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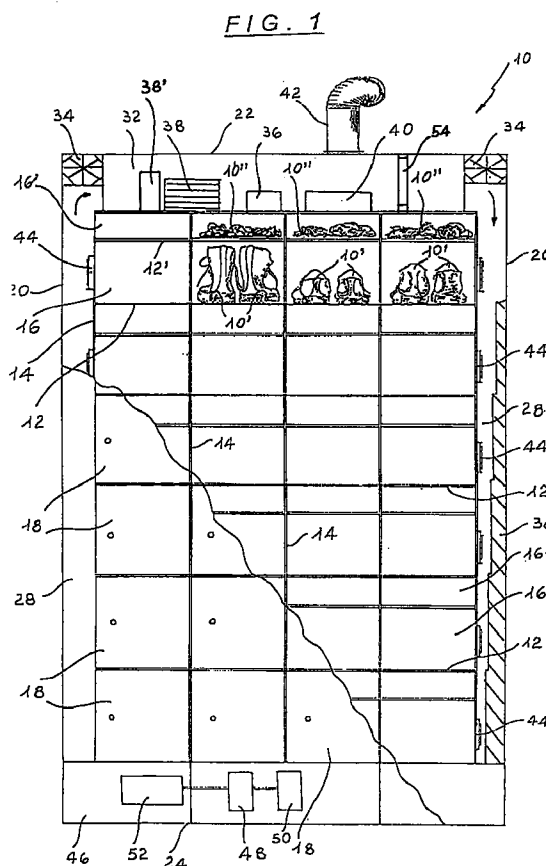
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(54) Ventilated and sanitized containercabinet

(57) A ventilated and sanitized container-cabinet (10) especially suitable for footwears (10') and other articles of clothing or accessories (10'') is formed by a loadbearing frame from sheet or other suitable materials, comprising opposite side walls (20), upper (22), lower (24) and back (26) walls, within which a plurality of spaces (16), (16') is obtained, frontally closed by doors (18), circumscribed by side shoulders (14) and horizontal shelves (12) (12'); said cabinet being basically characterised in that shoulders (14) and shelves (12') are formed by gridded panels through which an air flow is caused to pass, which flow develops along the upper and lower sides of the cabinet through corresponding air spaces (28), (32) existing between said spaces (16), (16') and walls (20), (22).



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Description

This invention relates to a ventilated and sanitized container-closet.

More particularly, this invention refers to a closet as defined above, especially suitable to contain footwears, utilizable both for domestic use and, with suitable size changes, in facilities such as gymnasiums, changing-rooms of sports grounds and the like.

As is known, the need of putting footwears back in a special closet for reasons of practicality and tidiness has often to face problems of an hygienic character, due to the use made of shoes.

Earth and mud often adhere to footwears, while humidity and sweat impregnate the exposed and inner parts; this causes the formation of bad smells and the conditions for the growth of bacteria.

Object of this invention is to obviate the aforementioned drawbacks.

More particularly, object of this invention is to realize a ventilated and sanitized container-closet, especially for footwears, suitable to allow the quick and effective drying of said footwears and to keep them in optimum conditions, to prevent the formation of bacteria, reducing substantially those that already exist.

A further object of the invention is to realize a container-closet that can prevent the diffusion in the surrounding environment of bad smells coming for the footwears put back in said closet.

A further object of the invention is to put at the disposal of users a ventilated and sanitized container-closet, utilizable for domestic use and in facilities such as gymnasiums, dressing-rooms or the like, such as to ensure a high level of resistance and reliability in the time, and also such as to be easily and economically realizable.

These and other objects are achieved by the container-closet subject matter of this invention, which contained-closed, made up by a loadbearing frame from plate or other suitable materials, comprises opposite side, top, bottom and back walls within which a plurality of spaces is obtained, frontally closed by doors, circumscribed by side shoulders and horizontal shelves, basically characterized in that the shoulders and shelves are formed by gridded panels through which an air flow is caused to pass that develops along the sides and the upper front of said closet through corresponding air spaces obtained between said spaces and the walls.

