

(19)



(11)

EP 2 527 553 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:

28.11.2012 Bulletin 2012/48

(51) Int Cl.:

E04B 2/74 (2006.01)**G09F 15/00 (2006.01)**(21) Application number: **12169375.8**(22) Date of filing: **24.05.2012**

(84) Designated Contracting States:

**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**

Designated Extension States:

BA ME(71) Applicant: **Ghedini, Lauro****40122 Bologna (IT)**(72) Inventor: **Ghedini, Lauro****40122 Bologna (IT)**(74) Representative: **Provvisionato, Paolo****Provvisionato & Co S.r.l.****Piazza di Porta Mascarella 7****40126 Bologna (IT)**(30) Priority: **24.05.2011 IT BO20110301**(54) **Mobile room partition system**

(57) A mobile room partition system comprises at least one mobile partition panel (3) connected to an upright (26) through guide means which comprise both the rotation guide means (25) and the translation guide means (22, 13, 20). In this manner the at least one mobile

partition panel (3) may both translate with respect to the upright (26) and rotate around the axis thereof. Preferably the partition panels are two and they may be variously oriented one with respect to the other in the translation and rotation motion thereof.

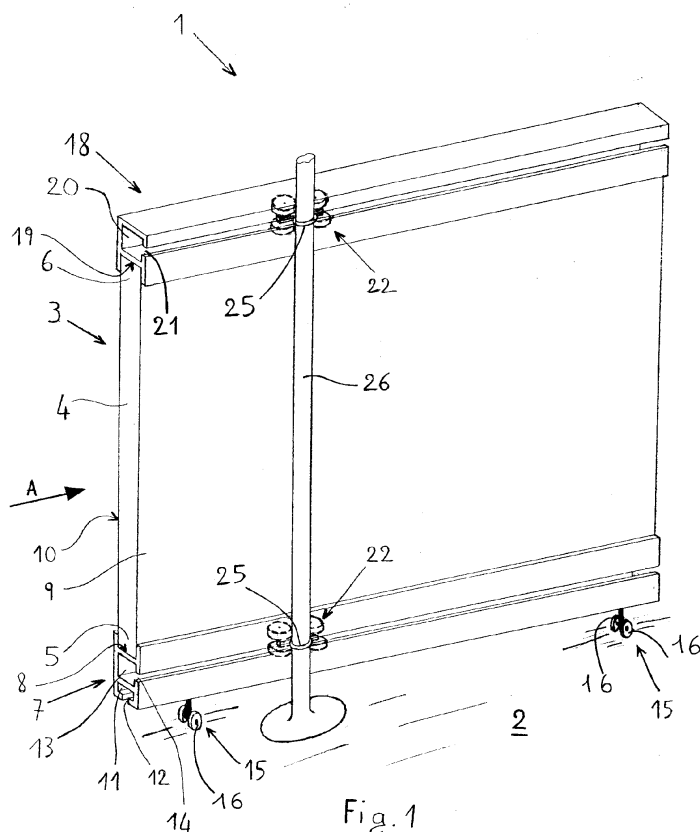


Fig. 1

Description

[0001] The present invention refers to a mobile room partition system.

[0002] The invention was developed with particular reference to a mobile room partition system suitable, for example, for residential and/or work purposes, comprising at least one mobile partition panel connected to an upright through guide means.

[0003] There are known various room partitioning systems, which use mobile panels of various types. The most common ones are constituted by walls sliding along a track or which can be closed in a book-like fashion. These are practical systems, whose configuration can be varied rapidly, but they are considerably limited to the presence of tracks: actually, the wall may assume only one predetermined closure configuration. Other room partitioning structures, used for example for dividing open space offices, instead use modular panels which allow obtaining any desired configuration. However, these structures are static, unsuitable should one wish to modify the partitioning of the spaces frequently, given that varying the configuration requires at least partly disassembling the structure.

[0004] An object of the present invention is to overcome the problems of the prior art mentioned above and in particular the limited possibilities of configuration of the room to be divided or the poor practicalness in use. A further object of the invention lies in the possibility to change the configuration of the aforementioned system in an easy and quick manner. Another object of the present invention is to provide a partition system that is simple and inexpensive to manufacture, reliable in use, easy to mount and which does not require or almost does not require, any maintenance. With the aim of attaining the objects described above, the present invention regards a mobile room partitioning system of the type indicated in the preamble of the present description, in which the guide means comprise both rotation guide means and translation guide means so that the at least one mobile partition panel may translate with respect to the upright and rotate around the axis of the upright.

[0005] The mobile partition panel is preferably provided with support wheels for moveably lying, in use, on the floor, so that the partition system may comprise panels even with large dimensions and weight without excessively stressing the upright.

