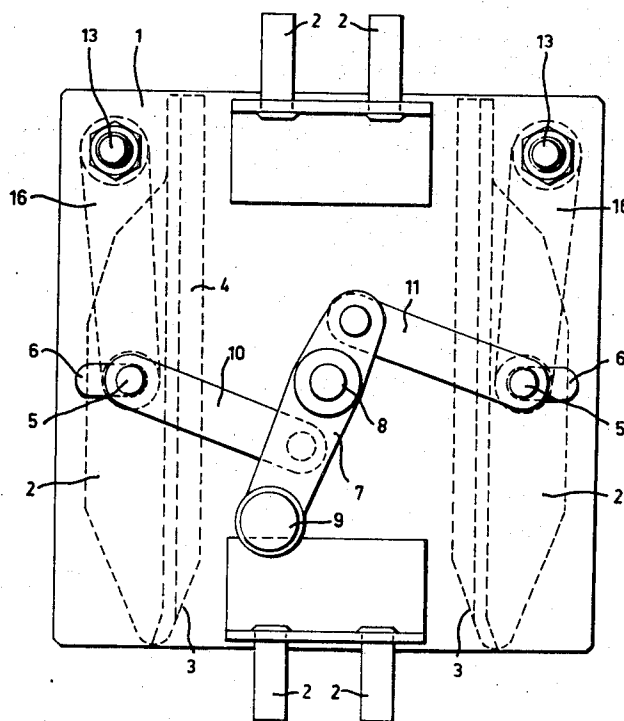
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| [33] | | Sweden |
| [31] | | No. 15368/1966 |

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- [54] SPRING-ACTUATED RECEPTACLE IN A
PACKETING MACHINE
8 Claims, 3 Drawing Figs.**

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| [52] | U.S. Cl..... | 198/131 |
| [51] | Int. Cl..... | B65g 15/00 |
| [50] | Field of Search..... | 198/131,
179, 140; 53/148, 210 |

ABSTRACT: An arrangement in a cigarette-packing machine comprising a store and containers passing the store, said containers receiving cigarettes from the store during said passing, said container including two parallel plates, a bottom and a cover plate, and walls between said plates in the longitudinal direction of the cigarettes, said walls being in form of jaws presenting abutment surfaces and being movably arranged on shafts mounted in grooves disposed in said plates, in said bottom plate a lever being mounted which being connected to said shafts by links, and which being adapted to move said shafts in the transverse direction of the cigarettes.



