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(54) SHELF CONSTRUCTION

(57) Use: in special furniture for laying out and exhibiting various goods. This allows to extend the operational potentialities. The rack structure comprises vertical pillars connected in pairs by crosspieces to define sections, and shelves fastened to the pillars by supporting means. Each pillar is made so that it has mutually perpendicular surfaces, one of which is provided with rectangular through holes, and the surfaces perpendicular thereto, with round through holes. The sections are interconnected at an angle to each other by angles connecting, when joining the sections to each other, those surfaces of the adjacent pillars, which have round through holes, the shelves are made as wire baskets of two types, the wire baskets of one type being of rectangular shape. The supporting means for fastening them in the rectangular holes of the pillars are made as hooks or as brackets, and the supporting means for fastening the wire baskets of rectangular shape in the round holes of the section pillars are made as a metal plate with a pair of screws welded thereto. The wire baskets of the other type have a triangular shape and are fastened by hooks to the walls of the rectangular wire baskets.

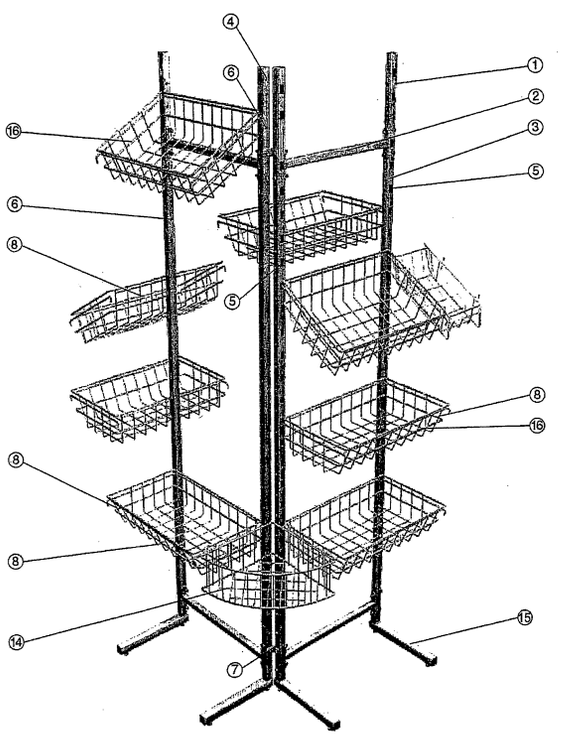

Fig. 1

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Description

(i) Field of the Invention

[0001] The invention relates to special furniture designed for laying out and exhibiting various goods.

[0002] One of the problems emerging when realizing and exhibiting goods resides in the necessity to arrange them in a manner such as to ensure the best view and convenient access thereto as well as the most rational use of selling areas. For this purpose, various structures of selling racks are developed which contain various types of shelves.

(ii) Background of the Invention

[0003] A rack for shelves is known to comprise pillars and horizontally arranged shelves that are held by the pillars. The racks are adjacent to the shelf corners and attached thereto by means of screws projecting laterally relative to the shelves between the pairs of adjacent pillars. The pillars are arranged to be disposed at the longitudinal sides of the shelves opposite to grooves. The screws force the pillars against the shelves to hold them in this position (see, WO 89/00824, A47B 47/04, 1989).

[0004] The closest to the claimed rack structure is a rack comprising a row of pillars with cantilever shelves. The pillars are provided with slots for arranging the shelves; the slots being spaced vertically from each other. The slots of each pillar extend horizontally in alignment with the slots of the adjacent pillar. Each pillar is provided with supporting brackets, with the vertical sides thereof fit tightly to its sides. The brackets have parallel end legs to support the parts provided with the slots and arranged to be disposed on the pillars. The goods placed on a respective shelf will load the supports of the latter, which transmit the load through the brackets to a respective pillar. Each support of a shelf is received in a pillar slot and located horizontally so as to extend laterally relative to the pillar, thus supporting the shelves on the opposite sides of the pillars. The supports of the shelves are fixed relative to the pillars by means of fasteners. The opposite ends of the shelves are mounted to the supports on the opposite sides of the pillars that are centered relative to the shelves to ensure thereby a maximum useful space between the shelves and a free access thereto (see, US Patent No. 4513344, A47F 5/10, 1986).