[0006] According to a preferred embodiment, the guide means comprise at least two linear guides provided for on the at least one mobile partition panel, which preferably extend over the entire length of the mobile partition panel. Advantageously, the linear guides are two and they are arranged in edge portions of a mobile partition panel, so as to maximise the distance from each other and prevent possible jamming of the panel in the motion thereof as much as possible.

[0007] According to a variant of the present invention, it is provided for that the rotation guide means allow the

rotation of the at least one mobile partition panel, with first spacer elements interposed between the translation guide means and the rotation guide means, for connecting two or more mobile partition panels to an upright. Such first spacer elements determine a height difference, or displacement, according to a vertical direction, between the translation and rotation guide means and the rotation means, so as to be able to mount two substantially identical partition panels on the upright.

[0008] The mobile partition panels are preferably two, though they may even be three in particular cases.

[0009] In cases where two mobile partition panels are fixed to the same upright, there may be provided second spacer elements, interposed between the first spacer elements and the rotation means. The second spacer elements determine a displacement in a horizontal direction between the guide means and the rotation means, for connecting the two mobile partition panels to the upright with the respective lateral edges thereof at contact with each other, so as to form a wall without interruptions.

[0010] In addition, the mobile partition panel may comprise an articulation capable of allowing a rotation, around an axis perpendicular to the floor, of a portion of a mobile partition panel with respect to another portion of the mobile partition panel. This allows a greater flexibility of the partition configurations that can be obtained through the system of the present invention.

[0011] A further advantage of the invention is given by the high degree of standardisation of the aforementioned system, which requires the use of a limited number of different pieces for the realization thereof.

[0012] The upright which supports the panel or the panels of the present invention may be a post fitted or fixed between floor and ceiling, or it may be supported cantilevered through a crosspiece connected - fixed or mobile - to a wall. The panel or the panels of the present invention may be provided with housings and or ducts for electrical cables, data or for any other type of service, coming from the floor, from the ceiling and/or from a wall and optionally passed, fully or partly, in the support structure of the panel or of the panels.

[0013] Further characteristics and advantages will be apparent from the detailed description that follows of a preferred embodiment of the invention, with reference to the attached drawings, provided solely by way of non-limiting example, wherein:

- figure 1 is an assembly view of a room partitioning system according to the present invention,
- figure 2 is a view of the system of the present invention according to the arrow II of figure 1,
- figure 3 is a section according to line IIT-III of figure 2, in enlarged scale,
- figure 4 is a view - in enlarged scale - of a detail of the system according to a variant of the present invention,
- figure 4b is a top view in - enlarged scale - of a detail of the system according to a second variant of the

present invention,

- figures 5a to 5h are top schematic views of some possible configurations of the room partitioning system according to the present invention,
- figure 6 is a lateral view of a variant of the present invention, with an upright fixed to a wall by means of a beam structure.

[0014] Now, with reference to figure 1, there is illustrated an embodiment of a room partitioning system 1 intended to be installed on a floor 2. The aforementioned system 1 comprises a mobile wall 3, moveably fixed to an upright or vertical post 26, which for example can be fixed or coupled between floor and ceiling.

[0015] The mobile partition panel or wall 3 comprises a panel 4 which develops on a plane P substantially perpendicular to the floor 2. On the panel 4 there are defined a lower edge 5 and an upper edge 6, mutually opposite, and a first lateral surface 9 and a second lateral surface 10, parallel to the aforementioned plane P and also mutually opposite. The lower edge 5 of the panel 4 is rigidly constrained to a lower support section 7 substantially having the same length as the panel 4. The lower edge 5 is preferably fixed - in a coupled fashion - in a first seat 8 of the lower support section 7. Obviously, the fixing of the lower edge 5 in the first seat 8 may be further guaranteed by using connection means both of the adhesive and mechanical type such as, for example, screws.

[0016] In the part of the lower support section 7 closer to the floor 2, there is obtained a first groove 11 which develops over the entire length of the lower support section 7. The first groove 11 has a substantially T-shaped section with an opening 12 facing the floor 2. Between the first seat 8 and the first groove 11 of the lower support section 7, there is present a second groove 13 which extends horizontally over the entire length of the lower support section 7. The second groove 13 has a substantially T-shaped section defining an opening 14 facing outside on the same side as the lateral surface 9 of the panel 4.

