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(54) Sample fan and storage device for sample fans

(57) A sample fan, e.g., a colour fan, comprising a stack (2) of sample leaves (3) with a hole in each leaf, and a hollow pin or bush (7), flanged at one end, inserted through these aligned holes (5), the pin (6) being connected to a grip (8) set apart from the leaves (3) in their plane of rotation, leaving the leaves (3) free to rotate over a rotation angle. The outer ends of the pin (6) are capped by a C-shaped grip (8). A storage device (12) for the storage of one or more such sample fans (1). The storage device (12) comprises at least two supports (13) with a space between them of more than the thickness of the stack (2) of sample leaves but less than the thickness of the sample fans (1) at or near the position of the pin (6). The supports (13) have a comb-shaped top edge (23) with teeth (24) and V-shaped and equidistant gaps (25). The gaps (25) have a width sufficient to receive the outer ends of either the pin (6) or a grip coupled to the pin. The storage device (12) further comprises sides (14) having at least two substantially parallel slots or notches suitable to receive straight outer edges (16) on either side of the comb-shaped top edge of the support (13), the distance between each slot and an adjacent slot in the support corresponding to the width of the open side of the C-shaped grip.

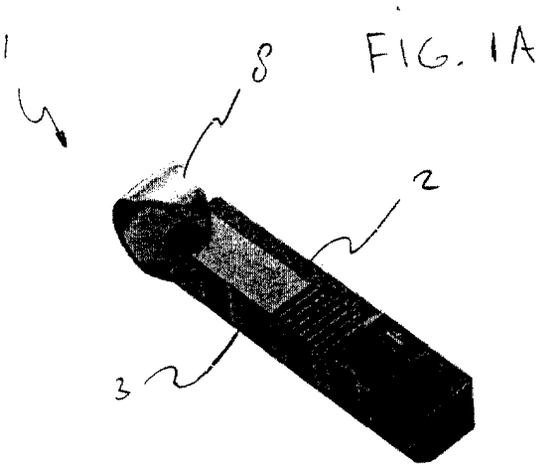

FIG. 1A

EP 1 110 752 A1

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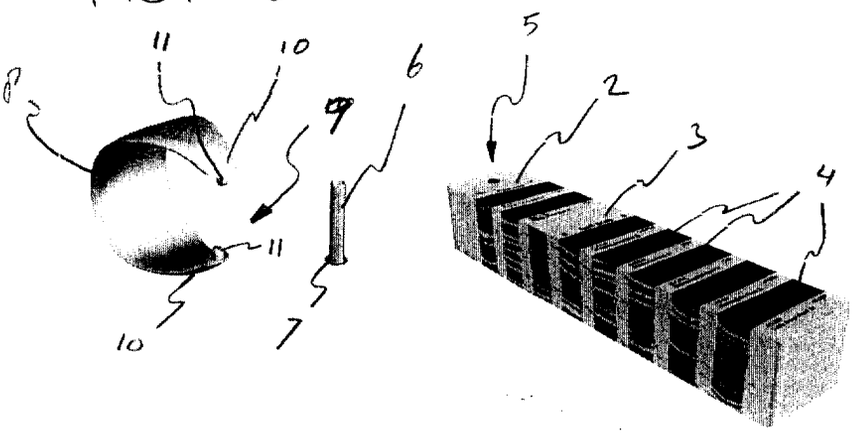
FIG. 1B



Description

[0001] The present invention relates to a sample fan, e.g., a colour fan, comprising a stack of sample leaves with a hole in each leaf and a pin inserted through these aligned holes. The invention further pertains to a storage device for the storage of such sample fans.

[0002] Such sample fans are often used for colour guides, for example when the colour of a coating is to be selected, e.g., for car repair purposes. In the car repair branch, each supplier of coatings materials will compile, per make of car or per number of makes, one or more colour fans showing the colour range available for the make(s) in question. Consequently, car repair workshops have an extensive colour fan library. Since the available colour range per make of car tends to change from time to time, such colour fans are generally loose-leaf systems which can be updated when necessary. For this purpose, the available fans comprise a pin which can be disassembled, generally consisting of a headed externally threaded screw which can be screwed into a hollow internally threaded, also headed bush.

