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### (54) Disposable refrigerated display

(57) Refrigerated display comprising an air cooling unit mounted on a base pallet and a display box, characterised in that said display box consists essentially of cardboard.

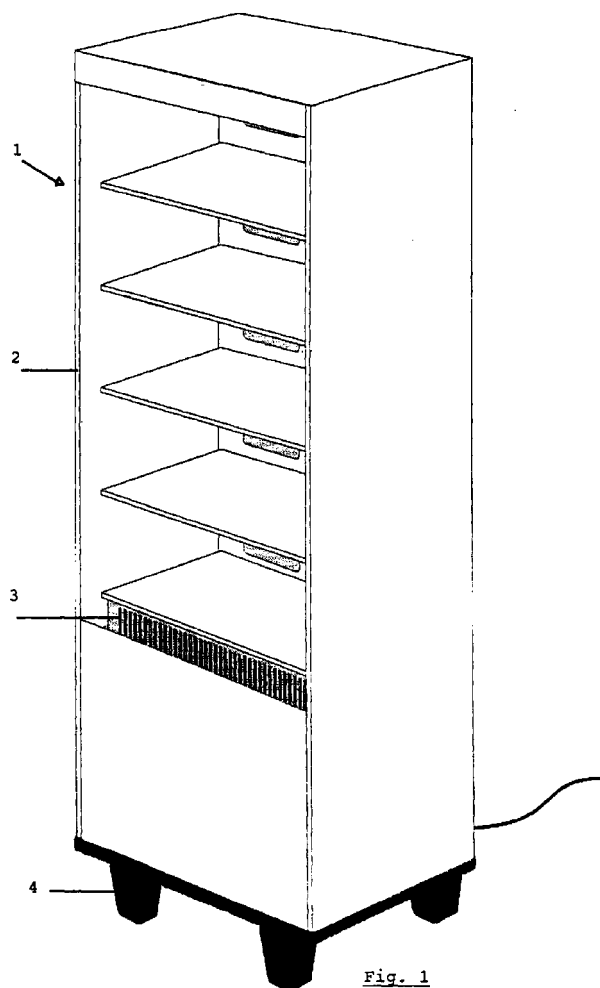


Fig. 1

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## Description

### Field of the invention

[0001] The present invention is situated in the field of cardboard displays as used in department stores. More specifically, it relates to a disposable refrigerated display to present perishables to the customers during promotional sales.

### Technological background

[0002] Products in supermarkets and department stores are basically presented in two different ways: the normal place (department and shelf) and on display. The latter is usually coupled with a promotional action, lasting usually several weeks. Displays are commonly made of cardboard, and are destroyed after completion of the promotional action. Most important advantages of cardboard are the ease of construction of the display (with pre-cut cardboard) and rigidity, the ease of impression with full-colour images, and its low cost. A promotional display sale can be very important for selling products: augmentation with 300 % of normal sales figures are no exceptions. About 70 % of buying decisions on product make level are made on the spot. In other words, if one make a product stick out of the ordinary, the product will often be bought.

[0003] Department stores and supermarkets usually demand very strict dimensioning of a display, especially regarding surface and dimensions of the ground plan. These dimension constraints are very important and have to be taken into consideration when developing displays. Technologically, this makes the design of a display more challenging.

[0004] Most products are easily displayable and can be presented to the customer on virtually any location. Exceptions to this are refrigerated, perishable products or heat-sensitive products (such as chocolate). These products are bound to fixed refrigerators. If one wishes to present refrigerated goods to the customer in a different part of the store, the alternative of movable display fridges is available. These however present problems such as high cost, need for installation in a store, the necessity of filling the display in the store, the incompatibility with or difficult adaptation to surface requirements of department stores, the fact that products are not directly accessible (in the case of display fridges with glass doors) and high cost for impression of commercial and promotional information on the fridges. In summary, due to the limited duration of a promotional action, these solutions are inefficient.

### Aims of the invention

[0005] A first aim of the present invention is to provide a low cost refrigerated display in which perishable products can be presented for a prolonged period of time (up

to several weeks). Another aim is to provide a refrigerated display that can correspond to all department store requirements and can commercially present a perishable product in an optimal way.

[0006] A further aim of the present invention is to provide a refrigerated display that may be optimised for promotional actions and that provides a minimum of logistical issues (such as filling). The refrigerated display according to the invention further needs to obey the constraints imposed by the department stores.

### General description of the present invention

[0007] The present invention concerns a refrigerated display comprising an air cooling unit mounted on a base pallet and a display box, characterised in that said display box consists essentially of cardboard.

[0008] In a preferred embodiment, said refrigerated display is further characterised in that the display box comprises at least an inner backside panel and an outer backside panel, said inner and outer backside panel being spaced apart from each other to form an inter-wall space. The air cooling unit preferably comprises a ventilator able to blow chilled air emerging from the cooling unit into the inter-wall space. The inner backside panel preferably comprises diffuser holes through which air can be blown towards the inside of the display box. It can further comprise a top space formed by an external top panel and an internal top panel and said top space being in connection with the inter-wall space. Advantageously, said external top panel comprises a flap able to deflect an air current emerging from the top space. Said flap is preferably placed essentially vertical (with respect to the floor on which the display is directly or indirectly placed) and the air current is deflected downward (to the floor), so that a downward air flow is created. Said air current is a chilled air current.

