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(71) Applicant: **Beckford, Orville**
London SE3 8HL (GB)

(72) Inventor: **Beckford, Orville**
London SE3 8HL (GB)

(74) Representative: **Gambell, Derek**
DG Patents
1 Brangbourne Road
Bromley, Kent BR1 4LL (GB)

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(54) **Shoe cupboard**

(57) A corner cupboard, for example for storing shoes and the like, includes an elongate shelf support rail (9) secured in a vertical position in a corner between two walls of a building. A door panel (2) is hinged (at 13) to a back wall panel (11) adjacent the edge thereof remote from the shelf support rail and extends, in its closed position, to a single side wall panel (6) adjacent the edge thereof remote from the shelf support rail. One or more shelves (3) are supported by the rail. The door panel has a horizontal cross-section including an arcuate portion (28) defining a curve centred on the a vertical axis within the shelf support rail. The invention meets the need for a construction of a storage unit for items such as shoes but which can overcome the lack of space in a dwelling.

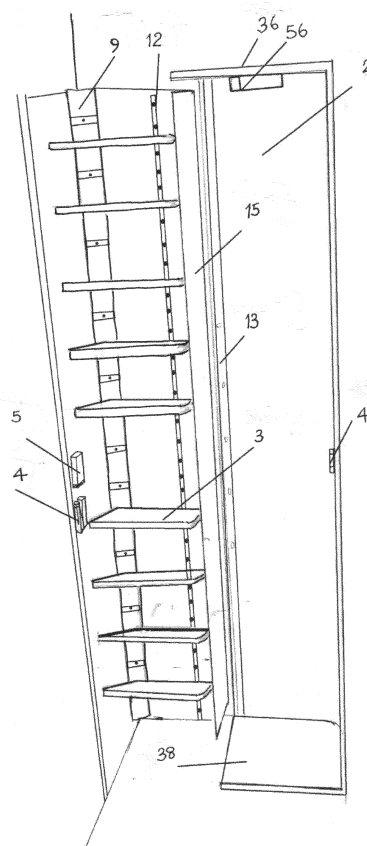


FIGURE 2

Description

FIELD OF THE INVENTION

[0001] This invention relates to a cupboard, in particular to a cupboard for the storage of relatively small items such as shoes, or other domestic or household items.

BACKGROUND TO THE INVENTION

[0002] The result of modern lifestyles is that people have a lot of possessions, the result of which is that, in many dwellings, especially in cities where housing concentrations are high, storage space is at a premium. For example, most families will have a considerable number of items, such as shoes, which need to be stored but which need to be easily and regularly accessed. For example, a family of four might typically have about twenty pairs of shoes between them. In such circumstances, shoes are often kept in hallways, on landings or in individual's bedrooms, which is not necessarily a pleasant habit and may result in dirty shoes being worn around the home, possibly spreading germs throughout. In larger houses, a storage unit of considerable dimensions, such as above 800 mm, may be located in a porch or in a hallway close to the house door, but in smaller dwellings space is often not available for such storage units. Even if a conventional unit is fitted in a hallway, more often than not it cannot cater for a full household with e.g. more than a dozen shoes. Furthermore, conventional cupboards, whether floor mounted or wall mounted, leave wasteful vacant space above and/or below them.

[0003] There is therefore a need for a construction of a storage unit for items such as shoes but which can overcome the lack of sufficient space for the traditional units.

[0004] The present invention stems from the realisation that most dwellings have dead corner spaces which are unused. These may be for example adjacent a door of the dwelling, adjacent the door of a reception room or on the curve in the stairway of the dwelling.

[0005] We are aware of British patent GB 1029089 (Mayer) which describes cylindrical, semi-cylindrical or quarter cylindrical shelving for files and has a plurality of shelves rigidly joined together by vertical supporting members in the form of battens of which some members cover part of the periphery of the quadrant so that space available between them for lever arch files is less than 90 degrees so that even full files may be placed on the shelves. The parts are connected by nuts and bolts so as to be dismountable.

[0006] We are also aware of German Utility Model DE 20203068U (Herbstritt) which describes modular extendable furniture, in particular in the form of bath or shower accessories for room corners or walls and comprises at least one frame element which is pivotable about its longitudinal axis and forms a hinge plate for a frameless, straight or curved pivotable door.

[0007] These documents fail to address the objective of the present invention.

SUMMARY OF THE INVENTION

[0008] The above objective is achieved, according to the present invention, which provides a corner cupboard comprising the following elements:

- (i) an elongate shelf support rail adapted to be secured in a generally vertical position in a corner between two walls of a building;
- (ii) a back wall panel extending from the shelf support rail against one of said building walls;
- (iii) a single side wall panel extending from the shelf support rail against the other of said building walls;
- (iv) a door panel hinged to the back wall panel adjacent that edge thereof remote from said shelf support rail and extending, in its closed position, to the side wall panel adjacent that edge thereof remote from said shelf support rail; and
- (v) at least one shelf supported by said shelf support rail within the space defined by the back panel, side panel and door panel in its closed position.

