

(19)



Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 1 105 024 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:

26.11.2003 Bulletin 2003/48

(21) Application number: **99936847.5**

(22) Date of filing: **02.08.1999**

(51) Int Cl.7: **A47F 7/10**, G07F 11/18

(86) International application number:
PCT/GB99/02528

(87) International publication number:
WO 00/010433 (02.03.2000 Gazette 2000/09)

(54) **PRODUCT DISPENSERS**

PRODUKTSPENDER

DISTRIBUTEURS DE PRODUITS

(84) Designated Contracting States:
DE ES FR GB IT

(30) Priority: **19.08.1998 GB 9818141**

(43) Date of publication of application:
13.06.2001 Bulletin 2001/24

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Description

[0001] This invention is concerned with dispensers for storing a supply of separate product packages and presenting the packages for removal by customers in a self-select retail environment in which customers collect items they wish to purchase and pay for the selected items at a so-called check-out station. In shops and stores which operate on a self-select basis, security can be a problem, and in particular small packages of consumable products having a relatively high sales value can be stolen with several packages of the same product being taken at the same time. It is known to present such packages to self-select customers in dispensers which are designed to enable removal of only one package at a time, but it is still possible for a person to remove packages rapidly one after another since as soon as one package is removed from such a dispenser the next package is presented at the position for removal.

[0002] Another problem with existing dispensers is that they can be awkward for staff to replenish the supplies of packages stored within them.

[0003] In US-A-5269597 there is described a cigarette carton dispenser equipped with shelves for holding stacks of cartons and provided with shields permitting access to only the lowermost carton of each stack. Since there are several shelves and several stacks on each shelf, a fairly rapid removal of cartons is still possible.

[0004] US-A-4682826 describes a package dispenser including a container for holding a vertical stack of packages, a dispensing opening being located at the bottom of the container and being dimensioned to permit packages to be removed only one at a time. A lockable closure is arranged to cover the dispensing opening to prevent removal of packages, but when released to permit access to the dispenser contents the rate at which packages can be removed is not impeded.

[0005] In accordance with the present invention there is provided a dispenser comprising a container for holding a stack of packages to be advanced in turn to a removal location from which individual packages can be removed from the container, a dispensing member for receiving an individual package at the removal location and movable relative to the container from a closed position to an open position in which the received package is presented for removal, in the closed position the dispensing member preventing removal of packages from the container and in the open position only that package previously received by the dispensing member being removable, and a device for retarding return movement of the dispensing member from the open position to the closed position for restricting the rate at which packages can be removed by repeated actuation of the dispensing member.

[0006] By the return movement of the dispensing member being slowed down by the retarding device, and packages being removable only one at a time, a time delay is introduced whereby removal of several

packages will take a significant time and a person performing several dispensing operations will become conspicuous and is likely to arouse suspicion so that the dispenser will provide a strong deterrent against large scale pilferage. At the same time a genuine customer wishing to purchase only one or two packages will not be seriously inconvenienced.

[0007] The dispenser of the invention can take various forms. Conveniently the dispensing member is movable manually from the closed position to the open position, although it could be spring actuated and be released, for example, by customer actuation of a handle or button.

[0008] Return movement of the dispensing member from the fully open position to the closed position is preferably effected by a return spring coupled to the dispensing member, such as a constant tension coil spring.

[0009] The retarding device may comprise a rotary damper which permits substantially free movement of the dispensing member from the closed to the open position and brakes the closing movement of the dispensing member. Such rotary dampers are known in the art and consist of a rotor which rotates in a fluid-filled container, the fluid providing much greater resistance to the rotor blades or arms during one direction of rotation compared with the resistance to rotation in the opposite direction. To thwart any attempt to force the dispensing member to move from the open position to the closed position more rapidly than intended, an arresting mechanism may be provided to lock the dispensing member against closing while the force continues to be applied. For example a locking member may engage with a pinion through which the rotary damper is driven by the dispensing member to lock the pinion against rotation.

[0010] The packages may be stacked in the container so that they are urged towards the removal location under their own weight, or the packages can be stacked generally horizontally and be pressed forwardly towards the removal location by a pusher which can be acted upon by a coil spring as known *per se* in dispensing containers for maintaining packages at a forward location. In the case of a dispenser with a container arranged to hold a generally upright stack the dispensing member is conveniently slidable transversely to the stack for movement between the open and closed position. More particularly the dispensing member can be a horizontally movable drawer-like member arranged to receive the lowermost package in the stack when in the closed position and to slide that package away from the stack when moved forwardly to the open position. For supporting the packages remaining in the stack when the dispensing member is moved to the open position a stack retaining member is attached to the rear of the dispensing member. The stack retaining member may consist of a platform which can be made integrally with the dispensing member, but in an especially convenient embodiment the stack retaining member comprises a flexible member connected to a return spring acting on the

dispensing member, and more particularly the stack retaining member is formed by an integral part of a coiled return spring.

[0011] In an embodiment having a container arrange to hold a generally horizontal stack, the dispensing member is mounted for pivotal movement. The dispensing member and be generally upright and pivotable about an axis adjacent a bottom of the dispensing member, a package at the removal location being carried to pivot with the dispensing member. A restraining device provided for restraining forward displacement of the remaining packages when the dispensing member is pivoted open may be carried by the container and be arranged to define and stop against which the forward most package in the stack abuttingly engages, the stop being displaced to disengage the forward most package when the dispensing member approaches a fully closed position. According to another construction the restraining device consists of an abutment element carried on the dispensing member, and the abutment element can conveniently be constituted by a platform on which the package in the removal location rests.

[0012] As previously mentioned an important consideration of dispensers of the kind to which the invention relates is the ease with which they can be refilled with packages by shop staff when the stocks of packages in the dispensers need replenishing. In accordance with a preferred feature of the present invention the container is upwardly elongated for holding the stack of packages, and at least one opening is disposed along the container to facilitate controlled loading of packages into the container while deterring removal of packages from the stack by reversal of the loading procedure.

[0013] According to one particular embodiment a series of substantially parallel slots extends along the container to allow introduction of respective packages into the container through adjacent slots. The slots are laterally inclined so that packages stacked within the container are misaligned with the slots and are not easily removable therethrough due to the dividers separating adjacent slots impeding such removal.

[0014] In another construction a loading opening through which a group several packages can be inserted is provided near or at the top of the container, and a slot extends downwardly from the loading opening to enable the group of packages to be lowered onto the stack of packages already in the container. A means associated with the slot impedes lifting of packages from the stack housed in the container to the loading opening and may comprise resilient elements which hinge or flex to enable fingers holding the packages to move down along the slot, but prevent upward movement of the fingers along the slot. Another system comprises rotary members with arms which protrude into the slot, the rotary members being rotatable only in one direction whereby to allow fingers to move downwardly along the slot, but to obstruct movement of the fingers upwardly along the slot. Of course there are other arrangements

which will serve to hinder removal of packages through a loading opening disposed towards the top of the container and, for example, barbs or the like which allow packages to pass easily downwardly but which constitutes firm obstructions to upward movement of packages, could be disposed within the container.

[0015] In the case of a dispenser with a container arranged to hold a generally horizontal stack other loading arrangements can be appropriate. One such arrangement consists of a window opening formed in the front of the dispensing member, the window opening having a structure associated therewith so that packages can be inserted into the container through the window opening, but removal of packages through the window opening is prevented. The structure conveniently comprises elements, such as flexible flaps disposed along the edges of the window opening and adapted to deflect to allow introduction of packages into the container.

[0016] A clear understanding of the invention and its different aspects and preferred features will be gained from the following detailed description of some embodiments, reference being made to the accompanying drawings, in which:

Figure 1 is a schematic vertical cross section through a first embodiment of a dispenser according to the invention;

Figures 2 and 3 show the dispenser of Figure 1 during successive stages in the process of dispensing a package;

Figure 4 is a horizontal cross-sectional view illustrating a modification to the dispenser of Figs. 1-3 and showing an arresting mechanism;

Figure 5 is similar to Fig. 4, but shows the arresting mechanism actuated to lock the dispenser drawer against closing movement;

Figure 6 shows the dispenser of Figs. 1-3 in front elevation and fitted with a cover;

Figure 7 shows the dispenser of Figs. 1-3 in front elevation with the front cover omitted;

Figure 8 is similar to Figure 7, but illustrates a modification to the dispenser;

Figure 9 is similar to Figure 8 and shows an alternative loading slot arrangement;

Figures 10 and 11 are front elevations showing alternative loading opening configurations for the dispenser of Figs. 1-3;

Figures 12, 13 and 14 correspond to Figs. 1, 2 and 3 and show a modified dispenser;

Figures 15 and 16 are schematic vertical cross-sections illustrating an alternative return spring assembly;

Figure 17 is a sectional view illustrating further embodiment of a dispenser according to the invention;

Figure 18 is a view similar to Figure 17 and showing the dispenser at a later stage during a package dispensing operation;

Figure 19 is a partial front perspective view of the

dispenser shown in Figs 17 and 18.

Figure 20 is a schematic horizontal sectional view showing the method of loading packages into the dispenser of Figs. 17-19;

Figures 21 to 23 show a modified version of the dispenser of Figures 17 to 20 at different stages during a package dispensing operation;

Figures 24 and 25 are similar views illustrating the package restraining device of the dispenser of Figs. 21 to 23;

Figure 26 is an isometric view of a front end part of the dispenser shown in Figs. 21 to 25;

Figure 27 illustrates the pusher mechanism of the dispenser of Figs. 17-20 or Figs. 21-26;

Figure 28 is a schematical vertical section through another dispenser embodying the invention;

Figure 29 is a perspective view of a group of dispensers each as shown in Figure 28, with one dispenser advanced to a loading position;

Figures 30 to 33 show successive stages during the dispensing of packages from the dispenser of Figure 28;

Figure 34 illustrates a modification to the dispenser of Figure 28; and

Figure 35 is a side view of the dispenser of Figure 34 in a loading position.

[0017] Figures 1-3 illustrate a dispenser 1 which is adapted to deliver in a time controlled manner individual packages 2. The packages may consist of any small products or packs containing such products, although for purposes of illustration each of packages depicted in the drawings comprises safety razor cartridges 2 enclosed within a sealed cardboard pack 3 fixedly mounted on a backing card 4, such packages being well known *per se* and being typical of the manner in which razor cartridges are packaged for sale to consumers. The dispenser 1 includes an elongated, upright hopper or container 5 of rectangular cross section to complement the peripheral shape of the packages 2, the container being arranged to receive and hold a vertical stack of the packages. At the lower end of the container is a dispensing mechanism comprising a dispensing member 6 having the general form of a drawer mounted for horizontal sliding movement relative to the container 5 between a normally closed position (Fig. 1) and an open position (Fig. 2). An upwardly open recess 8 defined in the drawer 6 has a shape and depth to match the packages 2 so that, when the drawer is in the closed position (Fig. 1) the drawer recess can receive and accommodate a single package, this being the lowermost package in the stack of packages stored within the dispenser. The drawer recess 8 defines a removal location towards which the packages 2 are advanced in turn under gravity for successive delivery of the packages from the dispenser, as will become clear. A pull handle 10 is attached to the drawer front and a pair of laterally spaced coil springs 12 mounted in a lower housing part 14 of the dispenser

have their free ends attached to the rear of the drawer. The springs 12 are of a metal ribbon type which has the characteristic of exerting a substantially constant return force as the free ends are drawn away from the spring coils. As best illustrated in Figure 2, when the drawer 6 is moved forwardly away from its closed position straight spring sections 13 are created which lie in a plane substantially level with the top of the drawer and which form a retaining member to support the packages 2 which remain stacked in the container 5 above the drawer 6 during the actuation of the drawer to remove the package received by the drawer and in the removal location. The return springs 12 apply a return force for retracting the drawer back into the dispenser after the drawer has been pulled to its open position by a manual force applied by gripping the drawer handle 10. The speed of movement of the drawer 6 from the closed position to the open position is essentially uninhibited, but the return movement in the opposite direction is retarded by a rotary damper 20 so that it takes a predetermined finite time for the drawer 6 to move from the open position to the closed position and as a consequence a time delay is built into the dispenser to restrict the speed at which it can be operated to deliver several packages for removal. The rotary damper 20 has a rotor which rotates within a sealed chamber containing a fluid and which is fast with a drive spindle on which a driving pinion 16 is carried. The damper 20 is mounted in the lower housing part 14 of the dispenser and the pinion 16 is in mesh with a toothed rack 17 disposed on the underside of the drawer 6. Thus, as the drawer 6 slides to and fro the damper rotor is driven in rotation, but the damper 20 only impedes or brakes the drawer movement in the return direction.

[0018] The manner in which the dispenser operates to provide controlled delivery of packages will now be described. For this purpose it is assumed that the container 5 has been loaded with a stack of packages although the way in which the packages are loaded into the container will be described later. Ignoring for the moment the packages shown being inserted into the container in the upper part of Figure 1, the normal rest condition of the dispenser is as illustrated in Figure 1. A customer selecting one of the packages to purchase opens the drawer 6 by pulling on the handle 10. The drawer 6 is moved to the open position shown in figure 2, the package 2 initially in the removal location in the drawer recess 8 then being presented to the customer for removal from the dispenser. The customer releases the drawer and removes the package. The return springs 12 meanwhile have prevented the remaining packages 2 remaining stacked within the container from moving downwardly. When the drawer 6 is released the return springs start to retract the drawer back to its closed position, the speed of retraction being determined by the rotary damper 20 being driven by the rack and pinion 17,16. As the drawer approaches its fully closed position, the lowermost package in the stack remaining in

the container 5 falls under gravity, helped by the weight of the other packages stacked above it, into the empty drawer recess 8 and hence into the removal location ready to be delivered for removal from the dispenser when the drawer 6 is next pulled open again. By repeated opening and closing of the drawer 6, therefore, the packages 2 within the dispenser are delivered for removal, but the rate at which packages can be removed by repeated actuation of the drawer is restricted by the rotary damper retarding the return movements of the drawer.