[0017] To the lower support section 7 there are connected, at the lower part, two trolleys 15 which lie - mobile - on the floor 2. Each trolley 15 preferably has two wheels 16 which lie on the floor 2 for allowing the movement of the trolley, and thus of the mobile wall 3, on the floor. Furthermore, each trolley 15 comprises an engagement portion 17, illustrated in figure 2, engaged in a coupling fashion to the first groove 11 of the lower support section 7. Obviously, the engagement of the engagement portion 17 to the first groove 11 may be further guaranteed by using connection means - both adhesive and mechanical - such as, for example, screws.

[0018] According to a variant - not illustrated - the mobile wall 3 may not comprise the first groove 11. In this case the trolleys 15 are connected to the lower section 7 by welding, through mechanical connection means such as, for example, screws, or other stable connection means.

[0019] Furthermore, each trolley 15 may comprise an articulation (not observable in the drawings) which allows the trolley to rotate around a vertical rotation axis, in order to facilitate the movement of the mobile wall 3 in any direction on the surface of the floor 2.

[0020] The lower edge 6 of the panel 4 is rigidly constrained to an upper support section 18 substantially having the same length as the panel 4. The upper edge 6 is fixed in a coupling fashion in a second seat 19 obtained in the upper support section 18.

[0021] Obviously, the fixing of the upper edge 6 in the second seat 19 may be further guaranteed by using adhesive or mechanical connection means.

[0022] In the part of the upper support section 18 furthest from the floor 2, there is obtained a third groove 20 (analogous to the corresponding second groove 13 of the lower support section 7) which develops parallel to the floor 2 over the entire length of said upper support section 18. The third groove 20 has a substantially T-shaped section defining an opening 21 facing outside on the same side as the opening 14 of the second groove 13.

[0023] Together with two respective trolleys 22 the grooves 13 and 20 form linear guides. The trolleys 22 are respectively housed within the second groove 13 and the third groove 20 and they are constrained to move along such two grooves 13, 20. Each of the two trolleys 22 comprises a plate 23 substantially configured to form a T-shape and connected to four opposite wheels 24, two by two, with respect to said plate 23 and with vertical rotation axis, so as to allow the sliding of the trolley within the two grooves 13, 20. The part of each plate 23 opposite the wheels 24 is rigidly connected to a ring 25. The rings 25 connected to the plates 23 are rotatably inserted on the post 26 fixed perpendicularly to the floor 2. In the exemplifying drawings, the post is fixed solely at the lower part to the floor, but it can also be alternatively or additionally fixed to the ceiling or it can be mounted on a cantilevered support from a fixed wall.

[0024] The upright or post 26 can also be mobile, for example along a track or articulating the aforementioned cantilevered support, for allowing for example placing the entire partition system on a wall of the room, should one wish to maintain the room not partitioned and free it of the partition systems.

[0025] The support sections 7 and 18 are preferably provided at the ends thereof with end stop means, for example caps or the like, not illustrated for the sake of representation simplicity, adapted to stop the sliding of the trolleys 22 along the respective grooves 13, 20.

[0026] According to a variant of the present invention, the room partitioning system 1 comprises the mobile wall 3 and a further analogous mobile wall 3', both connected to the same post 26, each by means of two rings 25, 25' (connected to respective trolleys 22, 22') fitted superimposed on the post 26. According to a particularly advantageous characteristic of the proposed invention, between the trolleys 22, 22' and the rings 25, 25', respectively of the two panels 3, 3', there are present two ad-

justment or spacer elements 28, 28', as illustrated in figure 4.

[0027] Each adjustment element 28, 28' is a substantially frusto-conical-shaped rigid piece having a groove 29 obtained on a periphery of the greater base thereof. In the groove 29 there is stably received the portion of the plate 23 opposite to the wheels 24. The part of the frusto-conical piece 28, 28' corresponding to the smaller base thereof is instead rigidly connected to the ring 25, 25'.

[0028] The interposition of an adjustment element 28, 28' between a ring 25, 25' and a corresponding trolley 22, 22' creates a height difference between the ring and the corresponding trolley, according to a vertical direction. The use of two symmetric adjustment elements 28, 28' when providing a partition system with two walls 3, 3' allows obtaining, for each wall, two identical height differences in terms of width but in the opposite direction. This allows connecting two mobile walls 3, 3' having the same structure, i.e. substantially identical to the same post 26, arranging - superimposed on the post 26 - the rings 25, 25' corresponding to the two mobile walls 3, 3', as illustrated in figure 4. Obviously, it is also possible to use only one adjustment element 28 (or 28') on one of the two panels. In such case, the single height difference created shall be wider, due to the fact that it should be sufficient to compensate - alone - to the height difference between the two mobile walls 3, 3' due to the superimposition of the rings 25, 25'.

