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(54) **Rotatable and adjustable display shelf device**

(57) A display shelf device includes a support post (20), a shelf member (30), and a coupler (1) having a ring member (10) attached to the support post, a bracket (31) attached to the shelf member, and a fastener (17) adjustably securing the bracket and the ring member together at any selected or suitable angular positions. The

bracket (31) and the shelf member (30) may thus be easily and quickly adjusted relative to the ring member (10) and the support post (20) at any selected angular position. The bracket includes one or more projections (33) to selectively engage into a number of depressions (15) of the ring member, and to adjustably retain the bracket to the ring member at selected angular position.

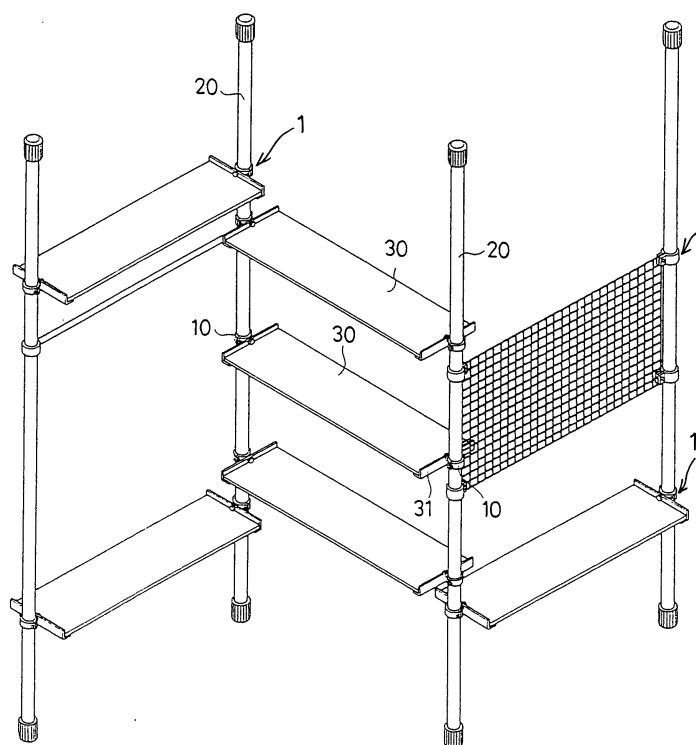


FIG. 6

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Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates to a display shelf device, and more particularly to a rotatable and adjustable display shelf device for allowing shelf members to be rotated or adjusted relative to the support posts to different angular positions.

2. Description of the Prior Art

[0002] Typical display shelf devices comprise one or more shelf members to be supported between two or more posts to at different heights or positions, for supporting various objects or goods on the shelf members.

[0003] For example, U.S. Patent No. 6,021,908 to Mathews discloses one of the typical display shelf devices which comprise one or more extensible shelf members to be supported between two or more posts to at different heights or positions.

[0004] However, the shelf members may not be adjusted relative to the posts to different angular positions, such that the various objects or goods may not be adjustably supported on the shelf members at different angular positions relative to the support posts.

[0005] U.S. Patent No. 6,158,600 to Ferrucci et al. discloses another typical display shelf device, which comprises one or more shelf members that may be supported between two mounting bars at different angular positions relative to the support posts by a number of pivoting mechanisms. The mounting bars are required to be secured to the support posts by a number of corner assemblies.

[0006] However, it is inconvenient to adjust the shelf members relative to the mounting bars and the support posts to different angular positions.

[0007] The present invention has arisen to mitigate and/or obviate the afore-described disadvantages of the conventional display shelf devices.

SUMMARY OF THE INVENTION

[0008] The primary objective of the present invention is to provide a rotatable and adjustable display shelf device for allowing the shelf members to be easily rotated or adjusted relative to the support posts to different angular positions.

[0009] In accordance with one aspect of the invention, there is provided a display shelf device comprising a support post, a shelf member, and a coupler including a ring member attached to the support post, a bracket attached to the shelf member, a fastener securing the bracket and the ring member together, and means for adjustably retaining the bracket to the ring member at selected angular position. The bracket and thus the

shelf member may be easily and quickly rotated or adjusted relative to the ring member and thus the support post at any selected or suitable angular positions.

[0010] The adjustably retaining means includes a plurality of depressions formed in the ring member, and at least one projection extended from the bracket to selectively engage into either of the depressions of the ring member, and to adjustably retain the bracket to the ring member at selected angular position.

