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(54) Towel material with fastening elements

(57) A strip (1) of towel material, which strip has a start (4) and an end (5), wherein the start is provided with at least one first fastening element (6) and the end is provided with at least one second fastening element (7), wherein the at least one first fastening element and a second fastening element of the same or a similar strip can mutually adhere, wherein the first and the second fastening element are part of a Velcro connection.

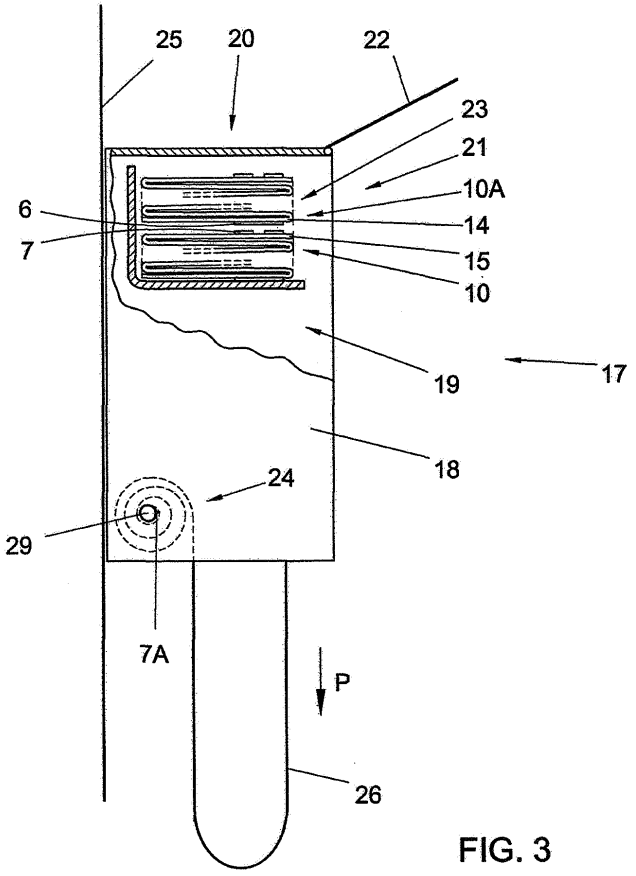

FIG. 3

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Description

[0001] The invention relates to a strip of towel material. The invention particularly relates to a strip of towel material which is couplable with a second, similar strip of towel material by means of fastening means.

[0002] Towel dispensers which use a loop of towel material are generally filled with a strip of towel material. To this end, rolled strips or cassettes of strips folded in a zigzag can be used. When a roll or cassette is partly used up, a new roll or cassette is placed, which is coupled with the strip already present by means of a glue connection. To this end, use is made of pressure-sensitive glue provided on at least one of the two strips. Thus, a permanent connection between the strips is obtained.

[0003] The glue connection used in such towel dispensers is not always advantageous. Thus, the towel dispenser can become polluted by the glue. Another problem that can occur is that the connection is not realized in the correct manner, for instance in that the strips are not coupled straight, so that the strips can get jammed in the towel dispenser.

[0004] The invention contemplates providing a strip of towel material with which at least one of the above-mentioned or other drawbacks is prevented.

[0005] In a first aspect, a strip of towel material is characterized in that the strip has a start and an end, wherein the start is provided with at least one first fastening element and the end is provided with at least one second fastening element, wherein the at least one first fastening element and a second fastening element of the same or a similar strip can mutually adhere, wherein the first and the second fastening element are part of a Velcro connection.

[0006] In a further aspect, a strip of towel material is characterized in that the strip is folded in a zigzag, where sheets are obtained and the first end forms a start sheet and the second end an end sheet. As a result, coupling of two such strips is simply possible by placing the two stacks of sheets on top of each other, so that the or each first fastening element on the one strip adheres to the at least one second fastening element on the other strip.

[0007] In a further aspect, the invention is characterized by a towel dispenser, provided with a first strip and a second strip, wherein the second strip is provided with one of the first and the second fastening means and the first strip with at least the other of the first and second fastening means, such that, with an opened towel dispenser, the second strip can be placed on the first strip, such that the first and second fastening means are coupled.

