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(54) A SPLIT MOUNTING TYPE SQUARE COLUMN ASSEMBLY

(57) The present invention relates to a split mounting type square column assembly for the exhibition equipment, comprising a square column, a embedded type supporting frame, and a connecting lock, wherein the said connecting lock may be removable located within the said embedded type supporting frame, and the said embedded type supporting frame may be removable located within the said square column. One outside surface of the said square column at least has a connecting groove, and has a quantity of positioning mounting holes in the area except for the situation of the said connecting groove. Said embedded type supporting frame consists of a supporting frame body, a spring cotter and a spring keyway, wherein, said spring cotter is located within the said spring keyway, and in the initial state, said spring cotter overhangs from the said spring keyway, said spring keyway is located on the said supporting frame body, therefore the moving pathway of said spring cotter could pass through the positions of said positioning mounting holes when said embedded type supporting frame is pushed in or out.

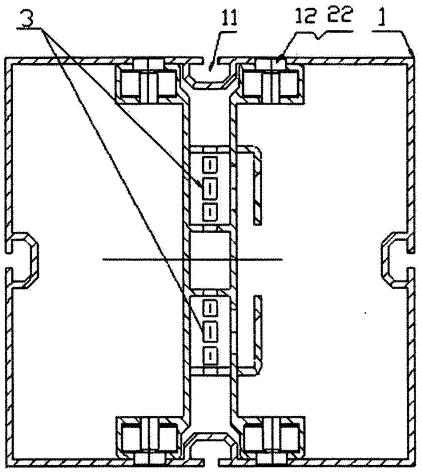

Fig.1

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Description

Field of the Invention

[0001] The present invention relates to an assembly of combined type exhibition equipment, particularly to a split mounting type square column assembly.

Background of the Invention

[0002] The prior art employs guide rails in square columns and internally assembled connecting pieces. The connecting pieces are fixed by screw fastening. However, since the retaining screws must have countersunk heads, which must pass through existing grooves to implement tightening, the grooves have to be cut partially to enable the screws to pass through; as the result, there is a potential safety hazard, i.e., if the Operation points of forepaws of connectors in other adjacent supports are right in the cut part of the groove, the connection points are not connected actually or false connected. For exhibition supports, the consequence may be connection failure of the supporting structure and may result in personal injury.

Summary of the Invention

[0003] The present invention provides a split mounting type square column assembly that facilitates assembling of the exhibition equipment and improves safety and reliability of the exhibition equipment.

[0004] The present invention employs the following technical scheme:

A split mounting type square column assembly for exhibition equipment, comprising a square column 1, a embedded type supporting frame 2 and a connecting lock 3; wherein, said connecting lock 3 is removable located in said embedded type supporting frame 2; said embedded type supporting frame 2 is removable located in said square column 1, at least one outside surface of said square column 1 has a connecting groove 11, and a quantity of positioning mounting holes 12 is arranged on the outside surface of said square column 1 outside of the area of connecting groove 11; said embedded type supporting frame 2 comprises a supporting frame body 21, a spring cotter 22 and a spring keyway 23; said spring cotter 22 is located on said spring keyway 23; in the initial state, said spring cotter 22 overhangs from said spring keyway 23, said spring keyway 23 is located on said supporting frame body 21, therefore the moving pathway of said spring cotter 22 could pass through the positions of said positioning mounting holes 12 when said embedded supporting frame 2 is pushed in or out.

[0005] Compared to the prior art, the present invention has the following advantages:

(1) In the present invention, the connection between the square column and the embedded type supporting frame is arranged outside of the area of connecting groove that is designed to connect other parts of the exhibition equipment; therefore, the present invention ensures completeness or integrity of the connecting groove, so that it is unnecessary to consider the effect of assembling holes in the connecting groove when said exhibition equipment is assembled, and reliable connection can be implemented at any position in said connecting groove; as the result, the present invention can facilitate assembling of the exhibition equipment and improve safety and reliability of the exhibition equipment.

(2) The plates that constitute the square column are removable connected, and thereby provide more convenience for assembling of the exhibition equipment.

