

(19)



(11)

EP 2 550 907 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:

30.01.2013 Bulletin 2013/05

(51) Int Cl.:

A47K 10/32 (2006.01)

(21) Application number: **11006257.7**

(22) Date of filing: **29.07.2011**

(84) Designated Contracting States:

**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**

Designated Extension States:

BA ME

• **Cattacin, Gilles**

68000 Colmar (FR)

• **Denis, Yoann**

67600 Selestat (FR)

• **Pommier, Nicolas**

68000 Colmar (FR)

(71) Applicant: **Georgia-Pacific France**

92270 Bois-Colombes (FR)

(74) Representative: **Cortier, Sophie et al**

Georgia-Pacific France

Département Brevets

60, avenue de l'Europe

92270 Bois-Colombes (FR)

(72) Inventors:

• **Marietta-Tondin, Julien**

67390 Marckolsheim (FR)

(54) **Product dispenser**

(57) The present invention related to a product dispenser (1), comprising:

a housing (2) comprising a housing part (21), the housing part being moveable to an open position for loading a product source (11) into the dispenser (1) and to a closed position; and

a magnetic lock having a lock member (71) configured to lock the housing part (21) in the closed position of the housing part (21) when the lock member (71) is in a locked state and to unlock the housing part (21) thereby allowing moving of the housing part (21) to the open position when the lock member (71) is in an unlocked state, wherein the lock member (71) is configured to be set into the unlocked state upon application of a magnetic force.

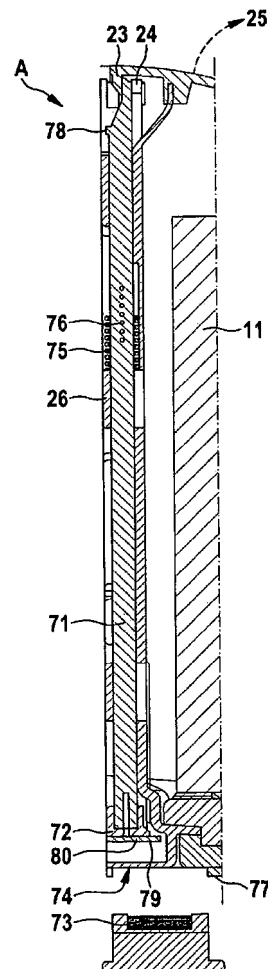


Fig. 2

EP 2 550 907 A1

Description

Technical Field

[0001] The present invention relates to a product dispenser and a product dispensing system. Particularly, the present invention relates to sheet and soap dispensers for public lavatories

Related Art

[0002] Manually operated product dispensers, such as dispensers for dispensing sheet product strips like paper sheets such as paper towels, facial tissue, toilet paper or the like are commonly used in public toilets, wash-rooms and the like to provide sanitary products to a user. Dispensers of this kind usually comprise a housing mounted on a wall in which a source of a sheet product, e.g. a paper roll, a stack of a continuous paper strip, or a soap container is accommodated. The housing comprises a dispensing opening located in a bottom part of the housing through which the sheet product strip is guided to the exterior of the housing for withdrawal by a user.

[0003] Other kinds of dispensers include soap dispensers for dispensing liquid soap or soap chips to the user. These soap dispensers are usually installed close to a washing basin.

[0004] In public places, dispensers may be exposed to vandalism, or unauthorized people who want to illicitly remove the content of the dispenser. Hence, the housing is often closed or barred. To this end, dispensers may be equipped with a lock, conventionally realized by a mechanical lock with corresponding key. In this configuration, only authorized dispenser operators in possession of the key can open the dispenser housing and remove or reload the contained product, whereas all other users are restricted to withdraw an appropriate quantity of the product by normal dispensing operation.

[0005] However, disadvantageously, a standard mechanical lock typically has a keyhole in the lock surface. Due to normal cleaning procedures, contamination may be introduced into the keyhole which is difficult to clean thereafter. Hence, especially in medical environments where demands in sterility and hygiene are high, the use of conventional locks having a keyhole is not preferred.

[0006] Moreover, the costs of key or lock management and replacements of lost keys and locks can become expensive when a high number of dispensers are employed.

Summary of the invention

[0007] It is an object of the present invention to provide a product dispenser and a product dispensing system that has a robust, simple and cost effective locking mechanism which prevents the drawbacks above with regard to sterility and hygiene.

[0008] In view of these problems, the present invention

provides a dispenser according to claim 1 and a dispensing system according to the further independent claim.

[0009] Preferred embodiments are indicated in the dependent subclaims.

5 **[0010]** According to a first aspect, there is provided a product dispenser comprising a housing comprising a housing part which is moveable to an open position for loading a product source into the dispenser and to a closed position; a dispensing opening for dispensing the product; and a magnetic lock having a lock member configured to lock the housing part in the closed position of the housing part when the lock member is in a locked state and to unlock the housing part thereby allowing moving of the housing part to the open position when the lock member is in an unlocked state, wherein the lock member is configured to be set into the unlocked state upon application of a magnetic force.

10 **[0011]** Using a magnetic lock in a dispenser allows the housing to be unlocked without inserting a key or the like. Hence, locking of the housing can be achieved without providing a keyhole lock. Since keyholes generally present an inaccessible source of contamination, cleaning of a dispenser without a keyhole is substantially facilitated. Moreover, it may be realized with a minimum of mechanical components to decrease the risk of lock failure and provide a versatile locking mechanism at low cost.

15 **[0012]** The dispenser may further comprise a biasing member for biasing the lock member into the locked state, thereby defining a default locked state of the lock member.

20 **[0013]** The dispenser may comprise a spring as a biasing member, in particular a spring which is fixed at the lock member by means of a spring stop, wherein the spring stop may be placed at plural positions at the lock member. This allows setting a predetermined biasing force which is applied by the spring.

25 **[0014]** Furthermore, the biasing member may include a magnet arrangement having a first magnetic element being attached at the lock member and a second magnetic element being supported at the housing, wherein the first and second magnetic elements are arranged to apply a magnetic rejection force on the lock member to hold the lock member in its locked state. Particularly, the first and second magnetic elements may be arranged such that the magnetic rejection force is at least partly overcome upon application of the magnetic force.

30 **[0015]** The lock member may comprise a ferromagnetic member, in particular a ferromagnetic member comprising a permanent magnetic material, thereby allowing the strength of the magnetic force exerted on the lock member to be adjusted.