The construction and functional characteristics of the container-closet of the invention will be better clarified by the following description of a preferred non limitative embodiment of the same, made with reference to the attached drawings, wherein:

Fig. 1 shows schematically a partly sectioned front view of the container-closet of the invention;

Fig. 2 shows schematically a side view of said closet;

Fig. 3 shows schematically a perspective view of

the detail of a space of the closet;

Fig. 4 shows a block diagram which stresses the connection of the various electrically fed devices, integrated in the closet.

With starting reference to Fig. 1, the container-closet of the invention, indicated as a whole by 10, is made up by a body having, by way of example, a parallelepiped shape, obtained preferably from plate, wherein conventional horizontal shelves 12 and side shoulder 14 are located which circumscribe a plurality of spaces 16. In the preferred, non critical embodiment shown in the aforementioned drawing, each space 16 is screened on the front side by a door 18, connected to the frame of the closet and hookable to the same by already known means, such as, for instance, hinges and latches.

According to the invention, shoulders 14 which form the vertical walls of spaces 16, one of which is shown in detail in Fig. 3, are formed by gridded panels which allow air to pass, while a further panel 12' of the same type is preferably located horizontally in each of the spaces 16, to subdivide its capacity into two superposed sectors having a different width; panel 12', which forms a shelf, is located, by way of example, at about 3/4 of the height of each space 16, and circumscribes consequently an upper sector 16' having a limited height. The whole of spaces 16, 16', wherein footwears 10' or other clothing items, such as for instance socks, are advantageously put back, is perimetally circumscribed by side 20, top 22, bottom 24 and back 26 walls from plate, which form the loadbearing structure of the closet; walls 20, 22 are away from shoulders 14 and shelves 12 to form around the structure an air space suitable to allow an air flow to pass, as will be specified in the following.

Advantageously, the air space formed vertically along shoulders 14 has a differentiated section, for instance of a decreasing width from up downwards, as shown schematically in Fig. 1 with reference to a side of closet 10; the width of said air space 28 is progressively reduced by the presence of a stepped panelling 30, formed for instance from expanded material and connected to the inner front of side walls 20 by means of glueing or other suitable systems. The air space (28) for the air flow can be a ducts or race way having a decreasing width from up downwards.

A baffle plate can be pivoted on an inner wall of the air flow space (28) or duct in a zone corresponding to the first upper space (16). The baffle plate can be moved by a twist grip control means to convey, when desired, the air flow into the first upper space (16).

When the footwears are wetted, they are placed in the first upper space (16) and they are dried by a hot air flow conveyed by the baffle plate only into said first upper space; the remaining footwears placed on the underlying spaces are preserved from the hot air flow.

In the air space 32 obtained along the upper front of closet 10, circumscribed by wall 22 the means are

located that realize the ventilation, together with a sanitizing apparatus. Said means are basically formed by one or more single- or multiple velocity fans 34, activated by conventional electric motors, which realize a forced air ventilation along the whole perimetric development of the air space; the air flow is preferably heated by one or more thermoresistances 36, located near said fan. Between the latter and the resistance(s) an air purufication device 38 is advantageously provided, which is formed by a high voltage ionizing barrier, of a known type, suitable to generate a positive electrostatic fields that can markedly reduce the possible bacterial load. Alternatively or in addition to device (38) of closet (10), a germicidal lamp also of a known type may be installed, indicated by (38') in Fig. 1; said lamp is advantageously located in the air space (32) obtained along the upper front of closet (10), which also houses an activated carbon filter (54), suitable to keep smell in check. Filter (54) is supported by a conventional frame from wood, metal or other suitable materials, having a size substantially equivalent, as concerns height and depth, to the size of the air space (32), to which it is connected by means of screws or other fasteners.

According to a preferred embodiment, in the same part of the upper air space 32 an apparatus is also positioned for perfuming the air flow generated by fan or fans 34; said apparatus is advantageously formed by a drawer-like electroemanator 40 for fluid, solid or gelatinous deodorizing and/or disinfectant substances. A discharge duct 42, for instance of the bidirectional type, communicating with the outside, is preferably connected to the upper front of wall 22.

In addition to fan(s) 34 of propagation of the air flow, small backing fans 44 are alternatively provided, which are connected to shoulders 14 located close to the side walls 20 of closet 10; said fans 44, individually activable through the respective conventional motor, are connected to the external side of each end space 16, as shown in the diagram of Fig. 2.