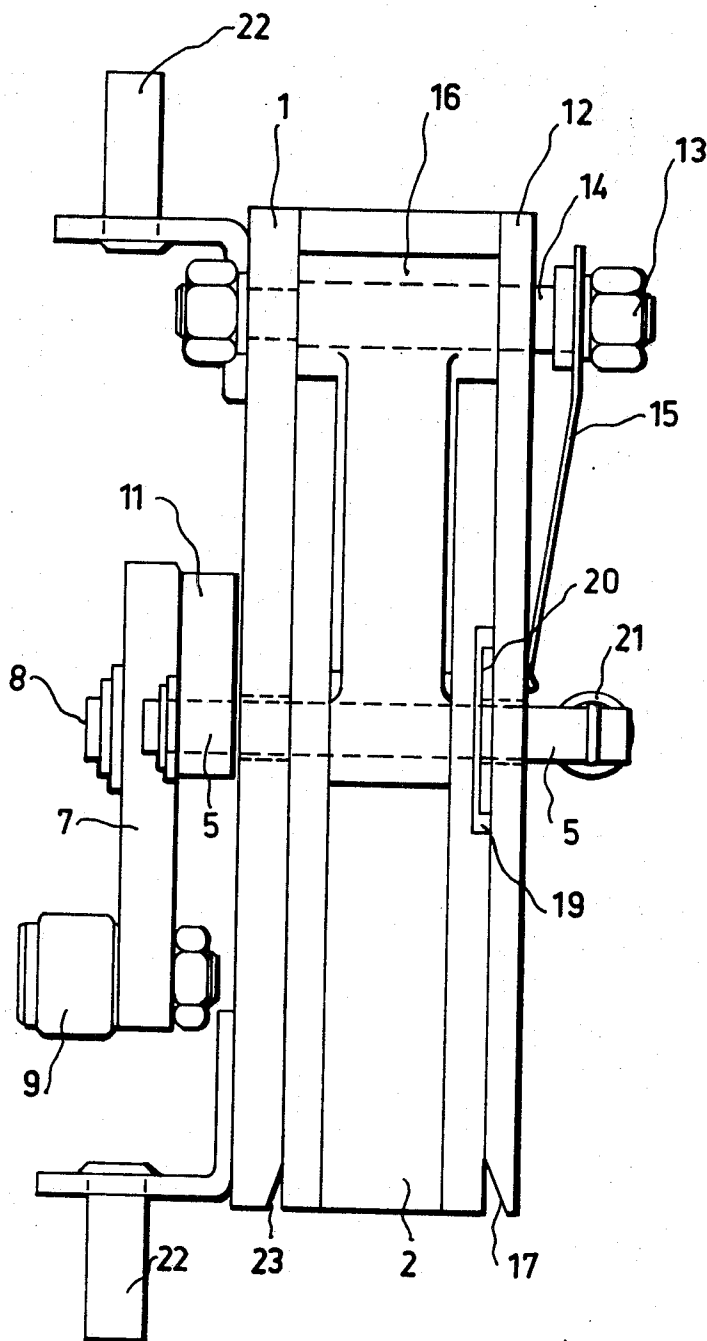


Fig.2

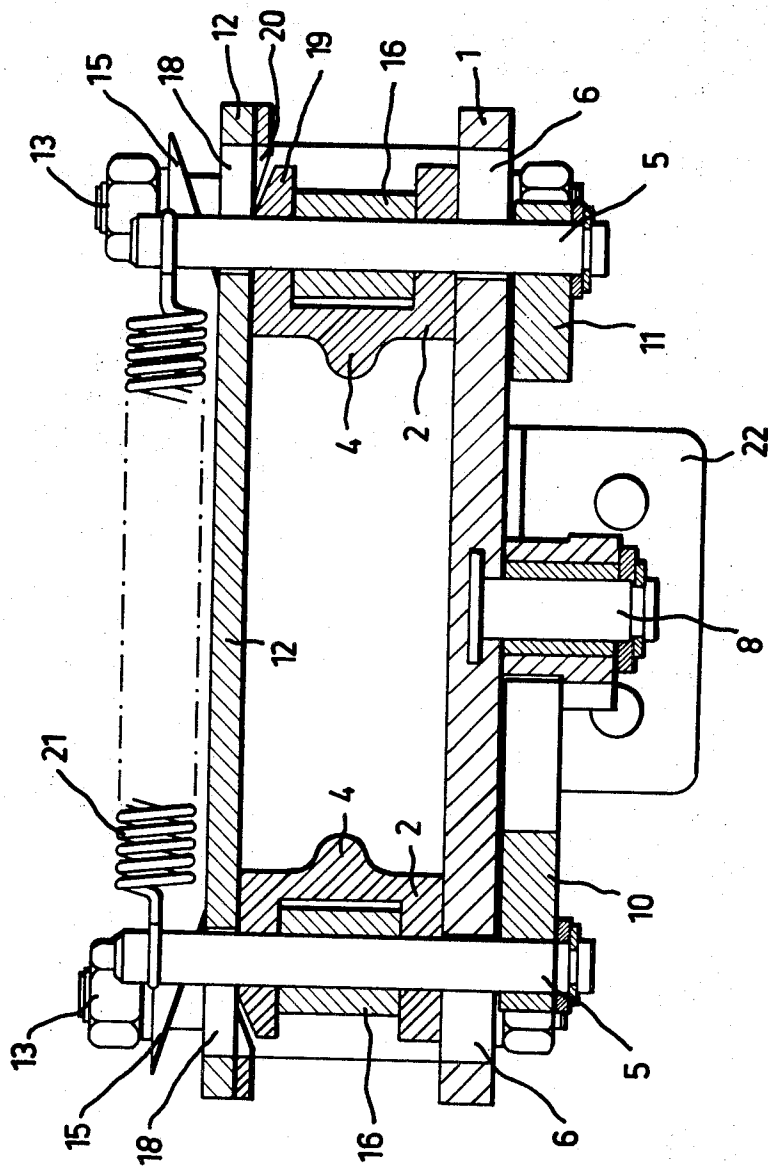


Fig. 3

SPRING-ACTUATED RECEPTACLE IN A PACKETING MACHINE

The present invention is concerned with an arrangement in packaging machines, preferably cigarette-packaging machines; and into which arrangement a quantity of cigarettes taken from a store of cigarettes is inserted, and in which the inserted cigarettes are collected and retained so that whilst being conveyed to and inserted in a cigarette packet they adopt the positions which they occupy in the finished cigarette packet; the said arrangement including two parallel plates of which one comprises a bottom plate and the other a cover plate, and wall members arranged in the longitudinal direction of the cigarettes between the bottom and the cover plates.