[0019] In order to thwart any attempt to increase the speed of return movement of the drawer by pushing on the handle an arresting mechanism may be provided to lock the drawer against further return movement if such a pushing force is applied. Such a mechanism is illustrated in Figs 4 and 5. The drawer handle 10 according to this modification is capable of limited back and forth movement relative to the drawer 6 and is urged forwardly relative to the drawer by a spring 22 positioned to act between them. The handle is coupled to a toothed rack 24 which faces the rack 17. It should be noted that as shown in Figs 4 and 5, the rotary damper 20 is mounted on the bottom wall of the lower housing part 14 and the rack 17 is disposed on the drawer to face laterally. The pinion 16 is in constant mesh with the rack 17, but is normally disengaged from the rack 24 as seen in Figure 4. The rack 24 is connected by live hinges 25 to a pair of parallel arms 26 which are pivoted to the side wall of the lower housing part 14 and extend in a forwardly inclined disposition. If the handle 10 is pushed so that the spring 22 is compressed, the rack 24 is displaced rearwardly and, due to the arms 26, is moved laterally to bring it into mesh with the pinion 16, as shown in Fig. 5, and as a consequence the pinion 16 is locked against rotation as the opposed racks 17, 24 are trying to rotate it in opposite directions. Thereby, continued return movement of the drawer 6 is prevented until the handle 10 is relieved of the pushing force and the rack 24 disengages the pinion 16.

[0020] Although it is convenient to use the return springs 12 to support the stack of packages 2 in the container 5 when the drawer 6 is opened, other arrangements are possible. For example, Figs 12-14 show an embodiment in which a rigid platform 28 is provided by a rearward extension to the drawer 6. This dispenser is otherwise constructed and functions to dispense packages in the same way as described with reference to Figs 1-3. Another possibility is illustrated in Figs 15 and 16 where a shutter-like restraining member 29 with several hinged sections is provided and is coupled between the rear of the drawer 6 and the return spring 12, this member 29 being guided to move from a vertical location to the rear of the container 5 (Fig. 15) to a horizontal position for holding up the stack of packages 2 in the container when the drawer is opened, as shown in Fig 16. The packages are dispensed by opening and closing the drawer 6 and a device such as a rotary damper will

be provided to slow down the return movement of the drawer although this device is not visible in Figs 15 and 16.

[0021] The container 5 of the dispenser shown in Figs 1-3 has a front wall 30 with a series of loading slots 32 along its length. The slots which are shaped and dimensioned to according to the individual packages 2, are separated by thin dividers 34 which are parallel and laterally inclined, as best seen in Figure 7. As shown in Figs 1-3 the slot dividers 34 are also inclined from front to rear, but this is not important and they may alternatively be level or slope upwardly in the front to rear direction. The slots 32 enable groups of several packages 2 to be loaded into the container 5 simultaneously, as illustrated in the upper part of Fig. 1, by the packages being aligned with and inserted through respective slots, preferably just above the level of packages already stacked in the container 5. Once the packages are inserted and rest on one another, they lie horizontally and therefore are misaligned with the loading slots 32 due to the laterally inclined dividers 34 and as a result it is awkward and a slow process to remove packages 2 from the dispenser via the loading slots 32. Although the container front wall 30 may be exposed it is preferable to provide a hinged or removable cover 36, as shown in Fig. 6, which will of course not interfere with operation of the dispenser drawer 6. The cover 36 is equipped with a viewing window 37 enabling shop staff to view a restricted area of the loading slots 32 and hence the packages 2 within the dispenser container so that it can easily be seen when the dispenser needs refilling with packages, for which purpose the front cover 36 will be opened or detached.

[0022] If packages should be loaded incorrectly, such as by being inserted through the uppermost loading slots when the container 5 is empty or nearly empty, there is a chance that the packages will become skewed and not lie horizontally within the container 5. For this purpose a larger access opening 38 (Fig. 8) may be provided towards the lower end of the container front wall 30 to allow the fingers of a hand to be inserted to reorganise the packages 2. The access opening 38 is not of sufficient size to allow packages to be extracted through it, however. In Fig. 9 there is shown a dispenser equipped with an access opening 38 and the packages being jumbled within it. In this dispenser the loading slots 32 are not inclined, which will be acceptable if the slots are narrow enough to make it difficult to remove the packages through them, or perhaps if the cover 36 has a locking device so that only authorised personnel can gain access to the loading slots.

[0023] An alternative loading opening arrangement is illustrated in Figure 10. A large opening 40 is provided adjacent the upper end of the container front wall 30, this opening being of sufficient size to enable a group of several packages 2 to be introduced into the container. Extending downwardly from the large opening is a comparatively narrow slot 41 which allows the group of pack-

ages introduced to be lowered in a controlled manner onto the packages already stacked in the container 5, for example by moving a finger and thumb between which the group of packages is held down along the slot 41. To prevent easy removal of packages by reversing the loading procedure, pairs of opposed inclined flexible elements, such as prongs or flaps 42 are provided along the vertical sides of the slot 41. The prongs or flaps hinge or flex downwardly to enable package loading by the method described, but they close together and become rigid if attempt is made to pivot or flex them upwardly, as would be necessary to lift packages towards the large opening 40.

[0024] Other means of impeding removal may be used and will occur to skilled readers. Fig. 11 shows one such alternative provided by rotary members 44 which can rotate in one direction only, these members having arms 45 which protrude into and will obstruct movement of a finger along the slot although such movement downwardly is enabled by the permitted rotation of the members 44.

[0025] All the dispensers so far described include containers arranged to hold vertical stacks of packages. The dispenser 50 of Figure 17 has a container 55 in which the packages are stacked horizontally. The container has a raised floor 52 along which the packages 2 are urged to slide forwardly in upright orientation by a pusher 57 acted upon by a spring 59 which may be the same type as the return springs 12 described above and can be arranged as illustrated schematically in Fig. 27. An alternative arrangement is for the coiled spring to be carried on the rear of the pusher 57 with an end portion of the spring extending forwardly under the floor 52 and being anchored at a position near the front of the container. At the front end of the container 55 is a pivotal dispensing member having the general form of a door 56 hinged to pivot about a horizontal axis located adjacent the bottom edge of the door. The door 56 is pivotable from an upright closed position in which it closes the forward end of the container and the packages 2 in the dispenser are inaccessible, through an angle of about 10° to 20°, e.g. around 15°, to an open position in which a single package 2 is presented for removal. Rigid with dispensing door 56 is short platform 58 which aligns with the floor 52 of the container when the door is closed, and in this position of the door the forwardmost package 2 in the container is received on the platform 58 and thereby located at the removal location ready to be dispensed. When the door 56 is pivoted open, this package pivots with the door and becomes presented for removal, as shown in Figure 17. At the same time the free rear edge of the platform 58 is pivoted upwardly and acts as a stop preventing the remaining packages stacked within the container from being advanced by the pusher 57 and its spring 59. When the door is returned to its closed position, the package perviously received at the removal location having been removed, the stop defined by the platform 58 is lowered out of abutment

with the front package and the stack is freed to advance to move the front package into the removal location.

[0026] Fixedly attached to the door 56 is a segment-shaped side member 60 which is positioned adjacent a side wall of the container 55 and which moves in its own plane when the door pivots. A protruding tooth 62 on this side member cooperates with a stop 63 fixed to the container 55 to define the fully open position of the dispensing door 56. A tension spring 64 is coupled between the side member 60 and the bottom wall 65 of the container 55 and acts as a return spring to bias the door 56 to the closed position. A arcuate edge portion of the side member 60 defines a toothed rack 67 which is in mesh with an idler pinion 68 which in turn meshes with a drive pinion 69 of a rotary damper 20 of the same kind as that described above in connection with Figures 1-3. Thus, the return spring 64 serves to move the door 56 from the open position to the closed position, but the speed of this movement is retarded by the rotary damper.

[0027] The operation of the dispenser will be understood from the foregoing description. The door 56 is pivoted open by pulling on the handle 70 attached to the door and then package 2 at the removal location and resting on the door platform 58 is presented for removal, but the remaining packages remain inaccessible. After the door is released, the spring 64 causes the door to pivot back to its closed position at a speed controlled by the rotary damper 20 (Fig. 18). Assuming the package previously presented had been removed, when the door reaches the closed position the packages within the container 55 are moved forwardly by the pusher 57 advancing the front package into the removal location ready to be presented for removal when the door 56 is next opened. Although packages are easy for *bona fide* customers to acquire, rapid removal of many packages from the dispenser is not possible.

[0028] Figures 21 to 27 illustrate a modified form of the dispenser of Figs. 17 and 18. The toothed sector 80 of the door side member 82 meshes with the drive pinion 84 of the rotary damper 20, and this pinion is also in mesh with a gear 85 which is acted upon by a coil return spring 86. As with the previous embodiment, the return spring 86 acts to close the door 56 with the speed of closure being retarded by the rotary damper 20. For holding back the packages 2 stacked within the container 55 when the door 56 is opened, there are resilient fingers 88 integral with the container side walls (Fig. 24). The fingers have cam faces and camming elements 90 extending rearwardly from the door 56 cooperate with these cam faces so that the fingers 88 are moved to a disengaged position (Fig. 24) when the door is closed, and are released to provide abutments to restrain forward advancement of the package stack when the door is opened (Fig. 25). The dispenser of Figs. 21-26 may incorporate the same pusher arrangement as described above and shown in Fig. 27. As a further modification the coil spring 59 of this arrangement is revealed by an opening 92 at the front of the container 55 and the spring

59 carries some form of indication along its length so that it can be seen when the dispenser is in need of re-filling.

[0029] The pivotally opening and closing dispensing member, i.e. the door 56 of the dispenser illustrated in Figs. 17-20 has a window 94 allowing the contents of the dispenser to be ascertained visually, and more particularly allows the package 2 located immediately behind the door in the removal location to be clearly seen. In addition the window 94 serves as a loading opening permitting introduction into the dispenser of packages to be dispensed whilst preventing removal of packages from the dispenser through this opening 94. The opening 94 is rectangular and of sufficient size to enable a group of packages 2 to be pushed into the container through this opening, as depicted by the arrow in Fig. 20, any packages already within the container dispenser and the pusher 57 being pushed back by the fresh packages loaded through the opening 94 of the door. Extending along the side edges of the opening are inwardly and rearwardly inclined elements constituted by flaps 96 which together provide a structure to block packages from passing out through the opening 94 whilst allowing their insertion through this opening, the flaps 96 being arranged to flex or hinge resiliently inwardly, as indicated by the arrows to permit packages to enter the container 55, but being incapable of flexing or pivoting outwardly so that packages are prevented from passing outwardly through the door opening 94.

[0030] Figures 28-35 illustrate dispensers 100 which are generally similar to the dispenser of Figures 1 to 7, at least in the manner in which the dispensers store and dispense packages. In Figures 28-34, the same reference numerals, increased by one hundred, are used to denote parts corresponding to those denoted by those reference numerals in the earlier figures. The dispensers 100 of Figures 28-35 are arranged to make more efficient use of the shelf depth generally available in product display units commonly installed in self-select retail outlets. In this respect the dispenser container 105 is adapted to receive and hold two vertical stacks of packages 102 positioned one behind the other. At the lower end of the container compartment which accommodates the front stack is a dispensing drawer 106 which may be constructed and arranged to operate exactly as described above in connection with Figs 1-3 for dispensing packages in turn from the front stack. A second dispensing drawer 106' is disposed below the first dispensing drawer 106 and is operable independently for dispensing containers 102 from the rear stack. The recess 108' of the drawer 106' is of sufficient length to receive two packages 102 located one behind the other. Hinged or resiliently flexible fingers 201 are positioned at the sides of the lower housing part 114 to be slightly forward of the front wall of the container compartment holding the rear stack of packages, and to engage between the two packages carried on the dispensing drawer 106' when this drawer is in its closed position (Figs.

28 and 32). The dispensing drawer 106' has return springs 112' and a rotary damper 120' as described in relation to Figures 1-3. When the lower drawer 106' is pulled out to gain access to one of the packages 102, the two packages carried in the drawer recess 108' move forwardly with the drawer, the fingers 201 pivoting or flexing to allow the forward movement of the more rearward package (b) of these two packages (Fig. 30). From the earlier description it will be understood the springs 112' serve to support the packages stacked in the rear compartment of the dispenser container 105 although this could instead be done by a rear extension on the drawer 106'. When the drawer 106' reaches its forwardmost position (Fig. 31) the more forward package (a) on the drawer can be lifted away and removed from the dispenser. When the drawer 106' is released, the springs 112' retract the drawer 106', but the fingers 201 are now positioned behind the package (b) remaining in the drawer recess 108' and act as a stop to prevent this package from moving rearwardly with the drawer. Consequently, as the drawer moves towards its closed position, space is created for the next package (c) to drop into the drawer recess 108' behind the package (b) already received on the drawer, from the rear stack of packages held within the rear compartment of the container 105 (Fig. 32). The dispenser is then ready for the next dispensing operation.

[0031] If the drawer 106' is opened and then released without a package 102 being removed, the more rearward package (c) in the recess 108' of the dispensing drawer 106' is prevented from sliding forwardly by the package (b) in front of it, and the fingers 201 flex or pivot to allow both packages (b and c) to return with the drawer 106', as depicted in Figure 33.

[0032] Although not specifically described it will be understood that both drawers 106, 106' of the dispenser 100 may be equipped with a mechanism, e.g. as described above with reference to Figures 4 and 5, to prevent forced rapid closing of the drawers in order to thwart attempt to remove large numbers of packages from the dispenser in a short time.