[0008] In a still further aspect, the invention is characterized by a method for coupling strips of towel material, wherein, preferably, in a towel dispenser, on one of a first and a second fastening means, provided on a first end of a strip, another of above-mentioned first and second fastening means, provided on an end of a second strip, is placed, wherein the first and second fastening means together form a detachable connection.

[0009] By way of illustration of the invention, embodiments of a strip of towel material, towel dispenser and method will be described in more detail by way of examples with reference to the drawing, in which:

Figs. 1A and B schematically show, in side elevational view and top plan view, respectively, a strip of towel material, in straight condition;

Fig. 1C schematically shows, in top view and/or bottom view, an alternative embodiment of a strip, in straight condition;

Fig. 2 schematically shows a strip of towel material according to Fig. 1, in folded condition, forming a cassette; and

Fig. 3 schematically shows a side elevational view of a towel dispenser, partly in cross section, where the placing of a new cassette is shown.

[0010] In this description, same or corresponding parts have same or corresponding reference numerals. The embodiments shown are merely shown by way of illustration and should not be taken as being limitative in any way. Many variations thereof are possible within the framework of the invention set forth in the claims.

[0011] Figs. 1A and B show, in side elevational view and top plan view, respectively, a strip 1 of towel material, in straight condition. Herein, straight is understood to mean not rolled up or folded. The towel material may be either non-reinforced or reinforced. Herein, reinforced is at least but not exclusively understood to mean a towel material comprising at least one absorbing component such as paper or cotton and a reinforcing component such as plastic or natural fibers, where the reinforcing component preferably forms a net reinforcement and/or acts as a carrier for the absorbing component and/or has, at least in a longitudinal direction L of the strip, a larger tensile strength than the absorbing component, in particular in a wet condition. This description will be based on a towel material comprising a plastic network 2, as a carrier for two layers 3 of absorbing material, provided on both sides of the network 2, for instance by gluing to the network and/or to each other through openings in the network. The network then operatively acts as a carrier for the layers 3 and as a tensile reinforcement in the above-mentioned longitudinal direction and as protection against tearing of the towel material. The layers 3 are, for instance, from paper or natural fibers such as cotton, and are relatively thin, for instance a few tenths of millimeters, just like the network, so that a particularly strong yet thin strip 1 is obtained. Of course, this is only an example and the strip may also be built up in a different manner, for instance without (net) reinforcement, such as entirely from a mixture of cotton and plastic fibers.

[0012] In Figs. 1A, B and C, the strip 1 is shown to be straight, with a start 4 and an end 5. In manufacture, a continuous web will be formed, which each time is cut off to the desired length, thus forming a new end 5 of a strip

1 preceding in direction of movement of the manufacture as well as a start 4 for a strip 1 following thereon. However, another production method may be chosen as well, where, for instance, a web is formed having a width corresponding with the desired length of the strip, with the web being cut into strips 1 by means of cutting lines extending transversely to the longitudinal direction of the web. The two sides of the web then thus, each time, form a start and end of the respective strips, respectively. Also, webs can be formed which comprise a number of times the width B of the strip in a width direction, so that multiple strips 1 next to one another can be cut from a web. Preferably, a web with a number of times the width B is folded to a stack configured in a zigzag, after which a desired number of folded strips having the width B are cut. Optionally, the stack is tilted over 180° in order to always have the same side upwards in successive stacks, for providing the fastening means, in particular the Velcro.

[0013] On the first end 4, a first fastening element 6 is provided, in the form of a first part of a Velcro connection. On the opposite second end 5, on an opposite side, a second fastening element 7 is provided, in the form of the other part of the above-mentioned Velcro connection. Velcro is generally known as such and is also referred to as a hook-loop connection or by, for instance, the registered trademarks Velcro® or Aplix®. In an advantageous embodiment, Velcro is used with a combined thickness d which is relatively small, for instance less than 2 mm or preferably less than 1 mm. Herein, the combined thickness is determined by the combined thickness of two fastening elements 6, 7 fastened to each other, measured at right angles to the longitudinal direction between the surfaces facing each other of two strips 1 mutually coupled by the fastening elements 6, 7. By choosing this thickness to be as small as possible, the fastening elements take up as little space as possible. What is particularly advantageous therein is use of a particularly flexible Velcro, for instance with hooks and loops or mushroom-shaped elements, which Velcro is marketed by *inter alia* the firm Velcro® or Aplix®, since it is particularly thin and still has a great tensile strength.