It is desirable in cigarette-packaging machines that the cigarettes taken from a cigarette store and which are later to be introduced into a cigarette packet can be grouped in such a way that they adopt a specific position relative to one another. To achieve this desideratum the cigarettes are often disposed in parallel rows, wherein the number of cigarettes in one row usually deviates from the number of cigarettes in the remaining rows. Further, it is necessary that the cigarettes be retained in the said specific position whilst being conveyed to that portion of the machine where they are inserted into the cigarette packet, so that this can be effected without difficulty.

Hence object of the present invention is to provide an arrangement which enables this to be done.

The invention is mainly characterized in that the walls of the arrangement are in the form of jaws presenting opposing abutment surfaces and which are movably arranged on shafts journaled in the bottom and cover plates, the said shafts being adapted so as to be displaceable transversely to the cigarettes by means of a lever mounted in the bottom plate, and links arranged between the lever and shafts.

The invention will now be described with reference to accompanying drawings, wherein:

FIG. 1 is a bottom plan view of the apparatus of this invention;

FIG. 2 is a side elevation view of the apparatus shown in FIG. 1;

FIG. 3 is a transverse sectional view taken through the apparatus of FIG. 1.

The arrangements includes a bottom plate 1 on which are arranged two jaws 2, presenting opposing abutment surfaces. The inner surface of the forward portion of the jaws is chamfered so that the abutment surface in this portion is obliquely positioned relative to the longitudinal direction of the jaw. Arranged above the jaws 2, parallel with the bottom plate, is a cover 12, which is secured to the bottom plate by means of stud bolts 13 arranged in the rear portion of the cover and bottom plate. The inner edge 17 and 23 of the forward portion of the cover and bottom plate, respectively, is also chamfered which in combination with the chamfer on the jaws enables the cigarettes to be introduced into the container more easily. The jaws 2 are mounted for movement on shafts 5, which are journaled in the bottom plate 1 and the cover plate 12. The shafts pass through the cover and the bottom plate and are movable therein in the transverse direction of the cigarettes in grooves 6, disposed in the cover and bottom plate. The portions of the shafts located under the bottom plate are attached to links 10 and 11 which in turn are attached to a lever 7 which is mounted on a shaft 8 journaled in the bottom plate 1. The lever 7 is also provided with a pressure roller 9. The pressure roller 9 is adapted to be actuated by for instance an abutment member when the container means is moved towards a dispensing store, from which the cigarettes are transferred to the said container. The abutment member is usually arranged immediately in front of the dispensing store. When the roller 9 is actuated the lever 7 moves, and hence also the links 10 and 11; which causes the shafts 5 to be shifted laterally in the groove 6 and thus displacement of the jaws 2. Arranged in the portion of the shaft 5 situated above the cover plate is a coil spring 21, which when actuation of the roller 9 has ceased returns the shaft and jaws to their original starting position.

A guide arm 16 is arranged at each jaw to stabilize the lateral movement of the same. The arm 16 is mounted on the shaft 5 and on the stud bolt 13. Further, the rear portion of the jaws 2 is so designed that when the jaws are moved apart, transversely, the rear portion, subsequent to effecting a certain lateral movement, abuts the portion of the guide arm 16 arranged on the stud bolt 13, thus preventing further lateral movement of the said rear portion. Continued movement of the shaft 5 causes the jaw to turn around the portion of the guide arm 16 located on the stud bolt 13. This causes the front portions of the jaws to be moved apart, thus further facilitating the insertion of cigarettes into the container.