[0029] Figure 4b shows a second variant of the present invention, in which between the rings 25, 25' and the adjustment elements 28, 28', in particular frusto-conical, of two walls 3, 3' mounted on the post 26, there are provided further adjustment elements 31 and 32 - preferably L-shaped and substantially symmetric with respect to each other - as represented in figure 4b. The use of such adjustment elements 31 and 32 allows mounting each of the two walls 3, 3' with respective lateral edges 33 and 34 at contact. This allows mounting the two walls 3, 3' aligned with respect to each other, to practically form a single overall wall without interruption.

[0030] During use, the system subject of the present invention provides for that each mobile wall 3, 3' can be made to slide and/or rotate at will with respect to a post or upright 26, to which it is connected. The translation of the aforementioned mobile wall 3, 3' occurs due to the sliding on the linear guides comprising the trolleys 22, 22' and the grooves 13 and 20. The rotation of the mobile wall 3 around the post 26, instead, is allowed through the rotation guides actuated by the rotation of the rings 25, 25' on the post 26. Now, with reference to figures 5a to 5h, there are illustrated some of the configurations that can be obtained using with the system subject of the present invention.

[0031] Two mobile walls 3, 3' both connected to a post 26 can be arranged parallel and side-by-side like in figure 5a, or parallel but staggered so as to form a long overall wall, like in figure 5b; in case of presence of adjustment

elements 31, 32, as mentioned beforehand, the walls can be aligned 3, 3' so as to obtain an overall wall without interruption, as illustrated in figure 5i.

[0032] The two mobile walls 3, 3' may also be arranged at a right angle, like in figure 5c, or oblique with respect to each other, like in figure 5d.

[0033] The two mobile walls 3, 3' may also be arranged, spaced or even at contact, so as to form a sort of a T-shape, like shown in figure 5e.

[0034] As observable from the particular configuration illustrated in figure 5f, the system subject of the present invention may comprise mobile walls 3, 3' of different width.

[0035] In the configuration represented in figure 5g, the system according to the present invention comprises two posts 26, 26', each which is connected to two respective mobile walls 3, 3' and 3'', 3''' arranged so as to form, in their entirety, a sort of a square.

[0036] According to a particularly advantageous aspect of the present invention shown in figure 5h, the mobile wall 3 may bear, in an intermediate position with respect to the length thereof, an articulation 30, for example constituted by one or more hinges, which allows a portion 3a of the mobile wall 3 of rotate with respect to a remaining portion 3b of the mobile wall 3.

[0037] According to a variant of the present invention, the second groove 13 and the third groove 20 are directly obtained on the panel 4. Analogously, also the first groove 11 may be directly obtained on the panel 4.

[0038] For the sake of greater stability, on the mobile wall 3 there can be present three or more grooves for the housing and sliding of the trolleys 22.

[0039] The panel 4 of the mobile wall 3 may be made of one or more plastic materials, and/or glass materials, and/or wooden materials and/or any other substantially rigid material.

[0040] The lower support section 7, same case applying to the upper support section 18, may be made of metal or any other material that is substantially rigid and resistant from a mechanical point of view.

[0041] The present system, according to various embodiments thereof, comprises one or more posts 26 each connected to one or more mobile walls 3 having the same width or different widths.

[0042] According to further variants, the aforementioned system comprises at least one mobile wall 3 bearing an articulation 30, as illustrated in figure 5h.

[0043] One of the main advantages of the system according to the present invention lies in the fact that the post 26 should not necessarily have a high bearing capacity, given that the weight of the mobile wall 3 is not supported by the post 26, but by the wheels of the support trolleys 15 on the floor. In practice, this allows also using mobile walls 3 of considerable dimensions and weight.

[0044] Another important advantage of the present system, to which reference was made above, regards saving on production costs of the entire structure, allowed by the use of adjustment elements 28, 28', 31 and 32 for