[0005] Such rack structure is stable only when the shelves are loaded uniformly with goods. It does not provide for suspending further shelves, and this limits the operational potentialities.

[0006] The technical result of the invention consists in extending the operational potentialities.

(iii) Summary of the Invention

[0007] This technical result is attainable owing to that, in a rack structure comprising a row of vertical pillars connected in pairs by crosspieces to define sections, and shelves fastened to the pillars by supporting means, according to the invention, each pillar is made so that it has mutually perpendicular surfaces, one of which is provided with rectangular through holes, and the surfaces perpendicular thereto, with round through holes, with the pitch thereof corresponding to the size of the members for supporting the shelves, the sections are interconnected at an angle to each other by angle-clamps connecting, when joining the sections to each other, those surfaces of the adjacent pillars, which have round through holes, the shelves are made as wire baskets of two types, the wire baskets of one type being of rectangular shape, with the width thereof corresponding to the distance between the pillars of one section, the supporting means for fastening said wire baskets in the rectangular holes of the pillars are made as hooks at the upper corners of the wire baskets or as brackets welded to the side walls of the wire baskets, and the supporting means for fastening the wire baskets of rectangular shape in the round holes of the section pillars are made as a metal plate with a pair of screws welded thereto, with the distance between axes of the screws being equal to the distance between axes of the round holes in a pillar, the plate width being smaller than the internal distance between vertical wires of a wall of the wire basket, wherein the wire baskets of the other type have a triangular shape and are fastened by hooks to the walls of the rectangular wire baskets.

[0008] One of the walls of the rectangular wire basket can be inclined, thereby enabling to fasten the rectangular wire baskets to the section pillars in an inclined position.

[0009] The pillars can be made so that they can be jointed heightwise.

(iv) Description of the Preferred Embodiments

[0010]

Fig. 1 shows the rack structure assembly.
Fig. 2 shows how the wire baskets are fastened to the pillars of a section of the rack structure.
Figs. 3 and 4 show how the wire baskets are fastened to the pillar by means of a plate, and Fig. 5 is a general view of this plate,
Fig. 6 is an angular connector for fastening the sections at a right angle to each other.

[0011] The rack structure comprises vertical pillars 1 connected in pairs by crosspieces 2 to define sections. Each pillar 1 is made so that it has mutually perpendicular surfaces 3 and 4. One of the surfaces 3 of the pillar 1 is provided with rectangular through holes 5, and the surface 4, which is perpendicular thereto, is provided with round through holes 6. The sections of pillars 1 are interconnected at an angle to each other by angle-

clamps 7 connecting those surfaces 4 of the pillars 1 of adjacent sections, which have round through holes 6. Shelves are made as wire baskets of two types. The wire baskets 8 of one type are of rectangular shape, and the width thereof corresponds to the distance between the pillars 1 of one section. The pitch of the holes 5 and 6 in the mutually perpendicular surfaces 3 and 4 of the pillars 1 corresponds to the size of the members for supporting the shelves. The supporting means for fastening them in the rectangular holes 5 of the pillars 1 are made as hooks 9 at the upper corners of the wire baskets 8 or as brackets 10 welded to the side walls of the wire baskets 8. The supporting means for fastening the wire baskets 8 of rectangular shape in the round holes 6 of the pillars 1 of the sections are made as a metal plate 11 with a pair of screws 12 welded thereto, with the distance between axes of the screws being equal to the distance between axes of the round holes 6 in a pillar 1, the width of the plate 11 being smaller than the internal distance between vertical wires 13 of a wall of the basket 8. The baskets 14 of the other type have a triangular shape and are fastened by hooks at their upper corners, which are engaged with the walls of the rectangular wire baskets 8.

[0012] The pillars 1 are made so that they can be jointed heightwise.

[0013] The rack structure is assembled as follows. The pillars 1 are connected to each other by means of the crosspieces 2, for which purpose the round through holes 6 in the surfaces 3 of the pillars 1 are aligned with the holes in the crosspieces 2, whereupon screws are inserted into these holes and tightened by nuts. The lower portions of the pillars 1 are then inserted into attached supports 15 and fixed therein by means of stop screws.