35 **[0016]** The lock member may further comprise an adjustable means to fix the ferromagnetic member at different positions on the lock member, in particular at an end portion of the second lock member. Different positions of the lock member allow a flexible lock design which can be easily configured to manufacturing needs, and

which at the same time allows fine-tuning of the magnetic force to be exerted on the lock member.

[0017] The lock member may comprise an end stop member for limiting a movement of the lock member.

[0018] The dispenser may comprise a separating wall located between the magnetic lock and a product supporting member for supporting the product source, thereby protecting the lock member from dirt and mechanical damage.

[0019] The dispenser may further comprise a locking mechanism for locking the housing part in the closed position of the housing part such as a spring latch, a touch latch or a magnetic catch. In particular, the locking mechanism may be configured to be switchable upon pressing on the housing part between an engaged state for locking the housing part in the closed position and to a disengaged state for allowing movement of the housing part to the open position. Such locking mechanism prevents uncontrolled opening of the dispenser once the magnetic lock is released, and ensures functioning of the dispenser in case the locked state of the magnetic lock is not available, for instance in case a biasing member of the dispenser is broken.

[0020] According to another aspect, there is provided a dispensing system comprising a dispenser as described above, and a magnetic key comprising a ferromagnetic or permanent magnetic material, wherein the magnetic lock of the dispenser is configured to open when said key is positioned at a predetermined position relative to the dispenser. In such a system, upon attachment of the magnetic key a magnetic force is exerted on the magnetic lock.

[0021] In the dispensing system the dispenser housing may comprise a magnetic key docking port positioned on an outside portion of the dispenser and shaped such that a correspondingly shaped magnetic key fits onto the docking port. The docking port may be arranged relative to the lock member such that the magnetic lock is opened when the magnetic key is positioned onto the docking port. Thereby, the magnetic key may be easily positioned at an intended position to operate the magnetic lock. Further, the docking port and the magnetic key, respectively, may be formed in a specific shape to prevent unauthorised operation of the magnetic lock using a fake key or the like.

[0022] The dispenser of the dispensing system may further comprise a second ferromagnetic member which in particular comprises a permanent magnetic material, the second ferromagnetic member being located between the lock member and an outside portion of the housing. This second ferromagnetic member may be used to enhance the magnetic force exerted on the lock member, or to encode a magnetic key pattern on the dispensing system side.

Brief description of the drawings

[0023] Other features and advantages will become ap-

parent when reading the following detailed description for the understanding of which reference will be made to the attached drawings in which:

5 Fig. 1 is a schematic perspective view of the sheet product dispenser;

10 Fig. 2 is a schematic cross-sectional view of a lock portion of the product dispenser of Fig. 1 in a locked state;

15 Fig. 3 is a schematic cross-sectional view of the lock portion of the product dispenser of Fig. 1 in an unlocked state;

20 Fig. 4 is a schematic rear view of the sheet product dispenser; and

25 Figs 5a and 5b are different views of a docking port for a magnetic key;

30 Fig. 6 is a schematic cross-sectional view of another embodiment of a sheet product dispenser; and

35 Figs. 7a and 7b are schematic cross-sectional views of a lock portion of the product dispenser in a locked state and an unlocked state according to another embodiment.

Description of embodiments

[0024] Reference will now be made in detail to the present exemplary embodiments of the invention, examples of which are illustrated in the accompanying drawings. Wherever possible, the same reference numbers will be used throughout the drawings and the following detailed description to refer to the same or like parts.

[0025] In the following, a manually operated sheet product dispenser will be described in detail with reference to Figs. 1 to 4. The sheet product dispenser is only exemplarily described and, instead, it can be provided any kind of dispensers, such as soap dispensers and the like.

[0026] Figs. 1 to 4 illustrate a sheet product dispenser 1 which can be used for dispensing different types of sheet product. The dispenser 1 comprises a housing 2 for accommodating a source of a sheet product 11 as a product source. The housing 2 may consist of metal, plastics, or any other suitable solid material. The housing 2 is depicted in the drawings as generally having a substantially cylindrical shape, which is a spatially efficient configuration to house a roll-type sheet product. However, the housing 2 may have various shapes as desired.

[0027] In the following, the term sheet product is used, e.g., for any type of natural and/or synthetic, woven or non-woven cloth or paper sheets such as paper towels, facial tissue, or toilet paper. The sheet product may be provided with a predetermined surface roughness and a

predetermined thickness. The sheet product might be a continuous strip of sheet product, such as paper, having paper sheets separated by a perforation.

[0028] The housing 2 includes a moveable housing part such as a cover 21 and a rear housing part 22. In one embodiment, the rear housing part 22 may be fixedly attached and the cover 21 may be moveably mounted on the rear housing part 22, for instance in a way that the cover 21 may be pivoted. The dispenser 1 also comprises a dispensing opening 4, through which a sheet product may be dispensed, e.g. in a protruding portion of the rear housing part 22.

[0029] Pivoting the cover 21 to an open position exposes the interior of the dispenser 1 such that the source 11 of the sheet product can be loaded into the dispenser 1. Pivoting the cover 21 to a closed position provides a normal state for dispensing and protects the sheet product from tampering. Pivotal movement may take place substantially along the dashed arrow 25.

[0030] Typically, the rear housing part 22 of the dispenser 1 is mounted to a wall of a building or the like using any suitable means such as screws. The dispenser 1 is attached such that the dispensing opening 4 faces downward. To this end, the dispenser 1 may comprise through-holes 27 or the like in the rear housing part 22 as shown in Fig. 4.

[0031] In one embodiment, the housing 2 is configured to hold a roll-type sheet product from which a leading end of the sheet product is accessible. The roll-type sheet product may be a conventional paper roll or a centerfeed roll. For dispensing the sheet product, the leading end is fed through the housing interior and through the dispensing opening 4.

[0032] The magnetic lock comprises a lock member. The lock member is configured to lock the cover 21 in the closed position when the lock member is in a locked state, and to allow movement of the cover 21 to the open position when it is in an unlocked state.

[0033] In the following, the lock member will be exemplified by a latch 71 guided within the housing 2 to allow a substantially vertical movement. Further, the magnetic lock may comprise a keeper portion 23, which is incidentally formed by a protruding part of the cover 21. Here, the latch 71 is moveably mounted between a locked and an unlocked state.