[0009] The invention is characterised in that the door panel has a horizontal cross-section including an arcuate portion defining a curve centred on a vertical axis within said shelf support rail.

[0010] Not only does the invention enable dead corner spaces in a dwelling to be utilised, but also vacant space that would exist above and/or below a conventional cupboard can be avoided.

[0011] The door panel in horizontal cross-section may include the arcuate portion positioned between tangentially extending portions extending to the edges of the door panel. These three portions may be provided in separate connectable parts, which provision can be of advantage if the cupboard is to be supplied in a flat-pack form.

[0012] The shelf support rail, which is preferably formed of metal or other rigid material, may have a generally right-angled triangular cross-section, with two adjacent faces abutting the walls of the building which define the corner. The shelf support rail may additionally include channels into which an edge of a shelf slots. These channels may have horizontal upper and lower faces against which the topside and the underside respectively of the shelf rest in use.

[0013] Each shelf may be of a generally planar configuration. Each shelf preferably has a back edge positioned against the back panel and a side edge positioned against the side panel. Each shelf is preferably removably secured to said shelf support rail, so that spacing between shelves can be selected as desired. The shelves may be secured in any convenient manner.

[0014] Each shelf may have a horizontal cross-sectional shape which includes an arcuate edge defining a curve

centred on a vertical axis within the shelf support rail. The arcuate edge of each shelf cross-section is ideally coaxial with the arcuate portion of the door panel cross-section when the latter is in its closed position.

[0015] In one possible embodiment each shelf includes a support rod embedded within its body and having a protruding portion extending therefrom adjacent a corner of the shelf, and the shelf support rail may include a plurality of apertures for selectively accommodating the protruding portion of the rod. In this embodiment, the third, hypotenuse, side of the support rail carries the apertures in which the supporting rods of the shelves are accommodated. Where the shelf support rail includes channels into which an edge of a shelves slot, these channels serve to prevent rotation of the shelves about the axis of the support rod. Preferably a plurality of shelves are provided with one rail, the number of shelves being fewer than the number of the channels in the rail, enabling the spacing between the shelves to be varied according to choice.

[0016] Thus, in a preferred embodiment, each shelf has a supporting rod embedded therein to lie parallel with the plane of the shelf, the supporting rod having a spigot end portion protruding from the shelf at a corner thereof. The supporting rail is of generally right-angled triangular hollow configuration, the hypotenuse face of which includes a plurality of transverse channels for selectively accommodating said corner of the shelf and an aperture in the base of each channel leading to a receptor within the rail to receive the spigot.

[0017] The receptor is preferably defined between an aperture in the base of a channel in line with an aperture in the right-angled corner of the rail. The hypotenuse face of the rail further may include apertures positioned intermediate said channels, in line with apertures in the right-angled corner of the rail, to allow access to fixing devices for fixing the rail to a corner in the walls of a building. In a preferred embodiment, the transverse channels in the hypotenuse face of the rail are equal to each other in terms of width, length and depth and are regularly spaced along the rail.

[0018] In this or an alternative embodiment, the channels in the hypotenuse face of the support rail subtend a small angle (e.g. 0 to 5 degrees) to the horizontal so as to raise the front edge of the shelf slightly, as this would provide a more secure fixing especially when a load is placed upon the shelf.

[0019] Alternatively or additionally, the upper face of the channel may be provided with a recess into which a protrusion formed on the top surface of the shelf may be accommodated when the shelf is in position.

[0020] Alternatively or additionally, a quarter-turn latch fastener of known type may be associated with each channel, each shelf having a groove provided adjacent its rear edge, in which the tongue of the fastener may be held when the fastener is locked.

[0021] The retaining edge to the or each shelf may be reinforced as necessary.

[0022] The corner cupboard may additionally comprise a floor panel secured to the door panel. Also, the corner cupboard may additionally comprise a top panel secured to the door panel. Floor and top panels add structural integrity to the door panel to prevent deformation. A ventilation opening, optionally together with a ventilation fan, is usefully provided in the top panel.

[0023] The corner cupboard may be provided as a single unit (having a height of, for example, up to 3.0 m) or in modular form, including a bottom module (having a height of, for example, 1.0 to 1.5 m) comprising the floor panel and a lower part of the back, side and door panels, a top module (having a height of, for example, 1.0 to 1.5 m) comprising the top panel and an upper part of the back, side and door panels, and optionally one or more intermediate modules (having a height of, for example about 1.0 m) comprising an intermediate part of the back, side and door panels. With such a provision, connecting devices would be included for fitting the modules together, such as, for example dowels for locating in drilled holes in the abutting edges of the back, side and door panels.

