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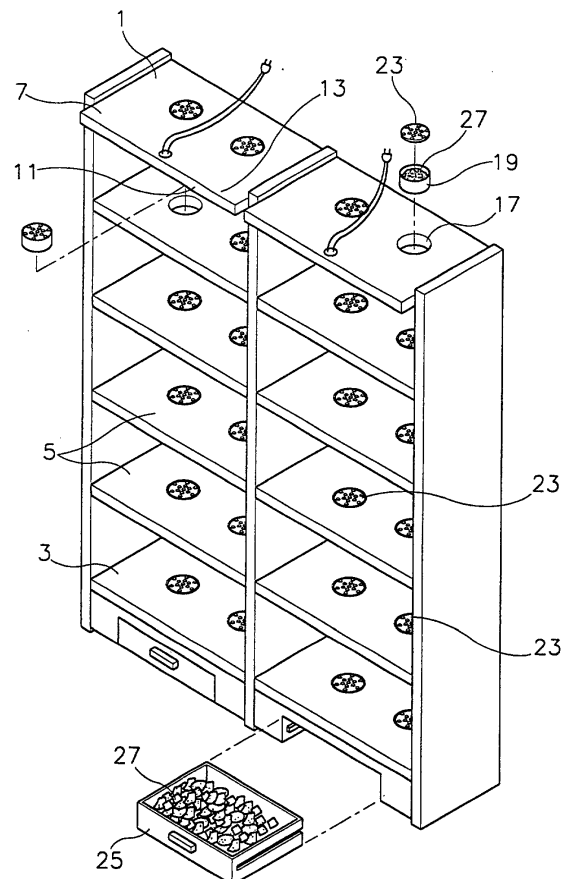
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(54) **Multifunctional bookshelf structure**

(57) A multifunctional bookshelf, the bookshelf including an upper plate, a lower plate and a plurality of middle plates, wherein the bookshelf comprises: lighting unit mounted at the upper plate to provide a lighting to a lower front side thereof; a plurality of container bodies provide at the upper plate, the lower plate and the middle plates; and insecticide, dehumidifier, deodorizer and aromatic stored in the plurality of container bodies, such that dehumidifying and insect-proof functions thereof promote the property of preservation of data stacked on shelves, stench is prevented from generation and sufficient illumination is supplied, thereby providing users pleasant environment.

FIG.1



**Description****BACKGROUND OF THE INVENTION****FIELD OF THE INVENTION**

**[0001]** The present invention relates to a bookshelf adapted to stack data such as a plurality of books in neat order to allow a user to easily select necessary data, and more particularly to a multifunctional bookshelf adapted to provide a pleasant environment to users on one hand and to provide a high conservation efficiency to the stacked data on the other hand.

**DESCRIPTION OF THE PRIOR ART**

**[0002]** Generally, bookshelves used in libraries or stack rooms of public institutions are vertically arranged panels where books and other data are inserted and stored at multi-staged space thereof, whereas no separate ventilations or dehumidifying facilities are equipped therewith, such that books or other data to be stored for a long time tend to be discolored, degenerated or damaged by vermins, thereby resulting in generation of stench.

**[0003]** There is another problem in that plural numbers of shelves are arranged in rows to have a plurality of books inserted therein, such that, unless there are special lighting systems to light the books, books or data cannot be properly distinguished or found because books or data are shaded by adjacent bookshelves.

**SUMMARY OF THE INVENTION**

**[0004]** The present invention is disclosed to solve the aforementioned problems and it is an object of the present invention to provide a multifunctional bookshelf adapted to possess dehumidifying, moth-proof functions for increase of preservation ability for data or books stacked on the shelves.

**[0005]** It is another object of the present invention to provide a multifunctional bookshelves adapted to provide a pleasant useability, to prevent generation of stench and to supply a sufficient lighting thereto.