[0009] Preferably, in the refrigerated display the display box comprises shelves or nets to place the products on or in.

[0010] On the display box, messages and/or drawings can be printed. This is useful to attract the customer's attention to the display and to the products inside.

[0011] This invention concerns also a method for assembling a refrigerated display comprising an air cooling unit mounted on a base pallet and a display box, comprising the following steps:

- assembling said display box, and
- placing said display box on said base pallet. Said display box is preferably essentially made of cardboard. Said display box can be filled with refrigerated goods before or after it is placed on said pallet.

[0012] The method can further comprise a disassembling step when the display is no longer needed, wherein the display box is disposed of and the air cooling unit mounted on the base pallet can be reused for

another refrigerated display.

**[0013]** The invention will be further clarified using examples and figures, which are non-limiting to the scope of the present invention.

Short description of the figures:

**[0014]**

Figure 1 describes a refrigerated display according to the present invention.

Figure 2 describes a refrigerated display according to the present invention, in which the cardboard construction is partly broken away to reveal its construction.

Figure 3 describes a refrigerated display according to the present invention, in which the cardboard construction is partly broken away to reveal its construction and in which the flows of cold and room-temperature air are indicated.

Figures 4 to 13 describe the layout of the cardboard pieces that can be combined to the cardboard construction according to the present invention. Respectively, an external and internal backside panel, a front panel, an external and internal top panel, an air diffuser, a left and right side panel, and a shelf construction panel and shelf plate.

**Detailed description of the present invention**

**[0015]** In figure 1, a refrigerated display 1 comprises a base pallet 4 on which the cooling element 3 is mounted. The cardboard construction 2 is placed on the pallet 4 to form a refrigerated display.

**[0016]** A more detailed view is disclosed in figure 2. The refrigerated display according to the invention comprises preferably several shelves 5 on which the products can be ranged. The amount of shelves is determined by the product type and dimensions. Nets can be used instead of rigid shelves to contain the displayed products. The cooling element takes in air at inlet openings 6 and cools it down to a pre-set temperature. The cold air is then blown via outlet openings 7 into the inter-wall space 11 formed by the internal 12 and external backside wall 13. The cold air can reach the products on the shelves 5 through diffuser holes 8. The remainder of the cold air will reach the top space 9 and will be guided downward by means of flap 14. This results in a cold barrier, shielding of the products from intruding warm (room temperature) air. A part of the cold air can be recycled by the inlet openings 6, resulting in more efficient cooling.

**[0017]** Figure 3 shows the flows of cool air within the refrigerated display 1. All the cool air is blown upward (22) and is horizontally (parallel with the floor on which the display is placed) distributed (20) between the shelves. Cold air (24) also reaches the top space and is directed downward (to the floor) to create the cold bar-

rier formed by the downward cold air flow (21). Room temperature air (23) can not be introduced significantly into the display, since it is pulled downward by the downward cold air flow (21) and will be drawn in by the cooling element for recycling a part of the cold air. The downward cold air flow 21 also draws down the air that is present on the shelves. This results in a good refresh rate of the air that cools the products, since new cold air (20) is drawn in.

**[0018]** The cardboard display 2 can be built by using the cardboard profiles as described on figures 4 to 13. Firstly, all profiles are folded along the dotted lines. The construction itself is self-explanatory: the internal walls of the display are formed by the internal backside panel (fig 5), the internal top panel (fig 8) and the internal flaps 30 of the left (fig 10) and right (fig 11) side panels. The external walls are formed by the external backside panel (fig 4), the front panel (fig 6), the external flaps 31 of the left (fig 10) and right (fig 11) side panels and the external top panel (fig 7) preferably comprising the flap 14. The panels are preferably glued or stapled together to form the display. The shelves can be mounted by combining the shelf plate (fig 13) and the shelf construction panel (fig 12). The resulting shelf element can be fixed into the display by inserting the backside fastening lips 33 into the backside fastening openings 32. The side lips 35 can be fastened to the side panels through the side lips fastening openings 34.

**[0019]** The cardboard used to make a display according to the invention has to provide enough rigidity to obtain a usable display. This is especially important for the shelf profiles, since these carry the products. Of course the necessary rigidity depends on the weight of the products to be displayed.

**[0020]** Further, the cardboard profiles are preferably printed with commercial messages and/or pictures or are printed or painted in a striking colour to attract the attention of the customer.

**[0021]** The displays can be constructed and filled at any location. They can be kept in chilled rooms and moved by refrigerated transport to the location of the sale on the moment the promotional action starts. The further assembly to form a working refrigerated display is known.