[0003] A drawback to some of the existing colour fans is that they cannot be stored in a well-ordered, convenient way. To overcome this problem, colour fans are sometimes packed in a box or cassette which is open on one or two sides, in such way that the sample leaves can be fanned out. These boxes can be stored in a rack. However, the combination of cassette and storage rack provides double protection for the color fans and is therefore an unnecessarily expensive option. Another drawback to the existing colour fans is that disassembling the pin when new loose leaves are to be added or old ones removed is time consuming. The heads of the pins protrude and may cause damage or scratches, e.g., if the fan is placed upon the car to be repaired. Further, the prior art fans easily fan out unintentionally when gripped or carried.

[0004] The object of the invention is achieved with a sample fan according to the hole paragraph, characterized in that the pin is connected to a grip. Besides making for easier handling, the grip makes it possible to store the sample fans in an orderly way, since the upper side of the grip can be labelled and the sample fans can be stored in very little space, with the labelled grips directed to the user. The user, for his part, can take a selected sample fan from its storage location easily, without unintentionally fanning it out.

[0005] Preferably, the outer ends of the pin are connected to, preferably capped by, a C-shaped grip. The C-shape of the grip may be part of a circle, or it may be rectangular, polygonal, oval or of any other suitable shape. The C-shaped grip covers both outer ends of the pin and thus prevents them from scratching or otherwise damaging for example the coating of a car.

[0006] Preferably, the C-shaped grip is made of a flexible material, such as a plastic material, e.g., polyoxymethylene (POM), ABS, polyamide, polycarbonate, or any other suitable material. POM is preferred for its lasting elastic properties.

[0007] The C-shaped grip and the outer ends of the pin are preferably coupled by means of a form fit. For instance, the outer ends of the C-shaped grip comprise protrusions fitting into the open ends of the pin. To that end, the pin may be take the form of a hollow bush. Alternatively, the pin may comprise shouldered outer ends fitting into notches or holes in the outer ends of the C-shaped grip. With such form fits, the outer ends of the C-shaped grip can be moved apart in order to fasten or remove the pin. This way, the sample fan can be updated easily. When the pin is positioned between the outer ends of the C-shaped grip, the grip will hold the pin and no leaves can be taken from it.

[0008] Alternative suitable ways of coupling the grip and the pin may also be used, if so desired.

[0009] Preferably, each leaf is rectangular with a hole near the centre of one of the shorter sides. As a result, the leaves will hang straight down when the sample fan is carried or hung up.

[0010] The object of the invention is also achieved with a storage device for the storage of one or more sample fans, each sample fan comprising a stack of sample leaves with holes in them and a pin inserted through these aligned holes, the storage device comprising at least two supports with a space between them of more than the thickness of the stack of sample leaves but less than the thickness of the sample fans at or near the position of the pin. Such supports may for example be parallel walls or baffles, or two parallel rods or strips, between which the sample fan can be hung, supported by the outer ends of its pin or by a grip coupled to the pin.

[0011] Preferably, the supports have a comb-shaped top edge with teeth and gaps, preferably V-shaped and equi-distant, the gaps having a width sufficient to receive the outer ends of either the pin or a grip coupled to the pin. In this way the sample fans can be stored in a well-ordered manner at even distance from each other.

[0012] Preferably, the storage device further comprises supports or sides, preferably in the form of a plate, having at least two substantially parallel slots or notches suitable for receiving the straight outer edges on either side of the comb-shaped top of the support, the distance between each slot and an adjacent slot in the support corresponding to the width of the C-shaped grip. This results in a modular system which can easily be extended if so required by the volume of the sample fan collection.

[0013] The invention is further described and illustrated by the following figures. In the drawings:

Figures 1A and B: show in perspective view a colour fan according to the invention, in the assembled and the disassembled state respectively;

Figure 2: shows in plan view the colour fan of Figure 1;
Figure 3: shows in perspective view a storage device for sample fans according to the invention;
Figure 4: shows in plan view the storage device of Figure 3;
Figure 5: show in top view the storage device of Figure 3;
Figure 6: shows in cross-section the storage device of Figure 3 along line VI-VI in Figure 4;
Figure 7: shows in top view an extended version of the storage device of Figure 3;
Figure 8: shows in cross-section a side member connected to two supports of the storage device of Figure 3;
Figure 9: shows in cross-section two coupled side members of the storage device of Figure 3.