At the base of closet 10, along the lower air space wall 46, an apparatus is advantageously provided, as a further alternative, for cleaning the footwears, which apparatus is equipped with two rotating brushes 48, 50, activated by an independent electrical motor 52; in this case, the air space 46 is higher than the side 29 and upper 32 air spaces and is screened, in correspondence of said cleaning apparatus, by the upwards tiltable front panel (not shown).

The electrical connections of the various basic components 34, 36, 38, 40 and/or 40' are indicated by way of example in the block diagram of Fig. 4; the individual or simultaneous activation of said components, whose insulation from the walls of closet 10 is obtained with known means, is realized through corresponding push-buttons or switches assembled on a panel (not shown) connected in suitable position to the front wall or to one of the side walls of said closet.

In the utilization stage, having placed footwears 10' in the individual spaces 16 of closet 10 and possible fur-

ther clothing items or accessories, such as for instance socks, on shelf 12', which circumscribes the base of the upper space 16', an air flow is formed through fan(s) 34 in said closet, which flow spreads out along the perimetric air space, in clockwise or anticlockwise direction; the air flow, heated by thermoresistance(s) 36, develops also transversally between the aligned spaces 16 thanks to shoulders 14 formed by gridded panels, and can be therefore systematically exhausted through one of the branches of the bidirectional duct 42. During the circulation, the flow of hot air dries the footwears and passes unavoidably through the ionizing barrier of device 38 and/or the germicide lamp (38'), with the ensuing drop of the bacterial load; at the same time, electroemanator 40 releases particles of deodorizing or disinfectant particles which distribute in the inside of closet 10, transported by the same flow which passes furtherly through the activated carbon filter (54).

The presence of stepped panellings 30 along the sides of the closet, which progressively reduce the section of the corresponding air spaces 28, allows to suitably balance the air flow in correspondence of the various levels of closet 10; the possible addition of the backing fans 44 in correspondence of each of said levels allows, if necessary, the ventilating effect and the ensuing acceleration of the drying of what has been put back in spaces 16, 16', while the presence of a cleaning apparatus with the rotating brushes 48, 50 completes the equipment of closet 10.

As can be inferred from the above description, the advantages achieved by the invention are obvious.

The ventilated and sanitized container-closet subject matter of this invention allows the optimum drying of shoes, socks or possible further clothing items or accessories, and prevents the development of bacteria, reducing the count of those that unavoidably exist.

Anyhow, the invention, as described hereabove and claimed hereafter has only been proposed by way of example, being understood that the same is susceptible of many modifications and variants, all of which fall however within the scope of the invention concept.

For instance, the closet might be provided with partitions or air flow deflectors along parts of the perimetric air spaces, or filters or apparatuses for the concentration of said flow at differentiated temperatures in correspondence of one or more levels.

While the container-closet subject matter of the invention has been proposed in particular for a domestic use, the same may be utilized, with suitable size changes, also in other facilities, for instance in the dressing-rooms of gymnasiums and sports grounds.

Besides, the spaces, of any shape and size, might be screened by one only door or by doors that close a whole line, in either the horizontal or the vertical direction.

Lastly, also possible structural inversions or alternative locations of the components or parts which on the whole form the container-closet subject matter of the invention are possible.