[0034] As shown in Fig. 2, upon moving the latch 71 vertically until the top end of the latch 71 engages the keeper portion 23, and a pivotal movement of the cover 21 to open the housing 2 is prevented, i.e. the latch 71 is in a locked state.

[0035] As shown in Fig. 3, upon moving the latch 71 vertically downwards until the top end of the latch 71 is retracted from the keeper portion 23, the latch 71 is set into an unlocked state. In the unlocked state, a pivotal movement of the cover 21 is allowed and the cover 21 may be opened, e.g. for the purpose of reloading the source 11 of sheet product.

[0036] The latch 71 may be equipped with an end stop

78. The end stop 78 limits the vertical movement of the latch 71 to a predetermined range, for instance to prevent an abutting of an end of the latch 71 on a portion of the rear housing part 22, or to limit the range of vertical movement of the latch 71 to the extent required for setting the latch 71 into the respective locked and unlocked states. This on the one hand prevents impact of the ends of the latch 71 with respective other housing parts, which may cause damage. On the other hand this allows reducing the amount of mechanical movement of the latch 71, thereby facilitating the design of the parts of the housing 2 guiding the latch for a vertical movement and preventing the latch 71 from eventually slipping out of the guiding. Further, providing an end stop 78 may particularly be useful in connection with magnetic lock operation described below.

[0037] Suitable exemplary materials for the latch 71 are plastic or metal. In case of plastics, an injection-molded structure may be used to provide ease and reduced cost in manufacturing. In case of metals, stainless steel is particularly suitable since it is very stable and, in a medical or environment, easy to sterilize. Also, ferromagnetic materials may be comprised in the latch 71.

[0038] The term ferromagnetic materials comprises, but is not limited to, materials comprising iron, cobalt, nickel, titanium, aluminium or alloys thereof. Further, ferromagnetic materials may be of soft magnetic type with a small coercive field, or of hard magnetic type with a high coercive field, such as permanent magnets. In particular, said permanent magnets may be NdFeB-based magnets, SmCo-based magnets, ceramic magnets, Al-NiCo-based magnets, TiCoNiAl-based magnets, or magnets comprising rare earth elements.

[0039] The latch 71 may be shaped in the form of a rod moveable in its longitudinal axis direction. Its cross-section may be circular, rectangular, quadratic, or any other shape as desired. The end part of the latch 71 may have shape to facilitate engagement with the keeper portion 23, such as a conical or tapered shape.

[0040] The magnetic lock further comprises a biasing member 75. Here, the biasing member 75 comprises a spring. Conceivable examples of biasing members 75 comprise any resilient members such as a rubber block or an elastic band, torsion springs, coil springs, compression springs, extension springs, drawbar springs, cantilever springs, leaf springs or the like.

[0041] In the present embodiment, the spring 75 is held at the latch 71 by a spring stop. Here, the spring stop is exemplified by a splint 76 inserted into the latch 71. One end of the spring 75 abuts the splint 76, while another end of the spring 75 abuts a spring support part 26 which is part of the rear housing part 22. By the restoring force of the spring 75, a biasing force is applied to the latch 71 moving the latch 71 into the locked state. In Fig. 2, a default state of the latch 71 is the locked state where the latch 71 engages the keeper portion 23.

[0042] Alternatively, the default position of the latch 71 may also be defined by means of gravity. In such case,

the weight of the latch 71 may move/hold the latch 71 in the default position. In particular, a locked state of the latch 71 may then be a position where the latch 71 is moved to a lower end of the latch movement range (not shown in the drawings).

[0043] In the following, an example of operation of the magnetic lock will be described. The latch 71 of the magnetic lock is configured to move downwards from the state shown in Fig. 2 to disengage the keeper portion 23 upon application of a magnetic force and to thereby enter the unlocked state which is shown in Fig. 3. The latch 71 may either be made of a ferromagnetic material or may comprise an additional ferromagnetic member such as a ferromagnetic anchor 72. Here, the ferromagnetic anchor 72 made of a hard magnetic material is attached to an end part of the latch 71. When the magnetic force acting on the anchor 72 is larger than the restoring force of the spring 75, the latch 71 is moved downwards vertically from the state of Fig. 2 to enter the unlocked state of Fig. 3.

[0044] The ferromagnetic anchor 72 may also be used as an end stop limiting the vertical movement of the latch 71 in an upwards direction, for instance by shaping a part of the rear housing part 22 such that it obstructs the movement of the anchor 72 at a predetermined position, i.e. by means of a protruding portion 79.

[0045] The position of the anchor 72 on the latch 71 may be adjusted by some adjustment means, for instance by using a splint inserted through the anchor 72 into the latch 71 or by providing respective threads (not shown) in the anchor 72 and on the bottom part of the latch 71 and by screwing the anchor 72 onto the latch 71. The adjustment allows a fine tuning of the magnetic attractive force exerted upon the latch 71 when a magnet force is applied.

[0046] Moreover, the anchor 72 may be mounted at any position on the latch 71 to suit any desirable arrangement of the magnetic lock within the dispenser 1.

[0047] In addition to the magnetic lock, the dispenser 1 may be provided with a further locking mechanism for preventing uncontrolled opening of the dispenser 1. Such a mechanism includes, for example, a spring latch, a touch latch or a magnetic catch, and may operate independently from the magnetic lock. In particular, it also includes a push-to-open / push-to-close touch latch. Such locking mechanism allows opening the cover 21 by pushing the cover 21 when it is in the closed state, and locking the cover 21 again by closing the cover 21 and then pushing the cover towards the rear housing part 22. By providing the additional locking mechanism, the dispenser 1 is prevented from unintended or unnoticed opening when the magnetic lock mechanism is operated. Thus, an operator may first unlock the dispenser 1 using the magnetic lock, and then, for instance after moving to a position more suitable for reloading a sheet product into the dispenser, push the cover 21 to open and refill the dispenser 1.

[0048] To apply the magnetic force a magnetic key 73 may be provided. The dispenser 1 and the magnetic key

73 form a dispensing system. The magnetic key 73 may comprise a ferromagnetic or a permanent magnetic material.

[0049] In the system, the magnetic lock of the dispenser 1 is operated by the magnetic key 73. In this embodiment, a magnetic force is generated by bringing the magnetic key 73 close to the dispenser 1. For instance, upon placing the magnetic key 73 at a predetermined key position 74 relative to the dispenser 1, a magnetic force is exerted on the latch 71 thus being drawn to the unlocked state. In the example shown in Figs 2 and 3 the magnetic key 73 can be placed onto a lower side of the housing 2 just beneath the anchor 72 attached to the latch 71.