[0011] The ring member includes a seat provided thereon and having the depressions formed in the seat, to receive the projection. The seat includes a screw hole formed therein to thread with the fastener, the depressions are formed around the screw hole of the seat.

[0012] The ring member preferably includes two segments secured onto the support post with second fasteners. Each of the segments includes two end flaps secured together by the second fasteners.

[0013] The bracket preferably further includes a second projection extended therefrom and arranged opposite to the projection, to selectively engage into either of the depressions of the ring member, and to adjustably retain the bracket to the ring member at selected angular position.

[0014] Further objectives and advantages of the present invention will become apparent from a careful reading of the detailed description provided hereinbelow, with appropriate reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015]

FIG. 1 is a perspective view of a rotatable and adjustable display shelf device in accordance with the present invention;

FIG. 2 is a partial exploded view of the rotatable and adjustable display shelf device;

FIG. 3 is a partial cross sectional view of the rotatable and adjustable display shelf device, taken along 3-3 of FIG. 1;

FIG. 4 is a partial plan view of the rotatable and adjustable display shelf device, illustrating the operation of the rotatable and adjustable display shelf device; and

FIGS. 5, 6 are perspective views illustrating the other arrangements or applications of the rotatable and adjustable display shelf device.

DETAILED DESCRIPTION OF ILLUSTRATIVE EMBODIMENT

[0016] Referring to the drawings, and initially to FIG. 1, a rotatable and adjustable display shelf device in accordance with the present invention comprises one or more shelf members 30 to be rotatably or adjustably secured to one or more support posts 20 with one or more

couplers 1.

[0017] Each of the couplers 1 includes a ring member 10 to be secured or attached onto the support post 20. For example, each of the ring members 10 includes two half members or segments 11, 12 each having two end flaps 18 secured together by fasteners 13. One or both of the end flaps 18 may include a screw hole 19 formed therein to thread with the fasteners 13, which may detachably secure the half members or segments 11, 12 together, in order to detachably secure the ring members 10 onto the support posts 20.

[0018] One of the half members or segments 11, 12 includes a seat 14 provided thereon and having a screw hole 16 formed therein, such as formed in the center portion thereof, and having a number of depressions 15 formed therein, such as formed around the center screw hole 16 thereof.

[0019] Each of the couplers 1 further includes a bracket 31 secured to one end of the respective shelf member 30 with such as adhesive materials, fasteners or latches (not shown), or by welding processes, etc., and to be secured to the ring member 10 with one or more fasteners 17 or latches (not shown) or the like, and thus for allowing the shelf members 30 to be secured or attached onto the support posts 20 with the ring members 10 and the brackets 31 of the couplers 1 respectively.

[0020] Each of the brackets 31 includes an orifice 32 formed therein to receive the fastener 17, and one or more, such as two opposite projections 33, 34 extended therefrom, to selectively engage into the depressions 15 of the seat 14 of the half members or segments 11, 12 (FIG. 3), and thus to adjustably secure the brackets 31 and thus the shelf members 30 to the support posts 20 at any selected or suitable or different angular positions (FIG. 4).

[0021] In operation, as shown in FIG. 3, when the bracket 31 and thus the shelf member 30 are secured to the seat 14 of the segment 11 of the ring member 10 with the fastener 17, the seat 14 may be forced toward or against the bracket 31, in order to force the projections 33, 34 of the bracket 31 into the depressions 15 of the seat 14 of the segment 11, and so as to secure the brackets 31 to the support posts 20 at selected or suitable angular position (FIG. 4).

[0022] When it is required to adjust the shelf member 30 relative to the support posts 20 to the other selected or suitable angular positions, the fastener 17 is unthreaded relative to the bracket 31, in order to disengage the projections 33, 34 of the bracket 31 from the depressions 15 of the seat 14 of the segment 11, and thus for allowing the brackets 31 to be rotated or adjusted relative to the segment 11 of the ring member 10 to any selected or suitable angular positions (FIG. 4).

[0023] When the projections 33, 34 of the bracket 31 are forced into the depressions 15 of the seat 14 of the segment 11 again by threading the fastener 17 relative to the bracket 31 again, the brackets 31 may then be secured to the segment 11 of the ring member 10 at the

selected or suitable angular positions again, such that the shelf member 30 may be easily and quickly rotated and adjusted relative to the support posts 20 to any selected or suitable angular positions by the fastener 17.