Claims

1. A ventilated and sanitized container-closet (10) especially for footwears (10') or other clothing items or accessories (10''), formed by a loadbearing frame from plate or other suitable materials, comprising opposite side (20), top (22), bottom (24) and back (26) walls, within which a plurality of spaces (16), (16') is obtained, frontally closed by doors (18), circumscribed by side shoulders (14) and horizontal shelves (12), (12'), characterized in that shoulders (14) and shelves (12') are formed by gridded panels through which an air flow is caused to pass which develops along the upper and side walls of said closet through corresponding air spaces (28), (32) obtained between said spaces (16), (16') and walls (20), (22). 5
2. The container-closet according to claim 1, characterized in that said air flow is realized by one or more motor-fans (34), located in correspondence of the upper part (32) of the air space under the top wall (44), and is heated by at least an adjoining thermoresistance (36). 10
3. The container-closet according to the preceding claims, characterized in that it has, between said fan(s) (34) and the thermoresistance (36), a device (38) for the purification of the air flow, constituted by a high voltage ionizing barrier and/or a germicide lamp (38'). 15
4. The container-closet according to the preceding claims, characterized in that it has, near said fan(s) (34), an electroemanator (40) for liquid, solid or gelatinous deodorizing substances and or disinfectants and an activated carbon filter (54). 20
5. The container-closet according to the preceding claims, characterized in that a bidirectional exhaust duct (42) is connected with wall (22), which duct communicates with the outside and with the upper part (32) of the air space. 25
6. The container-closet according to one or more of the preceding claims, characterized in that the vertically developed portions of air space (28) have a differentiated section decreasing progressively for up to downwards. 30
7. The container-closet according to one or more of the preceding claims, characterized in that it has one or more backing fans (44) integral with each of the side walls (16) located close to the air space (28). 35
8. The container-closet according to one or more of the preceding claims, characterized in that it is provided, along the lower part of air space (46), with a cleaning apparatus equipped with a couple of rotating brushes (48), (50), which apparatus is activated by an independent electrical motor (52) and screened by an upwards tiltable panel. 40
9. The container-closet according to one or more of the preceding claims, characterized in that at least fan(s) (34), thermoresistance(s) (36), device (38) completing the ionizing barrier and the electroemanator (40) are connected to a control panel with switch(es) and/or pushbuttons, integral with the front or one of the sides of said closet. 45
10. The ventilated and sanitized container-closet according to anyone of the preceding claims, wherein a baffle plate is pivoted on an inner wall of the air flow space (28) in a zone corresponding to the first upper space (16); a twist grip control means moving the baffle plate to convey the air flow into the first upper space (16).- 50