[0014] At least a part 6, 7 may be provided in, for instance, two or more width strips, in order to still better maintain the foldability of the respective end and to further simplify placement of the strips on top of another.

[0015] In the embodiment shown in Figs. 1A and 1B, the first and second fastening element 6, 7 each substantially have the shape of one or more rectangles, with a longitudinal direction S extending approximately in the width direction of the strip 1 and being approximately equal to the width B of the strip 1. In the longitudinal direction L of the strip, each fastening element 6, 7 has a limited width W, for instance between a few millimeters and a few centimeters. In this embodiment shown, both fastening elements 6, 7 approximately have an equal surface and they are provided at an approximately equal distance from the adjacent end edge 8, 9, but different positioning, shapes and/or dimensions are possible as well.

[0016] In Fig. 1C, an embodiment is shown where the second fastening element 7 is formed by two or more surfaces 7A, 7B attached next to each other in the width direction B at a distance G from each other, each having a width W_2. The first element 6 is formed by a strip extending in the width direction B and having a width W_1 which is preferably smaller than or equal to the width W_2 of the second element 7. The element 7 has a length S and the element 6 can have a same length. The first element 6 is preferably placed close to the edge 8. This embodiment can have the advantage that, in coupled condition, a strip can be diverted more easily over, for instance, rolls of a dispenser. The distance G between the surfaces 7A, B has the advantage that, when a new stack of material is laid on a remaining part of a stack, the strip can be fed through with relatively little force, also if the stacks are not completely straight on top of one another. Preferably, the element 6 is on a stack on the bottom side of the stack and comprises the hooks of the Velcro, while element 7 can be on the top side and can comprise the loops. The part with the loops is softer and more flexible than the part with the hooks, so that the feed-through can be improved still further. Of course, the position may also be chosen so as to be the other way around.

[0017] In the embodiment shown, the first and second fastening element 6, 7 are provided on opposite sides of the strip, but they may also be provided on the same side, depending on the desired manner of connecting.

[0018] Preferably, the fastening elements 6, 7 are provided as stickers, for instance with the aid of a labeling machine, for instance after the cutting of the stacks.

[0019] In Fig. 2, a strip 1 according to Fig. 1 is shown, in folded condition, so that a cassette 10 is formed. Herein, cassette is understood to comprise but not to be limited to a strip 1 folded in a zigzag, so that a stack 11 of sheets 13 mutually connected by folding lines 12 is formed, which can integrally be taken up and processed, with a start sheet 14 and end sheet 15 being provided. On the start sheet 14, the first fastening element 6 is provided, on the end sheet 15, the second fastening element 7. In Fig. 2, by way of simplification, the contours 16 of the cassette 10 are shown, in broken lines, as well as a number of but certainly not all sheets 13 between the start sheet 14 and end sheet 15. As is visible in Fig. 2, the stack 11 has a height H, and a width Z, which width Z corresponds with the length of each sheet 13 between two folding lines 12. The start sheet 14 and end sheet 15 have the two fastening elements 6, 7 at a distance smaller than the width Z_1, Z_2, so that they do not abut the contour 16 (drawn in) of the stack 10. In the embodiment shown, they are straight above one another in side elevational view, for a reason to be described in more detail.

[0020] In an alternative embodiment (not drawn), one of the fastening elements 6 or 7 has been omitted, while the other fastening element 7 or 6 and the towel material, preferably an absorbing layer 3 thereof, can adhere as

a Velcro connection.

[0021] Fig. 3 schematically shows a towel dispenser 17, with partly broken away side panel 18, so that a part of the interior 19 thereof has become visible. The towel dispenser 17 has a housing 20 which is closable on a front side 21 with a lid 22 shown in open position in the drawing. The towel dispenser 17 is suspended from a wall 25 by a back side. In a known manner, the interior 19 comprises a storage space 23 for cassettes 10, a rolling mechanism 24 for taking up used towel material and means (not shown) for dispensing towel material from the stack 11 of the cassette 10, when, on a front side, facing away from the wall 25, of the loop 26 formed by the strip 1 of towel material under the towel dispenser 17 is pulled in the direction of the arrow P. At the same time, then, in a known manner, a same length of towel material is taken up by the rolling mechanism 24. Such a towel dispenser is, for instance, described in more detail in EP 0 107 223, incorporated herein by reference with regard to at least the towel dispenser. The embodiment shown of the towel dispenser is loop-forming and can be operated by hand power. However, other towel dispensers with a strip or cassette according to the invention may also be used, for instance electrically driven towel dispensers or towel dispensers dispensing towel material to a roll, where the loop 26 can always be maintained or can only be formed when, for instance, by a proximity sensor, a user's hand is detected and is again withdrawn by that user after use.