[0033] The housing of the dispenser 100 is supported on a mounting bracket 210 and is slidable relative to the bracket from a normal dispensing position to a loading position, as shown in Figure 29, facilitating access to loading openings 140, 141 provided in the side wall of the dispenser container 105 for inserting packages into the front and rear compartments in which the respective stacks of packages are held and stored ready to be dispensed. As shown the loading openings 140, 141 are as described above in relation to Fig. 10, but they could take alternative forms, e.g. as described above in relation to other figures, such as a series of slots for insertion of respective packages. The slidable mounting of the dispenser housing, means that several dispensers 100 can be positioned side-by-side without creating loading difficulties, as illustrated by Figure 29.

[0034] In the modified construction of Figures 34 and

35, the dispenser housing is mounted to the support bracket for pivotal movement between a normal upright dispensing position (Fig. 34) and a substantially horizontal loading position. In the latter position a top opening 220 of the container 105 faces to the front to facilitate insertion of groups of packages 102 into the respective compartments of the container. Holes 138 provided in at least one side wall of the container 105 provide access to enable any misalignment of the packages in the container compartments to be corrected. An arm 222 linked between the dispenser housing and the support bracket limits the permitted pivotal movement of the housing.

[0035] Other modifications in addition to those described above are possible, and will occur to skilled readers, without departing from the scope of the invention as defined by the claims which follow.

Claims

1. A package dispenser comprising;

a container (5; 55; 105') for holding a stack of packages (2; 102) to be advanced in turn to a removal location from which individual packages can be removed from the container;
a dispensing member (6; 56; 106, 106') for receiving an individual package at the removal location and movable relative to the container from a closed position to an open position in which the received package is presented for removal, in the closed position the dispensing member preventing removal of packages from the container and in the open position only that package previously received by the dispensing member being removable; and
a device (20; 120) for retarding return movement of the dispensing member (6; 56; 106, 106') from the open position to the closed position for restricting the rate at which packages can be removed by repeated actuation of the dispensing member.

2. A dispenser according to claim 1, wherein the dispensing member (6; 56; 106, 106') is movable from the closed position to the open position by direct manual actuation.

3. A dispenser according to claim 1 or 2, wherein a return spring (12; 64; 112) is coupled to the dispensing member (6; 56; 106, 106') for moving the dispensing member from the open position to the closed position.

4. A dispenser according to claim 1, 2 or 3 wherein the retarding device comprises a rotary damper (20; 120) which allows substantially free movement of

the dispensing member (6; 56; 106, 106') from the closed position to the open position and brakes movement of the dispensing member from the open position to the closed position.

5. A dispenser according to any one of the claims 1 to 4, wherein the container (5; 105) is arranged to hold packages (2; 102) stacked upon one another with the packages being advanced to the removal location under gravity.

6. A dispenser according to claim 5, wherein the dispensing member (6; 106, 106') is slidable between the open and closed positions in a direction transverse to the stack of packages.

7. A dispenser according to claim 5 or 6, wherein the container (5; 105) is arranged to hold a substantially vertical stack of packages (2; 102) and dispensing member (6; 106, 106') is movable substantially horizontally.

8. A dispenser according to claim 7, wherein the container (105) includes two compartments for receiving respective stacks of packages (102) located one behind the other, and independently actuable dispensing members (106, 106') disposed one above the other for dispensing packages from the respective stacks.

9. A dispenser according to claim 7 or 8, wherein the dispenser has a support bracket (210), the dispenser container (5, 105) being adjustable relative to the support bracket from a dispensing position to a loading position to facilitate insertion of packages into the container.

10. A dispenser according to claim 9, wherein the dispenser container (5; 105) is slidably coupled to the support bracket (210).

11. A dispenser according to claim 9, wherein the dispensing container (5; 105) is pivotally coupled to the mounting bracket (210) for movement between substantially upright and substantially horizontal dispositions.

12. A dispenser according to any one of claims 1 to 4, wherein the container (55) is arranged to hold packages (2) in generally horizontally extending stack, and a pushing member (57) is provided to act on a rearmost package of the stack to urge the packages forwardly towards the removal location.

13. A dispenser according to claim 12, wherein the dispensing member (56) is mounted for pivotal movement between the closed and open positions.

14. A dispenser according to claim 13, wherein the dispensing member (56) is generally upright and is pivotally movable about an axis adjacent the bottom of the dispensing member (56).
15. A dispenser to claim 13 or 14, wherein the package (2) received by the dispensing member (56) at the removal location is carried by the dispensing member to pivot therewith.
16. A dispenser according to claim 13, 14 or 15, wherein a restraining device (88) is provided for restraining forward advancement of the packages behind the package at the removal location when the dispensing member (56) is pivoted from the closed position towards the open position.
17. A dispenser according to any one of claims 13 to 16, wherein the dispensing member (56) carries a toothed rack (67) which is in mesh with a pinion (68) for driving a rotary damper (20) which retards closing movement of the dispensing member (56).
18. A dispenser according to any one of claims 1 to 4 or 12 to 17, wherein the dispenser includes an opening (32; 40; 94; 140) for loading packages into the container, and a structure (34; 42; 45; 96; 142) associated with the opening to allow packages to be introduced into the container and to prevent packages being removed from the container through the opening.
19. A dispenser according to any one of claims 1 to 11, wherein the container (5; 105) is upwardly elongated for holding a stack of packages, and has at least one opening (32; 40; 41; 140; 141) disposed along the container to facilitate controlled loading of packages into the container while deterring removal of packages from the container by reversal of the loading procedure.
20. A dispenser according to claim 19, wherein the container has a series of slot openings (32) therealong, the slot openings being laterally inclined whereby packages lying in the stack are misaligned with the slots and removal of packages through the slots is impeded by dividers (34) separating the slots.
21. A dispenser according to claim 19, wherein the container (5; 105) has at the upper end thereof a loading opening (40; 140) to enable a group of several packages to be introduced simultaneously into the container, and a slot (41; 141) extending downwardly from said loading opening (40; 140) to enable the group of packages to be lowered onto the stack of packages already in the container, and means (42; 45; 142) associated with the slot to impede lifting of packages from the stack to the loading opening (40;

140).

22. A dispenser according to any one of claims 1 to 18, including a mechanism (24-26) to arrest closing movement of the dispensing member (6) in response to attempt being made to force the dispensing member closed more rapidly than intended.

23. A dispenser according to claim 22, wherein the arresting mechanism comprises a locking member (24) engagable with a pinion driven by movement of the dispensing member.

24. A dispenser according to claim 1, wherein:

the container is an elongate container (5; 55; 105) for holding the stack of packages, the packages being biased towards one end of the container;

the dispensing member (6; 56; 106, 106') mounted at said one end of the container for movement relative to the container between said open position and said closed position;

the package removal location is defined by the dispensing member for a package (2; 102) supplied from the stack to be advanced into the removal location when the dispensing member is moved from the open to the closed position, the package received at the removal location being carried with the dispensing member (6; 56; 106, 106') during movement thereof from the closed to the open position, and in the open position the dispensing member presenting the package carried thereby for removal from the dispenser; and

the retarding device (20; 120) is coupled between the dispensing member (6; 56; 106, 106') and the container for retarding return movement of the dispensing member from the open position to the closed position, movement of the dispensing member from the closed to the open position being unimpeded by the retarding device.

Patentansprüche

1. Packungs-Ausgabevorrichtung, die umfasst:

einen Behälter (5; 55; 105'), der einen Stapel Packungen (2; 102) aufnimmt, die der Reihe nach zu einer Entnahmeposition zu transportieren sind, von der aus einzelne Packungen aus dem Behälter entnommen werden können;

ein Ausgabeelement (6; 56; 106, 106'), das eine einzelne Packung an der Entnahmeposition annimmt und relativ zu dem Behälter aus einer

geschlossenen Position in eine offene Position bewegt werden kann, in der die aufgenommene Packung zur Entnahme angeboten wird, wobei in der geschlossenen Position das Ausgabeelement Entnahme von Packungen aus dem Behälter verhindert und in der offenen Position nur die Packung entnommen werden kann, die zuvor von dem Ausgabeelement angenommen worden ist; und

eine Vorrichtung (20; 120), die Rückkehrbewegung des Ausgabeelementes (6; 56; 106, 106') aus der offenen Position in die geschlossene Position verzögert, um die Geschwindigkeit einzuschränken, mit der Packungen durch wiederholte Betätigung des Ausgabeelementes entnommen werden können.

2. Ausgabevorrichtung nach Anspruch 1, wobei das Ausgabeelement (6; 56; 106, 106') durch direkte manuelle Betätigung aus der geschlossenen Position in die offene Position bewegt werden kann.
3. Ausgabevorrichtung nach Anspruch 1 oder 2, wobei eine Rückstellfeder (12; 64; 112) mit dem Ausgabeelement (6; 56; 106, 106') gekoppelt ist, um das Ausgabeelement aus der offenen Position in die geschlossene Position zu bewegen.
4. Ausgabevorrichtung nach Anspruch 1, 2 oder 3, wobei die Verzögerungsvorrichtung einen Drehdämpfer (20; 120) umfasst, der im Wesentlichen ungehinderte Bewegung des Ausgabeelementes (6; 56; 106, 106') aus der geschlossenen Position in die offene Position zulässt und Bewegung des Ausgabeelementes aus der offenen Position in die geschlossene Position abbremst.
5. Ausgabevorrichtung nach einem der Ansprüche 1 bis 4, wobei der Behälter (5; 105) so eingerichtet ist, dass er Packungen (2; 102) aufnimmt, die übereinander gestapelt sind, wobei die Packungen durch Schwerkraft zu der Entnahmeposition transportiert werden.
6. Ausgabevorrichtung nach Anspruch 5, wobei das Ausgabeelement (6; 106, 106') zwischen der offenen und der geschlossenen Position in einer Richtung quer zu dem Stapel von Packungen verschoben werden kann.
7. Ausgabevorrichtung nach Anspruch 5 oder 6, wobei der Behälter (5; 105) so eingerichtet ist, dass er einen im Wesentlichen vertikalen Stapel von Packungen (2; 102) aufnimmt, und das Ausgabeelement (6; 106, 106') im Wesentlichen horizontal bewegt werden kann.

8. Ausgabevorrichtung nach Anspruch 7, wobei der Behälter (105) zwei Kammern zum Annehmen entsprechender Stapel von Packungen (102), die hintereinander angeordnet sind, sowie unabhängig zu betätigende Ausgabeelemente (106, 106'), die übereinander angeordnet sind, zum Ausgeben von Packungen von den entsprechenden Stapeln enthält.

9. Ausgabevorrichtung nach Anspruch 7 oder 8, wobei die Ausgabevorrichtung eine Tragehalterung (210) hat und der Ausgabevorrichtungsbehälter (5, 105) relativ zu der Tragehalterung aus einer Ausgabeposition in eine Füllposition verstellt werden kann, um das Einführen von Packungen in den Behälter zu ermöglichen.

10. Ausgabevorrichtung nach Anspruch 9, wobei der Ausgabebehälter (5; 105) verschiebbar mit der Tragehalterung (210) gekoppelt ist.

11. Ausgabevorrichtung nach Anspruch 9, wobei der Ausgabebehälter (5; 105) zur Bewegung zwischen einer im Wesentlichen aufrechten und einer im Wesentlichen horizontalen Ausrichtung schwenkbar mit der Tragehalterung (210) gekoppelt ist.

12. Ausgabevorrichtung nach einem der Ansprüche 1 bis 4, wobei der Behälter (55) so eingerichtet ist, dass er Packungen (2) in einem sich im Wesentlichen horizontal erstreckenden Stapel aufnimmt, und ein Schiebeelement (57) vorhanden ist, das auf eine hinterste Packung des Stapels wirkt, um die Packungen auf die Entnahmeposition zu nach vorn zu drücken.

13. Ausgabevorrichtung nach Anspruch 12, wobei das Ausgabeelement (56) zur Schwenkbewegung zwischen der geschlossenen und der offenen Position angebracht ist.

14. Ausgabevorrichtung nach Anspruch 13, wobei das Ausgabeelement (56) im Wesentlichen aufrecht ist und schwenkbar um eine Achse bewegt werden kann, die an das untere Ende des Ausgabeelementes (56) angrenzt.

15. Ausgabevorrichtung nach Anspruch 13 oder 14, wobei die Packung (2), die von dem Ausgabeelement (56) an der Entnahmeposition angenommen wird, von dem Ausgabeelement so getragen wird, dass sie damit geschwenkt wird.

16. Ausgabevorrichtung nach Anspruch 13, 14 oder 15, wobei eine Einschränkungsvorrichtung (88) vorhanden ist, die Vorwärtstransport der Packungen hinter der Packung an der Entnahmeposition einschränkt, wenn das Ausgabeelement (56) aus der geschlos-

senen Position auf die offene Position zu geschwenkt wird.