[0050] As an example, materials of the magnetic key 73 and the anchor 72 may be chosen from magnetically soft or hard materials such that a magnetic force is applied which is sufficiently large to move the latch 71 and the anchor 72 from a position shown in Fig. 2 against the biasing force of the biasing member 75 into the position as shown in Fig. 3, i.e. the unlocked state. In particular, the ferromagnetic anchor 72 may be a permanent magnetic material, which may allow choosing the magnetic key 73 to be of cheap magnetically soft material such as iron. Furthermore, the magnetic key 73 can be made of a permanent magnet applying a magnetic field onto the magnetic anchor 72 which may be made of a soft magnetic material.

[0051] The dispenser 1 may further comprise a docking member, such as a docking port 77 shown in Figs. 1, 2 and 3 provided on an outside part of the housing 2, for instance on the rear housing part 22, to facilitate placement of the magnetic key 73 at the predetermined position 74. To this end, the docking port 77 and the magnetic key 73 may be formed in a mutually corresponding shape.

[0052] The docking port 77 may be shaped in the form of one or more recesses in the housing 2, such as a blind hole, with the magnetic key 73 correspondingly shaped, e.g. in the form of a rod. The docking port 77 can alternatively be formed as an embossment such that a user can feel the position of where the magnetic key 73 shall be placed to open the housing 2.

[0053] The shapes of the magnetic key 73 and the docking port 77 can be made complementarily such that the magnetic key 73 is held against sliding onto the surface of the housing 2 when engaged with the docking port 77.

[0054] As shown in Figs. 5a and 5b, the docking port 77 can be provided with an elongated structure as a guiding means so that the correspondingly shaped magnetic key 73 can be brought into engagement at an insert position where no magnetic force is applied onto the latch 71. Then the magnetic key 73 can be slid along the structure towards the predetermined position where the magnetic force is applied onto the latch 71. For example, the structure can comprise one or more grooves 81 and the magnetic key 73 can have corresponding protrusions 82 such that the magnetic key 73 can be inserted into the grooves 81 and the protrusions 82 are accommodated

in the grooves 81. Hence, the magnetic key 73 can be guided by the grooves 81 towards the predetermined position.

[0055] In such configuration, a ferromagnetic anchor 72 comprising a permanent magnetic material can in particular be advantageously used, since then the magnetic key 73 may be formed of a ferromagnetic material such as iron that is of low cost and can be easily machined into the desired shape.

[0056] The dispenser 1 may additionally comprise a second ferromagnetic member such as a ferromagnetic block 80. The ferromagnetic block 80 may provide a well-defined magnetic force with respect to the magnetic key 73. As an example, the attractive force may be chosen to provide full suspension of the magnetic key 73, i.e. to prevent the key from dropping off when it is brought to the predetermined key position 74, e.g. onto the docking port 77 if available, and the latch 71 is moved in the unlocked state.

[0057] Moreover, the ferromagnetic block 80 may amplify the attractive force applied by the magnetic key 73. This may in particular be advantageous in situations where a spring 75 is used as a biasing member for which the restoring force is the larger the further the latch 71 is moved towards the unlocked state. Hence, a large attractive magnetic force may be required to move the latch 71 into the unlocked state, and accordingly amplification of the magnetic force might be required.

[0058] When a permanent magnetic material is used in the magnetic key 73, the end stop 78 of the latch 71 may be advantageous to facilitate a movement of the latch 71 into the locked state. When the end stop 78 limits the movement range of the latch 71 such that the anchor 72 is spaced apart from an inner wall of the housing 2 by a certain distance even in the unlocked state of the anchor 71, the magnetic force accidentally exerted on the latch 71 by magnetic parts of the housing 2 or magnetic parts attached to the housing 2 is limited as well. Then, once the magnetic key 73 is removed, sticking of the latch 71 in the unlocked position due to magnetic attraction between latch 71 and any magnetic part is prevented.

[0059] Fig. 6 shows another embodiment of a dispenser 90. The dispenser of Fig. 6 illustrates a different concept of applying a magnetic force onto a lock member for the housing 2. As described above, the housing 2 comprises a rear housing part 22 and a cover 21 which can be opened. Above described features and characteristics of the housing 2 can be realised in this embodiment completely or in part.

[0060] The lock member of the dispenser of embodiment of Fig. 6 includes a biased latch member 91 which is horizontally attached. The latch member 91 is pivotally held on one end 92. Another end of the latch member 91 is provided with a catcher 93 protruding upwards from the latch member 91.

[0061] The rear part of the housing 22 has a stop portion 94 substantially protruding vertically downward to engage with the catcher 93 of the latch member 91 in a

locked state. The catcher 93 is provided with a hard magnetic material 95 having a magnetic pole facing upwardly.

[0062] By placing a magnetic key 73 having a magnetic pole of the same kind onto the housing 2 and at a position facing the magnetic pole of the catcher 93 the latch member 91 is moved (pivoted) due to magnetic repulsion between the hard magnetic material 95 of the catcher 93 and the magnetic key 73 and the catcher 93 is removed from engagement with the stop portion 94.

[0063] A docking port 77 with a structure for guiding the magnetic key 73 towards the predetermined position is advantageous if a magnetic repulsion force is to be applied onto a lock member by the magnetic key 73. A magnetic repulsion force usually makes it difficult to place the magnetic key 73 directly onto the predetermined position where the magnetic force is to be applied onto the latch member 91 as the magnetic key 73 is pushed sideways from the predetermined position. The guiding means helps to place the magnetic key 73 onto the housing surface and to slide it along the guiding means towards the predetermined position.

[0064] Figs. 7a and 7b illustrate another embodiment for biasing the latch 71 based on the embodiment as shown in Fig. 2 and 3. Figs. 7a and 7b schematically show the latch 71 in a locked and unlocked state, respectively. Additionally or instead of the spring 75 a magnet arrangement 100 is provided in the interior of the housing 2. The magnet arrangement 100 may be located close to the docking port 77 or the predetermined position where the magnetic force is applied onto the latch 71 to hold it in the locked state. The magnet arrangement 100 may comprise a first magnetic element 101 and a second magnetic element 102. The first magnetic element 101 is attached at the latch 71 and the second magnetic element 102 is supported in the housing 2. The polarizations and strengths of first and second magnetic elements 101, 102 are such that a magnetic rejection force holds the first and second magnetic elements 101, 102 distanced.