However, it is not sufficient to move the jaws apart so that the opening is wider but it is also necessary to increase the height of the opening. This is accomplished in the shown embodiment in that the bottom plate is held fast whilst the cover plate is lifted during the lateral movement of the jaws. For this purpose a plate is arranged on the bottom of the cover plate, wherein the portion of said plate facing the centre of the container is provided with a chamfered surface 20. Located in the portion of the jaw 2 facing the cover plate is a recess which presents a chamfered surface 19. This latter surface is so designed that when the jaws are in their starting position the surfaces 19 and 20 are in register, one above the other. The cover plate 12 thus abuts the top of the jaws. When the lever 7 is actuated and the shafts and the jaws 2 are moved outwards the faced surface 19 will slide against the surface 20. This movement causes the cover plate to be urged upwards. To facilitate the lifting of the cover plate its rear edge is not securely fixed to the studbolts 13 but a certain clearance 14 is present between the bolt and nut; thus enabling the cover plate to move somewhat. A leaf spring 15 is arranged on the top of the cover plate to return said plate to the original starting position. The rear edge of the leaf spring is fixed to the stud bolts 13 at a certain distance from the cover plate. The said spring is bent so that its leading edge abuts the centre portion of the cover plate.

The cigarettes to be inserted in the container and which constitute, e.g., a pack of twenty cigarettes, are usually disposed in three parallel layers of which the top and bottom layers contain seven cigarettes and the intermediate layer contains six cigarettes. To retain the cigarettes in these positions each jaw is provided with a bulge member 4. The combined extension of these bulge members in the transverse direction of the cigarettes corresponds to the difference in length between the intermediate layer and the top and bottom layers.

Arranged at each edge of the bottom plate 1 transversely thereto are studs 22 intended to be fastened to a chain. The chain is adapted to move the container passed a dispensing store from which a portion of cigarettes is inserted into the container. Before the container reaches the store it passes an abutment member, whereupon, as mentioned in the foregoing, the pressure roller 9 is actuated so that the jaws 2 are moved apart and the cover plate 12 raised.

When the container has been opened in the manner described the portion of cigarettes to be packeted is passed into the container, whereupon actuation of the roller 9 ceases so that the jaws and cover plate return to their original starting position. The cigarettes are thus held in the position they occupy in the cigarette package by means of the bottom plate, cover plate and jaws. The container is then moved by the chain to the portion of the packaging machine where the cigarettes are inserted into the cigarette packet, wherein the cigarettes occupy their final position during conveyance to said portion of the packaging machine and whilst being inserted in the cigarette packet.

We claim:

1. In an apparatus for transferring a portion of cigarettes arranged in parallel rows from a store of cigarettes to a moving container wherein said store includes abutment means in the path of said moving container, said container comprising:

a. two parallel plates arranged in spaced apart relation to one another, one of said plates constituting a bottom

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plate and the other a cover plate, said bottom plate and said cover plate having oppositely disposed apertures;

b. shaft means movably mounted in said oppositely disposed apertures;

c. spaced apart walls in the form of jaws rotatably mounted on said shaft means between said bottom and said cover plates;

d. lever means rotatably mounted on said bottom plate; and

e. link means connecting said shaft means and said lever means to move said jaws transverse to the direction of movement of said cigarettes when said lever is rotated.

2. The apparatus according to claim 1 wherein said lever means includes a pressure roller means mounted on one end thereof, said pressure roller means adapted to be actuated by said abutment means in said path of movement of said container.

3. The apparatus according to claim 1 wherein said shaft means has portions thereof situated outside said cover plate, and resilient means connecting said portions.

4. The apparatus according to claim 1 wherein said jaws are chamfered on an end thereof to form an abutment surface, which abutment surface is positioned obliquely to the longitudinal direction of said jaws and wherein the inner edge of said bottom plate and said cover plate adjacent said chamfered end of said jaws is also chamfered.

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5. The apparatus according to claim 1 wherein retaining means is arranged between said bottom and said cover plate adjacent an edge opposite said chamfered inner edge and wherein the rear portion of each of said jaws is shaped such that said rear portion abuts said retaining means.

6. The apparatus according claim 1 wherein the surface of said jaw facing said cigarettes includes a bulge portion, said bulge portion having a total extension in the transverse direction corresponding in length to the cross-sectional length of one of the missing cigarettes in one of said rows of cigarettes.

7. The apparatus according to claim 4 wherein each of said jaws has a recess on an outside edge thereof, said recesses having a chamfered surface, and an additional plate on the side of said cover plate facing said jaws, said additional plate having sides thereof chamfered and facing each of said chamfered surfaces on said jaws such that when said jaws are opened by said lever means, said chamfered surfaces on said jaws engage said chamfered surfaces on said additional plate to thereby raise said cover plate.

8. The apparatus according to claim 5 wherein a resilient means is secured to said retaining means and is in biasing engagement with said cover plate.

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