17. Ausgabevorrichtung nach einem der Ansprüche 13 bis 16, wobei das Ausgabeelement (56) eine Zahnstange (67) trägt, die mit einem Ritzel (68) in Eingriff ist, um einen Drehdämpfer (20) anzutreiben, der Schließbewegung des Ausgabeelementes (56) verzögert. 5
18. Ausgabevorrichtung nach einem der Ansprüche 1 bis 4 oder 12 bis 17, wobei die Ausgabevorrichtung eine Öffnung (32; 40; 94; 140) zum Füllen von Packungen in den Behälter sowie eine Struktur (34; 42; 45; 96; 142) enthält, die mit der Öffnung verbunden ist und das Einführen von Packungen in den Behälter zulässt und verhindert, dass Packungen über die Öffnung aus dem Behälter entnommen werden. 10
19. Ausgabevorrichtung nach einem der Ansprüche 1 bis 11, wobei der Behälter (5; 105) nach oben verlängert ist, um einen Stapel von Packungen aufzunehmen, und wenigstens eine Öffnung (34; 40, 41; 140, 141) aufweist, die an dem Behälter angeordnet ist, um kontrolliertes Einfüllen von Packungen in den Behälter zu ermöglichen und gleichzeitig die Entnahme von Packungen aus dem Behälter durch Umkehren des Einfüllvorgangs zu verhindern. 20 25
20. Ausgabevorrichtung nach Anspruch 19, wobei der Behälter eine Reihe von Schlitzöffnungen (32) daran aufweist, und die Schlitzöffnungen seitlich geneigt sind, so dass Packungen, die in dem Stapel liegen, zu den Schlitzen versetzt sind, und die Entnahme von Packungen über die Schlitze durch Trennwände (34) behindert wird, die die Schlitze trennen. 30 35
21. Ausgabevorrichtung nach Anspruch 19, wobei der Behälter (5; 105) am oberen Ende eine Einfüllöffnung (40; 140), die es ermöglicht, eine Gruppe mehrerer Packungen gleichzeitig in den Behälter einzuführen, sowie einen Schlitz (41; 141), der sich von der Einfüllöffnung (40; 140) nach unten erstreckt, um das Absenken der Gruppe von Packungen auf den bereits in dem Behälter befindlichen Stapel von Packungen zu ermöglichen, sowie eine Einrichtung (42; 45; 142) enthält, die mit dem Schlitz verbunden ist, um das Anheben von Packungen von dem Stapel zu der Einfüllöffnung (40; 140) zu behindern. 40 45 50
22. Ausgabevorrichtung nach einem der Ansprüche 1 bis 18, die einen Mechanismus (24-26) enthält, der Schließbewegung des Ausgabeelementes (6) in Reaktion darauf abbricht, dass versucht wird, das Ausgabeelement schneller als beabsichtigt zuzudrücken. 55

23. Ausgabevorrichtung nach Anspruch 22, wobei der Abbruchmechanismus ein Arretierement (24) umfasst, das mit einem Ritzel in Eingriff gebracht werden kann, das durch Bewegung des Ausgabeelementes angetrieben wird.

24. Ausgabevorrichtung nach Anspruch 1, wobei:

der Behälter ein länglicher Behälter (5; 55; 105) ist, der den Stapel von Packungen aufnimmt, wobei die Packungen auf ein Ende des Behälters zu gespannt werden;

ein Ausgabeelement (6; 56; 106, 106') an dem einen Ende des Behälters zur Bewegung relativ zu dem Behälter zwischen der offenen Position und der geschlossenen Position angebracht ist;

die Packungsentnahmeposition durch das Ausgabeelement für eine Packung (2; 102) definiert wird, die von dem Stapel zugeführt wird, um sie an die Entnahmeposition zu transportieren, wenn das Ausgabeelement aus der offenen in die geschlossene Position bewegt wird, wobei die Packung, die an der Entnahmeposition angenommen wird, mit dem Ausgabeelement (6; 56; 106, 106') während der Bewegung desselben aus der geschlossenen in die offene Position mitgeführt wird, und in der offenen Position das Ausgabeelement die von ihm mitgeführte Packung zur Entnahme aus der Ausgabevorrichtung anbietet; und

die Verzögerungsvorrichtung (20; 120) zwischen das Ausgabeelement (6; 56; 106, 106') und den Behälter gekoppelt ist, um Rückkehrbewegung des Ausgabeelementes aus der offenen Position in die geschlossene Position zu verzögern, wobei Bewegung des Ausgabeelementes aus der geschlossenen in die offene Position durch die Verzögerungsvorrichtung nicht behindert wird.

Revendications

1. Distributeur de paquets comprenant :

un conteneur (5 ; 55 ; 105') pour contenir une pile de paquets (2 ; 102) devant avancer tour à tour à un emplacement d'enlèvement d'où les paquets individuels peuvent être enlevés du conteneur ;

un élément distributeur (6 ; 56 ; 106, 106') pour recevoir un paquet individuel à l'emplacement d'enlèvement et mobile par rapport au conteneur d'une position fermée à une position

- ouverte dans laquelle le paquet reçu est présenté pour être enlevé, l'élément distributeur empêchant, dans la position fermée, l'enlèvement des paquets du conteneur et, dans la position ouverte, seul le paquet préalablement reçu par l'élément distributeur pouvant être enlevé ; et
un dispositif (20 ; 120) pour ralentir le mouvement de retour de l'élément distributeur (6 ; 56 ; 106 ; 106') de la position ouverte à la position fermée afin de limiter la vitesse à laquelle les paquets peuvent être enlevés par l'actionnement répété de l'élément distributeur.
2. Distributeur selon la revendication 1, dans lequel l'élément distributeur (6 ; 56 ; 106 ; 106') est mobile de la position fermée à la position ouverte par actionnement manuel direct.
 3. Distributeur selon la revendication 1 ou 2, dans lequel un ressort de rappel (12 ; 64 ; 112) est couplé à l'élément distributeur (6 ; 56 ; 106 ; 106') pour déplacer l'élément distributeur de la position ouverte à la position fermée.
 4. Distributeur selon la revendication 1, 2 ou 3, dans lequel le dispositif ralentisseur comprend un amortisseur rotatif (20 ; 120) qui permet un déplacement sensiblement libre de l'élément distributeur (6 ; 56 ; 106 ; 106') de la position fermée à la position ouverte, et freine le déplacement de l'élément distributeur de la position ouverte à la position fermée.
 5. Distributeur selon l'une quelconque des revendications 1 à 4, dans lequel le conteneur (5 ; 105) est agencé pour contenir les paquets (2 ; 102) empilés les uns sur les autres, les paquets avançant vers l'emplacement d'enlèvement par gravité.
 6. Distributeur selon la revendication 5, dans lequel l'élément distributeur (6 ; 106 ; 106') peut coulisser entre les positions ouverte et fermée dans une direction transversale à la pile de paquets.
 7. Distributeur selon la revendication 5 ou 6, dans lequel le conteneur (5 ; 105) est agencé pour contenir une pile sensiblement verticale de paquets (2 ; 102) et l'élément distributeur (6 ; 106 ; 106') est mobile dans une direction sensiblement horizontale.
 8. Distributeur selon la revendication 7, dans lequel le conteneur (105) comprend deux compartiments pour recevoir les piles respectives de paquets (102) situées l'une derrière l'autre, et des éléments distributeurs actionnables indépendamment (106 ; 106') disposés l'un au-dessus de l'autre pour distribuer les paquets des piles respectives.
 9. Distributeur selon la revendication 7 ou 8, dans lequel le distributeur a un support (210), le conteneur (5 ; 105) du distributeur étant réglable par rapport au support d'une position de distribution à une position de chargement pour faciliter l'insertion de paquets dans le conteneur.
 10. Distributeur selon la revendication 9, dans lequel le conteneur (5 ; 105) du distributeur est couplé de manière coulissante au support (210).
 11. Distributeur selon la revendication 9, dans lequel le conteneur (5 ; 105) du distributeur est couplé de manière pivotante au support (210) pour se déplacer entre des dispositions sensiblement verticale et sensiblement horizontale.
 12. Distributeur selon l'une quelconque des revendications 1 à 4, dans lequel le conteneur (55) est agencé pour contenir des paquets (2) dans une pile disposée dans une direction générale horizontale, et un élément de poussée (57) est prévu pour agir sur un paquet le plus en arrière de la pile pour pousser les paquets en avant vers l'emplacement d'enlèvement.
 13. Distributeur selon la revendication 12, dans lequel l'élément distributeur (56) est monté pour pivoter entre les positions fermée et ouverte.
 14. Distributeur selon la revendication 13, dans lequel l'élément distributeur (56) est dans une position générale verticale et peut pivoter autour d'un axe proche du fond de l'élément distributeur (56).
 15. Distributeur selon la revendication 13 ou 14, dans lequel le paquet (2) reçu par l'élément distributeur (56) à l'emplacement d'enlèvement est porté par l'élément distributeur pour pivoter avec lui.
 16. Distributeur selon la revendication 13, 14 ou 15, dans lequel un dispositif de retenue (88) est prévu pour limiter le déplacement en avant des paquets derrière le paquet à l'emplacement d'enlèvement lorsque l'élément distributeur (56) pivote de la position fermée vers la position ouverte.
 17. Distributeur selon l'une quelconque des revendications 13 à 16, dans lequel l'élément distributeur (56) porte une crémaillère dentée (67) qui s'engrène avec un pignon (68) pour entraîner un amortisseur rotatif (20) qui ralentit le mouvement de fermeture de l'élément distributeur (56).
 18. Distributeur selon l'une quelconque des revendications 1 à 4 ou 12 à 17, dans lequel le distributeur comprend une ouverture (32 ; 40 ; 94 ; 140) pour charger les paquets dans le conteneur, et une struc-

ture (34 ; 42 ; 45 ; 96 ; 142) associée avec l'ouverture pour permettre l'introduction des paquets dans le conteneur et pour empêcher le retrait des paquets du conteneur par l'ouverture.

- 5
19. Distributeur selon l'une quelconque des revendications 1 à 11, dans lequel le conteneur (5 ; 55) est allongé vers le haut pour contenir une pile de paquets et a au moins une ouverture (32 ; 40 ; 41 ; 140 ; 141) disposée le long du conteneur pour faciliter le chargement contrôlé des paquets dans le conteneur tout en empêchant l'enlèvement des paquets du conteneur par l'inversion de la procédure de chargement. 10
- 15
20. Distributeur selon la revendication 19, dans lequel une série de fentes (32) sont pratiquées le long du conteneur, les fentes étant inclinées latéralement de telle sorte que les paquets situés dans la pile sont désalignés par rapport aux fentes et que l'enlèvement des paquets par les fentes est empêché par des diviseurs (34) qui séparent les fentes. 20
- 25
21. Distributeur selon la revendication 19, dans lequel une ouverture de chargement (40 ; 140) est prévue à l'extrémité supérieure du conteneur (5 ; 105) pour permettre à un groupe de plusieurs paquets d'être introduits simultanément dans le conteneur, et une fente (41 ; 141) est disposée vers le bas par rapport à ladite ouverture de chargement (40 ; 140) pour permettre au groupe de paquets d'être abaissé sur la pile de paquets déjà dans le conteneur, et des moyens (42 ; 45 ; 142) associés avec la fente pour empêcher le soulèvement des paquets de la pile vers l'ouverture de chargement (40 ; 140). 30 35
- 40
22. Distributeur selon l'une quelconque des revendications 1 à 18, comprenant un mécanisme (24-26) pour arrêter le mouvement de fermeture de l'élément distributeur (6) en réponse à une tentative faite pour fermer de force l'élément distributeur plus rapidement que prévu. 40
- 45
23. Distributeur selon la revendication 22, dans lequel le mécanisme d'arrêt comprend un élément de verrouillage (24) pouvant s'engager avec un pignon entraîné par le mouvement de l'élément distributeur. 45
- 50
24. Distributeur selon la revendication 1, dans lequel :
- 55
- le conteneur est un conteneur allongé (5 ; 55 ; 105) pour contenir la pile de paquets, les paquets étant inclinés vers une extrémité du conteneur ;
- l'élément distributeur (6 ; 56 ; 106 ; 106') monté à ladite extrémité du conteneur pour se déplacer relativement au conteneur entre ladite po-

sition ouverte et ladite position fermée ; l'emplacement d'enlèvement des paquets est défini par l'élément distributeur pour un paquet (2 ; 102) fourni depuis la pile pour être avancé dans l'emplacement d'enlèvement lorsque l'élément distributeur est déplacé de la position ouverte à la position fermée, le paquet reçu à l'emplacement d'enlèvement étant transporté avec l'élément distributeur (6 ; 56 ; 106 ; 106') pendant son déplacement de la position fermée à la position ouverte, et l'élément distributeur, dans la position ouverte, présentant le paquet qu'il transporte pour qu'il soit enlevé du distributeur ; et

le dispositif ralentisseur (20 ; 120) est couplé entre l'élément distributeur (6 ; 56 ; 106 ; 106') et le conteneur pour ralentir le mouvement de retour de l'élément distributeur de la position ouverte à la position fermée, le mouvement de l'élément distributeur de la position fermée à la position ouverte n'étant pas gêné par le dispositif ralentisseur.