[0065] In one embodiment the first and second magnetic elements 101, 102 are arranged between the latch 71 and the docking port 77 such that the magnetic rejection force can be overcome by the magnetic key 73 placed at the docking port 77. Upon application the magnetic key 73 interacts with the first magnetic element 101 attached at the latch 71 and provides a magnetic attraction of a sufficient strength pull the latch 71 against the rejection force which biases the latch 71.

Claims

1. A product dispenser (1), comprising:

a housing (2) comprising a housing part (21), the housing part being moveable to an open position for loading a product source (11) into the dispenser (1) and to a closed position;

characterized by further comprising:

- a magnetic lock having a lock member (71) configured to lock the housing part (21) in the closed position of the housing part (21) when the lock member (71) is in a locked state and to unlock the housing part (21) thereby allowing moving of the housing part (21) to the open position when the lock member (71) is in an unlocked state, wherein the lock member (71) is configured to be set into the unlocked state upon application of a magnetic force.
2. The dispenser (1) according to claim 1, further comprising a biasing member (75) for biasing the lock member (71) into the locked state.
 3. The dispenser (1) according to claim 2, wherein the biasing member (75) includes a spring.
 4. The dispenser (1) according to claim 3, wherein the spring is held at the lock member (71) by means of a spring stop (76), wherein the spring stop (76) is placeable at plural positions at the lock member (71) for setting a biasing force applied by the spring.
 5. The dispenser (1) according to one of the claims 2 to 4, wherein the biasing member (75) includes a magnet arrangement (100) having a first magnetic element (101) being attached at the lock member (71) and a second magnetic element (102) being supported at the housing (2), wherein the first and second magnetic elements (101, 102) are arranged to apply a magnetic rejection force on the lock member to hold the lock member (71) in its locked state.
 6. The dispenser (1) according to claim 5, wherein the first and second magnetic elements (101, 102) are arranged such that the magnetic rejection force is at least partly overcome upon application of the magnetic force.
 7. The dispenser according to any one of claims 1 to 6, wherein the lock member (71) comprises a ferromagnetic member (72), in particular a ferromagnetic member comprising a permanent magnetic material.
 8. The dispenser (1) according to claim 7, wherein the lock member (71) comprises adjusting means to fix the ferromagnetic member at different positions on the lock member (71), in particular at an end portion of the second lock member.
 9. The dispenser (1) according to any one of claims 1 to 8, wherein the lock member (71) comprises an end stop member (78) for limiting a movement of the lock member (71).
 10. The dispenser (1) according to any one of claims 1 to 9, wherein the lock member (71) is a latch moveable in its longitudinal axis direction.
 11. The dispenser (1) according to claim 1 to 10, wherein a separating wall is located between the magnetic lock and a product supporting portion (3) for supporting the product source (11).
 12. The dispenser (1) according to any one of claims 1 to 11, further comprising a locking mechanism for locking the housing part in the closed position of the housing part such as a spring latch, a touch latch or a magnetic catch.
 13. The dispenser (1) according to claim 12, wherein the locking mechanism is configured to be switchable upon pressing on the housing part between an engaged state for locking the housing part (21) in the closed position to a disengaged state for allowing movement of the housing part (21) to the open position.
 14. A dispensing system, comprising:
 - a dispenser (1) according to any one of the preceding claims;
 - a magnetic key (73) comprising a ferromagnetic or permanent magnetic material;
 - characterized in that**
 - the magnetic lock of the dispenser (1) is configured to open when the magnetic key (73) is positioned at a predetermined position (74) relative to the dispenser (1).
 15. The dispensing system according to claim 14, wherein
 - the dispenser housing (2) comprises a magnetic key docking port (77) positioned on an outside portion of the dispenser (1) and shaped such that a correspondingly shaped magnetic key fits onto the docking port (77); and
 - said docking port (77) is arranged relative to the lock member (71) such that the magnetic lock is opened when the magnetic key (73) is positioned onto the docking port (77).
 16. The dispensing system according to claim 15, wherein the docking port has a guiding means configured to engage with the magnetic key (73) wherein the guiding means are configured to guide the magnetic key (73) from a position where the no magnetic force is applied onto the lock member (71) to a position where the magnetic force is applied onto the lock member (71).
 17. The dispensing system according to one of the claims 14 to 16, wherein the dispenser (1) further

comprises a second ferromagnetic member (80) which in particular comprises a permanent magnetic material, such as a permanent magnetic material having a single magnetization direction, or exhibits a magnetization pattern corresponding to a predetermined magnetization pattern of the magnetic key, the second ferromagnetic member (80) being located between the lock member (71) and an outside portion of the housing (2).