[0022] As shown in Fig. 3, in the storage space 24, the cassette 10 is received. The cassette is placed with the start sheet 14 downwards, so that the strip can be dispensed from there. The end sheet 15 is therefore on the top side, with the second fastening element 7 facing upwards. An end leaf or the like is not necessary, since the fastening element is not sticky, which is advantageous economically and for the ease of use and, in addition, produces no waste. Because the fastening elements 6, 7 are not sticky, the additional advantage is achieved that pollution of the towel dispenser is simply prevented. Further, use of Velcro has the great advantage that the connection between the fastening elements 6, 7 can be broken and be renewed, for instance when placement, as will be discussed hereinafter, has not taken place correctly.

[0023] When the cassette 10 in the storage space 23 is partly or virtually wholly used up, the towel dispenser is opened and a second cassette 10A can be placed in the storage space 23, on top of the end sheet 15 of the first cassette 10. Then the first fastening element 6 of the second cassette 10A is positioned on the second fastening element 7 of the first cassette 10. Due to its own weight and/or a light pressure of the second cassette 10A, then the coupling between the two fastening elements 6, 7 will be brought about. Optionally, the second cassette 10A can be pressed, for instance by hand by a user or with the aid of a lid or similar element on the storage space 23. If the first and second fastening element are, for instance, placed obliquely with respect to each other or, for instance, one of the sheets on which they are provided was crumpled during placement, the connection can simply be broken again and the second cassette 10A can be placed once again. As a result of the coupling by the fastening elements, clean towel material can continuously be made available to the user. In the embodiment shown, the first and second fastening element 6, 7 are displaced with respect to a center surface M of the cassette 10 in the direction of a same side 30 of the cassette. As a result, cassettes can only be coupled in one manner, so that the connection will always be brought about in a desired manner. Optionally, the fastening elements may also be provided symmetrically, i.e. in the center surface M, so that the cassettes can also be coupled so as to be mirrored with respect to one another.

[0024] Use of fastening elements in the form of Velcro connecting parts as a fastening element or fastening elements further has the advantage that the adhesion between two successive cassettes 10 or rolls, or at least strips 1, is insensitive to, for instance, the temperature in the space where the towel dispenser is used, to the quantity of adhesive or to the towel material used. The fastening elements 6, 7 can be provided directly on one of the layers 3 or, preferably, be connected with the reinforcement 2. The adhesion between the towel material and the fastening elements 6, 7 is determined in production, so that the user always has a same or at least a secure connection when the strips 1 are mutually coupled. Further, the fastening elements cannot dry out or otherwise get a prematurely reduced adhesive power. If, during use, a connection should become wholly or partly detached, then it can simply be restored.

[0025] Drying out of glue such as it can occur with known systems is, in addition, prevented and the stacks can be detached again after adhesion for, for instance, repositioning, after which re-adhesion is possible. Further, no end leaves over the strips 6, 7 are necessary, which is advantageous in view of costs and the environment. In addition, such end leaves can make the placing and connecting more difficult. In addition, a connection according to the invention is easy to understand for a user. Further, the connecting power between strips is determined by the manufacturer, through the choice of the connecting means 6, 7 and the glue pre-adhesion thereof in the strip, in the manufacturing apparatus.