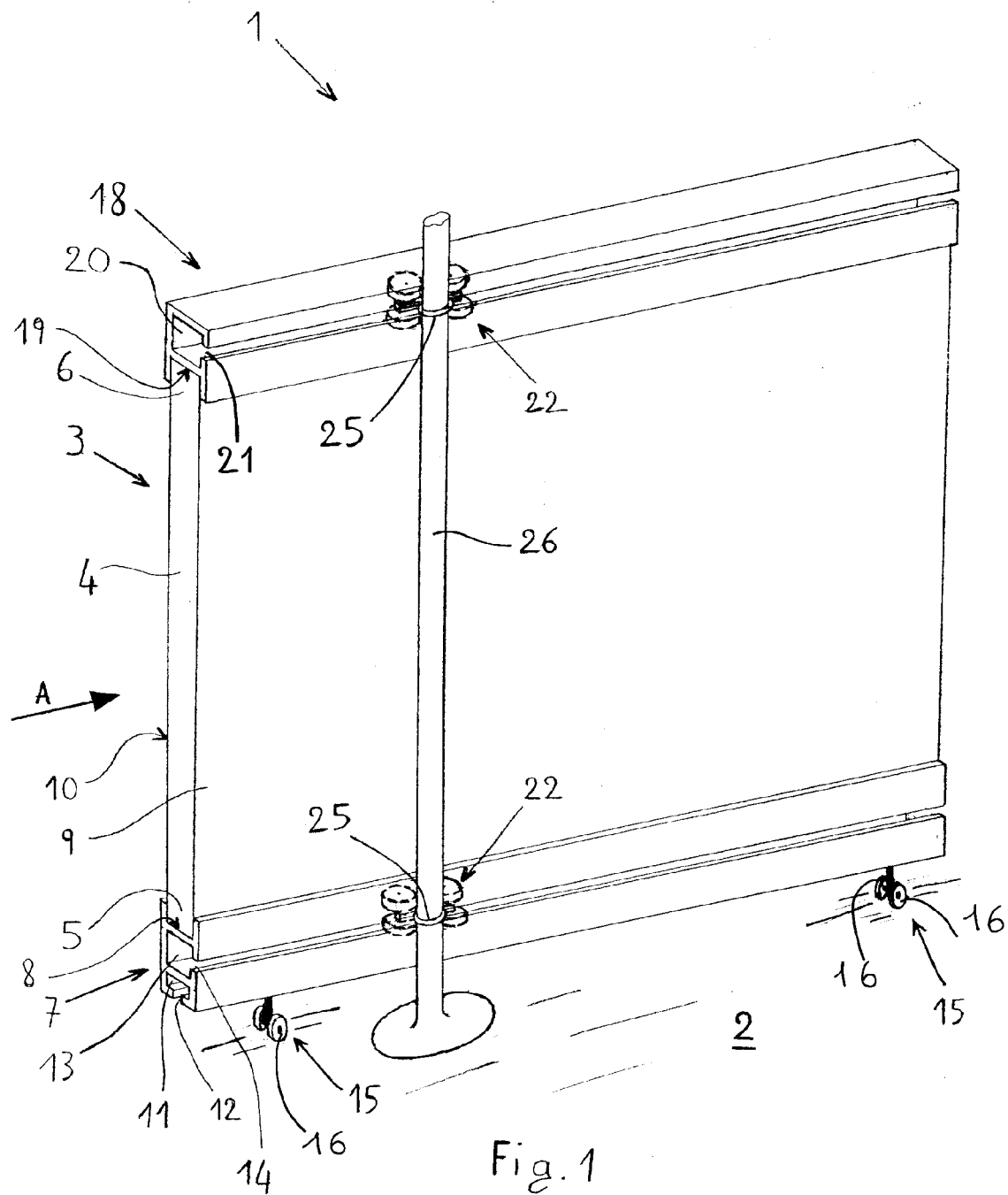
the connection between the mobile walls 3, 3' and the post 26, which allow a high standardization of the pieces.

[0045] The post 26 should not necessarily be fixed between floor and ceiling, but it can be mounted also cantilevered, as illustrated in figure 6, by means of a beam structure 100 fixed to an upright 102 coupled, mobile or rotatably, to a bracket 104 for connecting to a wall 105 by means of, for example, screws and wall plugs 106. As observable in the figure, the mobile walls 3, 3' and/or the post 26 can be provided with power sockets, data sockets, or sockets for other purposes, which come for example from the wall 105 (see cables 107), slide into the upright 102 and the beam structure 100, then enter into the post 26.

[0046] Obviously, without prejudice to the invention, the embodiments and the details may widely vary with respect to what has been described and illustrated, without departing from the scope of protection of the present invention.