**[0022]** The base pallet 4, preferably having dimensions according to the demands and instruction of the department store, are combined with the cooling element 3. The latter is mounted at a certain height, leaving underneath it a space 10 where the refrigerator engine and the engine cooler are mounted. This space 10 is preferably withdrawn from the customer's eye by front and side panels. There can be an opening in the back panel at the height of the space 10 to allow enough air circulation to cool down the refrigerator engine. Circulation openings 15 to provide the same function can be cut in the side panels.

**[0023]** The complete refrigerated display can now be mounted in situ by placing the cardboard (2) display

onto the base pallet

**[0024]** In a preferred embodiment, the base plan is adapted to the requirements of a department store or a supermarket chain. This will depend on the store and on the country where the store is. The Belgian stores require base plans of 80x120, 80x60 or 40x60 cm. The smallest format is most in demand, due to the limited available space in shops.

**[0025]** For application in refrigerating displays, a special cooling unit was devised to comply with the form requirements. A cooling unit can be constructed with a condensing unit (e.g. L'Unité Hermetique CAJ 9460, which is a two-cylinder electric engine of 0.5 HP), connected to an evaporator (e.g. GLACIAL) with an inter-lamellar distance of 5 mm and a crosscurrentventilator (e.g. COPREI ST 180) directly blowing into the inter-wall space 11. Further, it preferably comprises an evaporation thermostat to adjust the evaporation temperature and a pressostat to protect the compressor. In this configuration, the compressor has a cooling capacity of 800 watts at an evaporation temperature of -10°C and a condensation temperature of 40°C. Preferably, said thermostat is hidden and thus only accessible for authorised personnel.

#### Claims

1. Refrigerated display comprising an air cooling unit mounted on a base pallet and a display box, characterised in that said display box consists essentially of cardboard.
2. Refrigerated display as in claim 1, characterised in that the display box comprises at least an inner backside panel and an outer backside panel, said inner and outer backside panel being spaced apart from each other to form an inter-wall space.
3. Refrigerated display as in claim 2, characterised in that the air cooling unit comprises a ventilator able to blow chilled air emerging from the cooling unit into the inter-wall space.
4. Refrigerated display as in claim 2 or 3, characterised in that the inner backside panel comprises diffuser holes (8) through which air can be blown towards the inside of the display box.
5. Refrigerated display as in any of the claims 2 to 4, further comprising a top space (9) formed by an external top panel and an internal top panel and said top space being in connection with the inter-wall space (11).
6. Refrigerated display as in claim 5, characterised in that the external top panel comprises a flap (14) able to deflect an air current emerging from the top space (9), said flap (14) being preferably placed essentially vertical (with respect of the floor on which said refrigerated display is directly or indirectly placed) and the air current is deflected downward, so that a downward air flow is created.
7. Refrigerated display as in claim 6, characterised in that said air current is a chilled air current.
8. Refrigerated display as in any of the preceding claims 1 to 7, characterised in that the display box comprises shelves and/or nets.
9. Method for assembling a refrigerated display comprising an air cooling unit mounted on a base pallet and a display box, comprising the following steps:
  - assembling said display box, and
  - placing said display box on said base pallet.
10. Method as in claim 9, wherein said, display box is essentially made of cardboard.
11. Method as in claim 9 or 10, further comprising the step of filling said display box with goods, said step being executed before or after the step of placing said display box on said base pallet.
12. Method as in any of the claims 9 to 11, further comprising a disassembling step when the display is no longer needed, wherein the display box is disposed of and the air cooling unit mounted on the base pallet are reused for another refrigerated display.