[0024] The corner cupboard preferably further comprises a screen, possibly in the form of a mesh, positioned against an edge of each shelf opposite to that edge thereof which lies against the side panel. Such a screen can help to carry the load from the shelves.

[0025] The corner cupboard may include a switch to be activated when the door panel is opened, to turn on a light within the cupboard. A magnetic catch may be provided to normally hold the door panel in its closed position.

[0026] The cupboard may be of any suitable height, such as between 1.0 and 3.0 metres high.

BRIEF INTRODUCTION TO THE DRAWINGS

[0027] An embodiment of the invention is illustrated in the accompanying drawings, in which:

Figure 1 shows a corner cupboard according to the present invention positioned in the corner of a building;

Figure 2 show the corner cupboard of Figure 1 in its open position;

Figure 3 shows a horizontal cross section of the cupboard of Figure 1;

Figure 4 shows a cross-section of a shelf of the cupboard of Figure 1;

Figure 5 shows a view of the shelf support rail of the cupboard of Figure 1, with a view towards its hypotenuse face;

Figure 6 shows a view of the shelf support rail shown in Figure 5, with a view towards its right-angled corner; and

Figure 7 illustrates a number of methods for securing a shelf with a shelf support rail in accordance with embodiments of the present invention.

DESCRIPTION OF PREFERRED EMBODIMENTS

[0028] Referring to the drawings, there is shown a corner cupboard according to the present invention. The cupboard includes the following elements:

- i an elongate shelf support rail 9;
- ii a back wall panel 11;
- iii a single side wall panel 6; and
- iv a door panel 2.

[0029] The back wall panel 11 extends from the shelf support rail 9 against one of the building walls 20 and is secured thereto in a conventional manner while the side wall panel 6 extends from the shelf support rail 9 against the other of the building walls 22 and is secured thereto in a conventional manner.

[0030] The door panel 2 is mounted to the back wall panel 11 by a piano hinge 13 adjacent the edge 24 thereof remote from the shelf support rail 9. The door panel extends, in its closed position, to the side wall panel 6 adjacent that edge 26 thereof remote from the shelf support rail 9 and opens in the direction indicated by the curved arrow in Figure 3. The door panel 2 has a horizontal cross-section including an arcuate portion 28 defining a curve centred on the a vertical axis within the shelf support rail 9. The door panel 2 in horizontal cross-section includes the arcuate portion 28 positioned between tangentially extending portions 32, 34 extending to the edges of the door panel 2. A magnetic push catch 4 normally holds the door panel 2 in its closed position.

[0031] A number of lightweight load bearing shelves 3 are supported by the shelf support rail 9 within the space defined by the back panel 11, side panel 6 and door panel 2 in its closed position. Each shelf 3 is removably secured to the shelf support rail 9. Each shelf is of generally planar configuration. Each shelf 3 includes a support rod 10 embedded within its body to lie parallel with the plane of the shelf and having a protruding portion in the form of a male spigot 8 extending therefrom adjacent a corner 68 of the shelf 3, and the shelf support rail 9 includes a plurality of apertures in the form of female receptors for selectively accommodating the male spigot 8 of the rod 10. Each shelf 3 has a back edge 42 positioned against the back panel 11 and a side edge 44 positioned against the side panel 6.

[0032] Each shelf 3 has a horizontal cross-sectional shape which includes an arcuate edge 46 defining a curve centred on a vertical axis within the shelf support rail 9. The arcuate edge 46 of each shelf cross-section is coaxial with the arcuate portion 28 of the door panel cross-section when the latter is in its closed position.

[0033] The support rail 9 is secured in a generally vertical position in a corner between two walls within a building. The shelf support rail 9, which is formed of metal or other rigid material, has a generally right-angled hollow triangular cross-section, with two adjacent faces abutting the walls of the building which define the corner and the

third, hypotenuse, side 70 carrying the receptors into which spigots 8 of the supporting rods 10 of the shelves are accommodated. The shelf support rail 9 additionally includes evenly spaced (by e.g. 50 mm) transverse channels 52 typically having a depth of 20 mm, for selectively accommodating the corner 68 of the shelf to prevent rotation of the shelf 3 about the axis of the support rod 10. An aperture 74 in the base of each channel leads to a respective receptor within the rail to receive the spigot 8. The receptor is defined between the aperture 74 in the base of the channel in line with an aperture 76 in the right-angled corner of the rail. A magnetic strip 7 secured to the edge of the shelf 3 helps to locate the shelf correctly in its respective channel 52, while preventing unintentional shelf rotation due to deformation or stress from imposed loads. The shelf is then able to carry a reasonable domestic load of up to e.g. 3 kg. Those channels 52 which lie between the receptors are closed off with flush fitting spacers 54.

[0034] The hypotenuse face 70 of the rail further includes apertures 80 positioned intermediate the channels, in line with apertures 82 in the right-angled corner of the rail, to allow access to fixing screws 84 for fixing the rail to a corner in the walls of a building. Typically, the rail is fixed at approximately 200 mm centres.