[0014] Figure 1A shows a sample fan 1 according to the invention, which is shown in plan view in Figure 2. The separate parts are shown in Figure 1B. The sample fan 1 comprises a stack 2 of sample leaves 3 showing a range of samples 4. Each of the rectangular leaves 3 comprises a hole 5 near the centre of one of its short sides. With these holes 5 aligned, a hollow cylindrical pin or bush 6 having an outer diameter smaller than the inner diameter of the holes 5 is pushed through the holes 5. At one side the pin 6 comprises a flange 7 having an outer diameter larger than the diameter of the holes 5. The sample fan 1 further comprises a C-shaped grip 8 having an open side 9 between its two outer ends 10. The open end 9 is slightly shorter than the length of the pin 6. Both outer ends 10 of the C-shaped grip 8 have a protrusion 11. The protrusions 11 have a diameter which allows them to be inserted into the hollow inner side of the pin 6. The C-shaped grip 8 is made of a flexible material. The outer ends 10 can be moved apart by exerting a force. Subsequently, the pin can be introduced between the protrusions 11, which will enter the hollow inner side of the pin 6 after relaxation of the C-shaped grip 8. As a result the C-shaped grip 8 holds the pin 6 and encloses the leaves 3 held together by the pin 6.

[0015] When an update of the sample collection in the sample fan 1 is needed, the outer ends 10 of the C-shaped grip 8 are moved apart again. The protrusions 11 are taken out of the hollow pin 6, and the pin 6 itself can be taken away from the grip 8. Obsolete leaves can be removed from the stack 2 and new leaves can be added. After that, the C-shaped grip 8 can be coupled to the pin 6 again in the above-described way.

[0016] The C-shaped grip 8 is wider than the stack of leaves 2. Thus the sample fan 1 can be stored in a storage device having supporting edges on which either the outer ends 10 of the C-shaped grip 8 or the outer ends of the pin 6 can rest, with the stack of leaves 2 hanging down. A specific embodiment of such a storage device is shown in Figure 3 with reference number 12.

[0017] The storage device 12 of Figure 3 consists of a rack comprising a number of parallel supports 13 and two sides 14. The sides 14 consist of a number of side members 15 joined together. Figures 4, 5, and 6 show an embodiment suitable for storing one row of sample fans 1. This embodiment comprises two parallel supports 13 having flanged edges 16. The sides 14 of this embodiment shown in Figure 4 each consist of a single side member 15. The side members 15 consist of a profiled plate, showing a recess 17. On both sides of the recess 17 the side members comprise a lip 18 extending over substantially the length of the side member 15. The lip 18 points in the direction of the recess 17. The distance between the lip 18 and the recess 17 is such that the flanged edges 16 of the supports 13 fit between them and can be slid into the slot between the lip 18 and the recess 17. This way, two opposite supports 13 can be coupled to two side members 15.

[0018] As can be seen in Figure 3, the grips 8 can be provided with labels 19.

[0019] The bottom edges 20 of the supports 13 are folded twice, making a Z-profile with substantially right angles. The width of the folded section 21 of each support 13 is half the distance between the supports 13 after these are coupled to the side members 15. This way, the folded sections 21 of two adjacent supports 13 together form a bottom 22.

[0020] The top edges 23 of the supports 13 are comb-shaped and have alternating V-shaped, equidistant teeth 24 and gaps 25. The gaps 25 have a width sufficient to receive the outer ends of a grip 8 coupled to the pin 6 of a sample fan 1.

[0021] The side members 15 have two profiled side edges 26, 27. The side edge 26 comprises lips 28 which can be slid or clicked into the corresponding recesses 29 in the side edge 27 to form a releasable joint 30. This can be seen for instance in Figure 7, which shows an extended version of the storage device of Figure 5, comprising four rows for storing sample fans. In the drawing, all rows are completely filled with sample fans 1.

[0022] Due to its modular construction, the storage device can be easily extended to any desired size.

[0023] Figure 8 shows in detail and in cross-section a side member 15 coupled to two opposite supports 13. The flanged edges 16 comprise a slight bulge 31, about halfway along their length. When the flanged edge 16 is introduced into the slot between the recess 17 and the lip 18, the bulge 31 fits into an opening 32 in a corresponding position in the side member 15 to secure the position of the support 13 in relation to the side member 15 in a releasable manner.

[0024] Figure 9 shows in cross-section two coupled side members15. Here too, the outer edge 26 has a slight bulge 33, about halfway along its length, which coincides with an opening 34 in the opposite outer edge 27 of the adjacent side member 15.