10

15

20

25

30

35

40

45

50

55

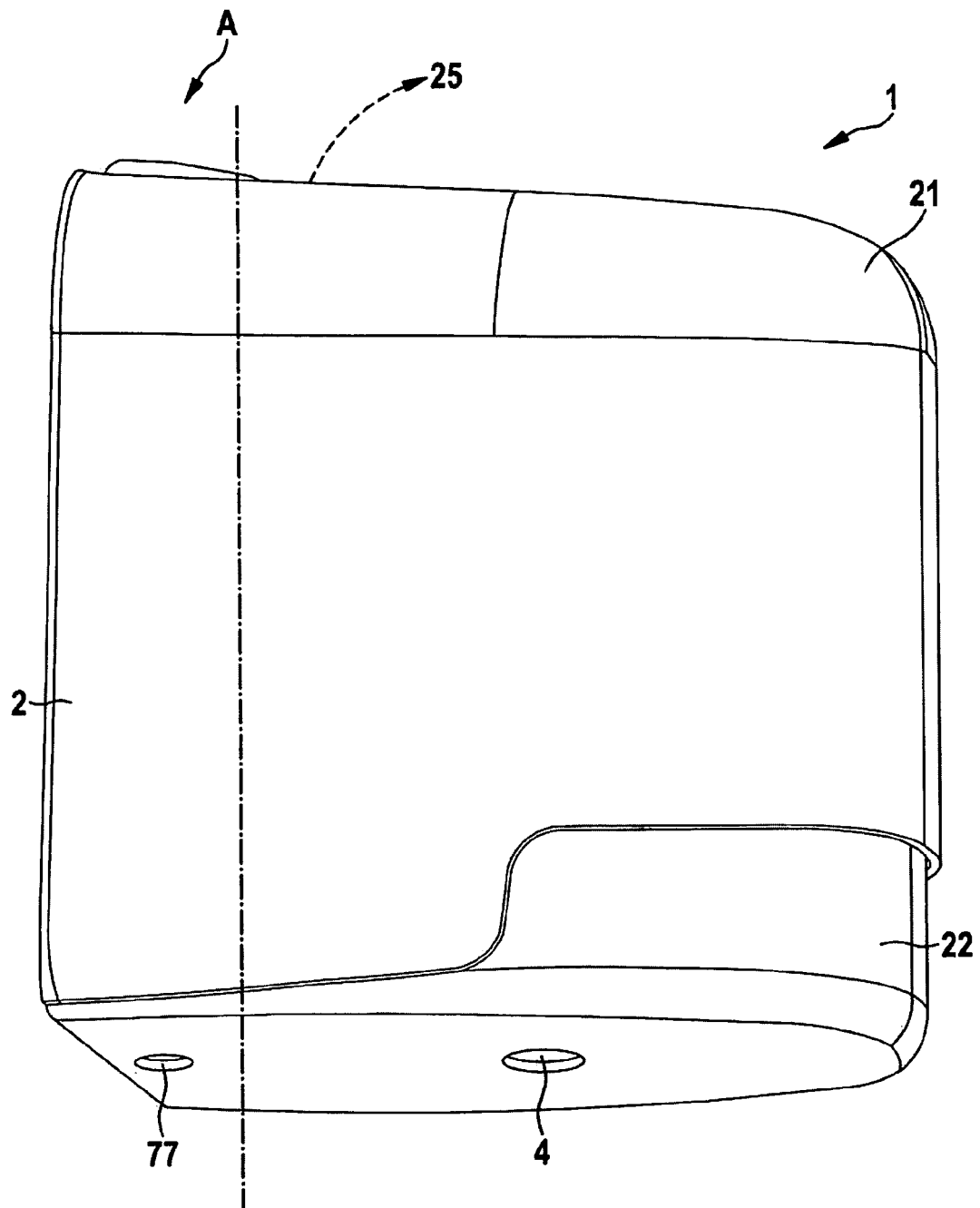


Fig. 1

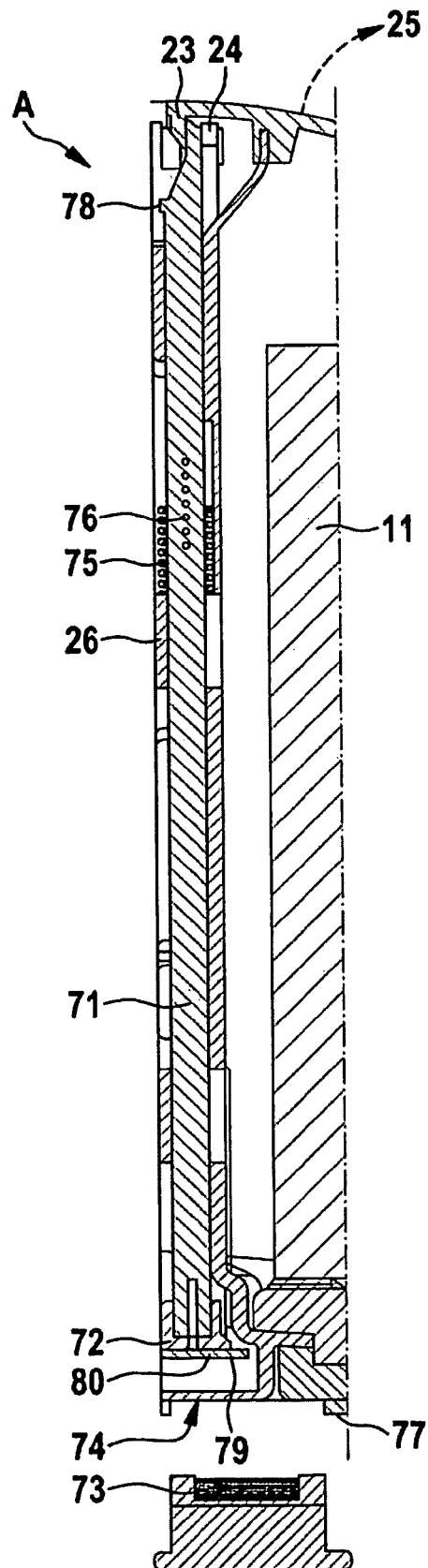


Fig. 2

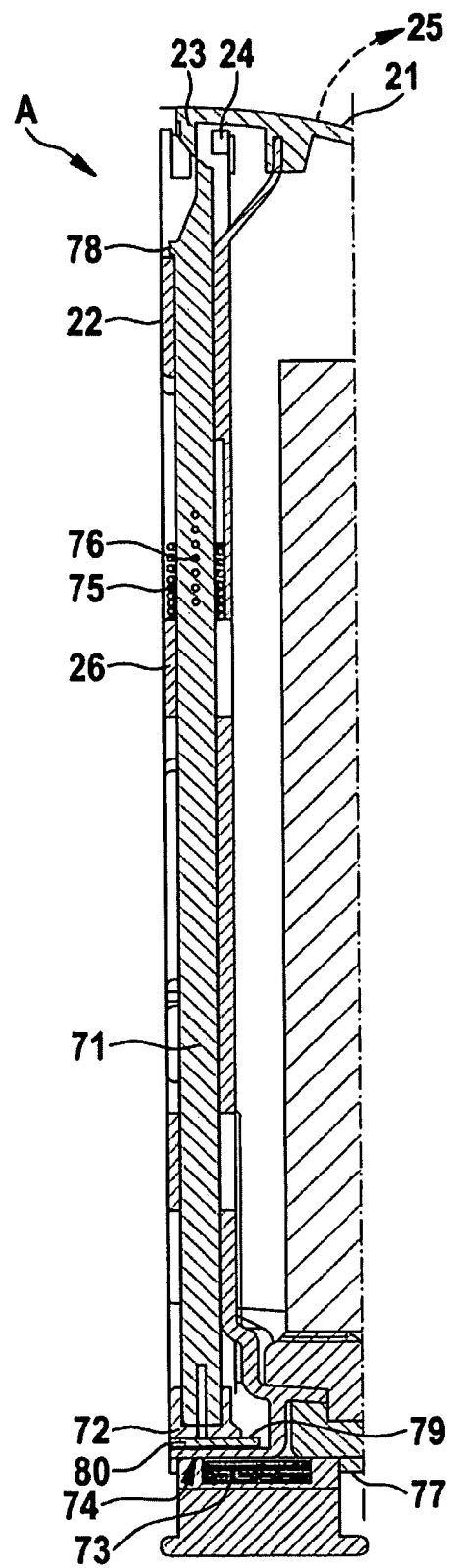


Fig. 3

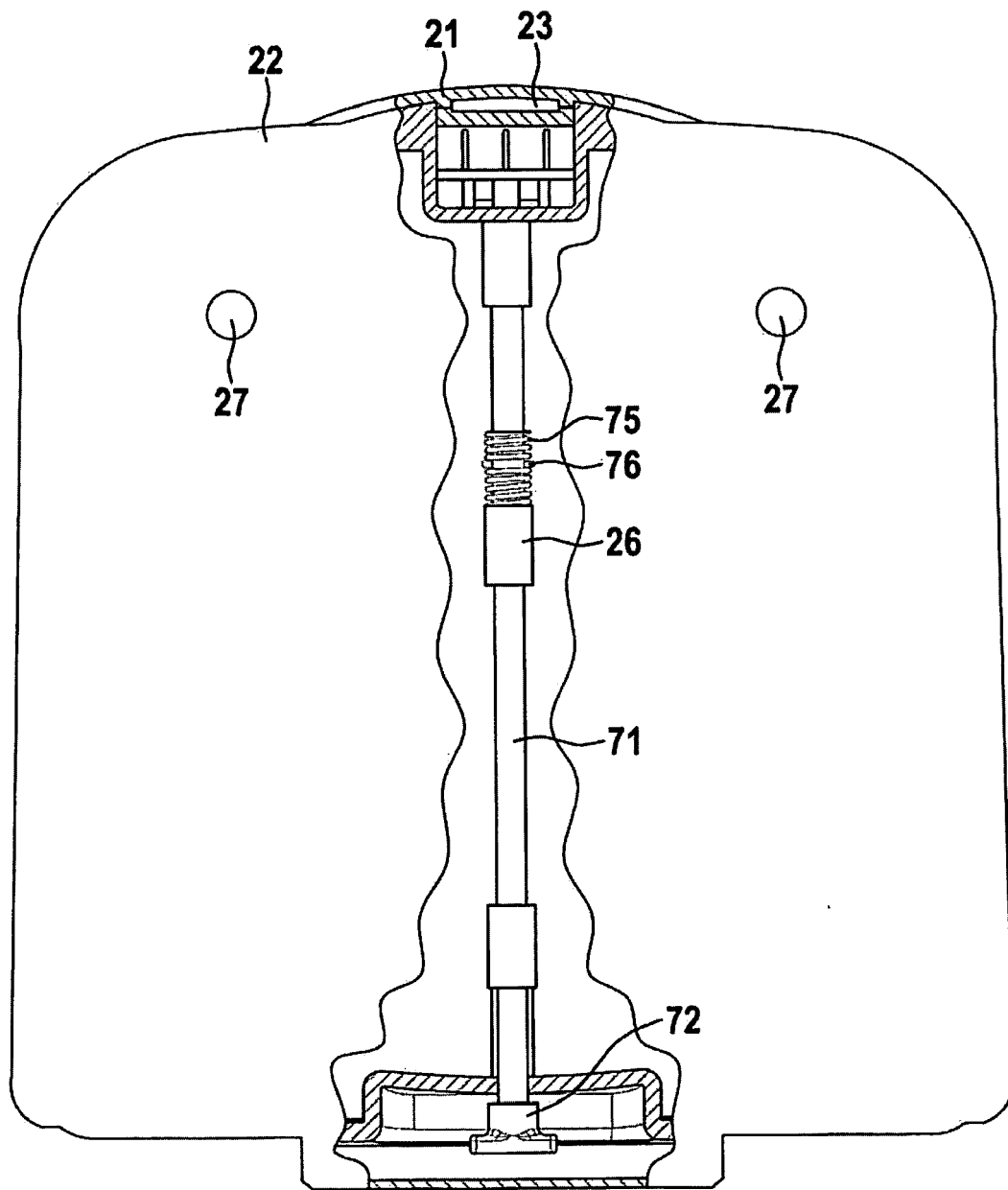


Fig. 4

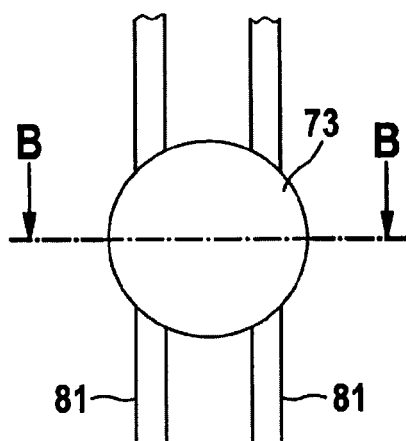


Fig. 5a

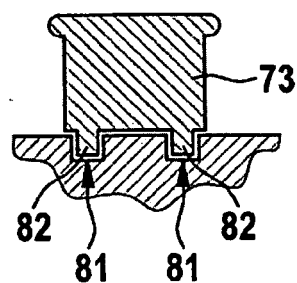


Fig. 5b

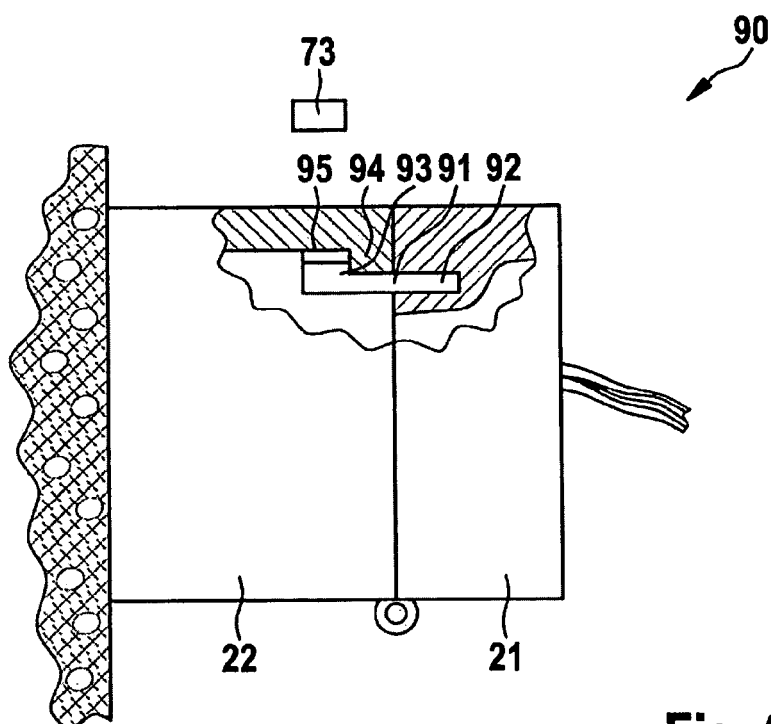


Fig. 6

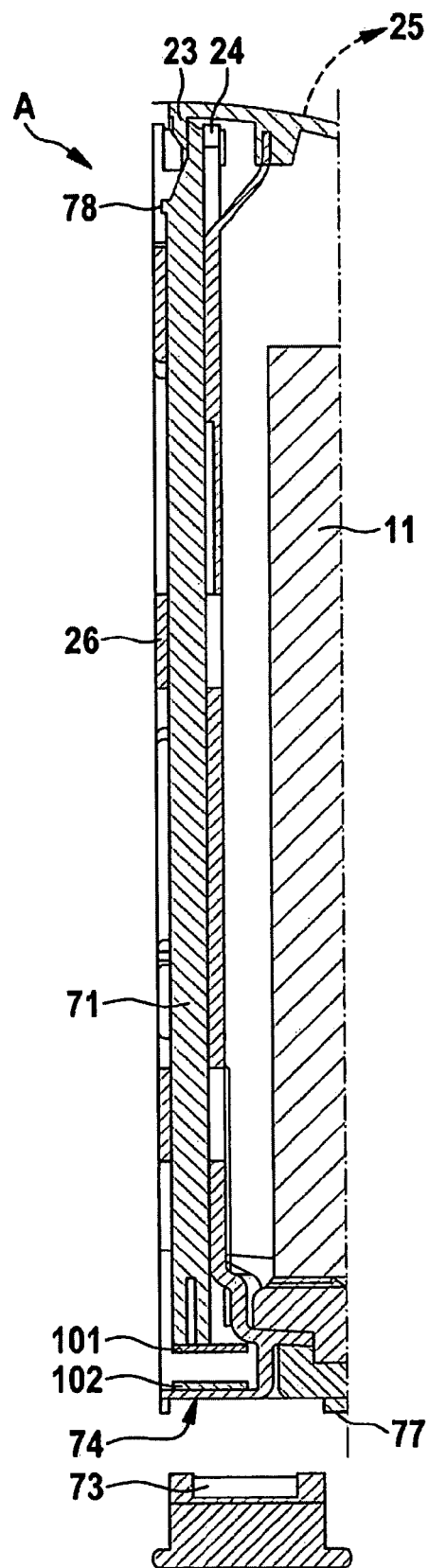


Fig. 7a