[0024] It is to be preferable that, as shown in FIGS. 2-4, each of the brackets 31 includes two or more projections 33, 34 extended therefrom, to selectively engage into the depressions 15 of the seat 14, and thus to adjustably and solidly secure the brackets 31 and thus the shelf members 30 to the ring members 10 and thus the support posts 20 at any selected or suitable or different angular positions.

[0025] However, each of the brackets 31 may also include a single projection 33 or 34 extended therefrom, which is also good enough to selectively engage into either of the depressions 15 of the seat 14, and to adjustably secure the brackets 31 to the ring members 10 at any selected or suitable angular positions.

[0026] As shown in FIG. 5, a shelf member 30 may also be easily and quickly rotated and adjusted relative to one of the support posts 20 to any selected or suitable angular positions by the fastener 17 of the ring member 10.

[0027] Alternatively, as shown in FIG. 6, a number of shelf members 30 may be easily and quickly rotated and adjusted relative to a number of support posts 20 to any selected or suitable angular positions by the fasteners 17 of the ring members 10.

[0028] Accordingly, the rotatable and adjustable display shelf device in accordance with the present invention may be provided for allowing shelf members to be rotated or adjusted relative to the support posts to different angular positions.

[0029] Although this invention has been described with a certain degree of particularity, it is to be understood that the present disclosure has been made by way of example only and that numerous changes in the detailed construction and the combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as hereinafter claimed.

Claims

1. A display shelf device comprising:

- a) a support post,
- b) a shelf member, and
- c) a coupler including:

- i) a ring member attached to said support post,
- ii) a bracket attached to said shelf member,
- iii) a fastener securing said bracket and said ring member together, and
- iv) means for adjustably retaining said bracket to said ring member at selected an-

gular position.

2. The display shelf device as claimed in claim 1, wherein said adjustably retaining means includes a plurality of depressions formed in said ring member, and at least one projection extended from said bracket to selectively engage into either of said depressions of said ring member, and to adjustably retain said bracket to said ring member at selected angular position. 5 10
3. The display shelf device as claimed in claim 2, wherein said ring member includes a seat provided thereon and having said depressions formed in said seat, to receive said at least one projection. 15
4. The display shelf device as claimed in claim 3, wherein said seat includes a screw hole formed therein to thread with said fastener, said depressions are formed around said screw hole of said seat. 20
5. The display shelf device as claimed in claim 1, wherein said ring member includes two segments secured onto said support post with second fasteners. 25
6. The display shelf device as claimed in claim 5, wherein each of said segments includes two end flaps secured together by said second fasteners. 30
7. The display shelf device as claimed in claim 1, wherein said bracket further includes a second projection extended therefrom and arranged opposite to said at least one projection, to selectively engage into either of said depressions of said ring member, and to adjustably retain said bracket to said ring member at selected angular position. 35 40