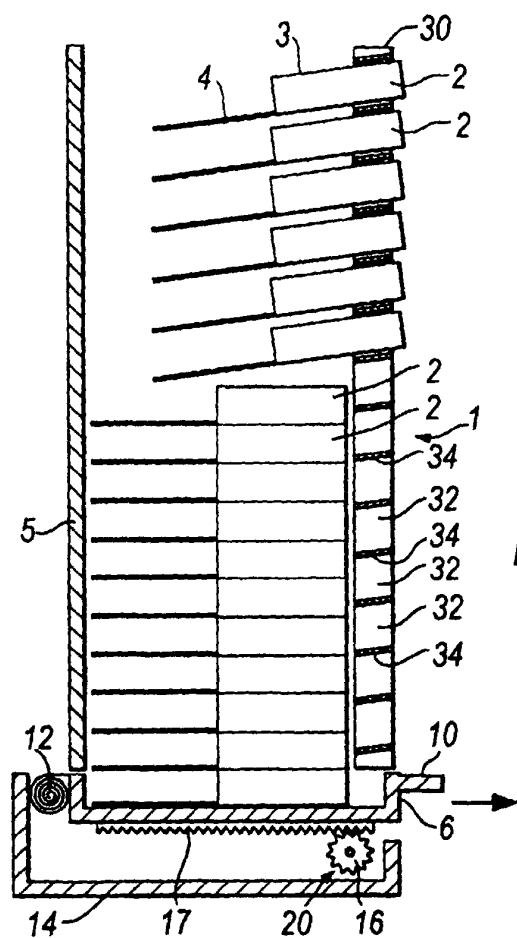


Fig. 1

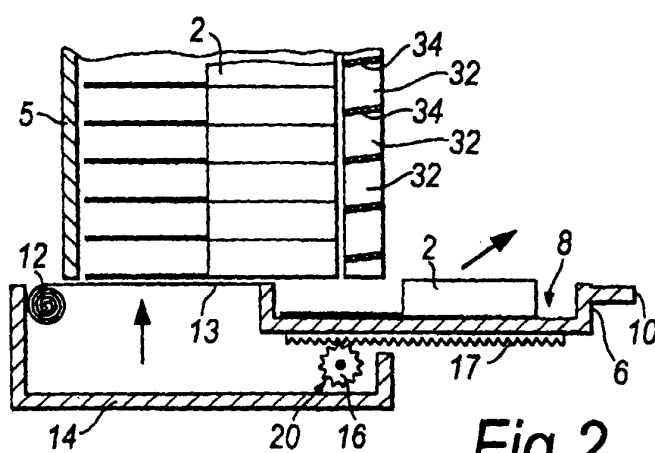


Fig. 2

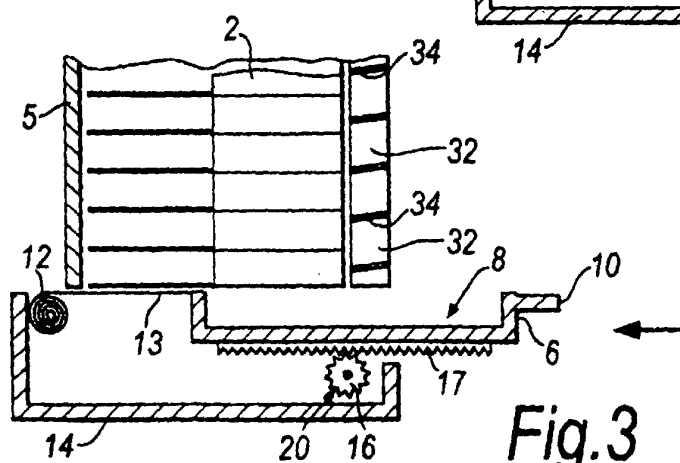


Fig. 3

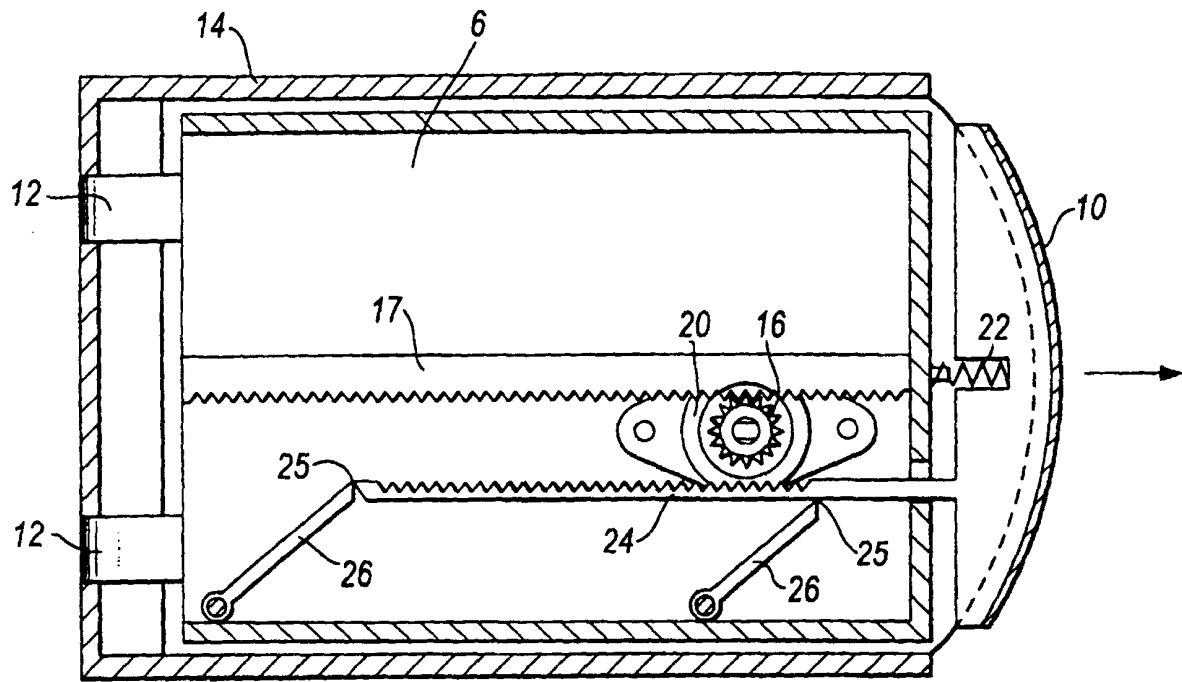


Fig. 4

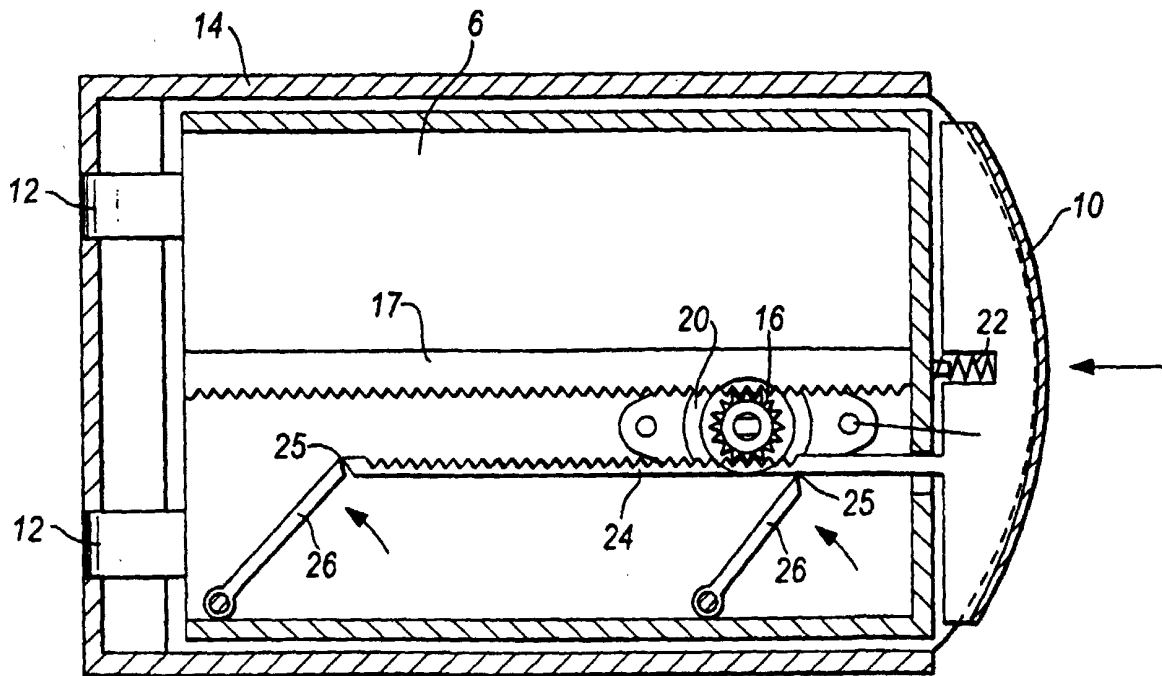


Fig. 5

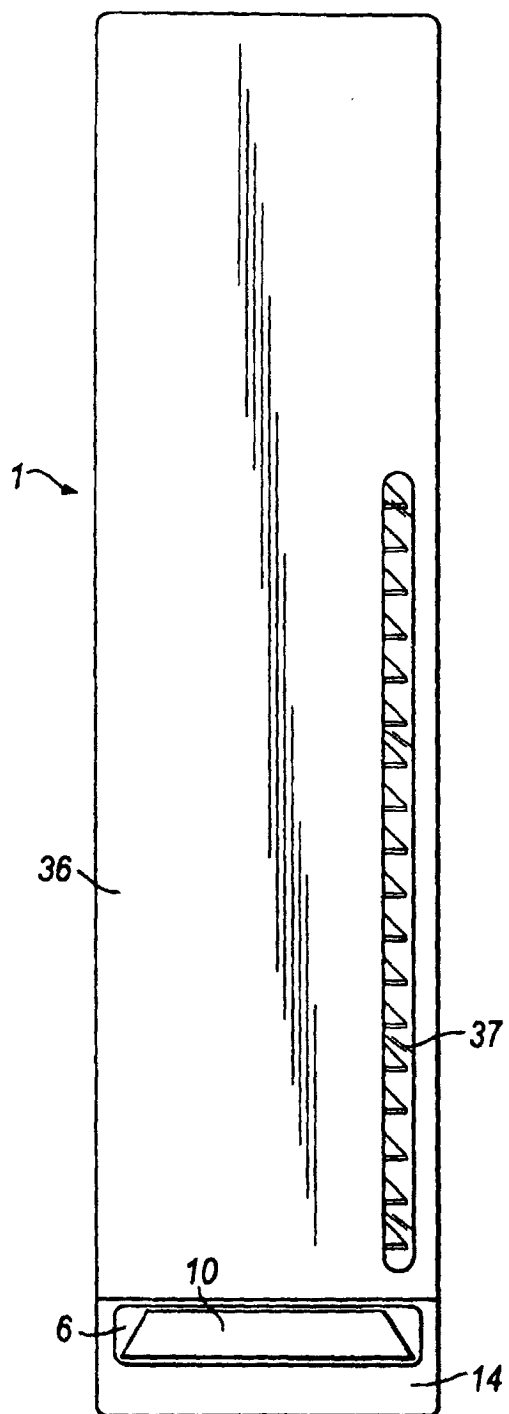


Fig. 6

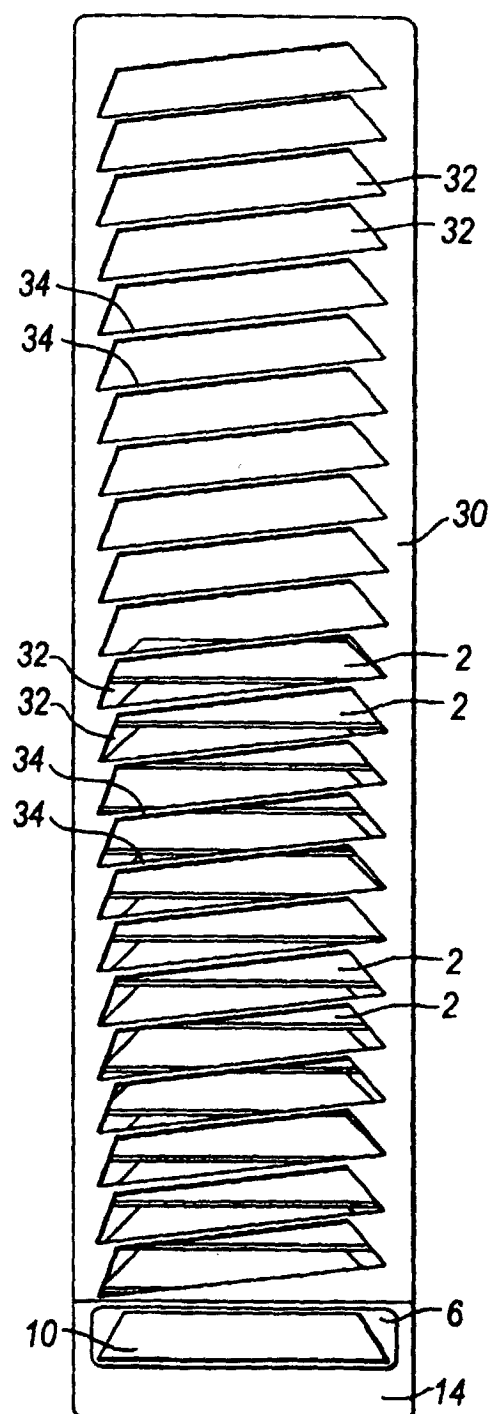


Fig. 7

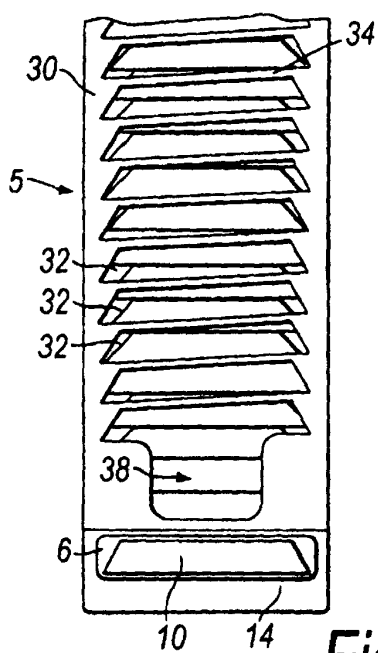


Fig. 8

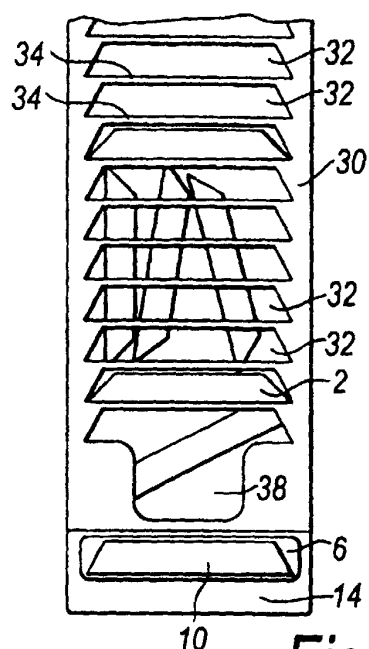