**[0006]** In accordance with the objects of the present invention, there is provided a multifunctional bookshelf, the bookshelf including an upper plate, a lower plate and a plurality of middle plates, wherein the bookshelf comprises:

lighting means mounted at the upper plate to provide a lighting to a lower front side thereof;  
a plurality of container bodies provide at the upper plate, the lower plate and the middle plates; and  
insecticide, dehumidifier, deodorizer and aromatic stored in the plurality of container bodies.

**BRIEF DESCRIPTION OF THE DRAWINGS**

**[0007]** For fuller understanding of the nature and objects of the invention, reference should be made to the following detailed description taken in conjunction with the accompanying drawings in which:

Figure 1 is a perspective view for illustrating a multifunctional bookshelf according to the present invention; and

Figure 2 is a sectional view for illustrating principal parts of Figure 1.

**DETAILED DESCRIPTION OF THE INVENTION**

**[0008]** Now, preferred embodiment of the present invention will be described in detail with reference to the accompanying drawings.

**[0009]** Figures 1 and 2 are schematic drawings for illustrating a multifunctional bookshelf according to the present invention, where the bookshelf basically is composed of an upper plate 1, a lower plate 3 and a plurality of mid plates 5 for stack of a multiplicity of books.

**[0010]** At this location, the upper plate 1 is mounted with lighting means for providing lighting to a frontal lower side of the bookshelf, where the lighting means includes a light 9 mounted at a protruder 7 protruded to a front side of the upper plate 1, an access sensor 11 for detecting whether a person is at a position near to the bookshelf, an illumination sensor 13 for measuring the degree of illumination at the bookshelf, and a controller 15 for receiving signals from the access sensor 11 and the illumination sensor 13 to control the light.

**[0011]** The access sensor 11, the illumination sensor 13 and the controller 15 are used as a module integrally formed with those as shown in Fig.2 but may be respectively used at a proper position where beautiful look of the bookshelf is not hampered.

**[0012]** Meanwhile, the upper plate 1, the lower plate 3 and the mid plates 5 are provided with many container bodies, where each container body includes a lower body 19 to be inserted into a through hole 17 so formed as to penetrate the upper plate, the lower plate and the mid plates from up and down directions, and a multi hole copper plate 23 covered on the lower body 19 and formed with many holes.

**[0013]** Meanwhile, the lower plate 3 of the bookshelf is separately equipped with a container body of a drawer 25 where contents thereof can be replaced.

**[0014]** The plurality of container bodies thus described are provided therein with insecticide, dehumidifier, deodorant and aromatic 27 where these agents may be artificial or natural such as charcoal or active carbon.

**[0015]** Now, operation of the present invention thus constructed will be described.

**[0016]** When a user approaches a multifunctional bookshelf to search for data stacked on the shelves, the

controller 15 discriminates whether the user has approached the bookshelf while the illumination sensor 13 detects a degree of illumination at the bookshelf to determine whether to light the light 9, and if necessary, lights the light 9 to illuminate the front side of the bookshelf. 5

**[0017]** As a result, the user can always search necessary data from the bookshelf at all times under the sufficient lighting.

**[0018]** The container bodies thus provided at the upper plate 1, the lower plate 3 and the plurality of mid plates 5 are inserted by the lower body 19 containing insecticide, dehumidifier, deodorant and aromatic 27, the lower body 19 being covered by the multi hole copper plate 23, such that data stacked or arranged on the shelves are prevented from being damaged caused by insects and humidity by physical and chemical reactions of the multi hole copper plate 23 and contents in the lower body 19, and stench is removed, thereby providing pleasant aroma and environment to the user. 20

**[0019]** Particularly, the multi hole copper plate 23 made of copper can remove stench and possess an excellent air cleaning capability, thereby cleaning polluted air in the multifunctional bookshelf.