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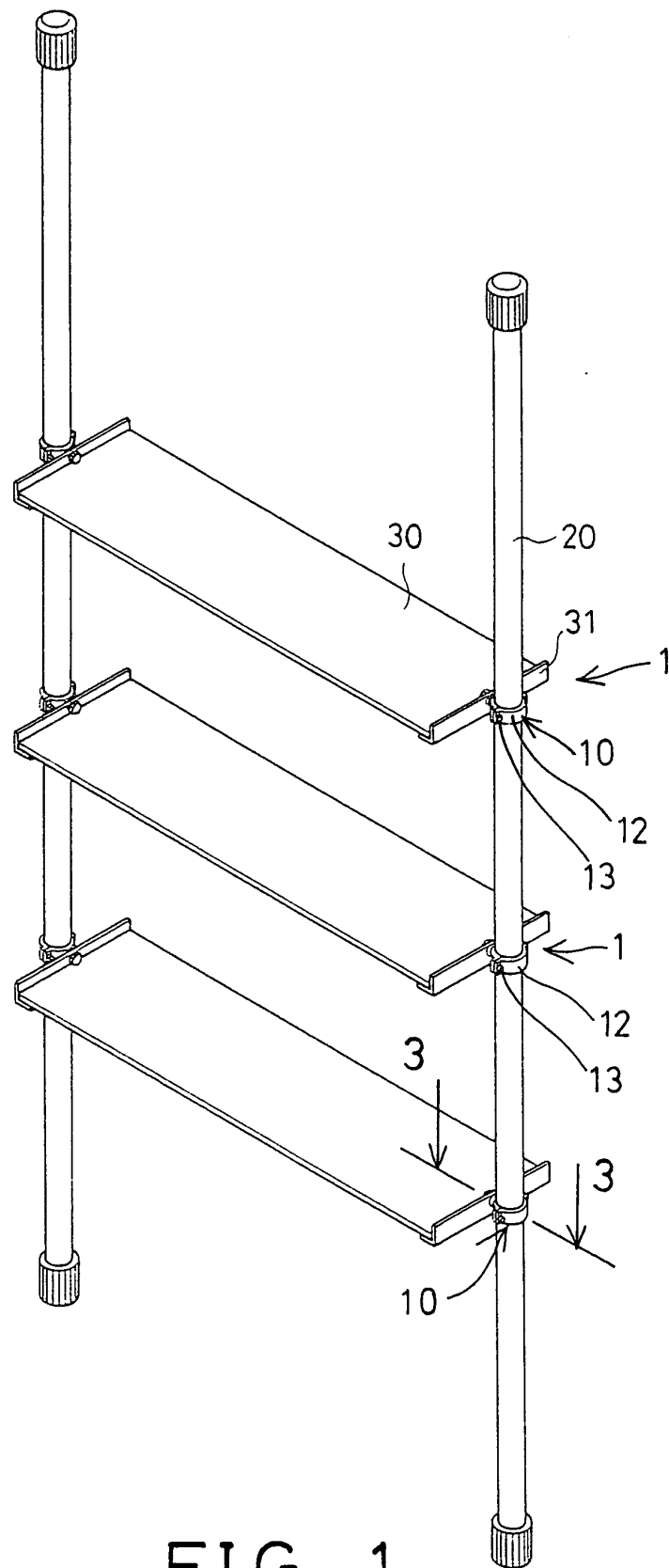