[0035] The transverse channels 52 in the hypotenuse face of the rail are equal to each other width, length and depth and are regularly spaced along the rail. Where a number of the shelves are provided with one the rail, the number of shelves will be fewer than the number of the channels in the rail, enabling the spacing between the shelves to be varied according to choice.

[0036] The corner cupboard additionally includes a top panel 36 and a floor panel 38 secured respectively to the top and bottom edges the door panel 2, and serve to provide rigidity to the door panel 2. A ventilation opening, together with a ventilation fan 56, is provided in the top panel. The cupboard is typically about 2.5 metres high.

[0037] A screen 15, in the form of a rigid UPVC mesh, is positioned against an edge of each shelf 3 opposite to that edge thereof which lies against the side panel, and is held in place by retaining plugs 14. The mesh prevents items, stored on the shelves 3, from falling out.

[0038] A switch 5 is activated when the door panel 2 is opened, to turn on a vertically oriented LED lighting strip 12 extending within the cupboard from the floor panel 38 to the top panel 36.

[0039] The shelves, side and back panels and the door panel are suitably formed in white melamine, which is available in 3 metre standard lengths.

[0040] Referring to Figure 7, there is shown three possible embodiments for securing a shelf 3 to the support rail 9. These embodiments can be used as alternatives or in any combination.

[0041] In the first of these embodiments, the channels 52 have horizontal upper and lower faces 90, 92 against which the top surface 94 and the under surface 96 respectively of the shelf would rest. These faces subtend

a small angle of about 2° to the horizontal (exaggerated in Figure 7 for the sake of clarity) so as to raise the front edge of the shelf slightly, to provide a more secure fixing when a load is placed upon the shelf.

[0042] In the second of these embodiments,, the upper face 90 of the channel is provided with a recess 98 into which a protrusion 100 formed on the top surface 94 of the shelf may be accommodated when the shelf is in position.

[0043] In the third of these embodiments, a quarter-turn latch fastener 102 is associated with each channel 52, each shelf having a groove 104 provided adjacent its rear edge, in which the tongue 106 of the fastener will be held when the fastener is locked.

Claims

1. A corner cupboard comprising the following elements:

- (i) an elongate shelf support rail (9) adapted to be secured in a generally vertical position in a corner between two walls of a building;
- (ii) a back wall panel (11) extending from the shelf support rail against one of the building walls;
- (iii) a single side wall panel (6) extending from the shelf support rail against the other of the building walls (22);
- (iv) a door panel (2) hinged to the back wall panel adjacent that edge (24) thereof remote from the shelf support rail and extending, in its closed position, to the side wall panel adjacent that edge (26) thereof remote from the shelf support rail; and
- (v) at least one shelf (3) supported by the shelf support rail within the space defined by the back panel, side panel and door panel in its closed position,

characterised in that the door panel has a horizontal cross-section including an arcuate portion (28) defining a curve centred on the a vertical axis within the shelf support rail.

2. A corner cupboard according to claim 1, **characterised in that** the or each shelf includes a support rod (10) embedded within its body and having a protruding portion (8) extending therefrom adjacent a corner of the shelf, and the shelf support rail includes a plurality of apertures (74 - 76) for selectively accommodating the protruding portion of the rod.

3. A corner cupboard according to any preceding claim, **characterised in that:**

- (i) the or each shelf is of generally planar configuration and has a supporting rod (10) embed-

ded therein to lie parallel with the plane of the shelf, the supporting rod having a spigot end portion (8) protruding from the shelf at a corner (68) thereof; and

- (ii) the elongate shelf support rail is of generally right-angled triangular hollow configuration, the hypotenuse face (70) of which includes a plurality of transverse channels (52) for selectively accommodating said corner of the shelf and an aperture (74) in the base of each channel leading to a receptor (74 - 76) within the rail to receive said spigot.

4. The corner cupboard according to 3, **characterised in that** the receptor (74 - 76) is defined between an aperture (74) in the base of a said channel in line with an aperture (76) in the right-angled corner of the rail.
5. The corner cupboard according to 3 or 4, **characterised in that** the hypotenuse face of the rail further includes apertures (80) positioned intermediate said channels, in line with apertures (82) in the right-angled corner of the rail, to allow access to fixing devices (84) for fixing the rail to a corner in the walls of a building.
6. The corner cupboard according to any one of claims 3 to 5, **characterised in that** the transverse channels (52) in the hypotenuse face of the rail are equal to each other in terms of width, length and depth and are regularly spaced along the rail.
7. The corner cupboard according to claim 6, **characterised in that** a plurality of said shelves are provided with one said rail, the number of shelves being fewer than the number of the channels in the rail, enabling the spacing between the shelves to be varied according to choice.
8. A corner cupboard according to any preceding claim, **characterised in that** the door panel in horizontal cross-section includes the arcuate portion positioned between tangentially extending portions (32, 34) extending to the edges of the door panel.
9. A corner cupboard according to claim 8, **characterised in that** a top panel is secured to the door panel and a ventilation opening (40) is provided in the top panel.
10. A corner cupboard according to any preceding claim, **characterised in that** each shelf has a horizontal cross-sectional shape which includes an arcuate edge (46) defining a curve centred on a vertical axis within the shelf support rail.
11. A corner cupboard according to any preceding claim,

characterised in that the arcuate edge of each shelf cross-section is coaxial with the arcuate portion of the door panel cross-section when the door panel is in its closed position.