**[0020]** Meanwhile, a large amount of insecticide and dehumidifier contained in the drawer 25 provided underneath the lower plate 3 also prevents insects from approaching the bookshelf, removes humidity and keeps stored data from being damaged, thereby promoting the property of preservation for the data, and specifically, the drawer 25 is loaded with a large amount of charcoal and active carbon to completely eliminate humidity coming from bottom surface of the bookshelf, enabling to obtain a perfect dehumidifying result. 30

**[0021]** Of course, the drawer 25 can be easily opened and closed, and contents such as charcoal and active carbon contained therein may be simply replaced. The container body comprising the lower plate 19 and the multi hole copper plate 23 can easily replace contents therein by opening the multi hole copper plate 23 mounted thereon. 40

**[0022]** As apparent from the foregoing, there is an advantage in the multifunctional bookshelf thus described according to the present invention in that dehumidifying and insect-proof functions are provided to promote the property of preservation of data stacked on shelves, stench is prevented from generation and sufficient illumination is supplied, thereby providing users pleasant environment. 45

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## Claims

1. A multifunctional bookshelf, the bookshelf including an upper plate, a lower plate and a plurality of middle plates, wherein the bookshelf comprises: 55

lighting means mounted at the upper plate to

provide a lighting to a lower front side thereof; a plurality of container bodies provide at the upper plate, the lower plate and the middle plates; and

insecticide, dehumidifier, deodorizer and aromatic stored in the plurality of container bodies.

2. The bookshelf as defined in claim 1, wherein the illumination means comprises:

a light mounted at a protruder protruded to a front side of the upper plate;  
an access sensor for detecting whether a person is at a position near to the bookshelf;  
an illumination sensor for measuring the degree of illustration at the bookshelf; and  
a controller for receiving signals from the access sensor and the illumination sensor to control the light.

3. The bookshelf as defined in claim 1, wherein the container body comprises:

a lower body to be inserted into a through hole so formed as to penetrate the upper plate, the lower plate and the mid plates from up and down directions; and  
a multi hole copper plate covered on the lower body and formed with many holes.

4. The bookshelf as defined in claim 1, wherein the container body is provided underneath the lower plate to allow contents to be replaced.