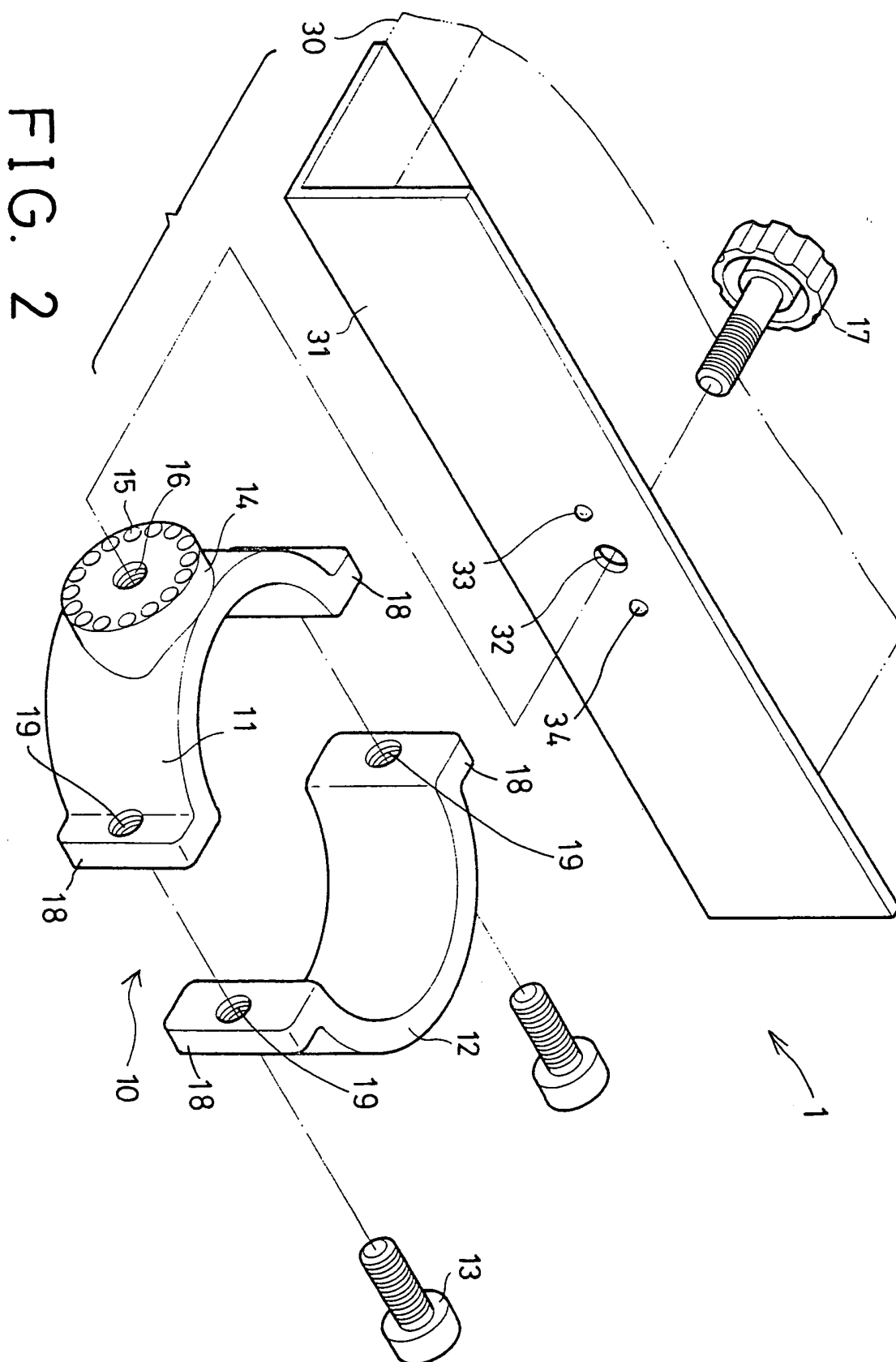
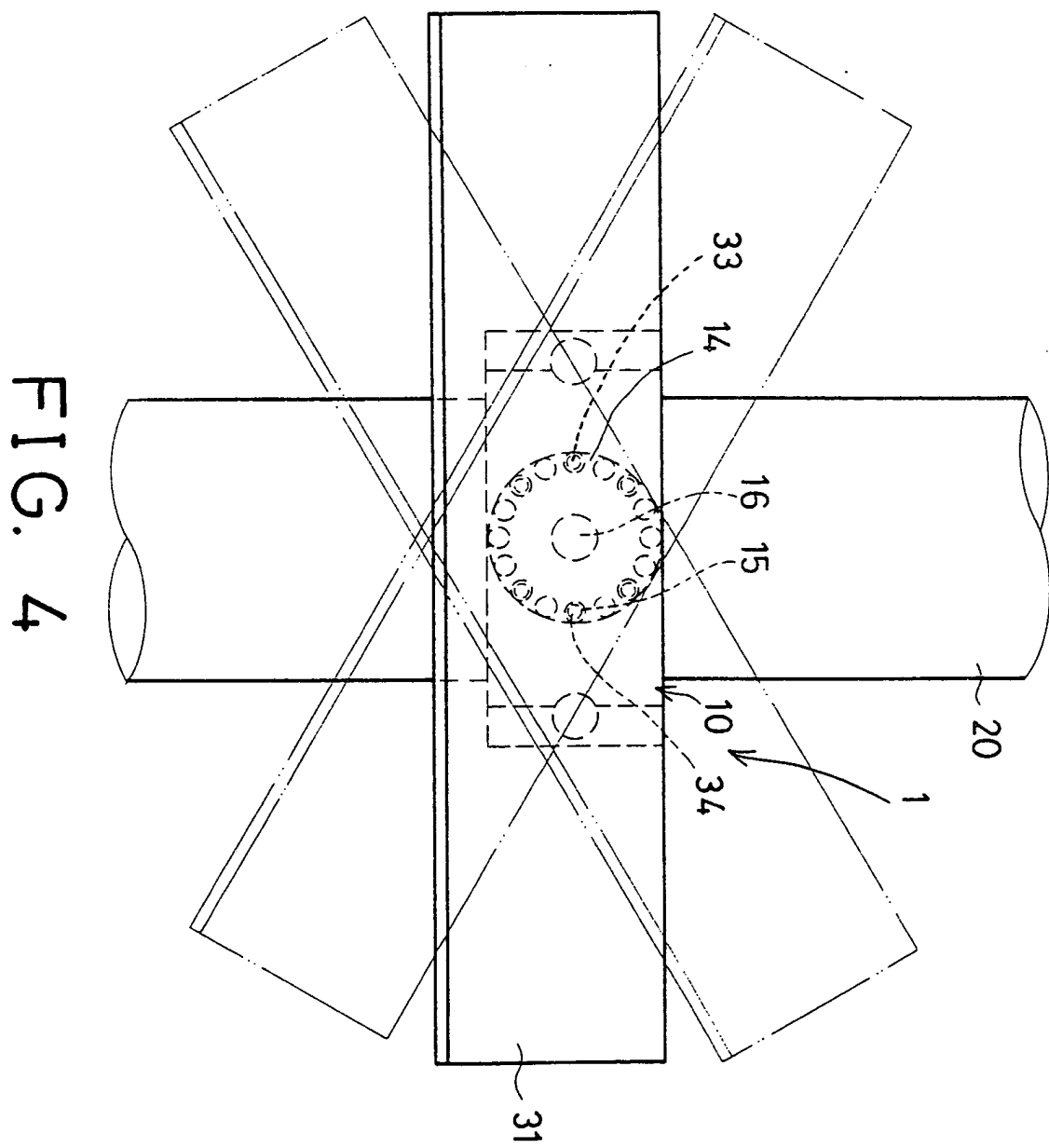