[0026] The invention is by no means limited to the embodiments shown in the description and drawings. Many variations thereof are possible within the framework of the invention as set forth in the claims, such as combinations of parts of the embodiments shown. Instead of as single rectangular surfaces, fastening elements may also, for instance, be provided in other forms, for instance in the form of separate elements, in the form of a logo, triangular, or fantasy shapes. With regard to form and/or placement and/or type of Velcro, the fastening elements 6, 7 may be designed such that different types of cas-

settes can or, conversely, cannot be exchanged. Also, fastening elements 6, 7 according to the invention may be combined with extra surfaces by which a strip 1 according to the invention can be coupled with a strip or cassette which is provided with a glue element, such as existing cassettes as used in an apparatus according to EP 0 107 223. Velcro may be provided in separate parts or may be provided as continuous elements before the strips 1 are formed. Also, other means may be used such as two component epoxy adhesive, which only sticks in case of mutual contact, or other types of male-female connections which do adhere to each other but preferably not to their environment.

[0027] These and many similar variants are considered to fall within the invention.

Claims

1. A strip of towel material, which strip has a start and an end, wherein the start is provided with at least one first fastening element and the end is provided with at least one second fastening element, wherein the at least one first fastening element and a second fastening element of the same or a similar strip can mutually adhere, wherein the first and the second fastening element are part of a Velcro connection.

2. A strip according to claim 1, wherein the strip is folded in a zigzag to a stack of sheets, wherein the first end forms a start sheet and the second end an end sheet.

3. A strip according to claim 1 or 2, wherein the towel material is manufactured as a laminar material with at least one net-shaped core, wherein the at least one first fastening element and the at least one second fastening element are preferably connected with the core.

4. A strip according to any one of the preceding claims, wherein at least one of the fastening means is provided on the strip as a sticker.

5. A strip according to any one of the preceding claims, wherein the first fastening element is placeable, by a surface, on a surface of the second fastening element, such that the combined thickness of the first and second element, in coupled condition, approximately at right angles to the two surfaces, is less than 2 mm, more in particular less than 1 mm.

6. A strip according to any one of the preceding claims, wherein the strip is folded to a cassette.

7. A towel dispenser, provided with a first strip according to any one of the preceding claims and a second strip, wherein the second strip is provided with one of the first and the second fastening means and the first strip with at least the other of the first and second fastening means, such that, with an opened towel dispenser, the second strip can be placed on the first strip, such that the first and second fastening means are coupled.

8. A method for coupling strips of towel material, wherein, preferably, in a towel dispenser, on one of a first and a second fastening means, provided on a first end of a strip, another of said first and second fastening means, provided on an end of a second strip, is placed, wherein the first and second fastening means together form a detachable connection.

9. A method according to claim 8, wherein the first and second fastening means form parts of a Velcro connection.

10. A method according to claim 8 or 9, wherein, as first and second fastening means, Velcro parts are used on the first and second strip, respectively.

11. A method according to any one of claims 8 or 9, wherein, as one of the two fastening means, the material of the respective strip is at least partly used.