[0014] In order to fasten the adjacent sections of the pillars 1 at an angle to each other, use is made of the angle-clamps 7, which are provided with holes in the sides thereof to receive screws and nuts therein for this purpose. The wire baskets 8 are suspended by means of the hooks 9. The distance between the hooks 9 must be equal to the space between the two holes 5 in the two pillars 1 of the sections. The hooks 9 are received in the rectangular holes 5 of the pillars 1. And, if a basket is suspended so that its inclined side 16 faces the pillar 1, it will be then inclined toward a buyer. But, if the basket 8 is suspended so that its straight side faces the pillar 1, it will then hang straightly.

[0015] The baskets 14 of triangular shape have hooks, which are engaged with the walls of the rectangular wire baskets 8.

[0016] In order to fasten the rectangular baskets 8 in the round holes 6 of the surfaces 4 of the pillars 1, the metal plate 11 is inserted between the vertical wires 13 on the wall of the basket 8 so as to be supported by the edges thereof on two horizontal wires 13 of the basket 8, and it is exactly for this purpose that the width of the metal plate 11 must be smaller than the internal space between the two vertical wires on the side wall of the basket 8, and the height of the plate 11 must be slightly greater than the space between the two horizontal wires 13 of the wall of the basket 8. The screws 12, the distance between axes of which is equal to the distance between axes of the round holes 6 in the surfaces 4 of the pillar 1, are passed through the round holes 6 and tightened by nuts. Such a fastening is reliable without play and locks the baskets 8 to the pillar 1.

[0017] The invention ensures wide potentialities for fastening and arranging the rectangular baskets 8 on the pillars 1. They can be suspended in a straight or sloping manner directly from the pillar 1. The triangular wire baskets 14 fastened to the walls of the rectangular baskets 8 join well the general view of the rack structure, thereby increasing the exhibition space.

Claims

1. A rack structure comprising a row of vertical pillars connected in pairs by crosspieces to define sections, and shelves fastened to the pillars by supporting means, **characterized in that** each pillar is made so that it has mutually perpendicular surfaces, one of which is provided with rectangular through holes, and the surfaces perpendicular thereto, with round through holes, with the pitch thereof corresponding to the size of the members for supporting the shelves, the sections are interconnected at an angle to each other by angle-clamps connecting, when joining the sections to each other, those surfaces of the adjacent pillars, which have round through holes, the shelves are made as wire baskets of two types, the wire baskets of one type being of rectangular shape, with the width thereof corresponding to the distance between the pillars of one section, the supporting means for fastening said wire baskets in the rectangular holes of the pillars are made as hooks at the upper corners of the wire baskets or as brackets welded to the side walls of the wire baskets, and the supporting means for fastening the wire baskets of rectangular shape in the round holes of the section pillars are made as a metal plate with a pair of screws welded thereto, with the distance between axes of the screws being equal to the distance between axes of the round holes in a pillar, the plate width being smaller than the internal distance between vertical wires of a wall of the wire basket, wherein the wire baskets of the other type have a triangular shape and are fastened by hooks to the walls of the rectangular wire baskets.

2. The rack structure according to claim 1, **characterized in that** one of the walls of the rectangular wire basket is made so that it is inclined for fastening the rectangular wire baskets to the pillars of the section in an inclined position.

3. The rack structure according to claim 1, **characterized in that** the pillars are made so that they can be jointed heightwise.