Fig. 9

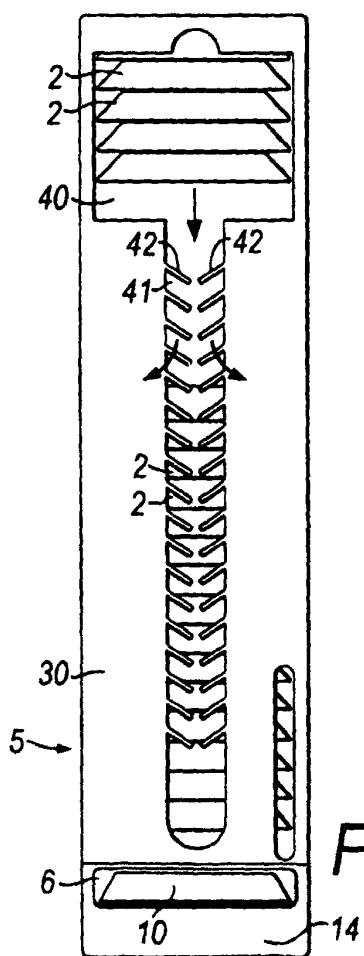


Fig. 10

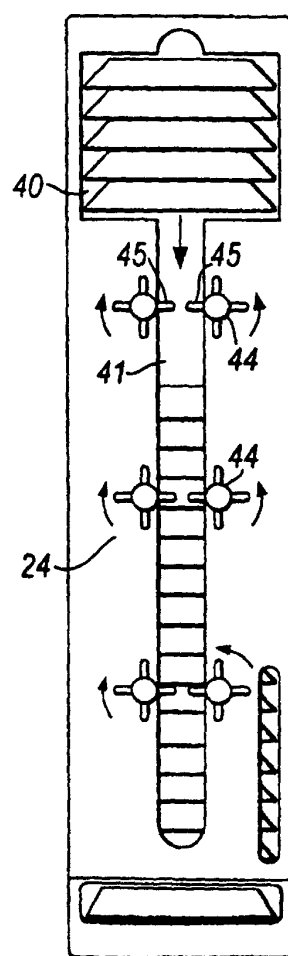


Fig. 11

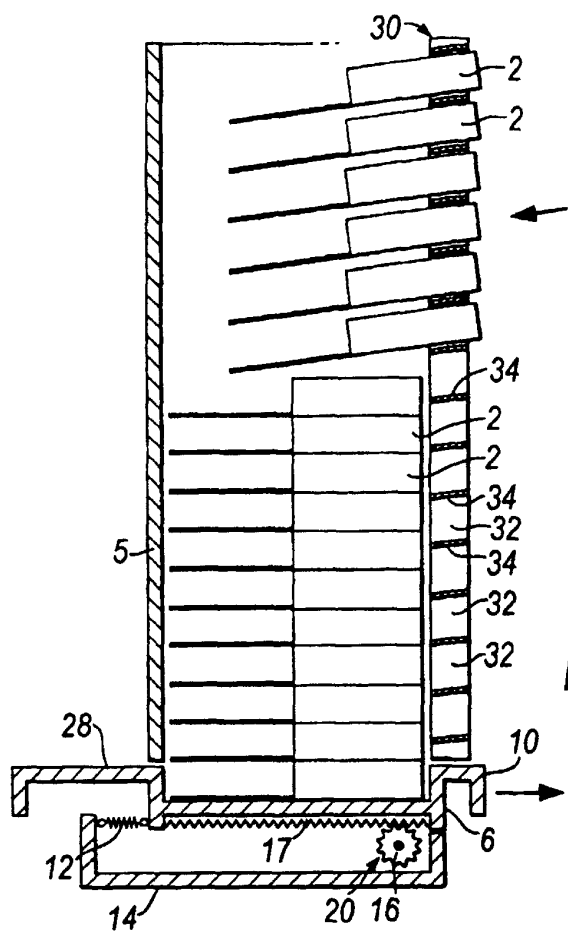


Fig. 12

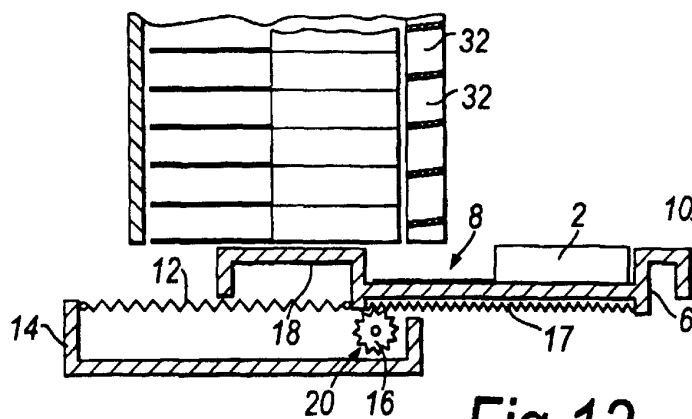


Fig. 13

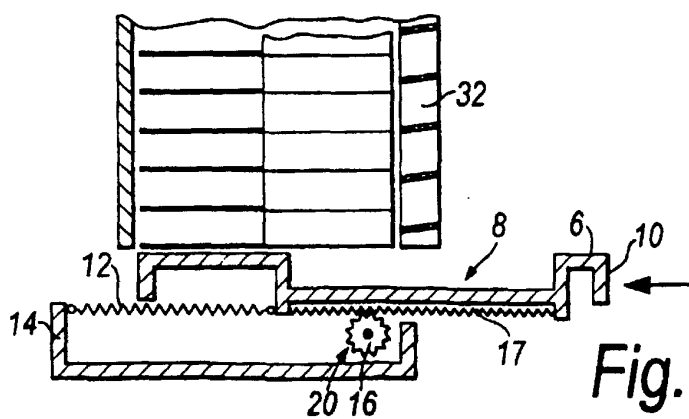


Fig. 14

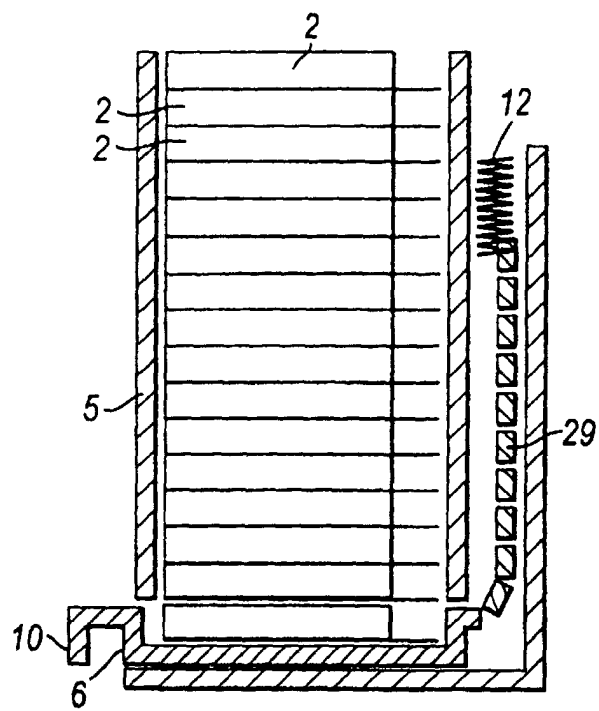


Fig. 15

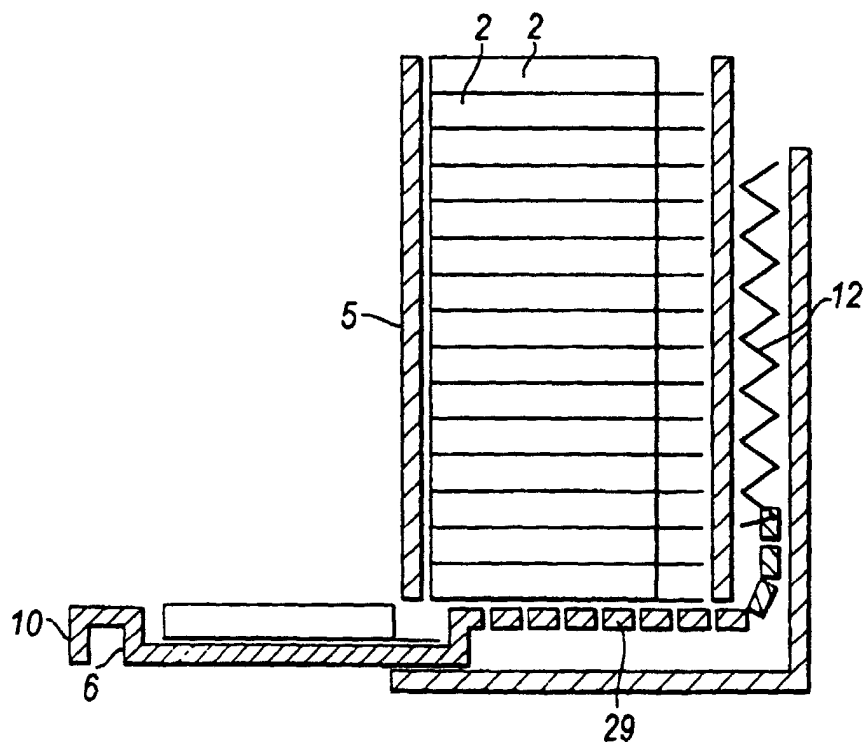
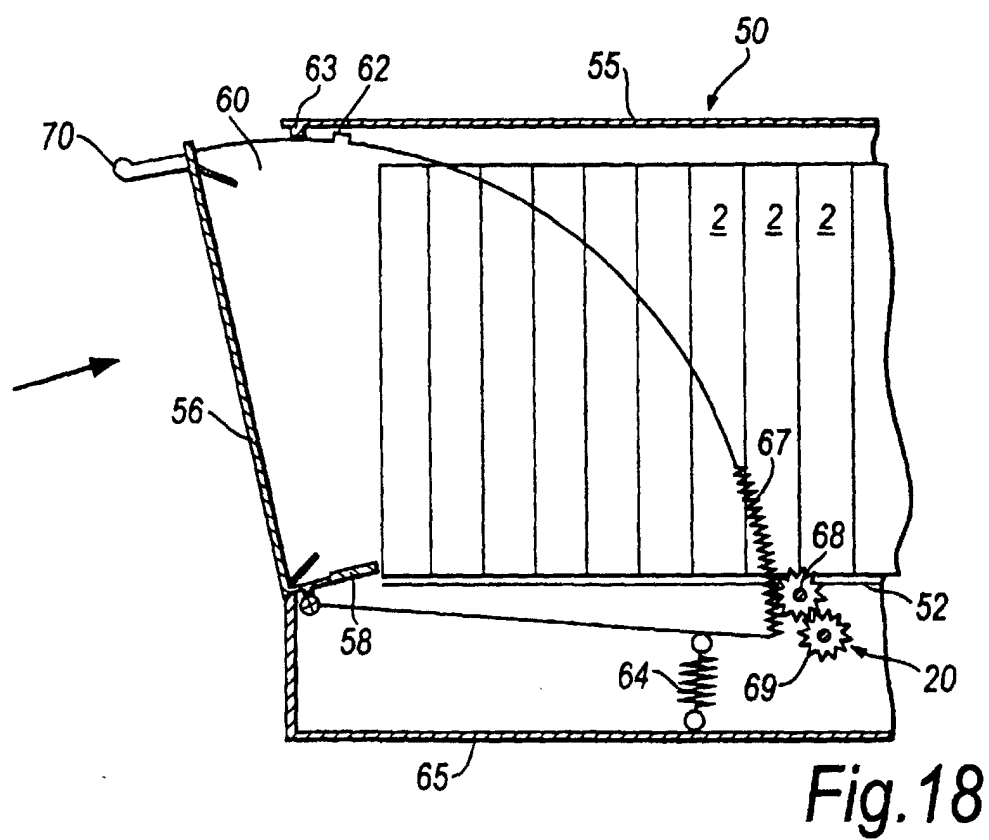
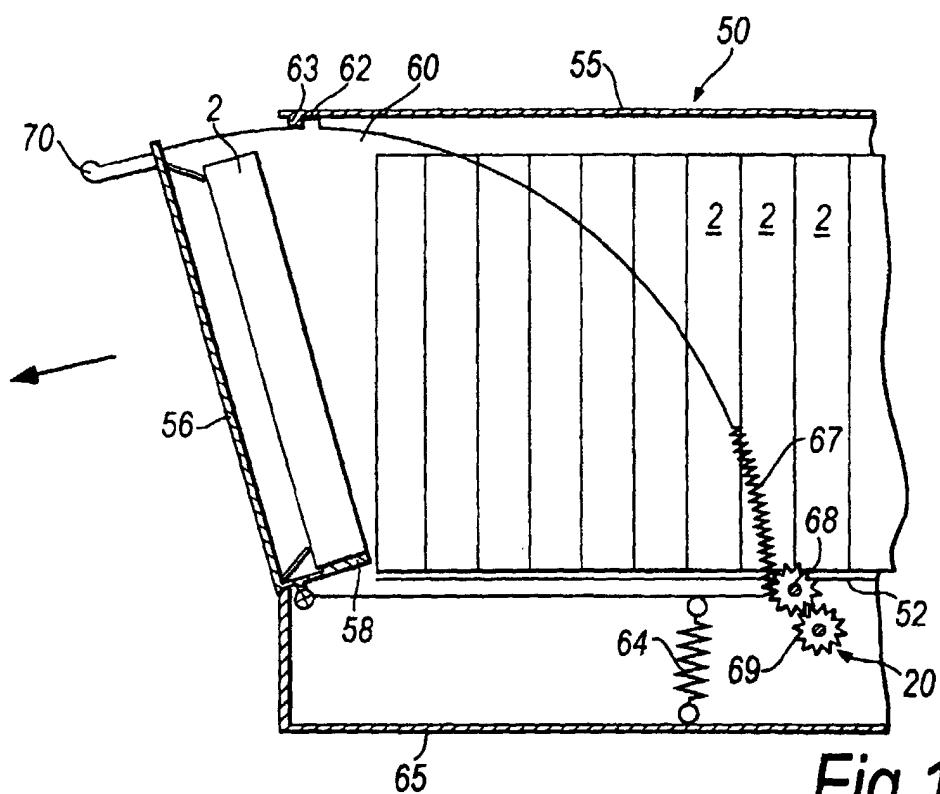