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- 12.** A corner cupboard according to any preceding claim, further comprising a screen (15) positioned against an edge of each shelf opposite to that edge thereof which lies against the side panel.

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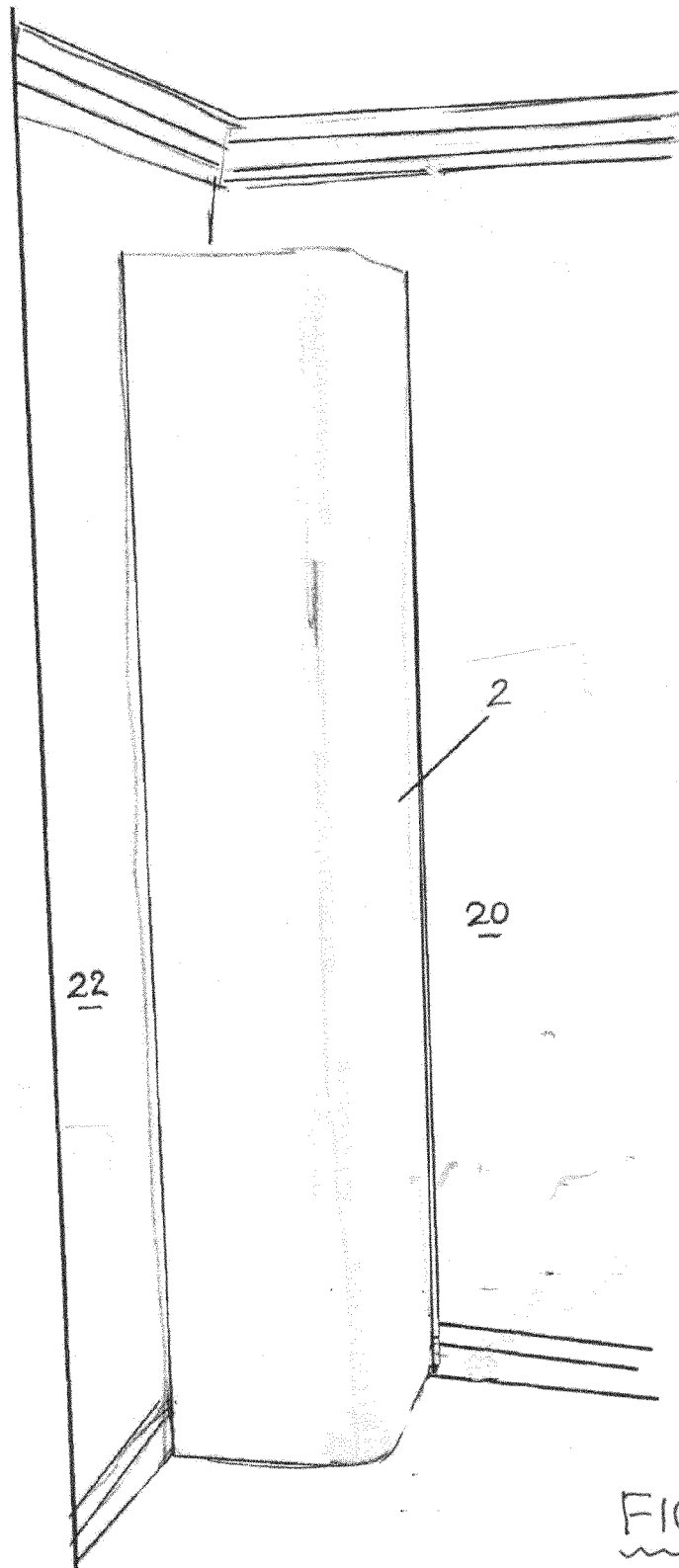