Claims

1. A sample fan (1), e.g., a colour fan, comprising a stack (2) of sample leaves (3) with a hole in each leaf, and a pin (7) inserted through these aligned holes (5), characterized in that the pin (6) is connected to a grip (8) set apart from the leaves (3) in their plane of rotation, leaving the leaves (3) free to rotate over a rotation angle.

2. A sample fan according to claim 1, characterized in that the outer ends of the pin (6) are connected to, preferably capped by, a C-shaped grip (8).

3. A sample fan according to either of the preceding claims, characterized in that each leaf (3) is rectangular with a hole (5) near the centre of one of its shorter sides.

4. A sample fan according to any one of the preceding claims, characterized in that the C-shaped grip (8) is made of a flexible material and the C-shaped grip (8) and the outer ends of the pin (6) are coupled by means of a form fit.

5. A sample fan according to any one of the preceding claims, characterized in that the outer ends of the C-shaped grip (10) comprise protrusions (11) fitting into the open ends of the pin.

6. A sample fan according to any one of the preceding claims, characterized in that the pin is a hollow bush, one of the outer ends being flanged with an outer diameter being larger than the diameter of the holes in the leaves.

7. A storage device (12) for the storage of one or more sample fans (1), each sample fan (1) comprising a stack (2) of sample leaves (3) with a hole in each leaf and a pin (6) inserted through these aligned holes (5), the storage device (12) comprising at least two supports (13) with a space between them of more than the thickness of the stack (2) of sample leaves but less than the thickness of the sample fans (1) at or near the position of the pin (6).

8. A storage device according to claim 7, characterized in that the supports (13) have a comb-shaped top edge (23) with teeth (24) and gaps (25), preferably V-shaped and equidistant, the gaps (25) having a width sufficient to receive the outer ends of either the pin (6) or a grip (8) coupled to the pin.

9. A storage device according to claim 8 or 7, characterized in that the storage device (12) further comprises supports or sides (14) having at least two substantially parallel slots or notches suitable to receive straight outer edges (16) on either side of the comb-shaped top edge of the support (13), the distance between each slot and an adjacent slot in the support corresponding to the width of the open side of the C-shaped grip.