5. The bookshelf as defined in claim 1, wherein the dehumidifier and deodorizer are charcoal and active carbon.

FIG.1

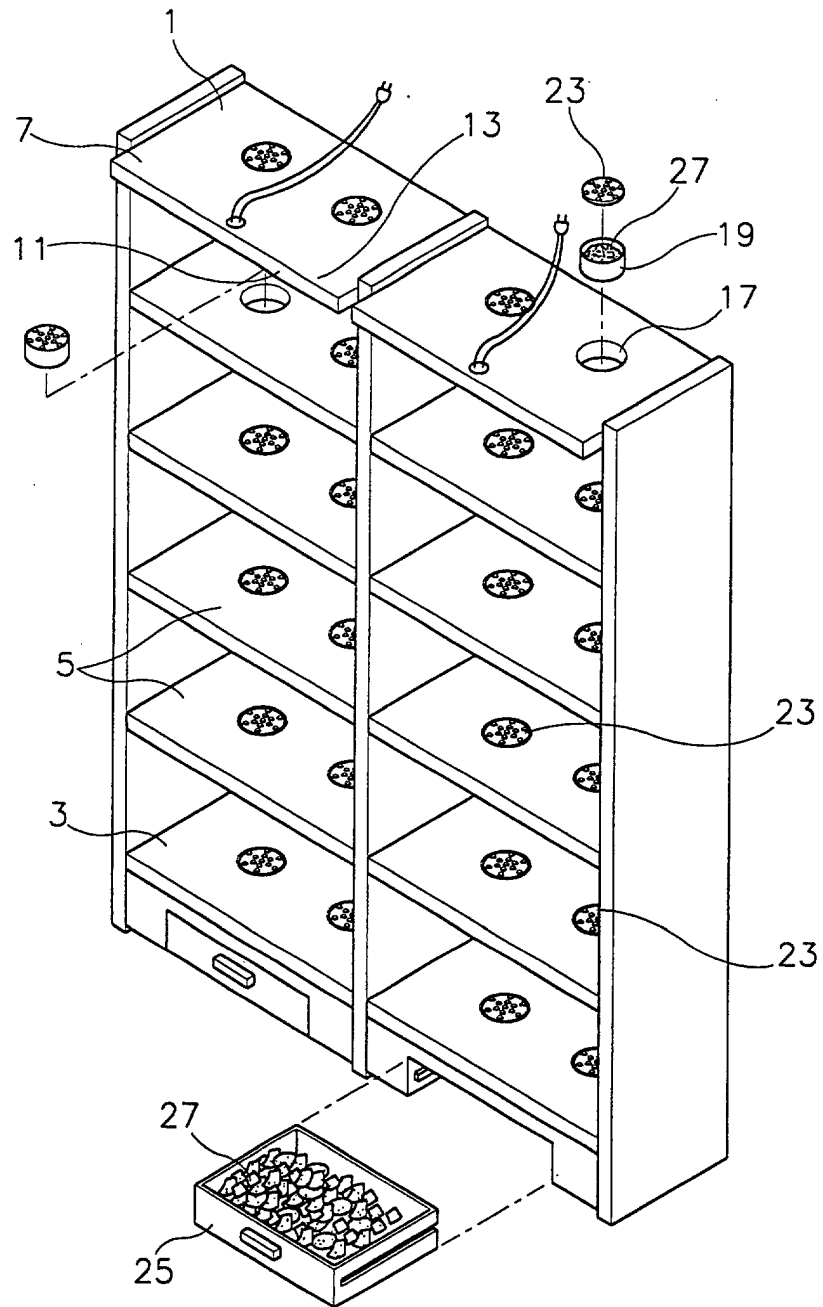
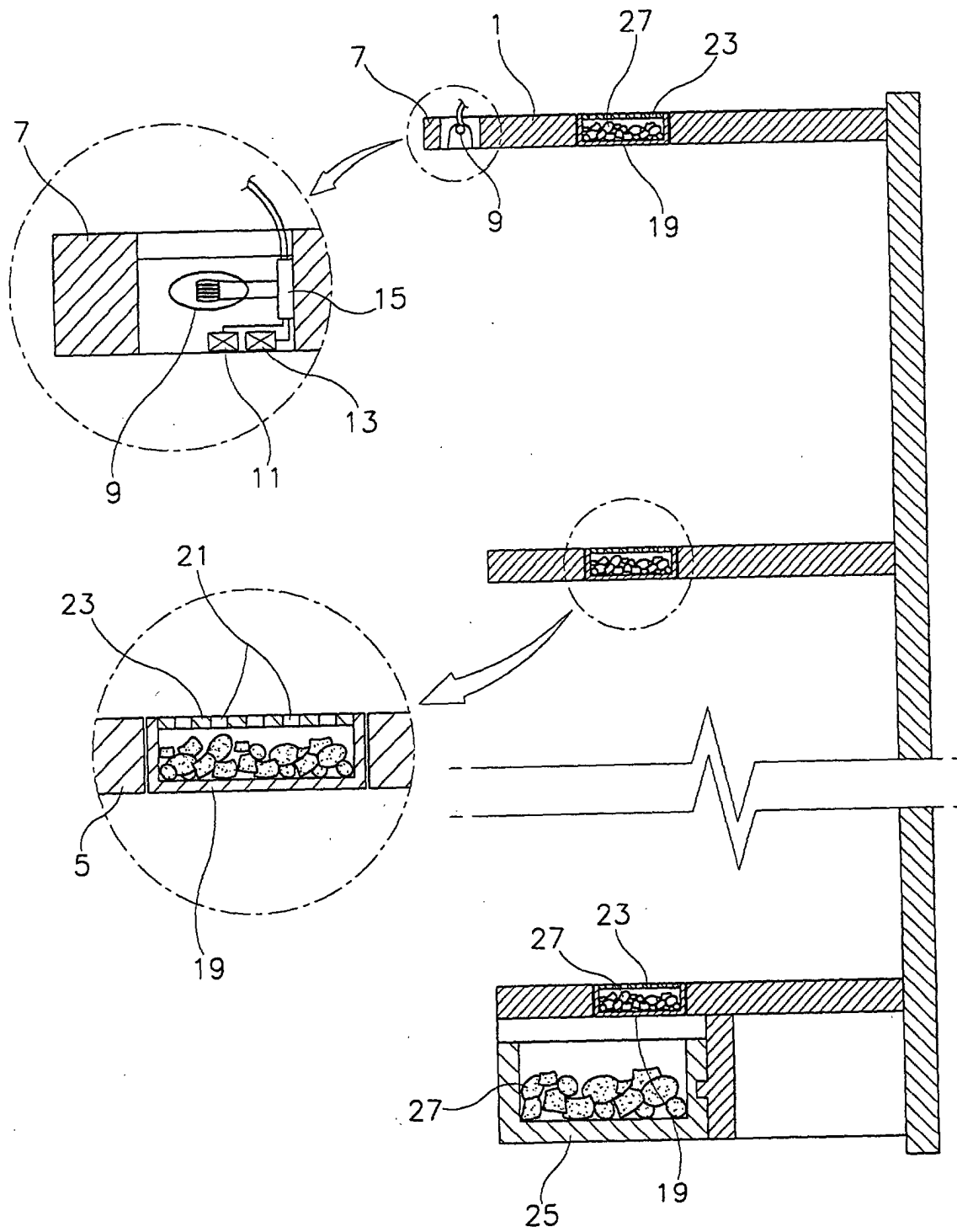