(3) The present invention employs a spring pin for connection; the spring pin can implement accurate fitting between internal connecting pieces (inserts) and outer surface of the profile, and thereby ensures required accuracy. Furthermore, it is common knowledge that it is much easier to work out locating holes on outer walls than on complex shapes (e.g., walls with uneven wall thickness, half openings, cantilevers, or bevel surfaces, etc.). Employ spring pin structure can avoid fixing holes or fabrication holes on outer finished surfaces; since the pin structure level up the pin hole after it is assembled to the section of profile, it can maximize appearance perfection. In addition, since the mounting point of the structure is above or below the joint, the structure can avoid adverse effect to the finishing work on left and right surfaces at the joint as far as possible.

Brief Description of the Drawings

[0006]

Fig.1 is a sectional view of the structure of an embodiment of the present invention;

Fig.2 is a right view of the structure of an embodiment of the present invention;

Fig.3 is a partial sectional view of the structure of an embodiment of the present invention;

Fig.4 is a structural representation of the embedded type supporting frame in an embodiment of the present invention;

Fig.5 is a structural representation of the embedded

type supporting frame in another embodiment of the present invention; and

Fig.6 is a sectional view of the structure of another embodiment of the present invention.

Detailed Description of the Embodiments

[0007] A split mounting type square column assembly for exhibition equipment, comprising a square column I , a embedded type supporting frame 2, and a connecting lock 3; wherein, said connecting lock 3 is removable located in said embedded type supporting frame 2; said embedded type supporting frame 2 is removable located in said square column 1, at least one outside surface of said square column 1 has a connecting groove 11, and a quantity of positioning mounting holes 12 is arranged outside of the area of connecting groove 11 on outside surface of said square column 1; said embedded type supporting frame 2 comprises a supporting frame body 21, a spring pin 22, and a spring keyway 23; said spring pin 22 is located on said spring keyway 23; in the initial state, said spring pin 22 overhangs from said spring keyway 23, said spring keyway 23 is located on said supporting frame body 21, therefore the moving pathway of said spring cotter 22 could pass through the positions of said positioning mounting holes 12 when said embedded type supporting frame 2 is pushed in or out; said spring cotter 22 comprises a pin 221 and a spring 222; said spring 222 is located between said pin 221 and said spring keyway 23; said spring cotter 22 can also be implemented with any other technical scheme (see Fig.5); in this embodiment, there is an installation guide frame 24 on said supporting frame body 21; there is a quantity of guide holes 241 for a special tool for opening/closing connecting lock 3 on said installation guide frame 24, and there is a quantity of mounting holes 13 on said square column 1 at positions corresponding to said pilot holes 241; said square column 1 is assembled with plates connected to each other, and at least one of the plates is removable connected to adjacent plates; said removable connection can be in either of the following forms:

(1) Said removable connection is composed of a male groove on one plate and a female groove on another plate;

(2) Said removable connection is composed of "T" grooves 141 and 142 on the adjacent plate and a "H" section socket piece 143; wherein, said "H" socket piece 143 is inserted in said "T" grooves 141 and 142 on the adjacent plate.

Claims

1. A split mounting type square column assembly for exhibition equipment, comprising a square column 1, a embedded type supporting frame 2, and a connecting lock 3; wherein, said connecting lock 3 is removable located in said embedded type supporting frame 2; said embedded type supporting frame 2 is removable located in said square column I , at least an outside surface of said square column 1 has a connecting groove 11; wherein, a quantity of positioning mounting holes 12 is arranged outside of the area of connecting groove 11 on outside surface of said square column I ; said embedded type supporting frame 2 comprises a supporting frame body 21, a spring cotter 22, and a spring keyway 23; said spring cotter 22 is located on said spring keyway 23; in the initial state, said spring cotter 22overhangs from said spring keyway 23, said spring keyway 23 is located on said supporting frame body 21, therefore the moving pathway of said spring cotter 22 could pass through the positions of said positioning mounting holes 12 when said embedded type supporting frame 2 is pushed in or out.

2. The split mounting type square column assembly as in claim 1, wherein, said spring cotter 22 comprises a pin 221 and a spring 222; wherein, said spring is located between said pin 221 and said spring keyway 23.

3. The split mounting type square column assembly as in claim 1 or 2, further comprising an installation guide frame 24 located on said supporting frame body 21, a quantity of guide holes 241 for the special tool for opening/closing said connecting lock 3, said quantity of guide holes located on said installation guide frame 24, and a number of mounting holes 13 located on said square column 1 at positions corresponding to said guide holes 241.