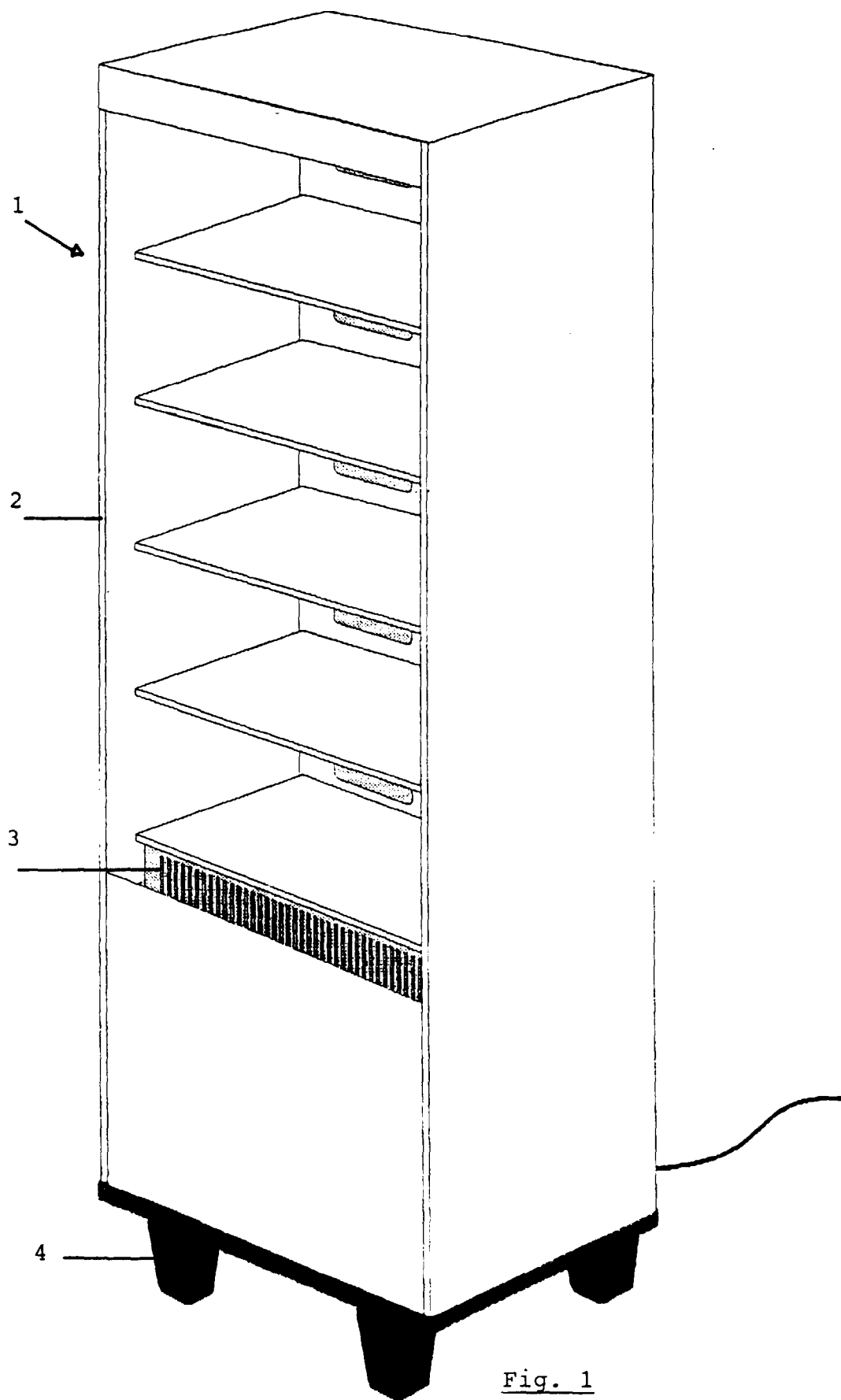
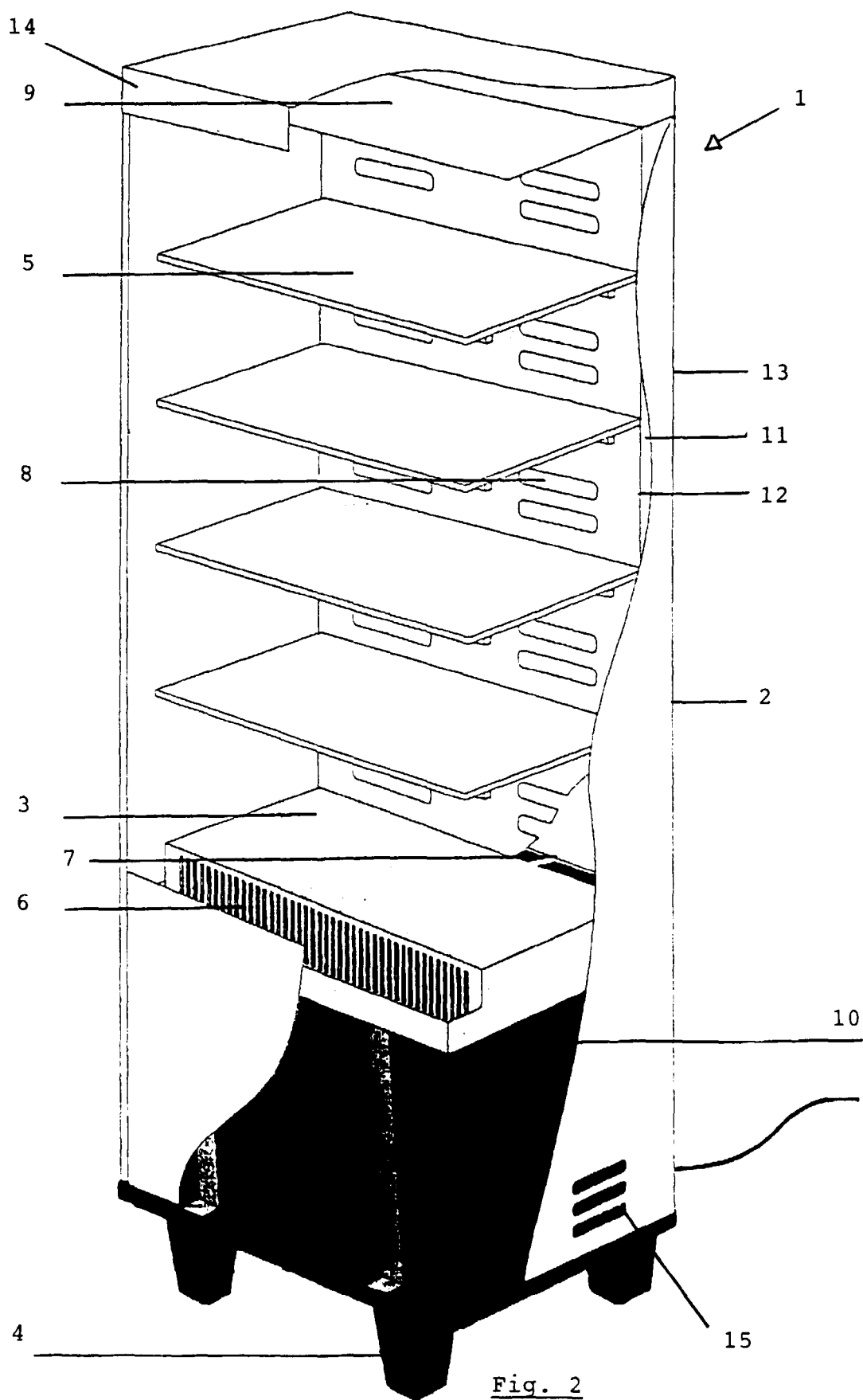