FIG. 1A

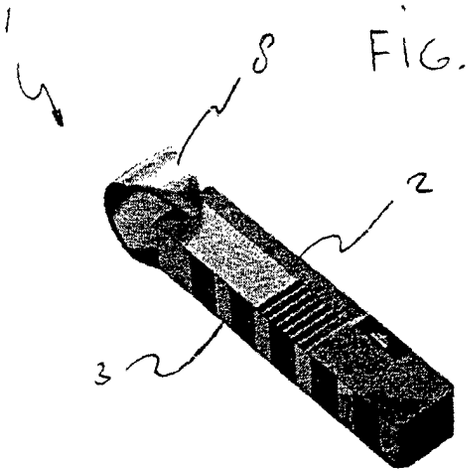


FIG. 1B

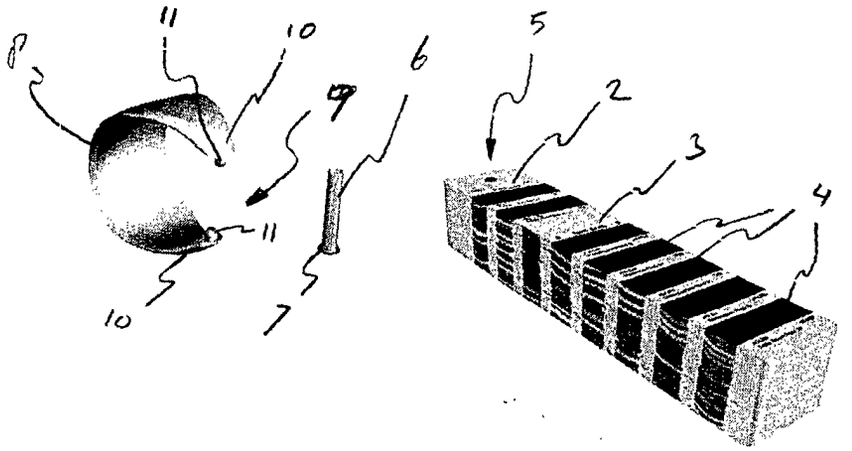
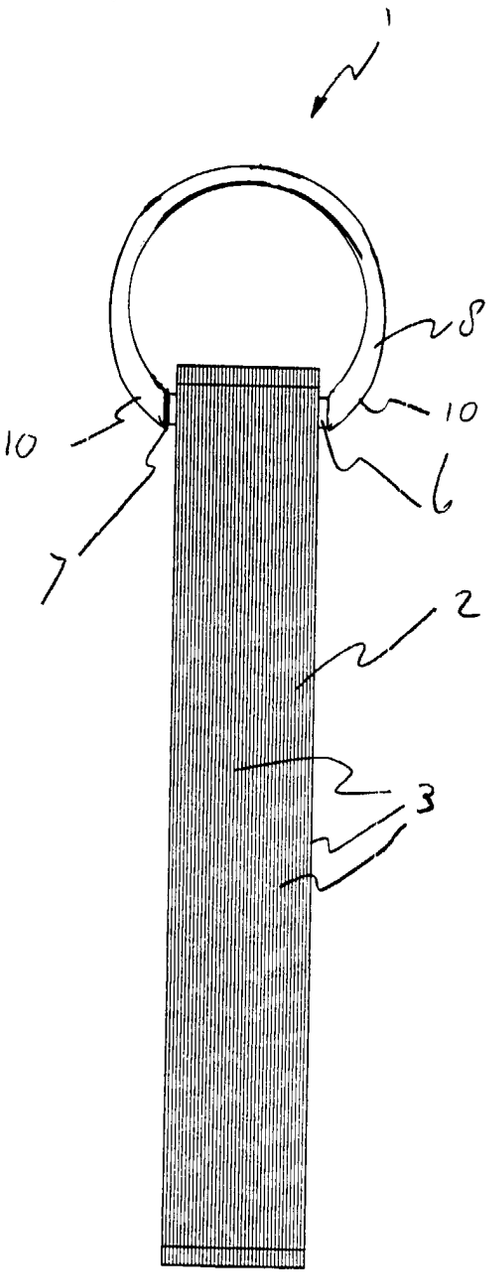