FIGURE 1

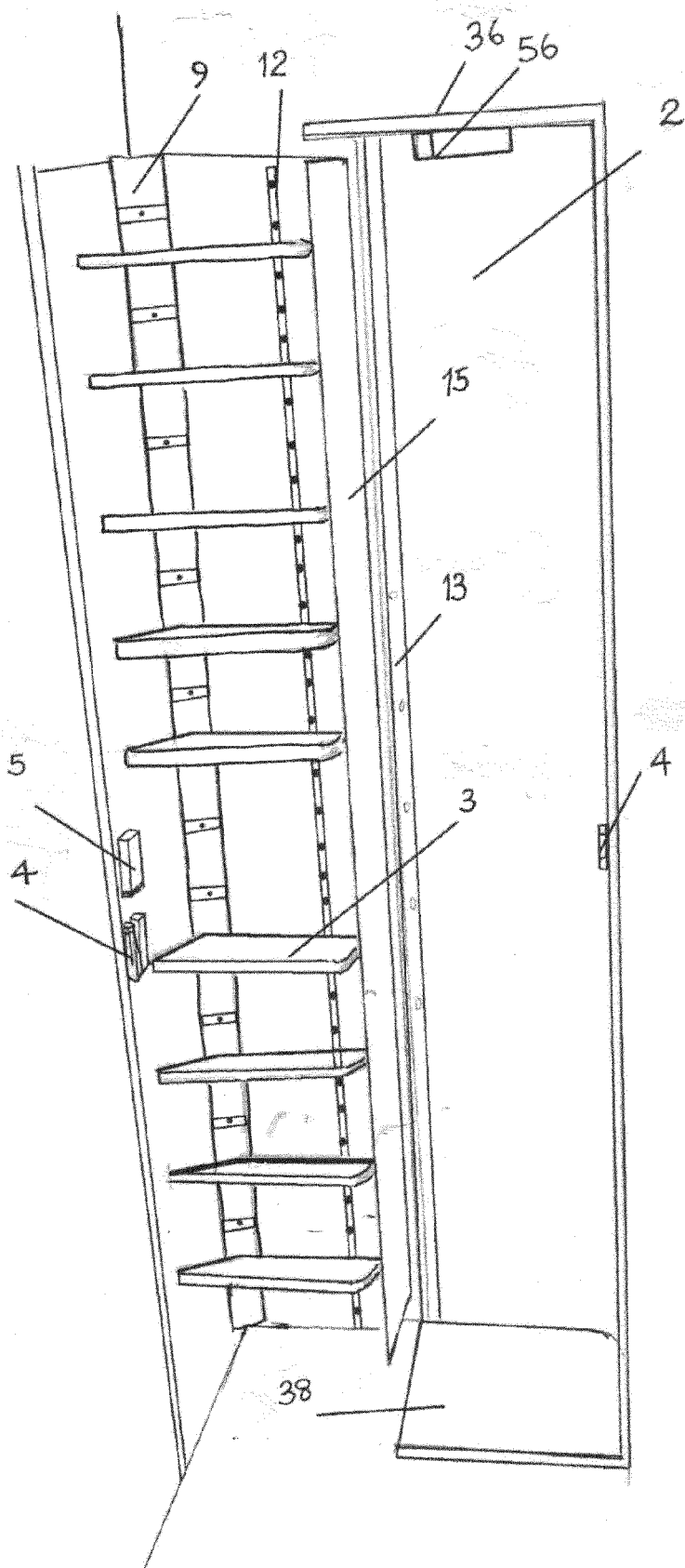