4. The split mounting type square column assembly as in claim 3, wherein, said square column 1 is composed of plates connected to each other; wherein, at least one of said plates is removable connected to the adjacent plates.

5. The split mounting type square column assembly as in claim 4, wherein, said removable connection is composed of a male groove on a plate and a female groove on another plate.

6. The split mounting type square column assembly as in claim 4, wherein, said removable connection is composed of "T" grooves 141 and 142 on the adjacent plate and a "H" grooves socket piece 143; wherein, said "H" socket piece 143 is inserted in said "T" grooves 141 and 142 on the adjacent plate.

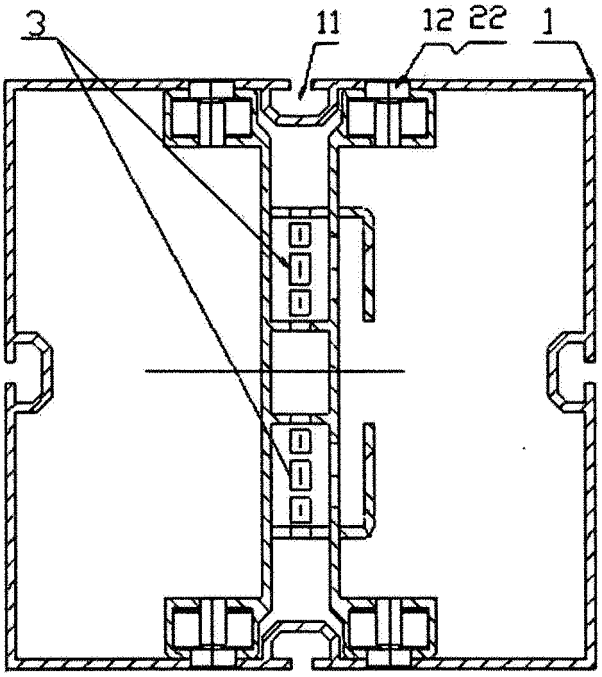

Fig.1

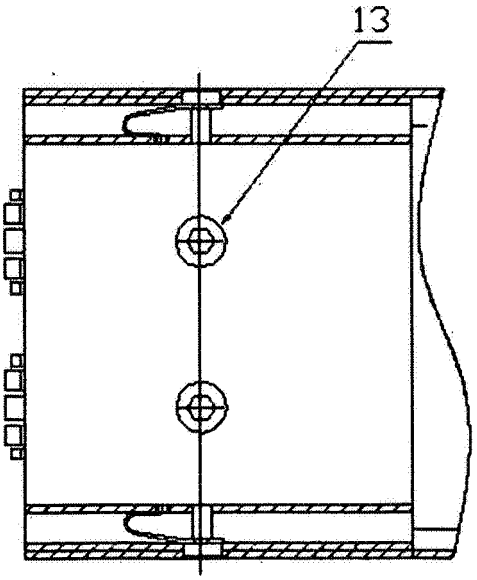

Fig.2

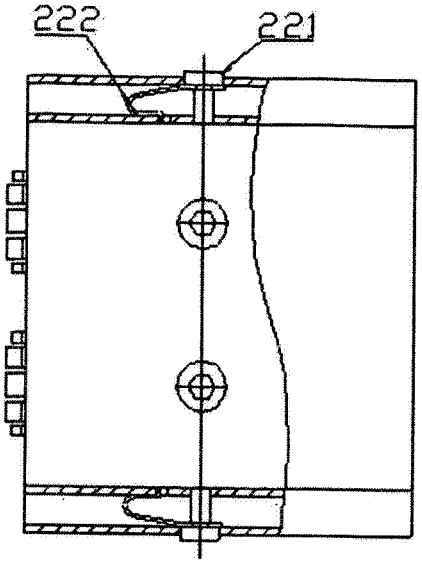

Fig.3

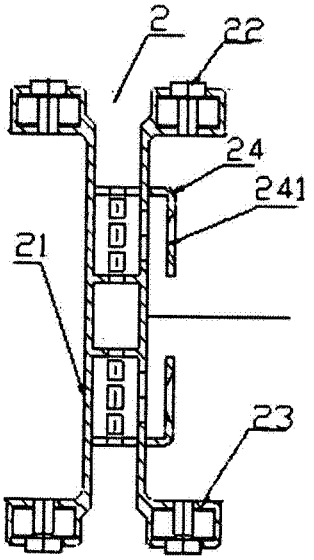

Fig.4

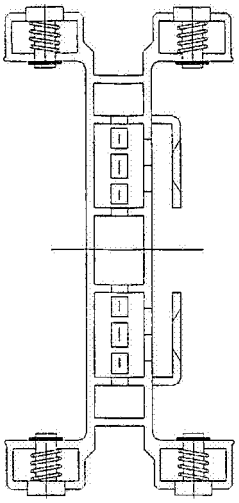

Fig.5

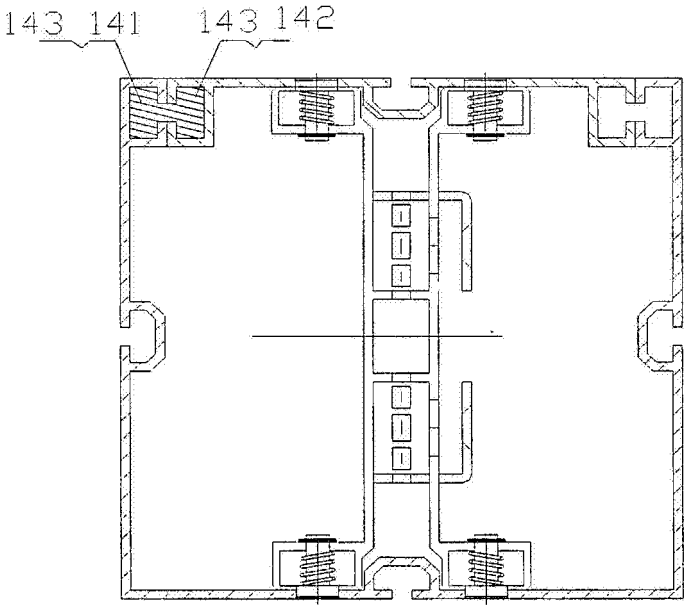

Fig.6

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2004/001387

A. CLASSIFICATION OF SUBJECT MATTER

IPC[7]: A47F5/00 E04B2/74

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)

IPC[7]: A47F5, E04B2

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

CNPAT

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

WPI EPODOC PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CN2649668 Y (YIMING ZENG) 20.Oct. 2004 (20.10.2004) The whole description	1-6