FIG. 1

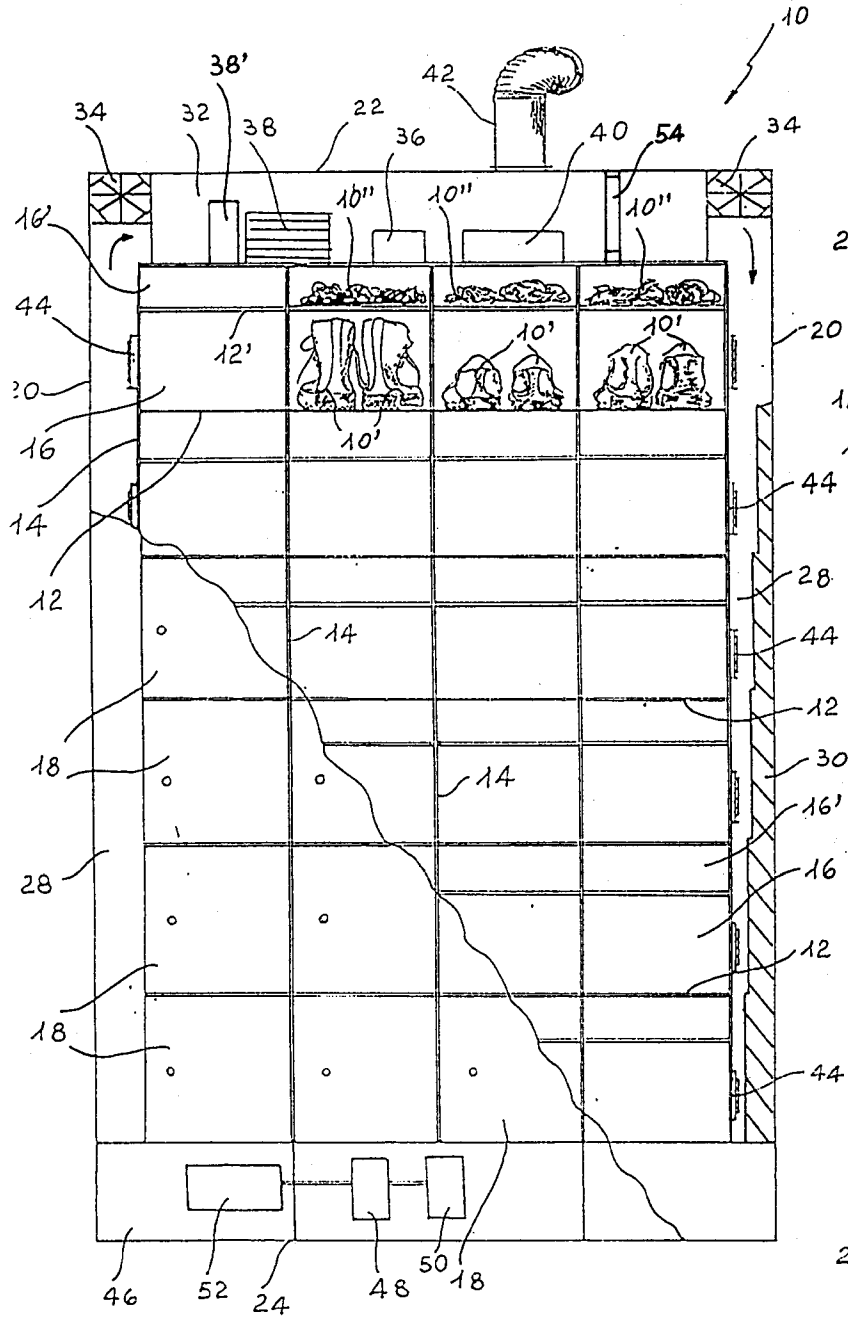


FIG. 2

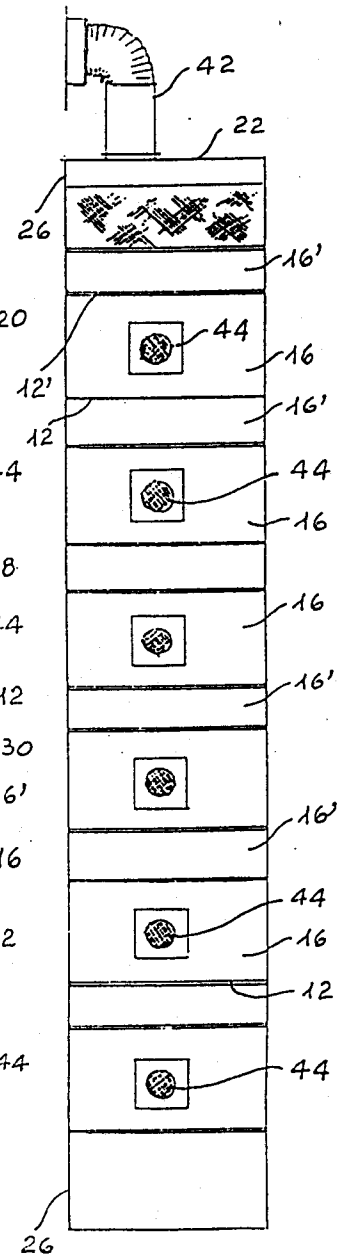


FIG. 3

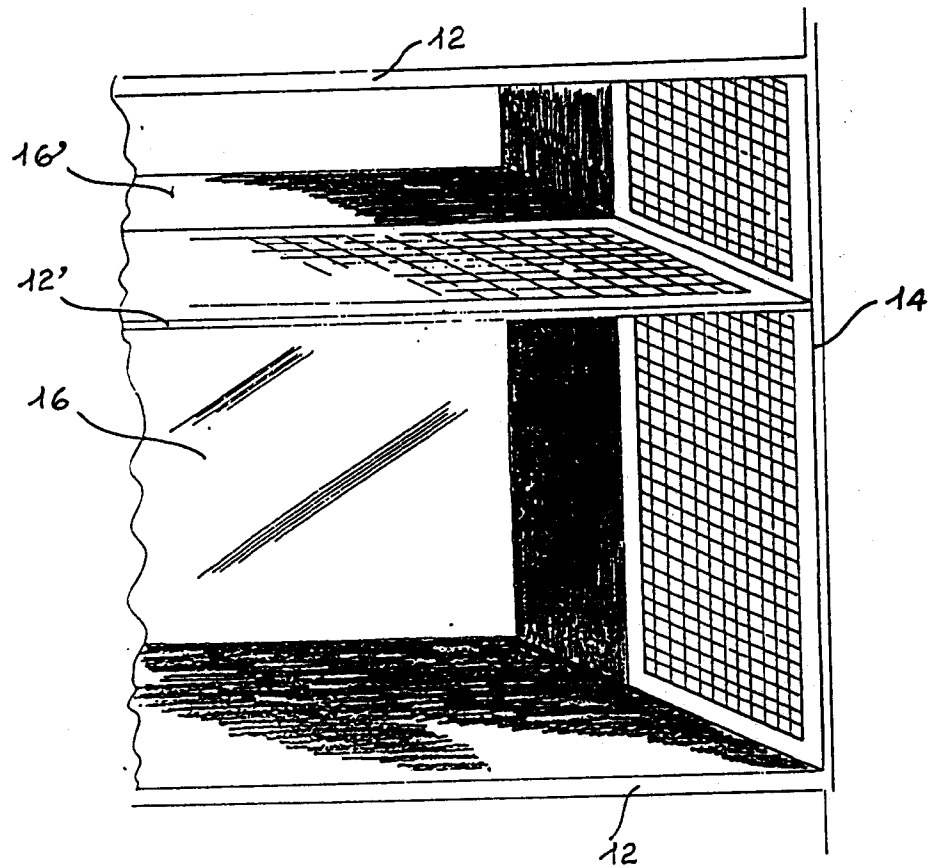
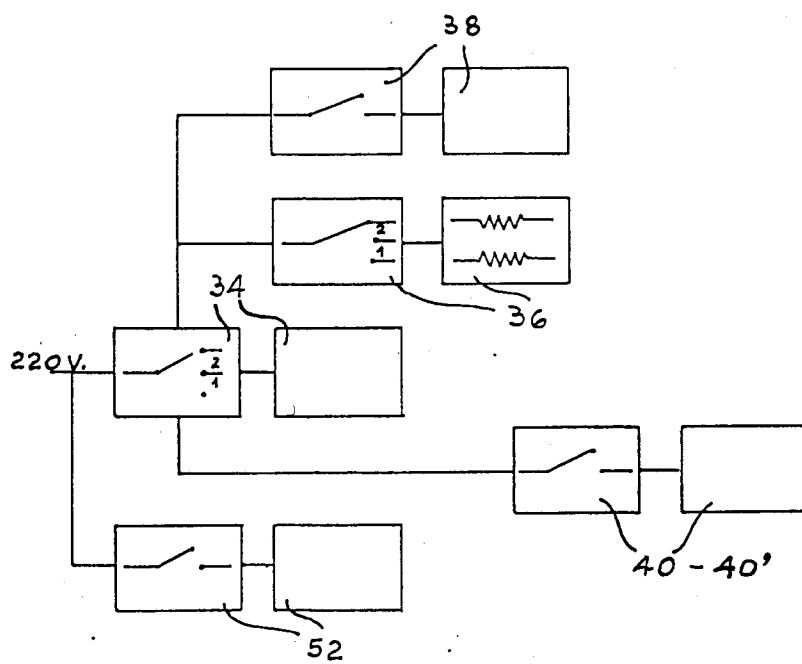


FIG. 4





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EUROPEAN SEARCH REPORT

Application Number
EP 96 11 0024

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	US-A-1 488 057 (PILZ)	1	A47B61/00
Y	* the whole document *	2,7	A47L23/20

Y	FR-A-2 702 345 (BLANC)	2	
A	* abstract; figure 1 *	9	

Y	FR-A-2 702 377 (GABRIEL-ROBEZ (SARL))	7	
	* abstract; claim 1; figure 1 *		
	* page 8, paragraph 2 *		

A	EP-A-0 479 241 (KIMURA, TAKAYUKI)	1,7	
	* abstract; figures 5-8 *		
	* page 4, paragraph 2 *		

A	CH-A-555 161 (WERDNIK)	1,10	
	* claim 1; figures 1-4 *		
	* column 3, line 28 - line 38 *		

A	US-A-3 679 281 (LEHOVEC)	3	
	* abstract; figure 1 *		
	* column 1, line 31 - line 44 *		
	* column 2, line 10 - line 23 *		

A	DE-U-91 15 291 (RIEDERER)	4	
	* claims 1-3; figure 1 *		

A	DE-A-23 03 133 (SCHÖNBUCH-MÖBELFABRIK BINDER KG)	8	
	* claim 1; figures 1,3 *		

The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
THE HAGUE		25 October 1996	Jones, C
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			