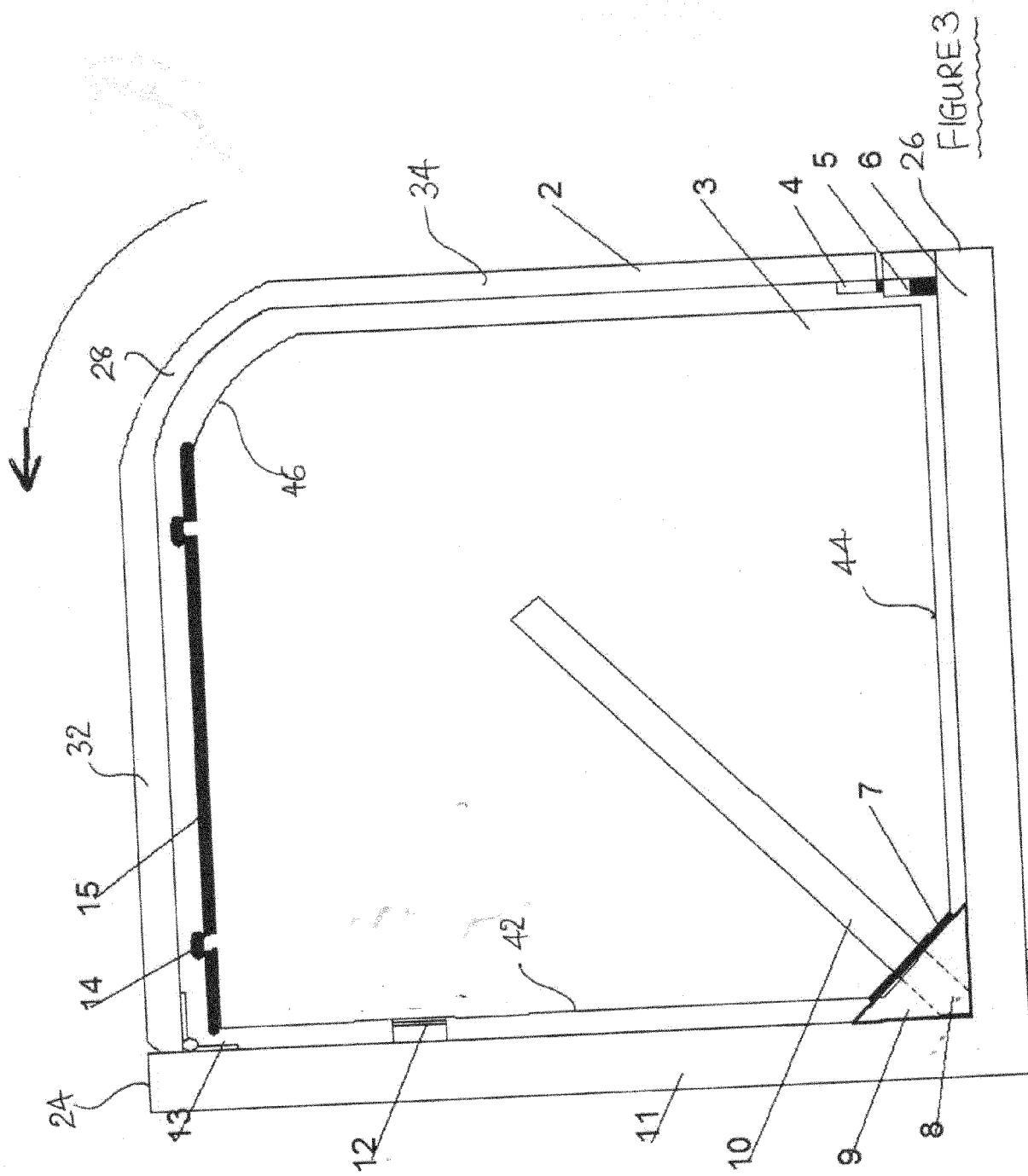
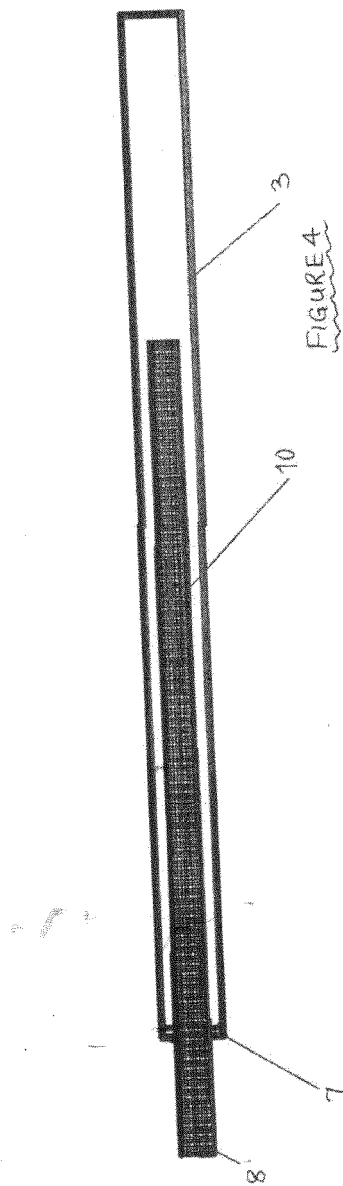