FIG. 2



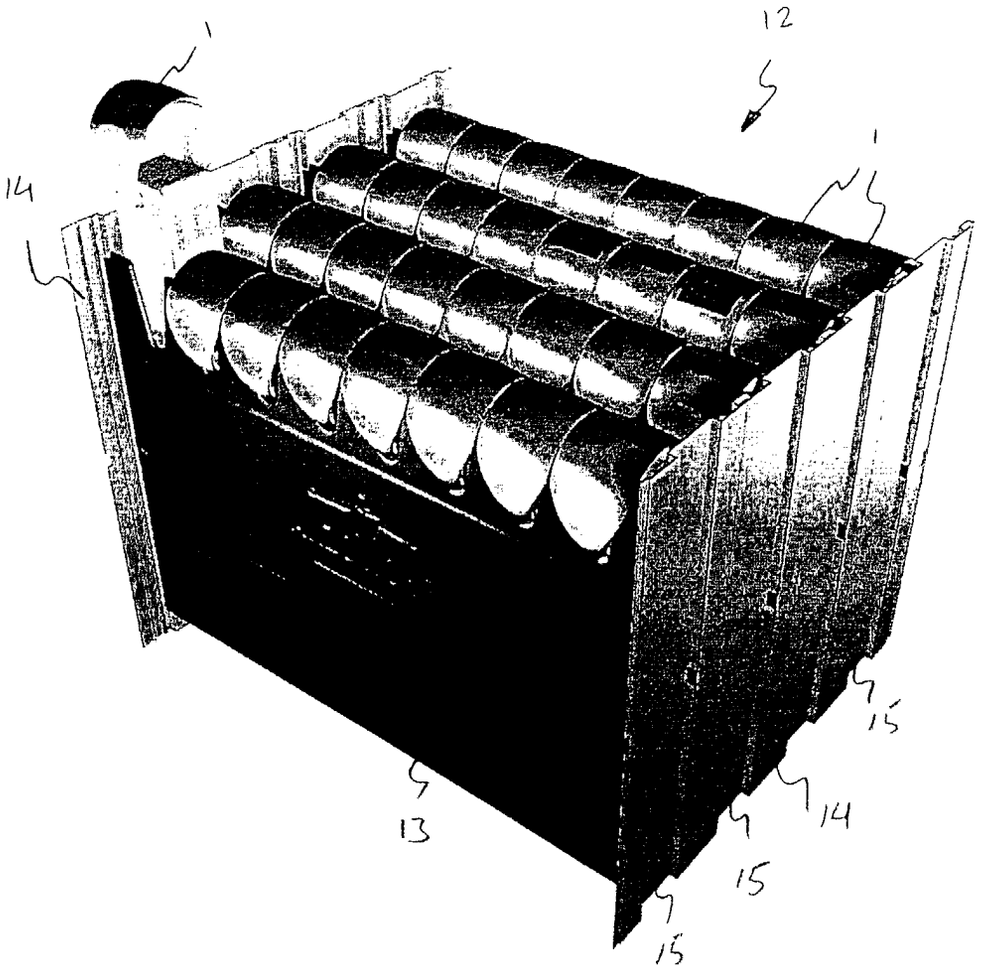


FIG. 3

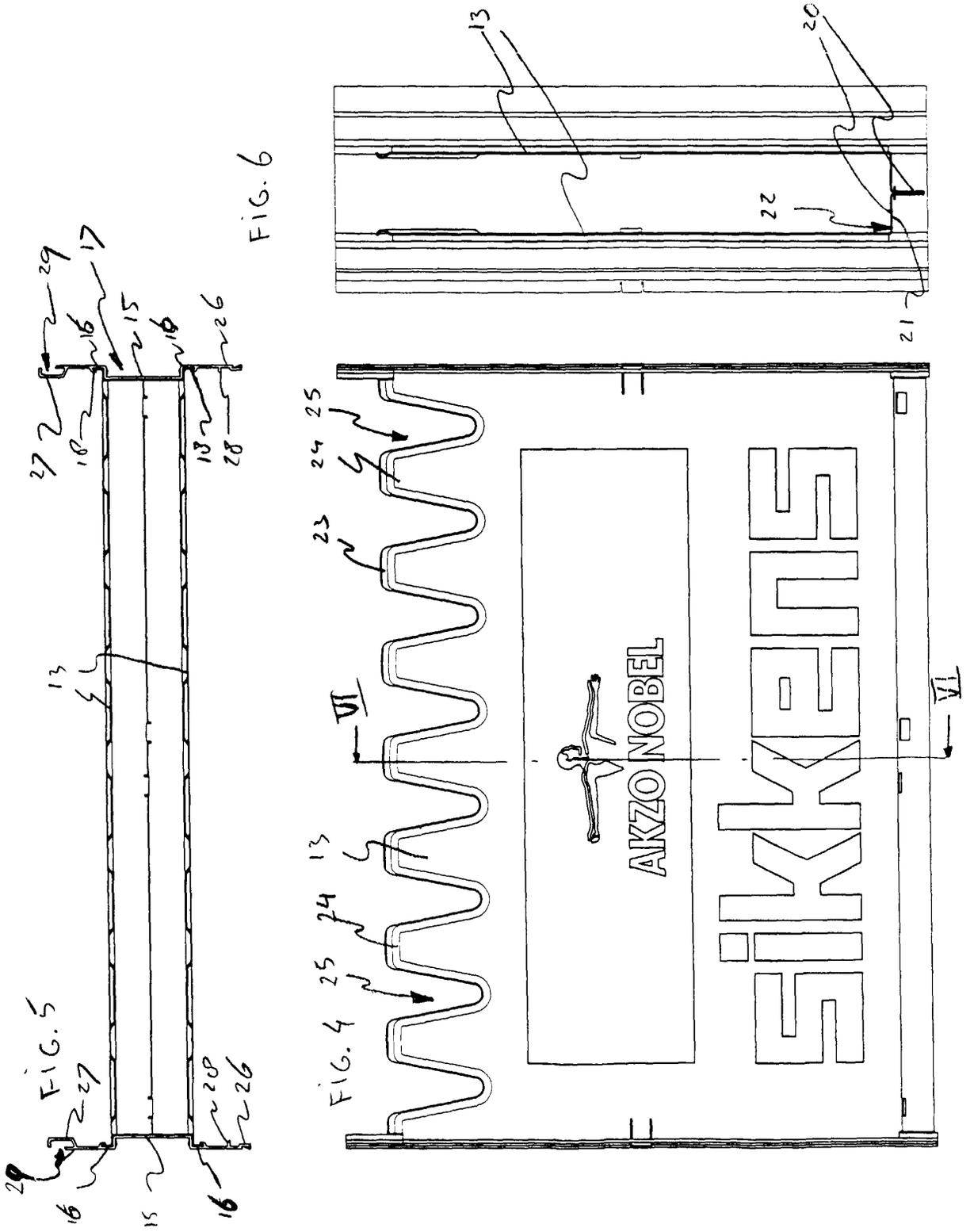


FIG. 4

FIG. 6

FIG. 5

FIG. 7

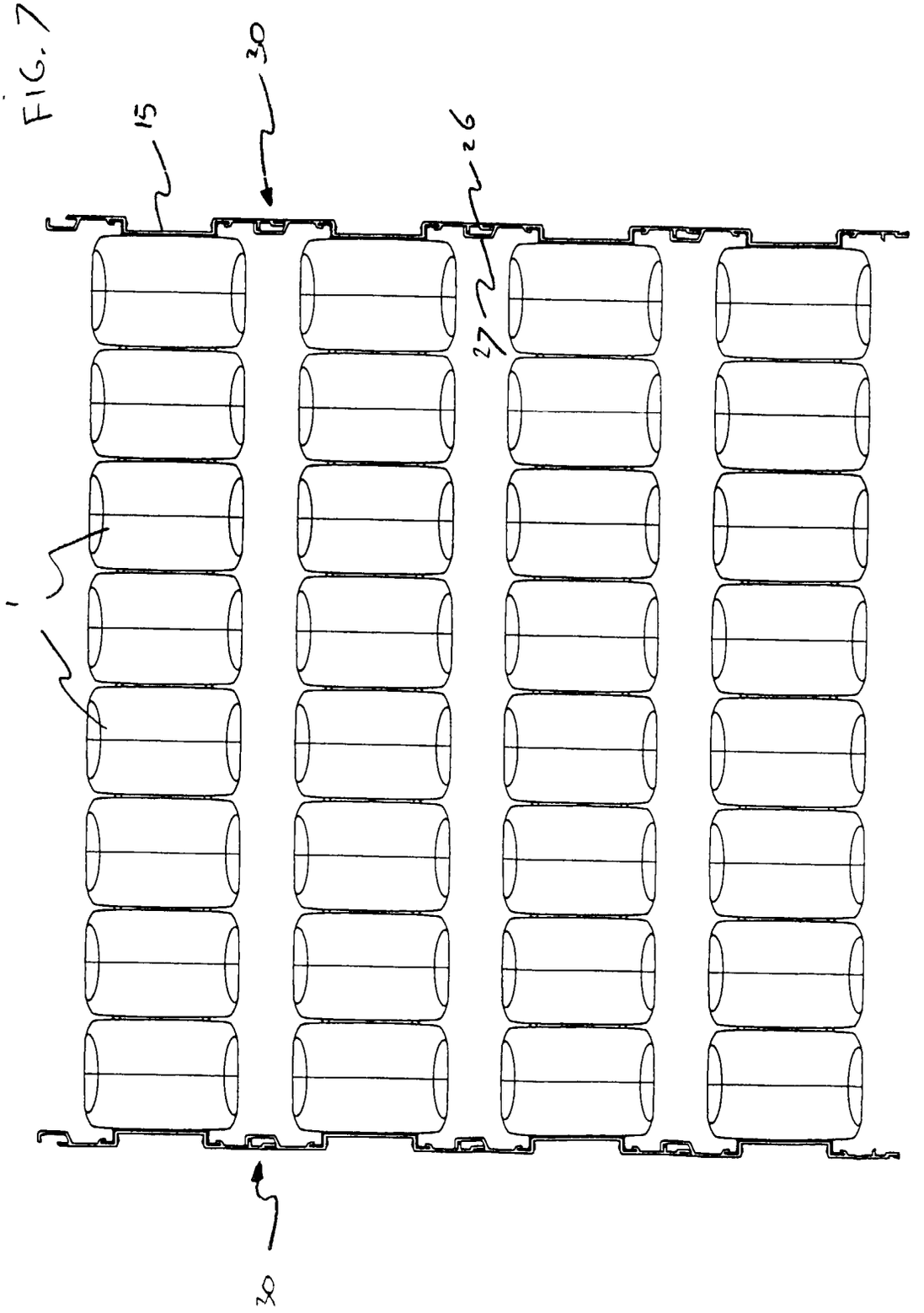


FIG. 8

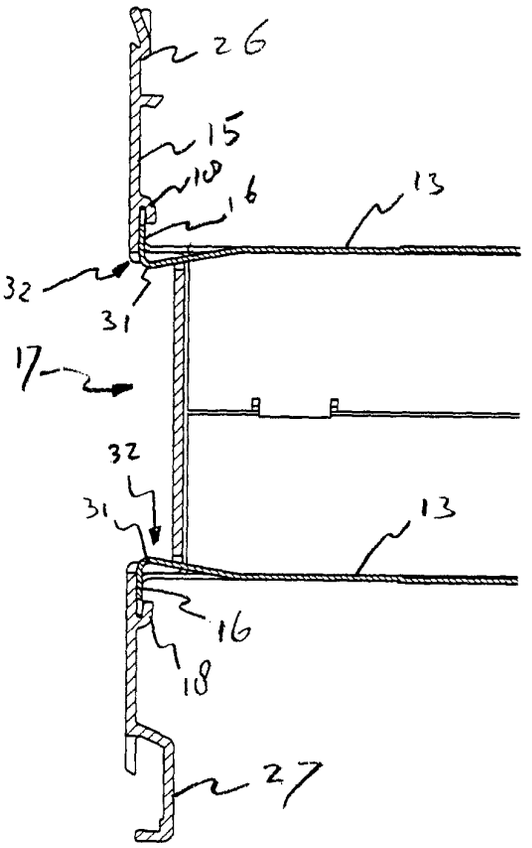
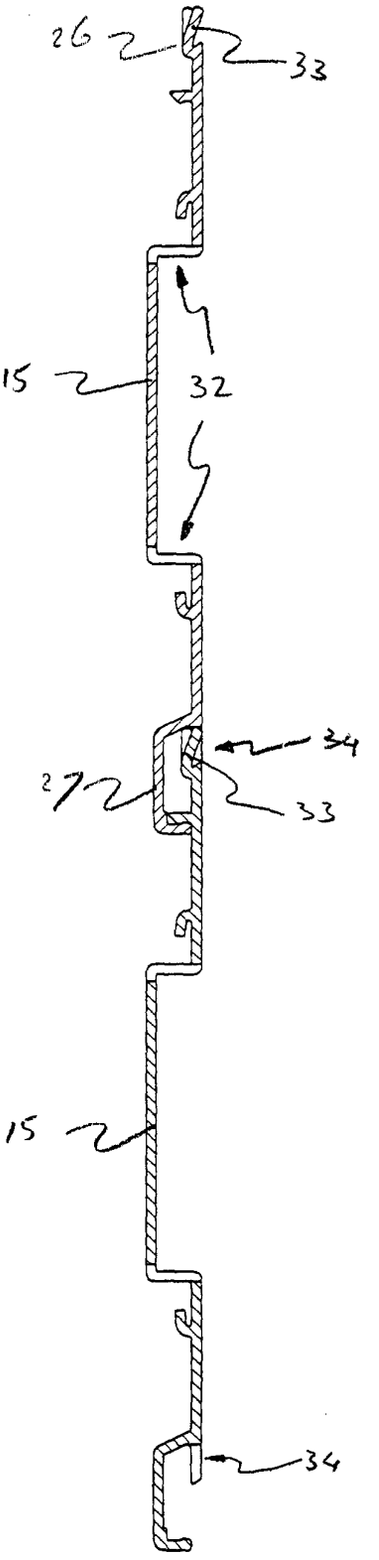


FIG. 9



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EUROPEAN SEARCH REPORT

Application Number
EP 99 20 4332

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
Y	US 4 104 809 A (DAY, GARBARK) 8 August 1978 (1978-08-08)	1	B42F3/04 G09F5/04
A	* column 2, line 3 - column 4, line 14; figures 1-3 *	7	
Y	US 1 363 709 A (BERNIER) 28 December 1920 (1920-12-28) * page 1, line 30 - line 71; figures 1-6 *	1	
A	US 4 377 232 A (REISS) 22 March 1983 (1983-03-22) * column 1, line 44 - column 2, line 29; figures 1-7 *	7	

TECHNICAL FIELDS SEARCHED (Int.Cl.7)
B42F G09F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	16 May 2000	Evans, A

CATEGORY OF CITED DOCUMENTS

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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
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16-05-2000

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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US 1363709 A	28-12-1920	NONE	
US 4377232 A	22-03-1983	NONE	

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