Claims

1. Mobile room partition system comprising at least one mobile partition panel (3, 3') connected to an upright (26) through guide means comprising rotation guide means (25, 25') and translation guide means (22, 22', 13, 20) so that the at least one mobile partition panel (3, 3') may translate with respect to the upright (26) and rotate around the axis of the upright (26).
2. System according to claim 1, wherein the at least one mobile partition panel (3, 3') is provided with support wheels (15, 16) for moveably lying, in use, on the floor (2).
3. System according to any one of the preceding claims, whereon the translation guide means (22, 22', 13, 20) comprise at least two linear guides (13, 20) provided for on the at least one mobile partition panel (3, 3'), the at least two linear guides (13, 20) substantially extending over the entire length of the at least one mobile partition panel (3, 3').
4. System according to claim 3, comprising two linear guides (13, 20) arranged in edge portions of the at least one mobile partition panel (3, 3').
5. System according to any one of the preceding claims, wherein the rotation guide means (25, 25') are provided for allowing the rotation of the at least one mobile partition panel (3, 3'), first spacer elements (28, 28') being interposed between the translation guide means (22, 22') and the rotation guide means (25, 25'), for connecting two or more mobile partition panels (3, 3') to an upright (26), said first spacer elements (28, 28') determining a displacement in vertical direction between the translation guide means (22, 22') and the rotation guide means (25, 25') of each mobile partition panel (3, 3').
6. System according to claim 5, wherein the two or more mobile partition panels (3, 3') are two.
7. System according to claim 6, wherein second spacer elements (31, 32), are interposed between the first spacer elements (28, 28') and the rotation guide means (25, 25'), said second spacer elements (28, 28') determining a displacement in horizontal direction between the translation guide means (22, 22') and the rotation guide means (25, 25'), for connecting the two mobile partition panels (3, 3') to the upright (26) with respective lateral edges (33, 34) thereof at contact with each other.
8. System according to any one of the preceding claims, wherein the at least one mobile partition panel (3, 3') comprises an articulation (30) capable of allowing a rotation, around an axis parallel to the axis of the upright, of a portion (3a) of the mobile partition panel (3, 3') with respect to another portion (3b) of the mobile partition panel (3, 3').
9. System according to any one of the preceding claims, wherein the translation guide means (22, 22') comprise two trolleys (22, 22'), housed respectively within two grooves (13, 20) and constrained to move along such grooves (13, 20).
10. System according to claim 9, wherein the rotation guide means (25, 25') comprise two rings (25, 25') rotatably inserted on the upright (26) and rigidly connected to the trolleys (22, 22').
11. System according to any one of the preceding claims, wherein the upright (26) is adapted to be fixed between a floor and a ceiling.
12. System according to any one of claims 1 to 10, wherein the upright (26) is fixed to a beam structure (100) mounted cantilevered with respect to a wall (105).
13. System according to claim 12, wherein the beam (100) is mounted in an oscillating fashion with respect to a support structure (102, 104) fixed to a wall (105).