A	EP0657595 A (CLESTRA HAUSERMAN SA) 14.Jun. 1995 (14.06.1995) The whole description	1-6
A	JP2002294905 A (TOTO LTD) 09.Oct. 2002 (09.10.2002) The whole description	1-6
A	US4438614 A (HAUSERMAN INC) 27.Mar. 1984 (27.03.1984) The whole description	1-6

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"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
15 Jul. 2005 (15.07.2005)	04 AUG 2005 (04.08.2005)
Name and mailing address of the ISA/CN The State Intellectual Property Office, the P.R.China 6 Xitucheng Rd., Jimen Bridge, Haidian District, Beijing, China 100088 Facsimile No. 86-10-62019451	Authorized officer Li Li Telephone No. 86-10-62085791

Form PCT/ISA /210 (second sheet) (April 2005)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2004/001387

Patent document Sited in search report	Publication date	Patent family Member(s)	Publication date
CN2649668 Y	20.Oct. 2004 (20.10.2004)	none	
EP0657595 A	14.Jun. 1995 (14.06.1995)	JP7189371 A	28.Jul.1995 (28. 07.1995)
		AT137288T	15.May.1996 (15.05.1996)
		DE69302393D	30.May.1996 (30.05.1996)
		ES2086209T	16.Jun.1996 (16.06.1996)
		DE69302393T	10.Oct.1996 (10.10.1996)
		KR241800B	01.Feb.2000 (01.02.2000)
JP2002294905 A	09.Oct. 2002 (09.10.2002)	none	
US4438614 A	27.Mar. 1984 (27.03.1984)	DE2908153A	06.Sep.1979 (06.09.1979)
		GB2015636A	12.Sep.1979 (12.09.1979)
		FR2418846A	28.Sep.1979 (28.09.1979)
		US4251968A	24.Feb.1981 (24.02.1981)
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		CA1125487A	15.Jun.1982 (15.06.1982)

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