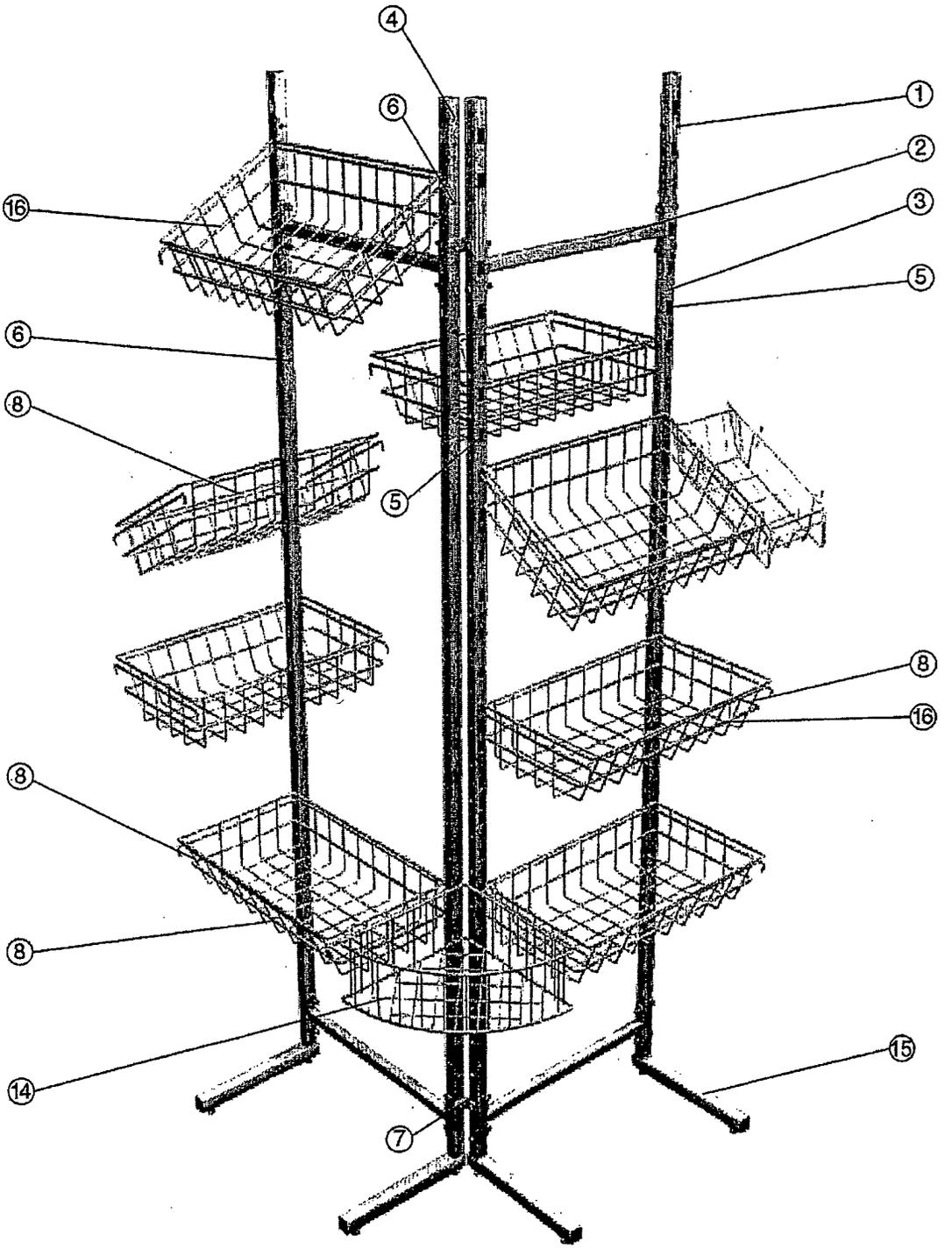

Fig. 1

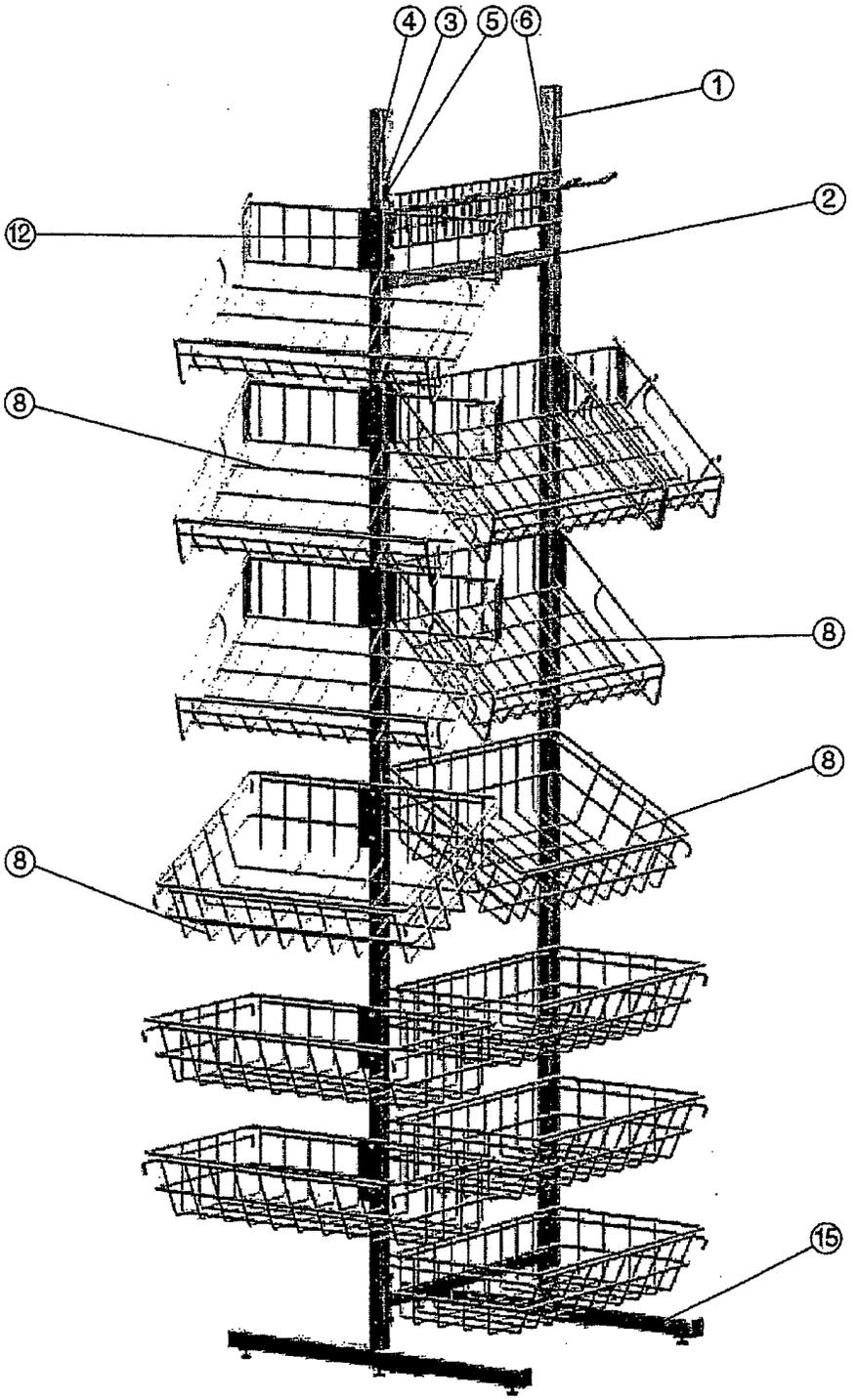

Fig. 2

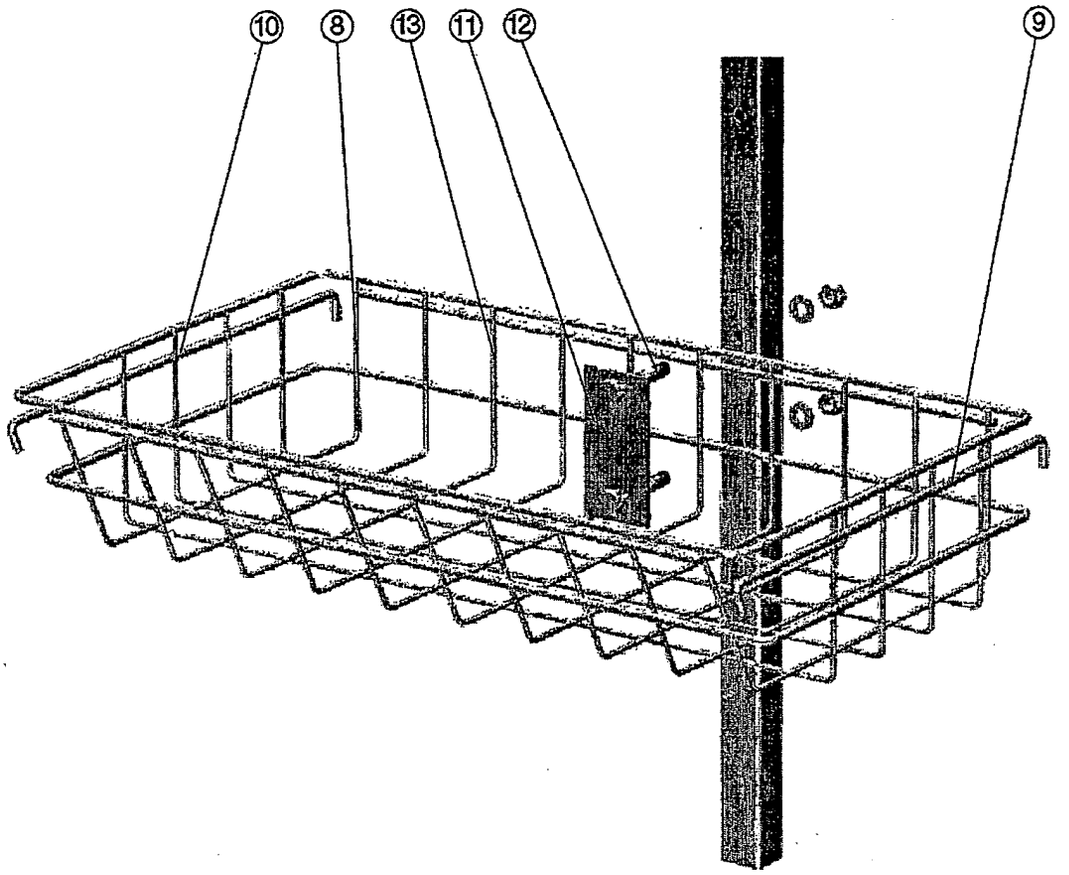

Fig. 3

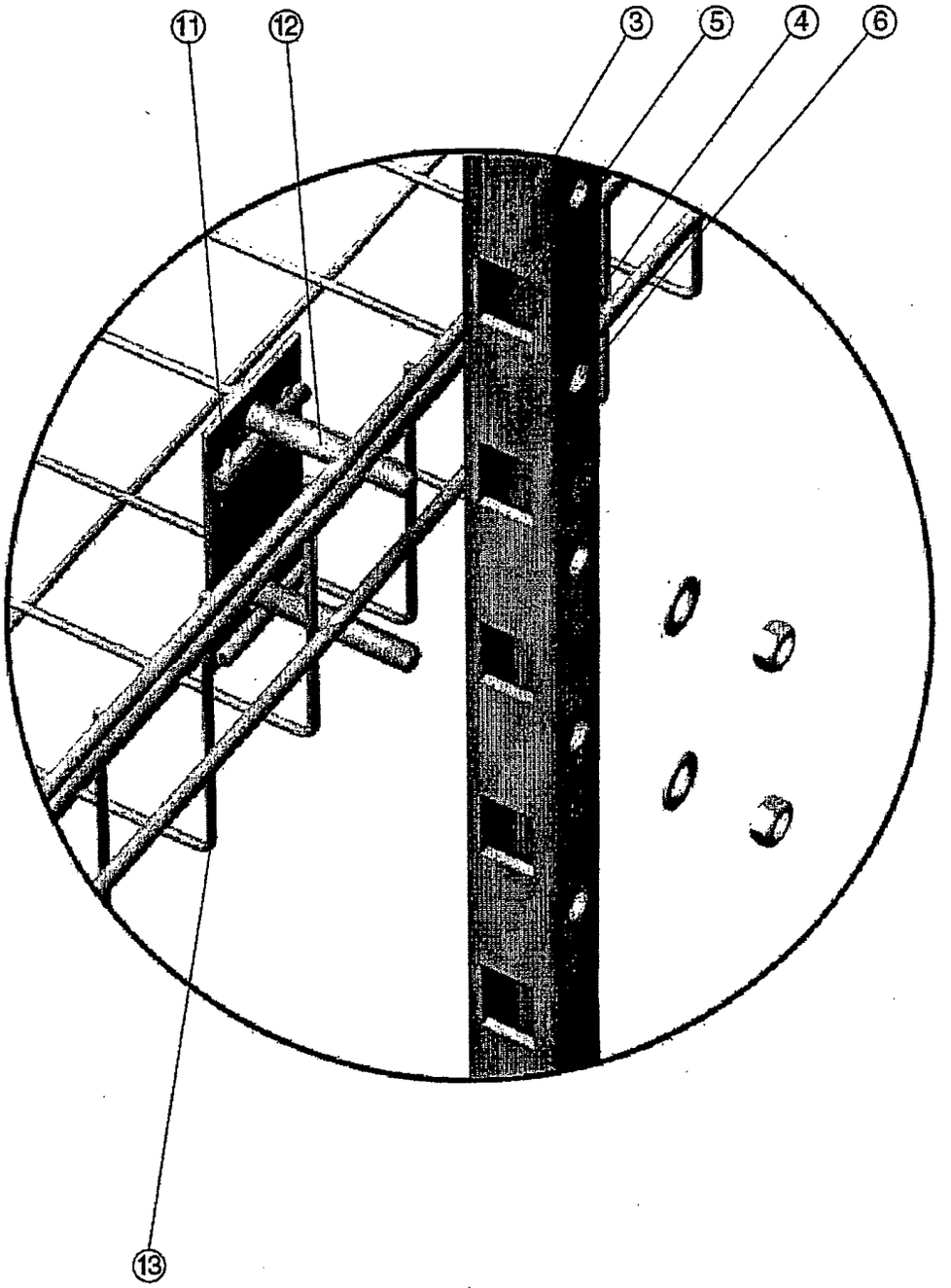

Fig. 4

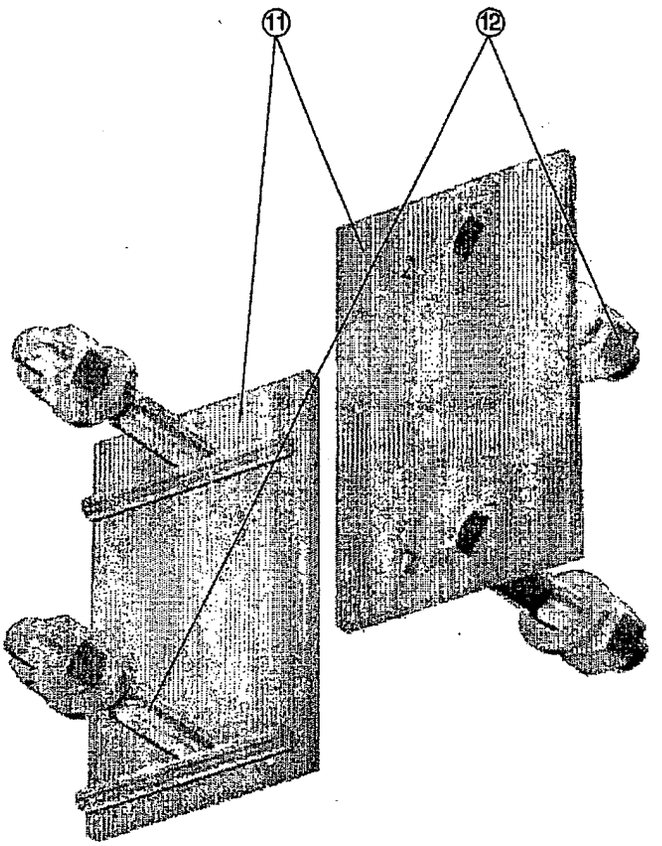

Fig. 5

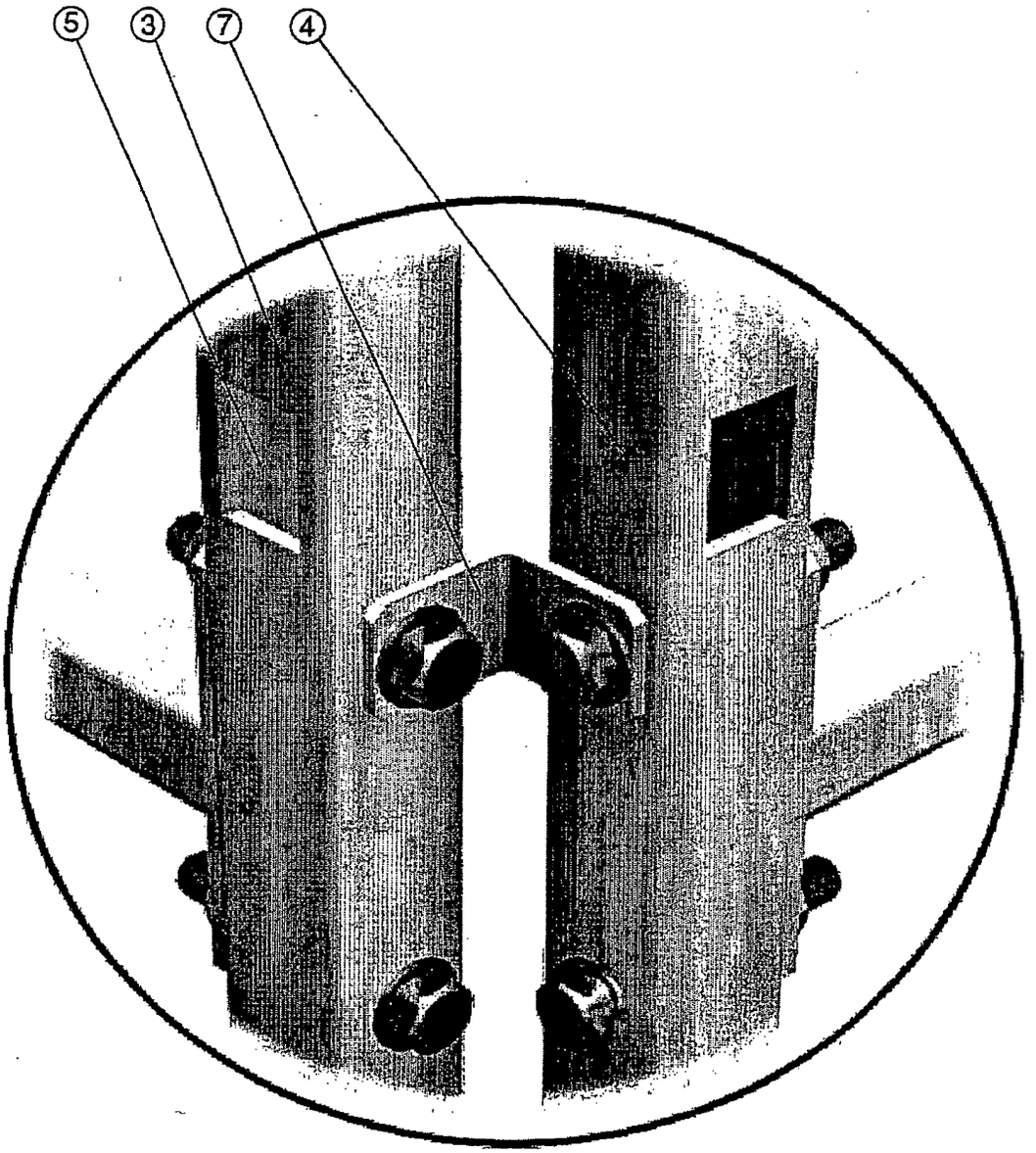

Fig. 6