FIGURE 2





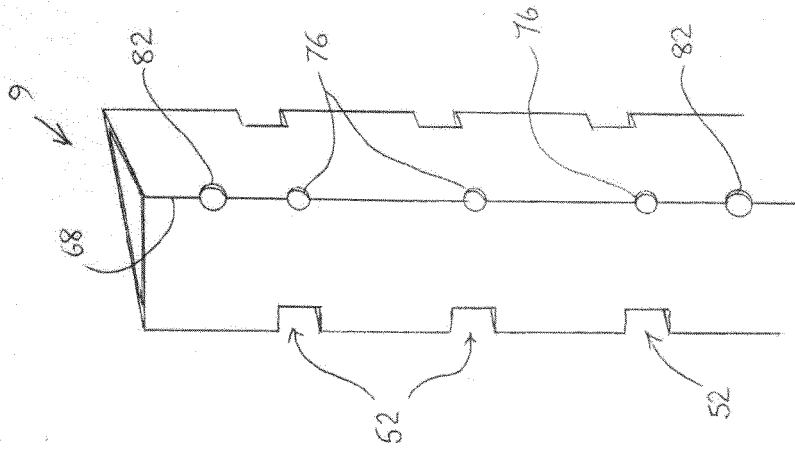


FIGURE 6

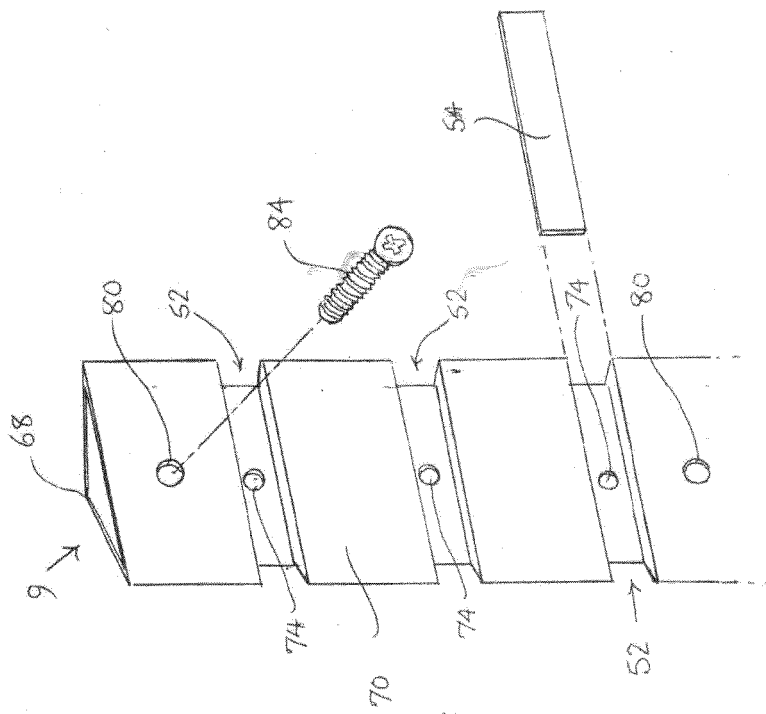


FIGURE 5

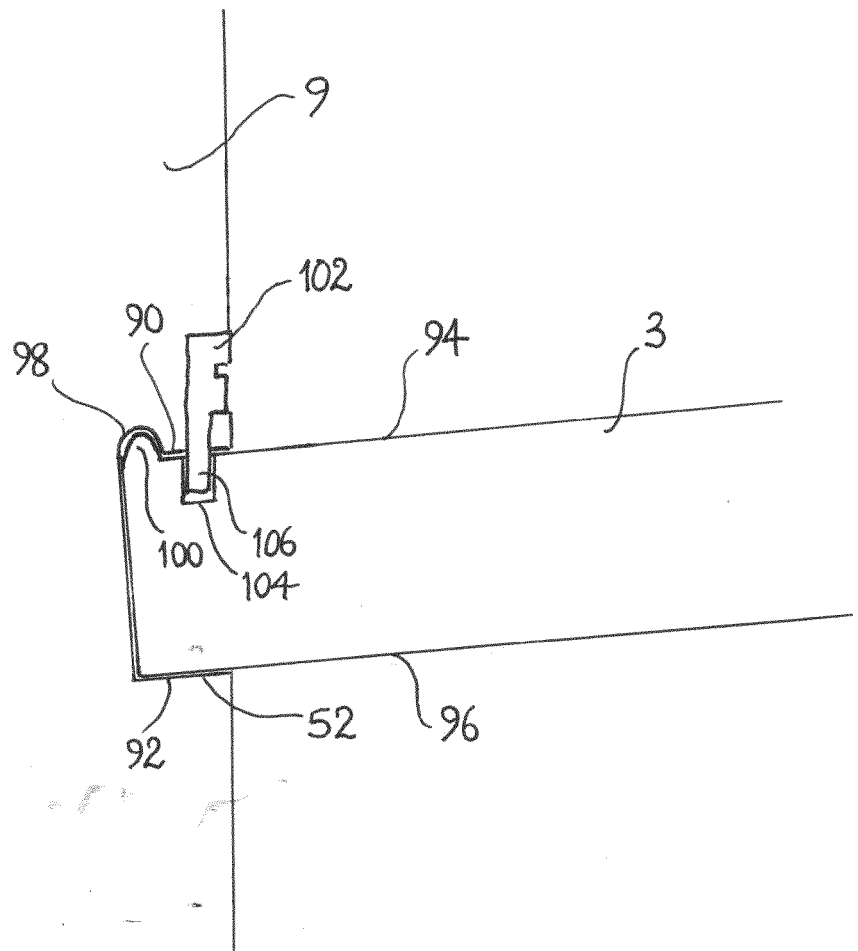


FIGURE 7



EUROPEAN SEARCH REPORT

Application Number
EP 14 19 3769

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	US 2003/173877 A1 (PLEIMAN BRIAN RALPH [US] ET AL) 18 September 2003 (2003-09-18) * the whole document *	1-12	INV. A47B81/00 A47B96/06
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			TECHNICAL FIELDS SEARCHED (IPC)
			A47B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 16 July 2015	Examiner Ottesen, Rune
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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EPO FORM 1503 03.82 (P04C01)

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

EP 14 19 3769

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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16-07-2015

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