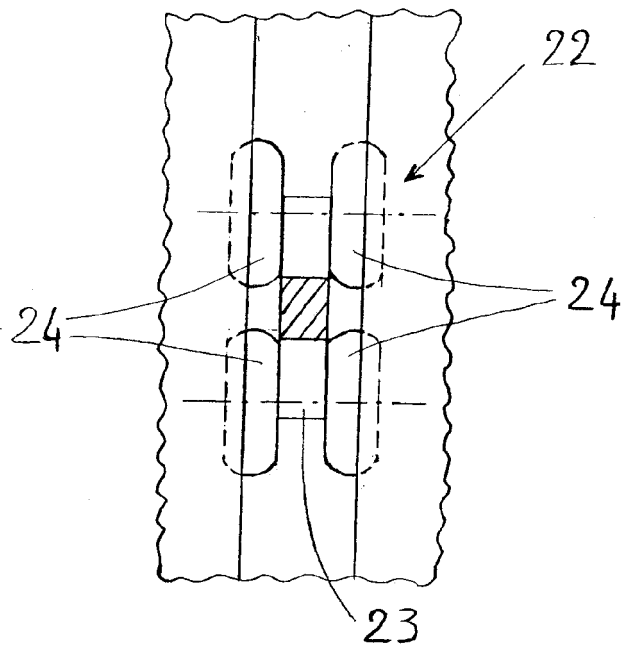


Fig. 3

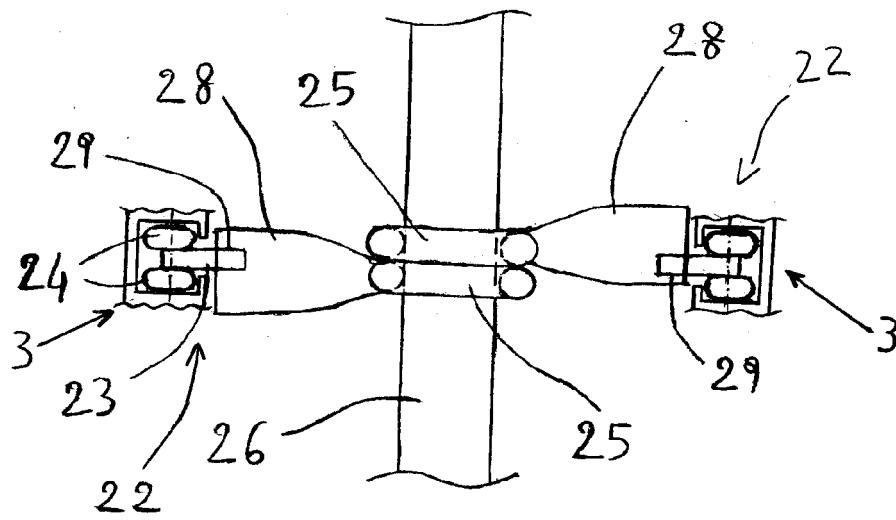


Fig. 4

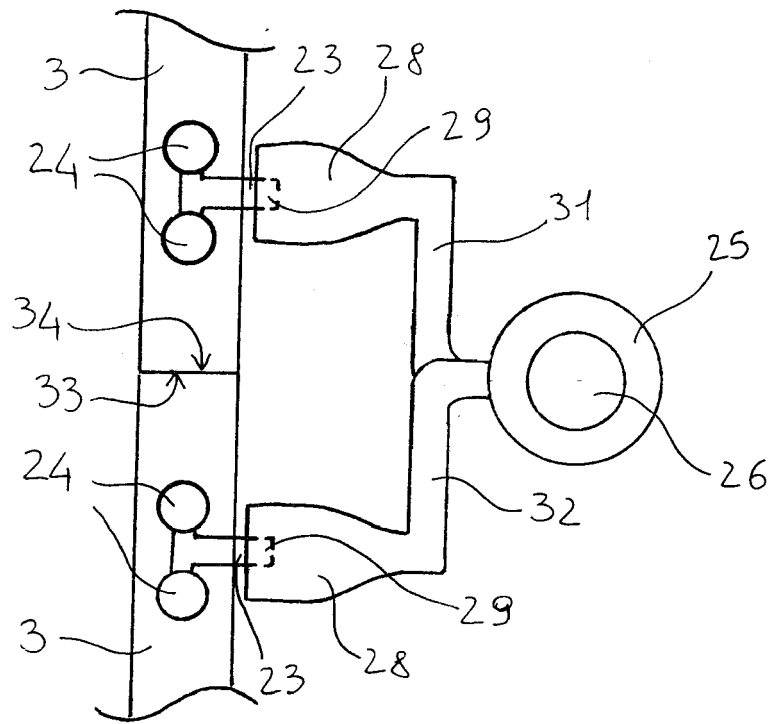


Fig 4b

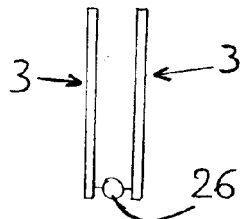


Fig. 5a

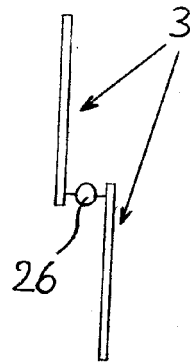


Fig. 5b

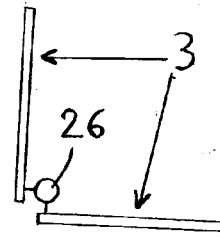


Fig. 5c

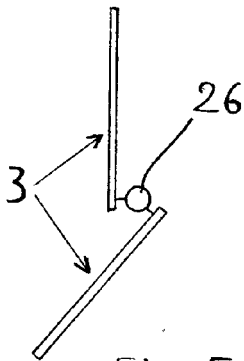


Fig. 5d

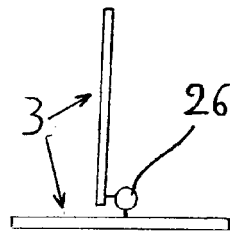


Fig. 5e

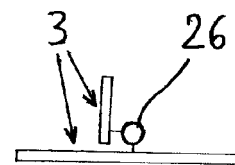


Fig. 5f

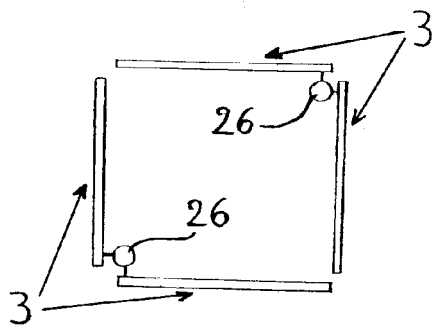


Fig. 5g

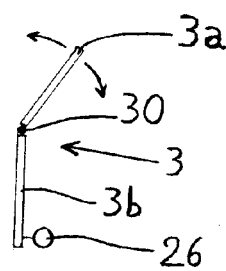


Fig. 5h

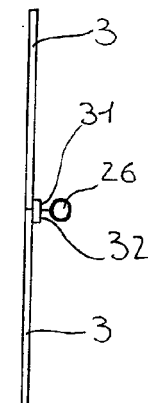
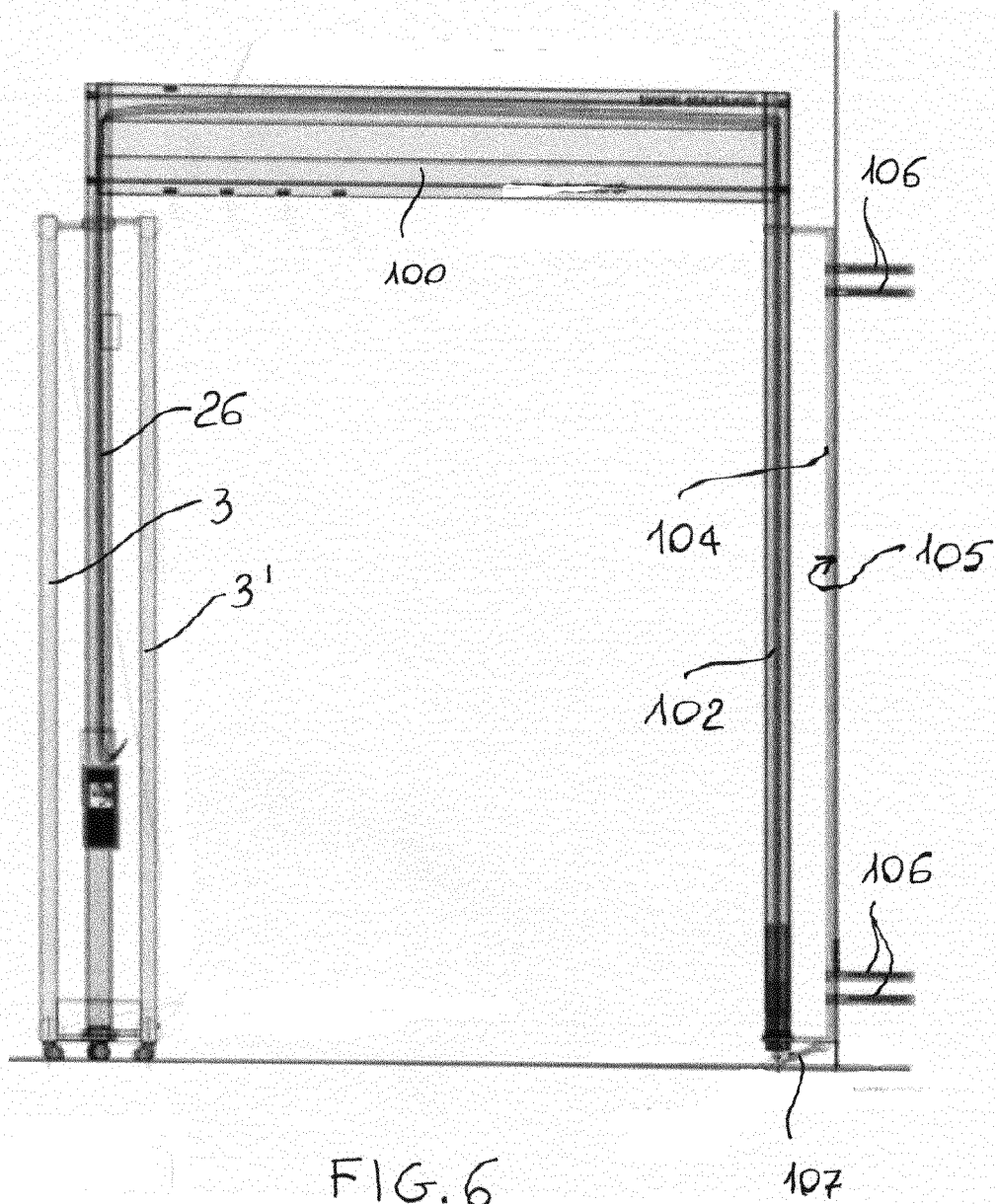


Fig. 5i





EUROPEAN SEARCH REPORT

Application Number
EP 12 16 9375

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	AU 570 192 B3 (WINSTON SUTTLE) 28 June 1988 (1988-06-28) * figures 1,2 * -----	1-13	INV. E04B2/74 G09F15/00
			TECHNICAL FIELDS SEARCHED (IPC)
			E04B G09F
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 31 July 2012	Examiner Topcuoglu, Sadik Cem
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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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 12 16 9375

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31-07-2012

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
AU 570192	B3	28-06-1988	NONE

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