INTERNATIONAL SEARCH REPORT

International application No.
PCT/RU 03/00396

A. CLASSIFICATION OF SUBJECT MATTER
A47F 5/00, A47B 57/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A47B 47/00, 47/02, 47/03, 47/05, 53/00, 55/00, 55/02, 57/00-57/08, 57/18-57/22, 57/44,
A47F 5/00, 5/01, 5/10, 5/13, 5/14, A47B 96/14, 96/20

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	RU 2071266 C1 (IRIA LUUKKONEN) 10.01.1997	1-3
A	RU 2136200 C1 (OBSCHESTVO S OGRANICHENNOI OTVET-STVENNOSTJU "U.T.M") 10.09.1999	1-3
A	RU 13305 U1 (OBSCHESTVO S OGRANICHENNOI OTVET-STVENNOSTJU "U.T.M") 10.04.2000	1-3
A	SU 1240407 A1 (TALLINSKOE NAUCHNO-PROIZVODSTVENNOE OBIEDINENIE NETKANIKH MATERIALOV "MISTRA") 30.06.1986	1-3
A	EP 0682898 A2 (RYSLINGE TRAEVARE APS) 22. 11. 1995	1-3
A	US 4444322 A (FRITO-LAY, INC.), Apr. 24, 1984	1-3
A	US 6311856 B2 (L&P PROPERTY MANAGEMENT COMPANY) Nov. 6, 2001	1-3

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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
09 December 2003 (09.12.2003)	10 December 2003 (10.12.2003)
Name and mailing address of the ISA/ RU	Authorized officer
Facsimile No.	Telephone No.

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