Fig. 1



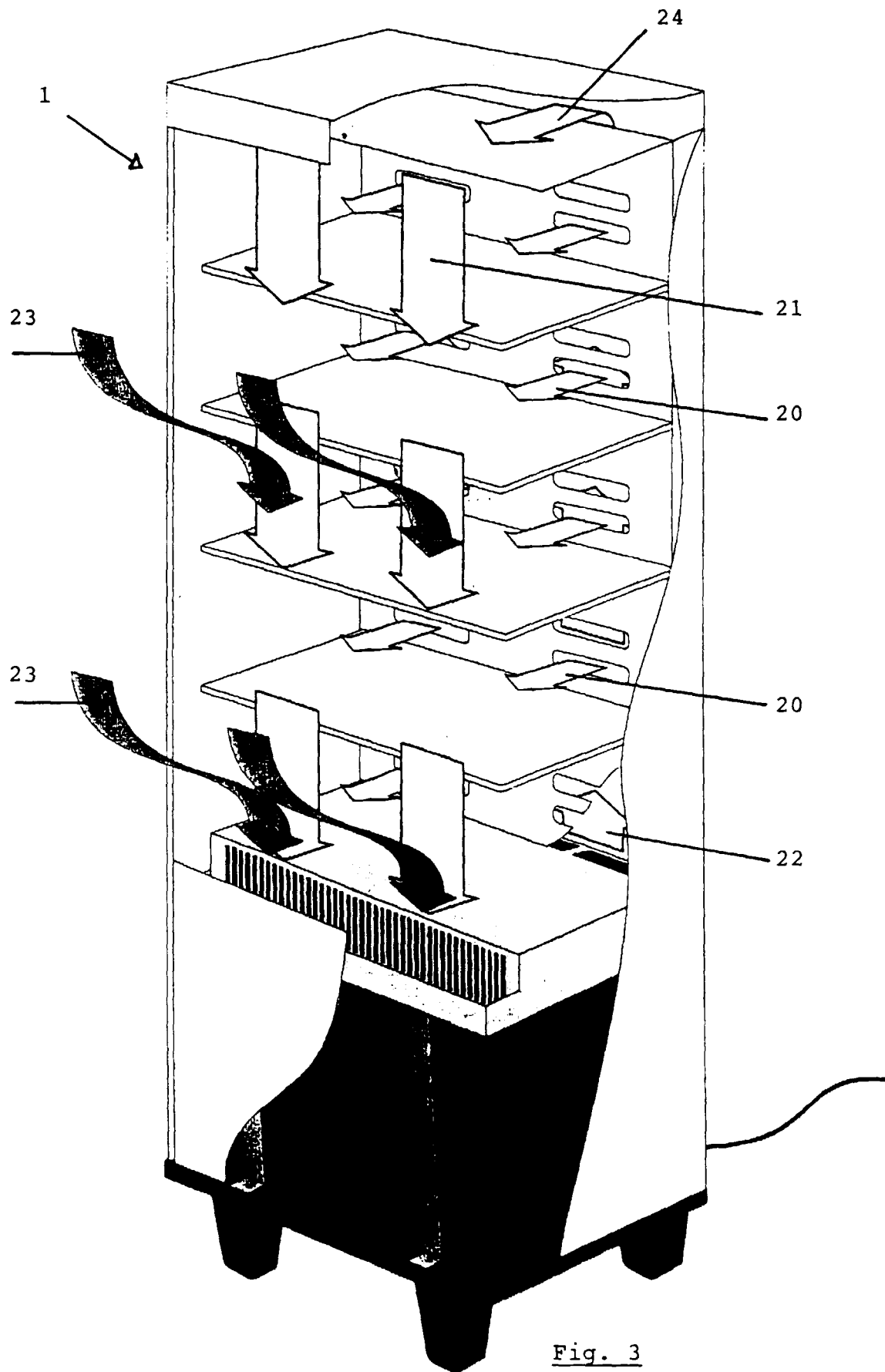


Fig. 3

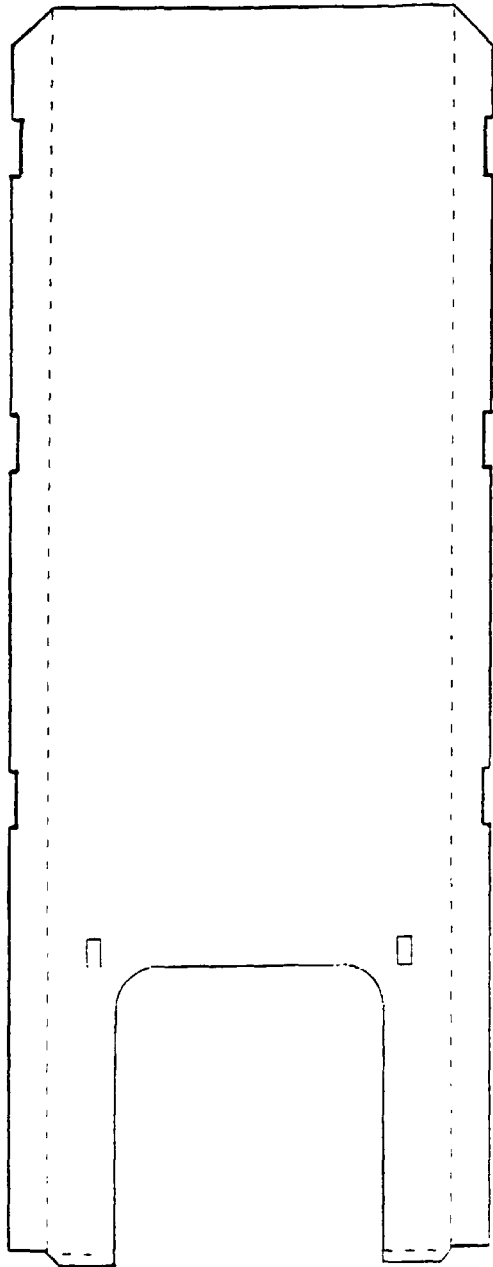


Fig. 4

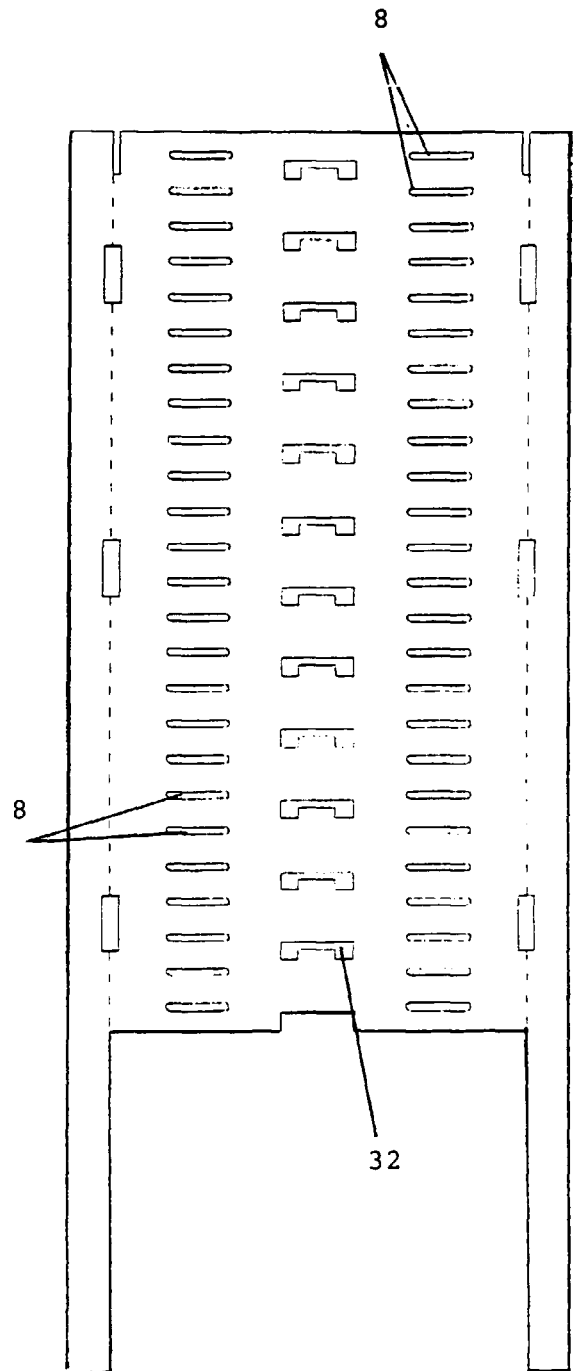


Fig. 5



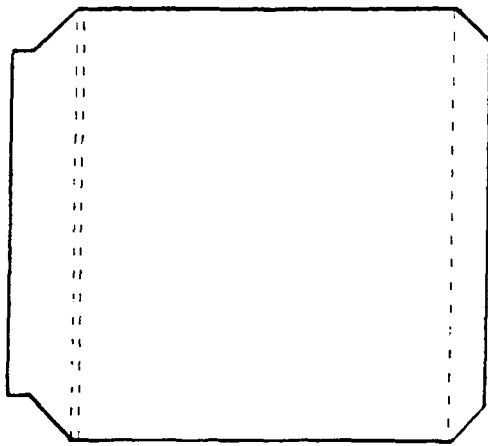


Fig. 6

14

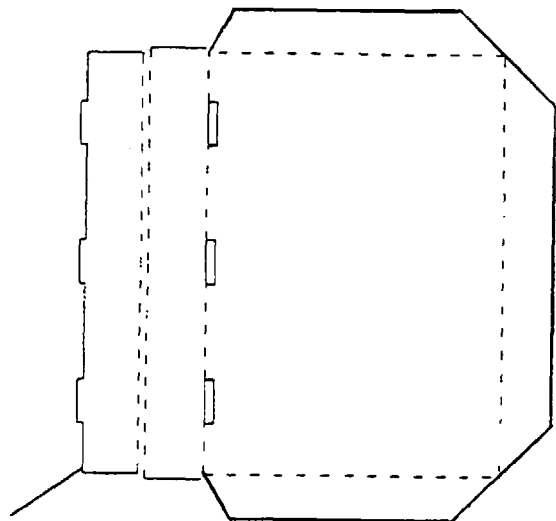


Fig. 7

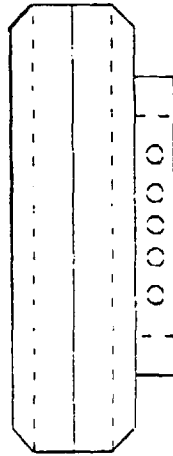


Fig. 9

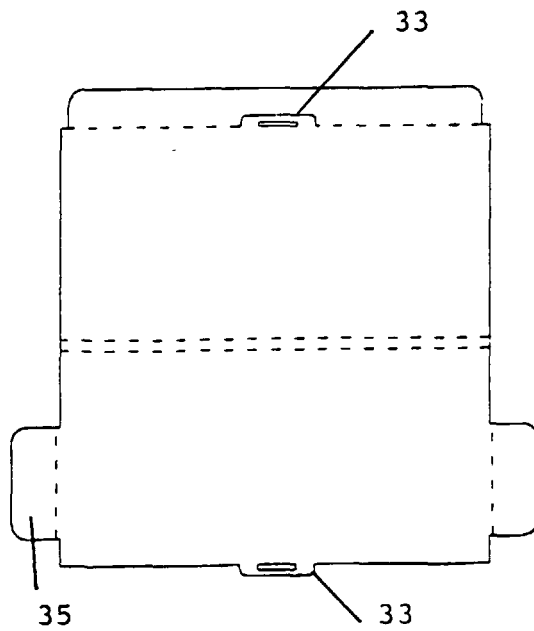


Fig. 12

Fig. 13

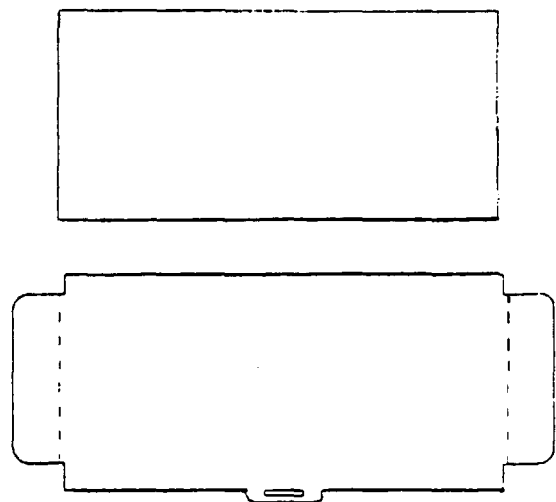


Fig. 8

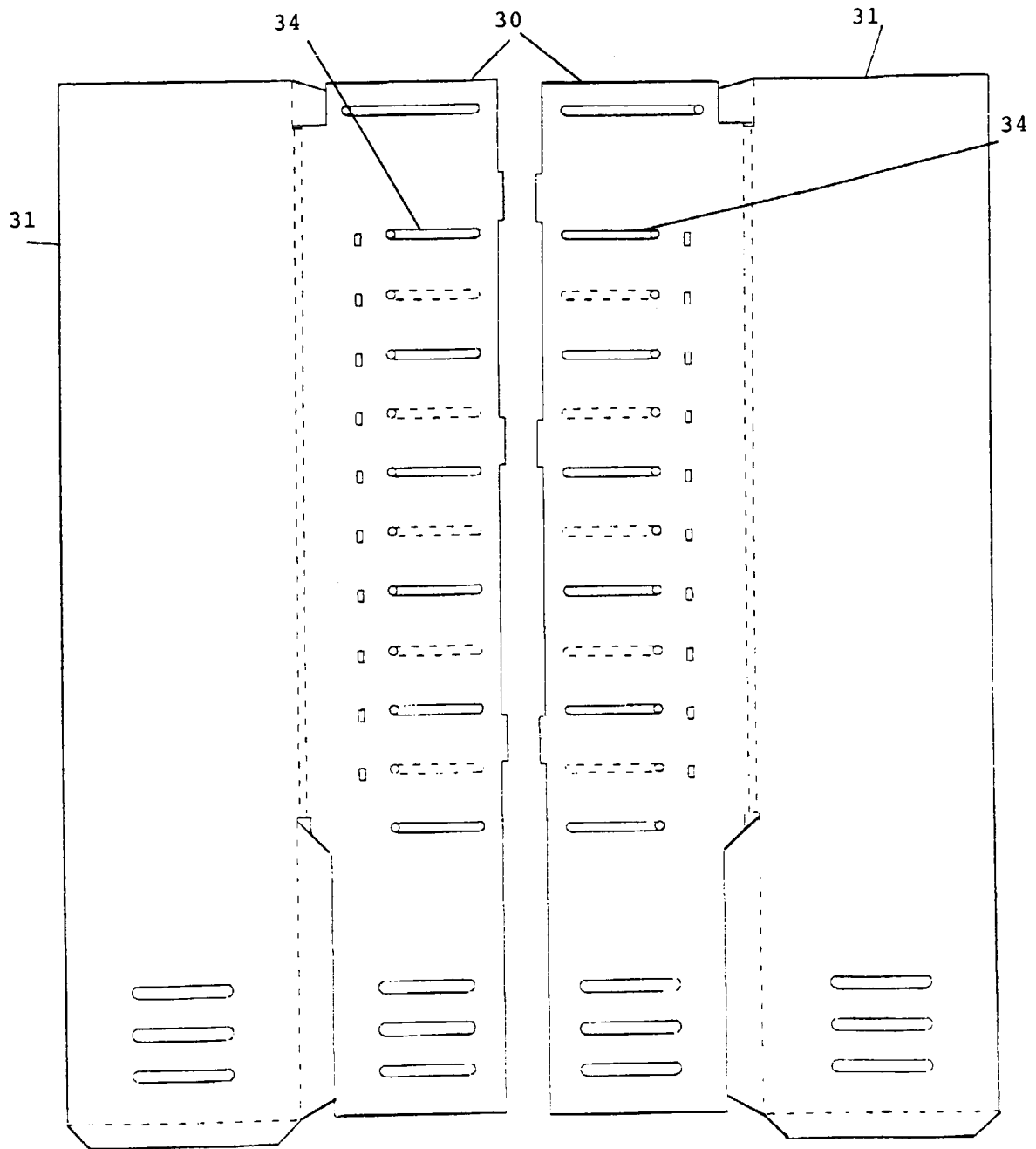


Fig. 10

Fig. 11