Fig. 16



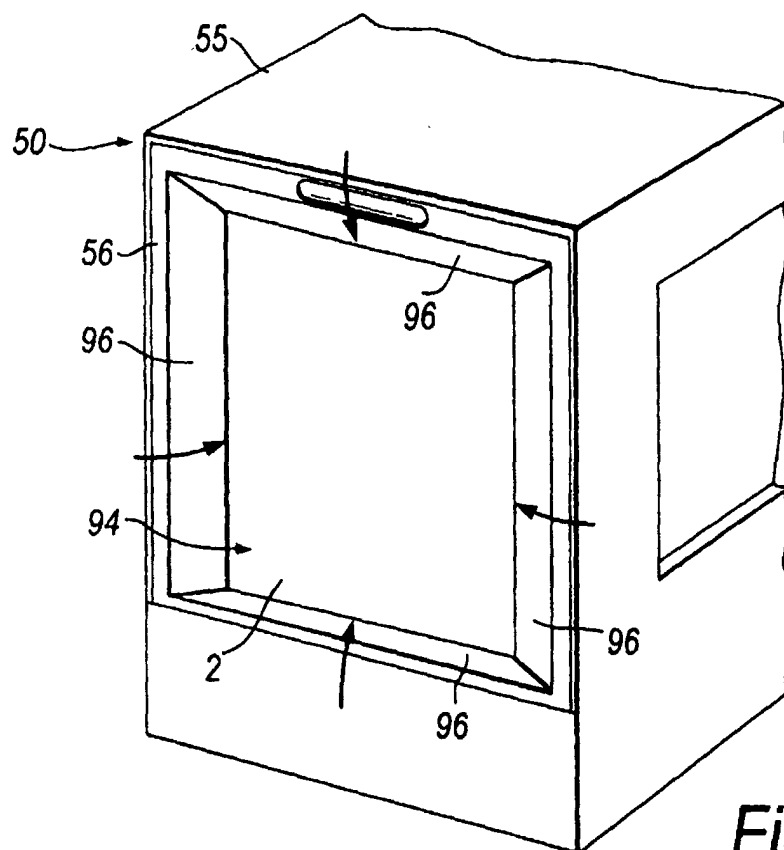


Fig. 19

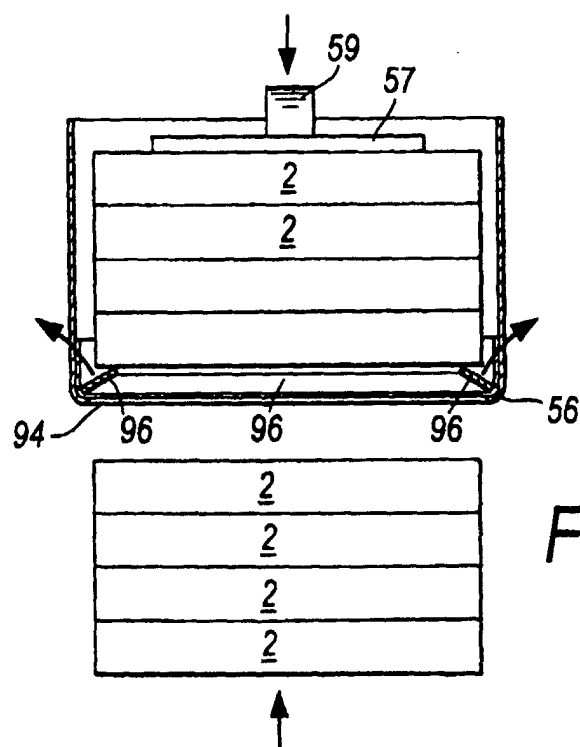
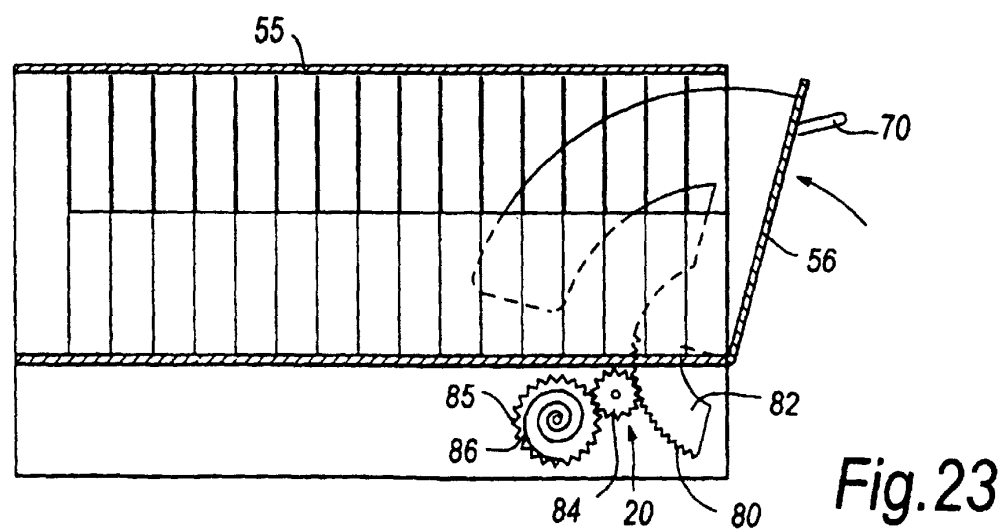
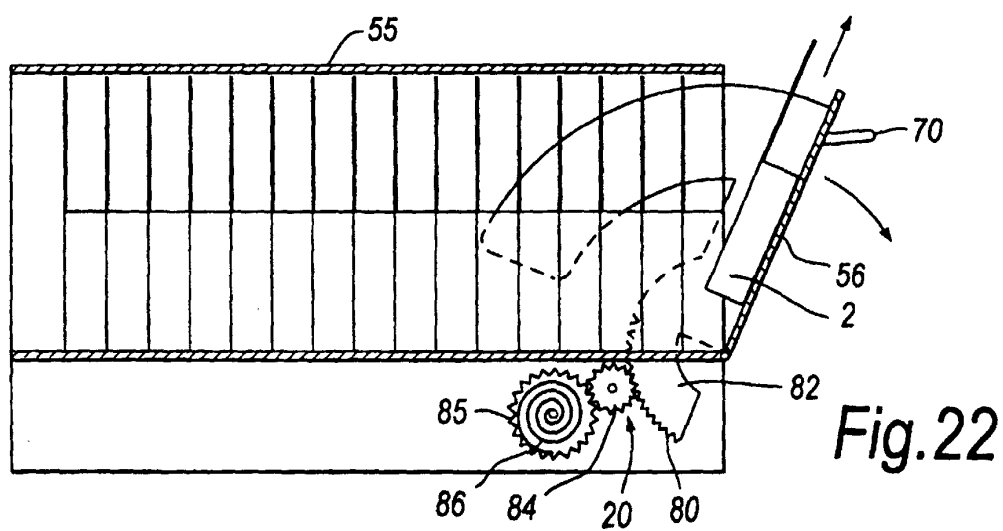
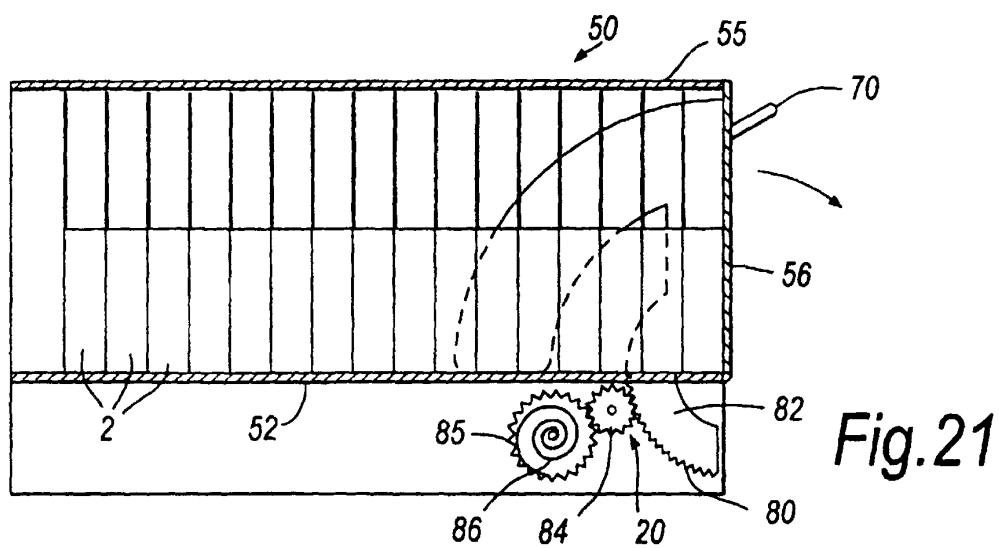