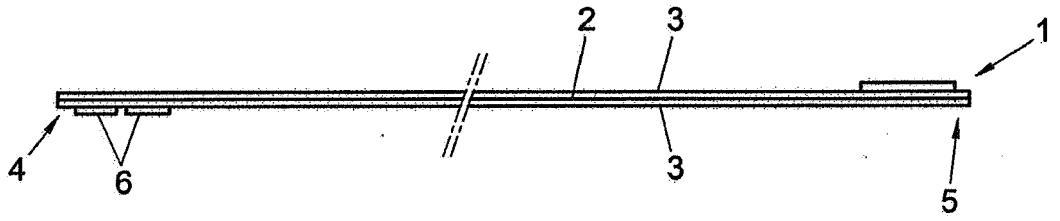

FIG. 1A

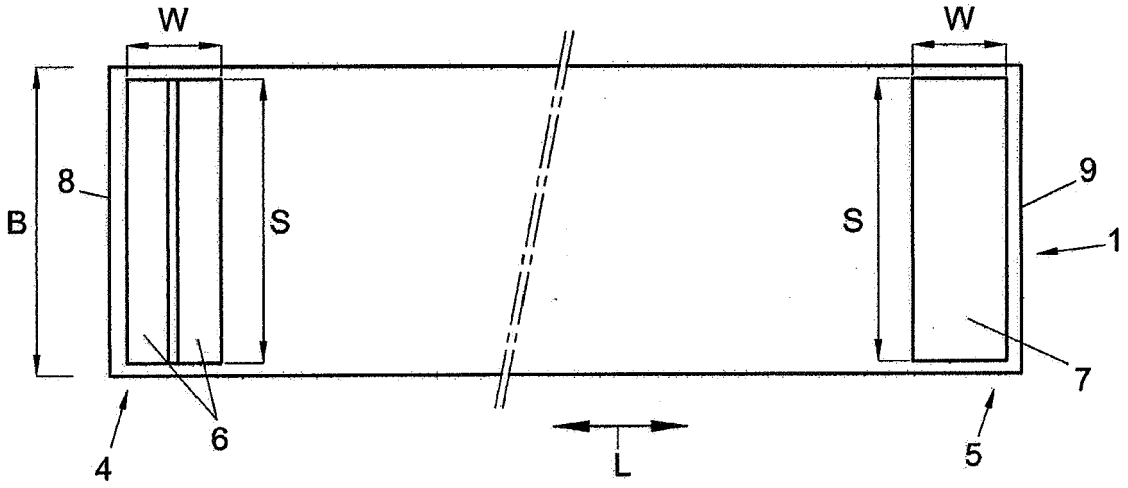

FIG. 1B

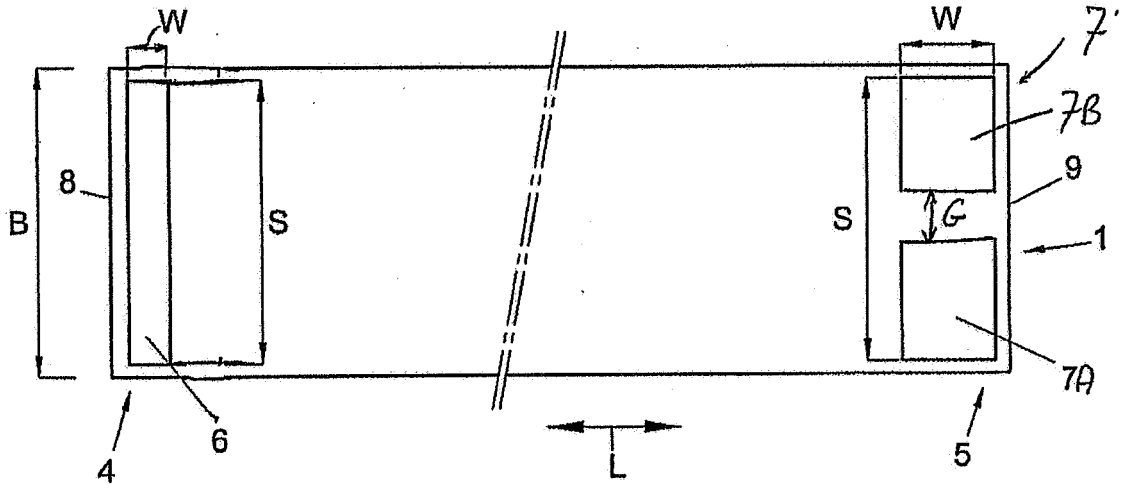

FIG. 1C

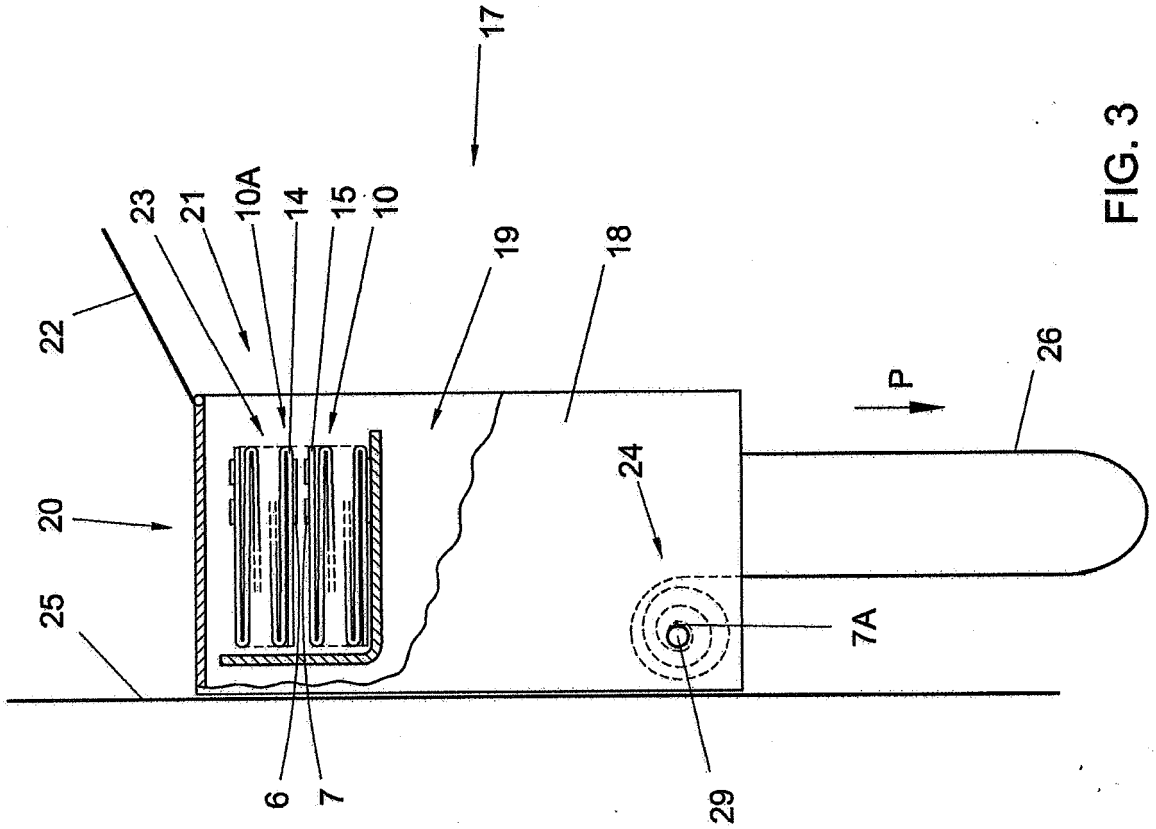
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FIG. 3

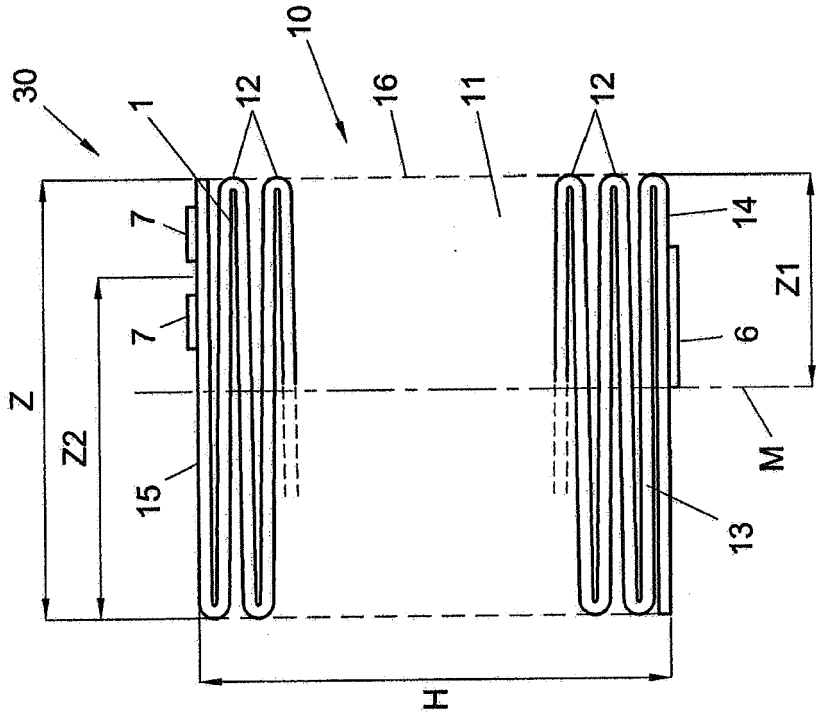
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FIG. 2

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EUROPEAN SEARCH REPORT

Application Number
EP 08 16 0667

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 43 10 716 A1 (SCHUMM ERICH GMBH [DE]) 6 October 1994 (1994-10-06) * column 6, line 19 - line 42 * -----	1-11	INV. A47K10/34 A47K10/24
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TECHNICAL FIELDS SEARCHED (IPC)

A47K

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	22 October 2008	Zuurveld, Gerben

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22-10-2008

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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