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# EUROPEAN SEARCH REPORT

Application Number  
EP 98 87 0168

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.6)
X	WO 95 22728 A (TRANSPHERE SYSTEMS LIMITED) 24 August 1995 * page 2, line 24 - page 3, line 7 * * page 7, line 25 - line 30; figure 15 * ---	1,9	A47F3/04 A47F5/11
X	FR 2 745 277 A (RENARD) 29 August 1997 * page 9, line 24 - page 16, line 4; figures 1,3 * ---	1-3,5-12	
X	US 5 502 979 A (RENARD) 2 April 1996 * the whole document * -----	1-5,7-12	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			A47F
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 11 January 1999	Examiner Pineau, A
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	

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

EP 98 87 0168

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11-01-1999

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9522728 A	24-08-1995	NZ 250914 A	19-12-1997
		SG 41927 A	15-08-1997
		ZA 9506752 A	20-03-1996
		AU 1720695 A	04-09-1995
		BG 100843 A	30-12-1997
		BR 9506805 A	30-09-1997
		CA 2183317 A	24-08-1995
		CN 1146239 A	26-03-1997
		EP 0742886 A	20-11-1996
		FI 963139 A	07-10-1996
		HU 75068 A	28-04-1997
		JP 9509245 T	16-09-1997
		NO 963436 A	08-10-1996
		PL 315938 A	09-12-1997
		US 5791150 A	11-08-1997
FR 2745277 A	29-08-1997	EP 0883556 A	16-12-1998
		WO 9730910 A	28-08-1997
US 5502979 A	02-04-1996	FR 2701368 A	19-08-1994
		EP 0639948 A	01-03-1995
		WO 9417698 A	18-08-1994