Fig. 20



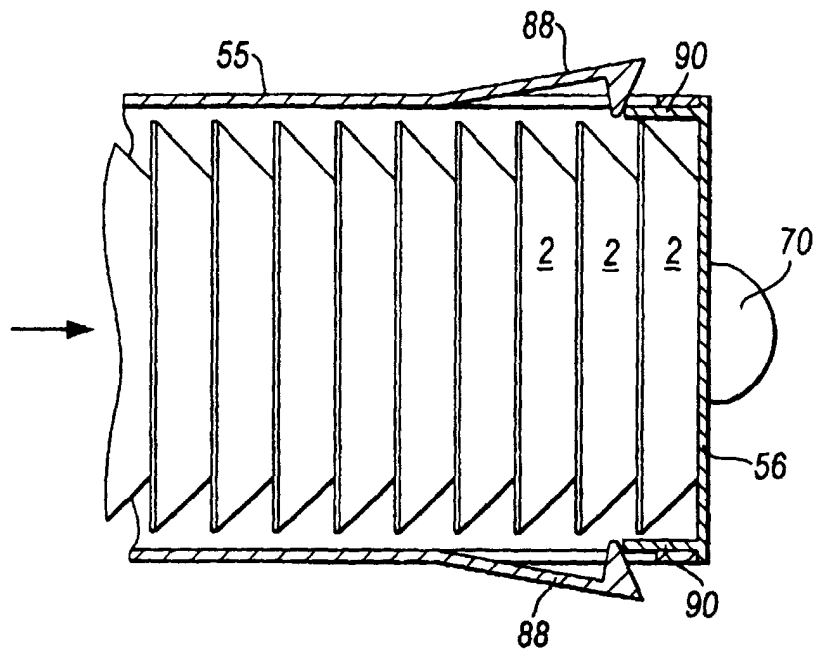


Fig. 24

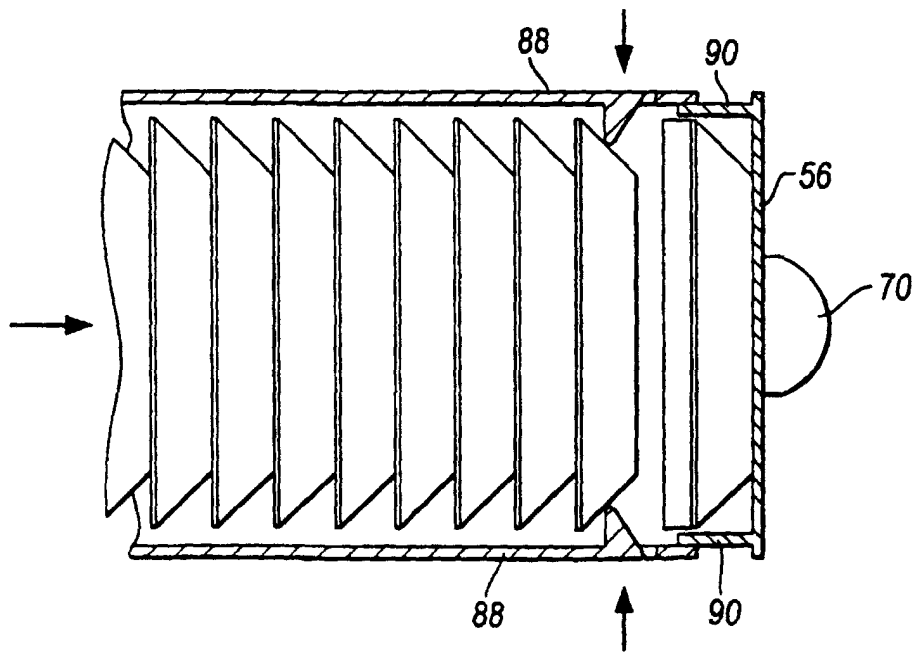


Fig. 25

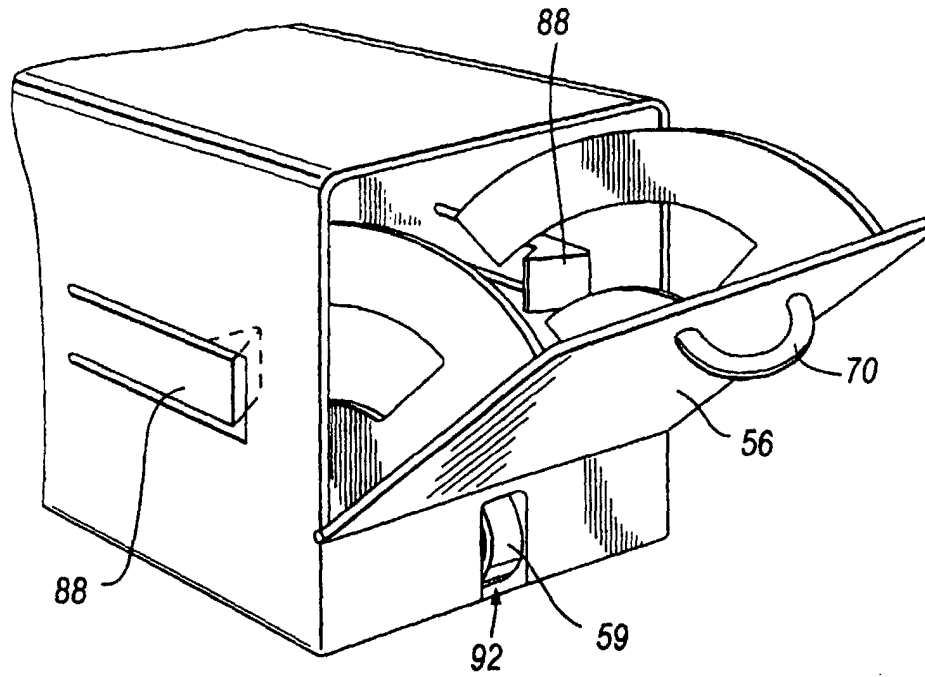


Fig. 26

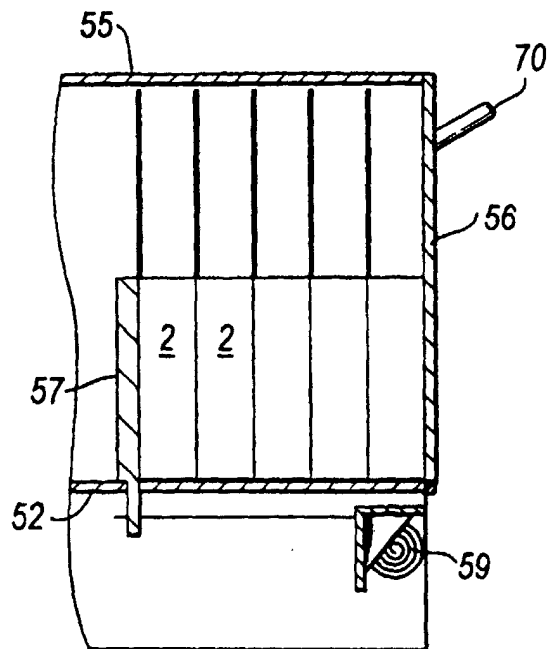


Fig. 27

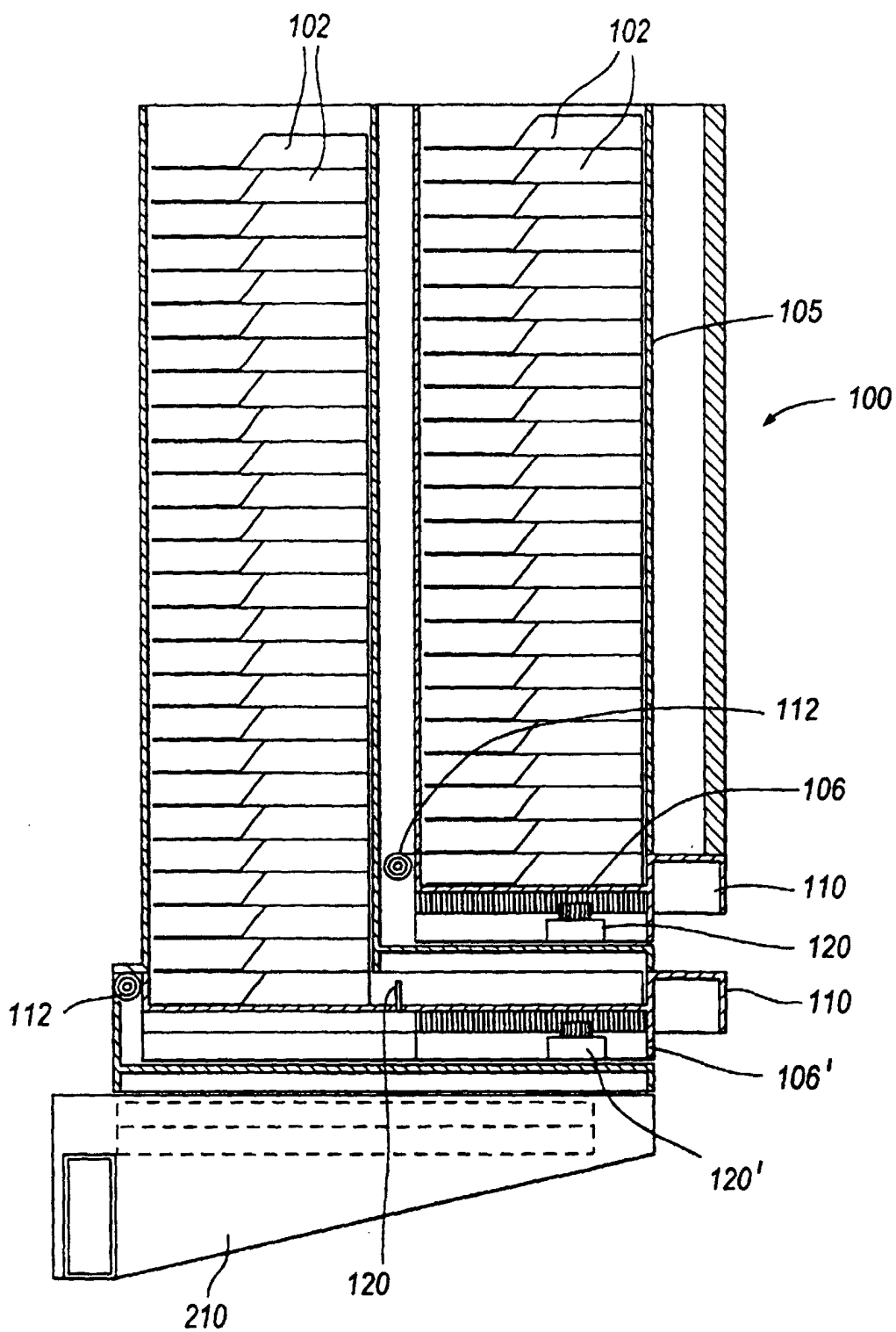


Fig.28

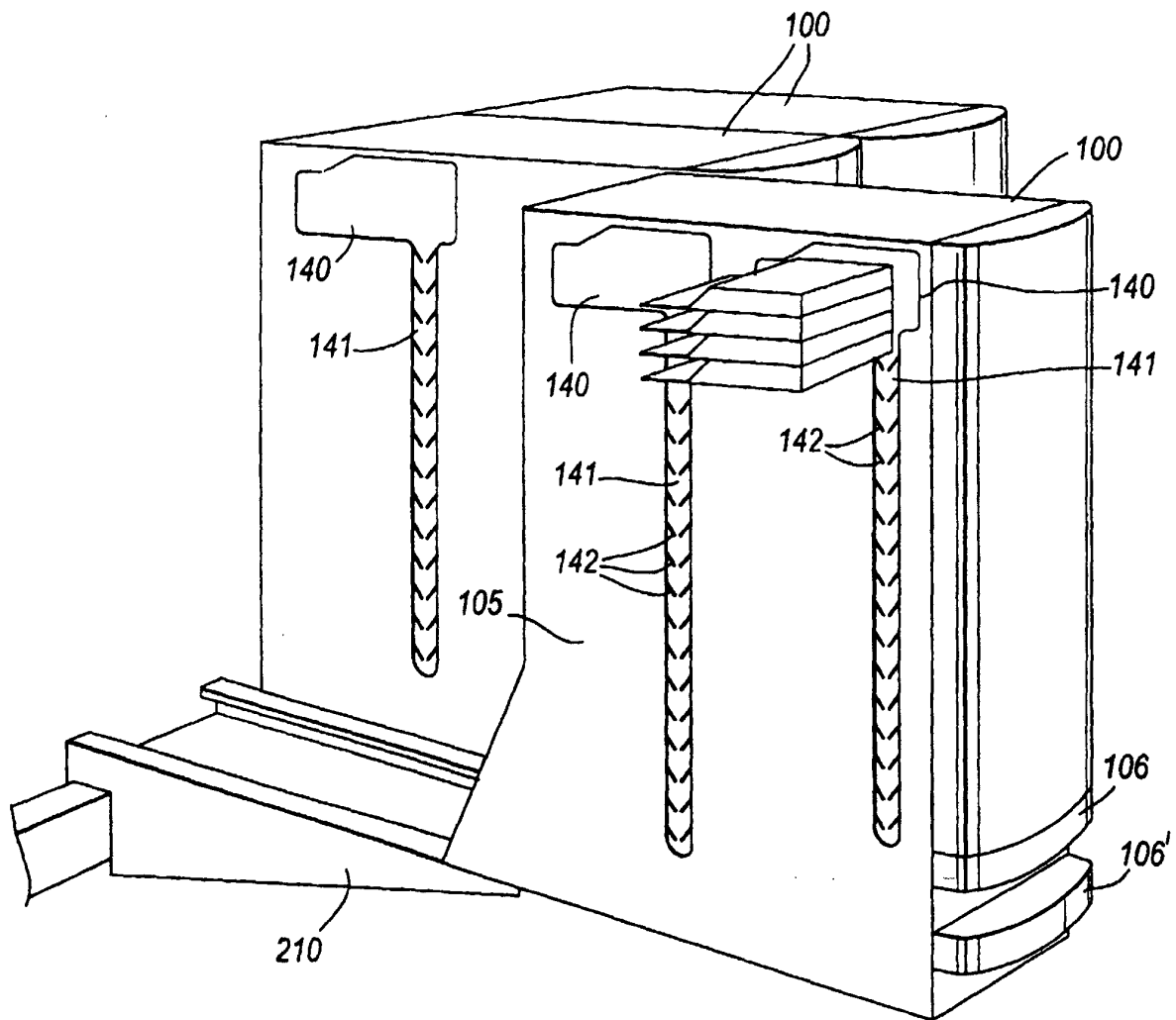


Fig.29

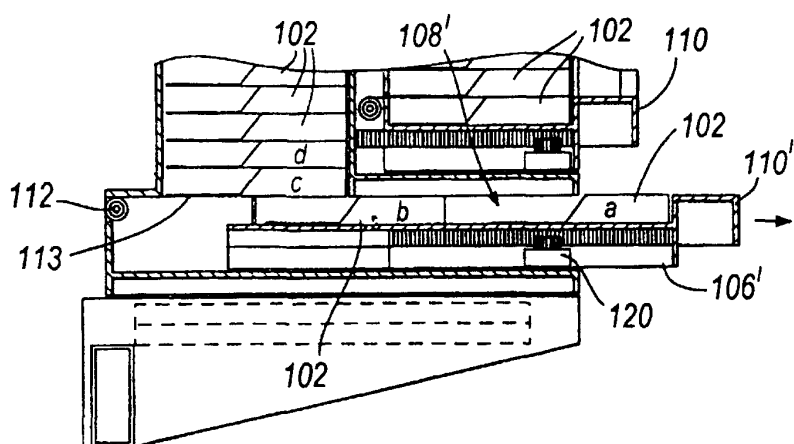


Fig. 30

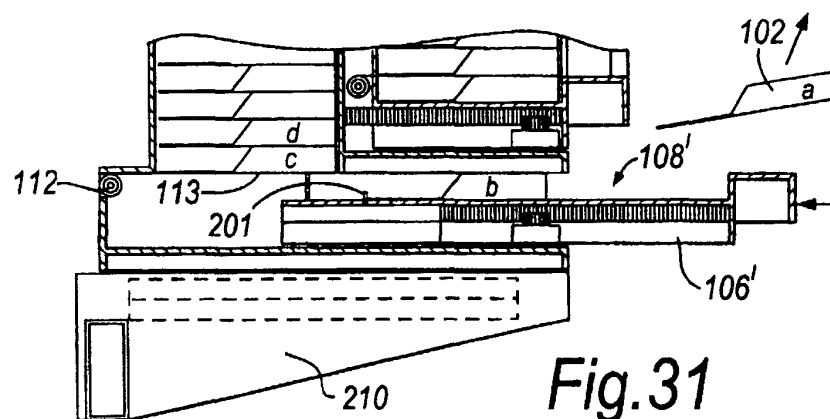


Fig. 31

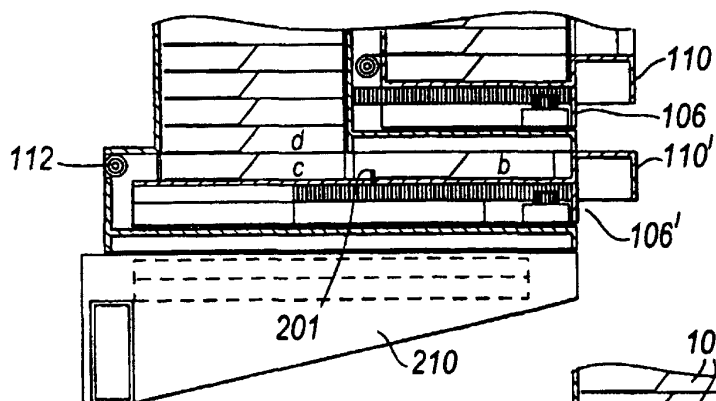


Fig. 32

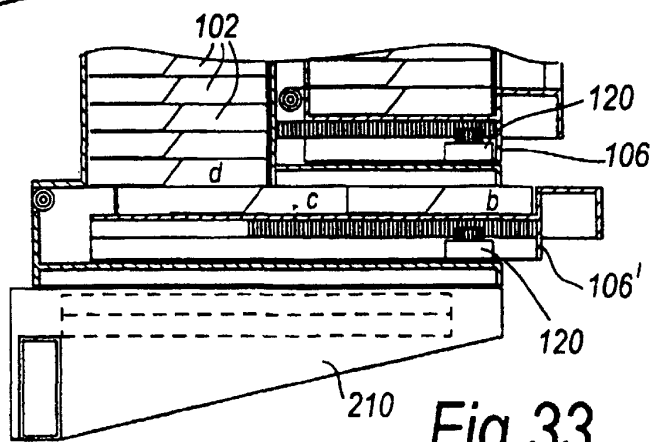


Fig. 33