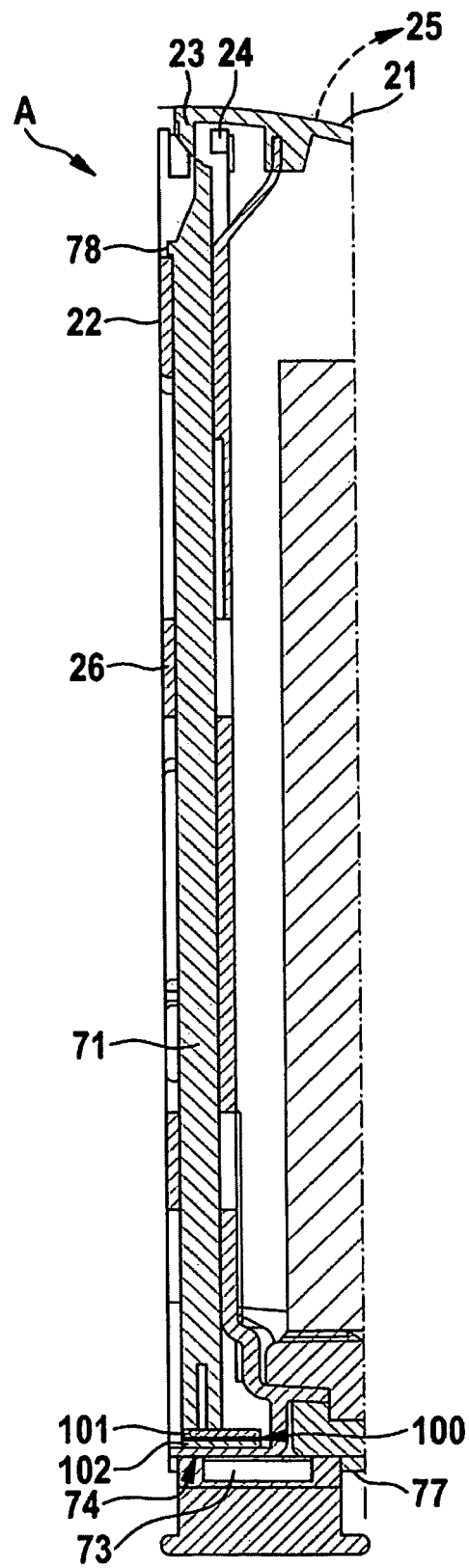


Fig. 7b



EUROPEAN SEARCH REPORT

Application Number
EP 11 00 6257

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	US 2010/237753 A1 (REYNOLDS DIANE [US]) 23 September 2010 (2010-09-23) * paragraph [0025]; figures 2,3,5 *	1	INV. A47K10/32
A	WO 2010/079372 A1 (FODOR ANDRAS [HU]) 15 July 2010 (2010-07-15) * page 4, line 29 - page 5, line 5; figure 5 *	1	
			TECHNICAL FIELDS SEARCHED (IPC)
			A47K
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 3 January 2012	Examiner Clasing, Martina
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

1
EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 11 00 6257

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

03-01-2012

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 2010237753	A1	23-09-2010	NONE	

WO 2010079372	A1	15-07-2010	CA 2748342 A1	15-07-2010
			EP 2375949 A1	19-10-2011
			US 2011266299 A1	03-11-2011
			WO 2010079372 A1	15-07-2010