FIG. 1





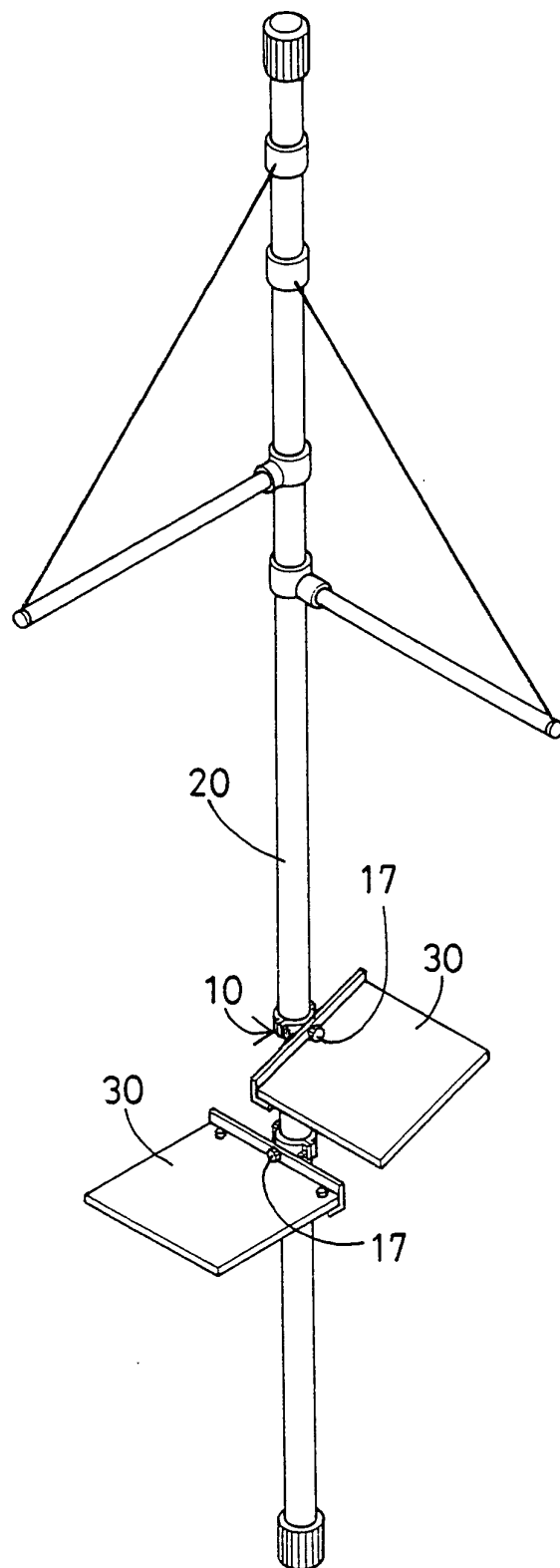


FIG. 5

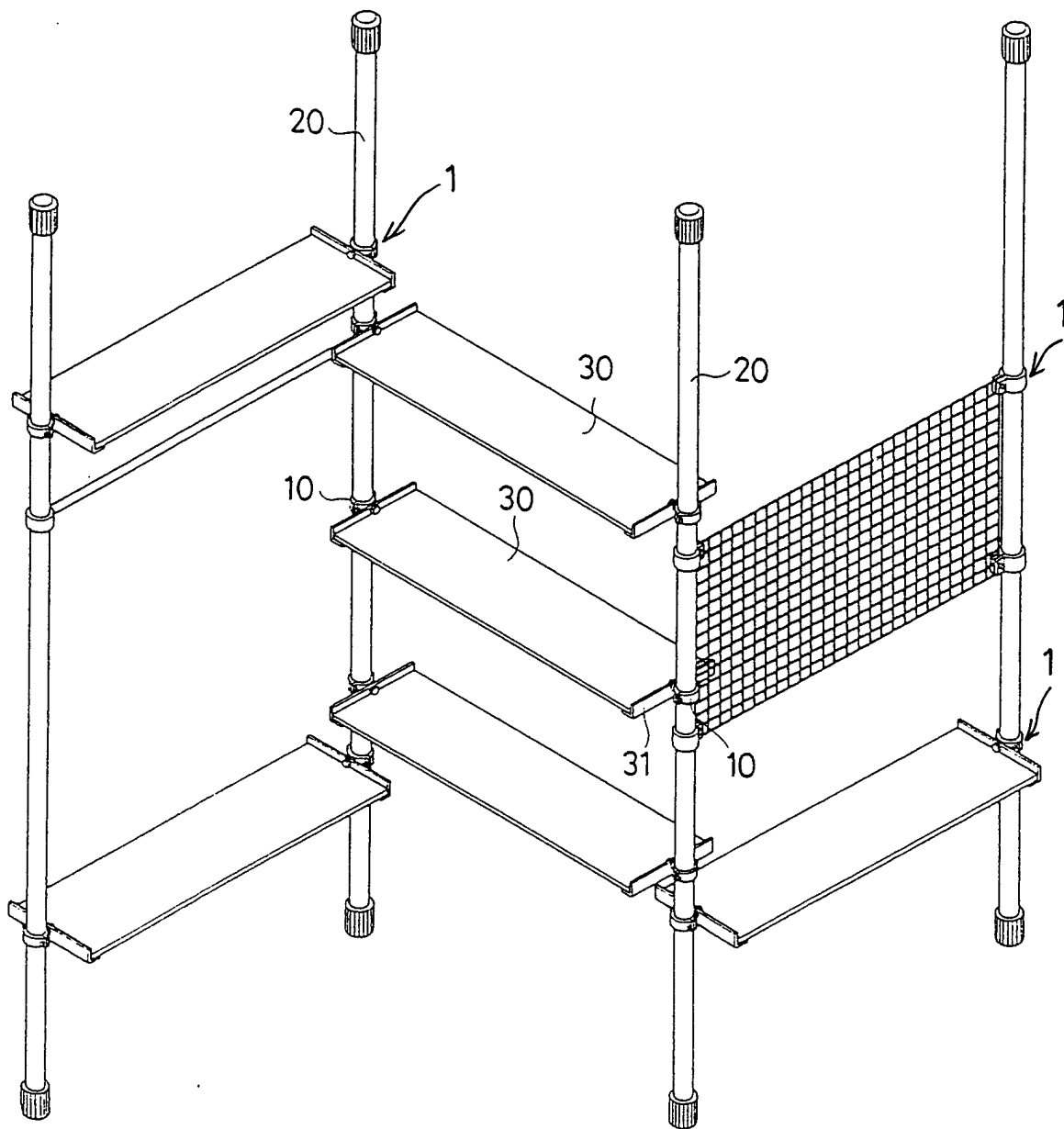


FIG. 6



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EUROPEAN SEARCH REPORT

Application Number
EP 03 01 7734

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)
X	US 2003/057810 A1 (DEWITT CHUCK) 27 March 2003 (2003-03-27) * abstract; figures 1,2,14,15,20,21 * * page 4, paragraph 66 * * page 5, paragraph 77 - page 5, paragraph 79 *	1-4,7	A47B57/04
X	EP 0 351 735 A (BLU ITALIA S R L) 24 January 1990 (1990-01-24) * abstract; figures 15-20 * * column 3, line 6 - column 3, line 23 *	1-5	
A	---	6,7	
A	US 5 749 480 A (WOOD GRAHAM ROBERT) 12 May 1998 (1998-05-12) * abstract; figures 1-5 *	1-7	
A	---	1-7	
A	US 3 151 576 A (PATTERSON LAWRENCE W) 6 October 1964 (1964-10-06) * column 3, line 15 - column 3, line 49; figures 1-3 *		
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			A47B A47F
The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 12 November 2003	Examiner MacCormick, D
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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</p>			

EPO FORM 1503 03 82 (P04C01)

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

EP 03 01 7734

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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12-11-2003

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