FIG.2





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# EUROPEAN SEARCH REPORT

Application Number  
EP 01 12 3559

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)
A	US 4 689 726 A (KRETZSCHMAR THOMAS E) 25 August 1987 (1987-08-25) * column 2, line 8 - line 24; figures 1-3 *	1	A47B63/00 A47B65/00
A	US 4 387 534 A (LEWANDOWSKI RAYMOND J ET AL) 14 June 1983 (1983-06-14) * column 1, line 11 - line 19; figures 1,2 *	1	
A	US 5 303 127 A (KOSANN SIDNEY) 12 April 1994 (1994-04-12) * column 6, line 9 - line 11; figures 6,7 *	1	
A	DE 201 05 816 U (LIN JACK) 5 July 2001 (2001-07-05) * page 4, paragraphs 2,4; figure 4 *	1	
A	DE 41 20 182 A (POELLET WILFRIED) 24 December 1992 (1992-12-24) * column 1, line 3 - line 51 *	2	TECHNICAL FIELDS SEARCHED (Int.Cl.7)
A	US 5 687 581 A (PRICE MILLER) 18 November 1997 (1997-11-18) * column 5, line 7 - line 15; figure 1 *		A47F A47B
The present search report has been drawn up for all claims			
Place of search <b>MUNICH</b>		Date of completion of the search <b>24 January 2002</b>	Examiner <b>Papadimitriou, S</b>
<b>CATEGORY OF CITED DOCUMENTS</b> 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 01 12 3559

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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24-01-2002

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
US 4689726	A	25-08-1987	NONE		
US 4387534	A	14-06-1983	NONE		
US 5303127	A	12-04-1994	NONE		
DE 20105816	U	05-07-2001	DE	20105816 U1	05-07-2001
DE 4120182	A	24-12-1992	DE	4120182 A1	24-12-1992
			DE	9117233 U1	27-11-1997
US 5687581	A	18-11-1997	US	6230510 B1	15-05-2001
			US	5979169 A	09-11-1999

EPO FORM P0459

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