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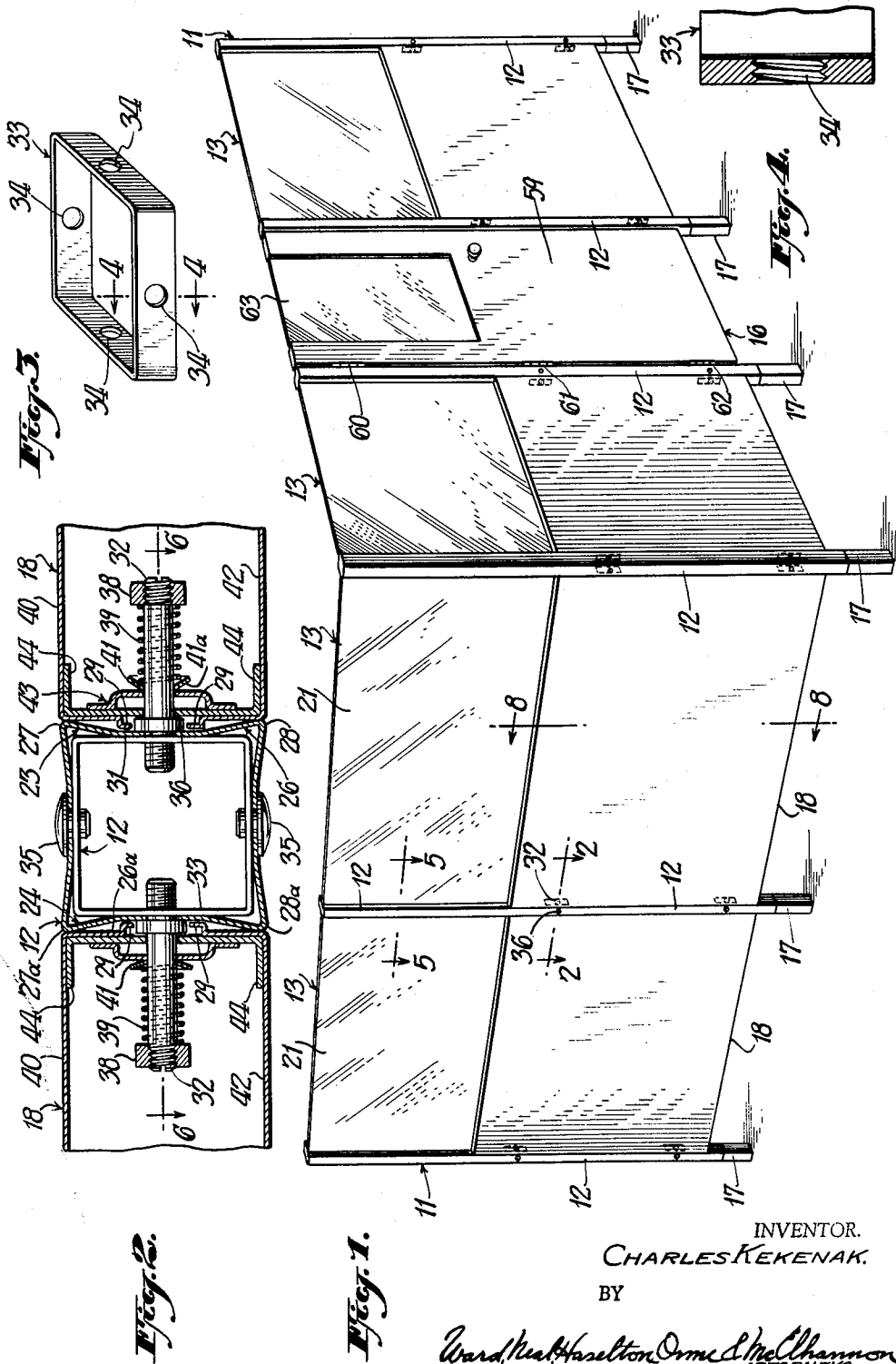
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2,915,151

PARTITION STRUCTURES

Filed Dec. 4, 1957

3 Sheets-Sheet 1



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Fig. 5.

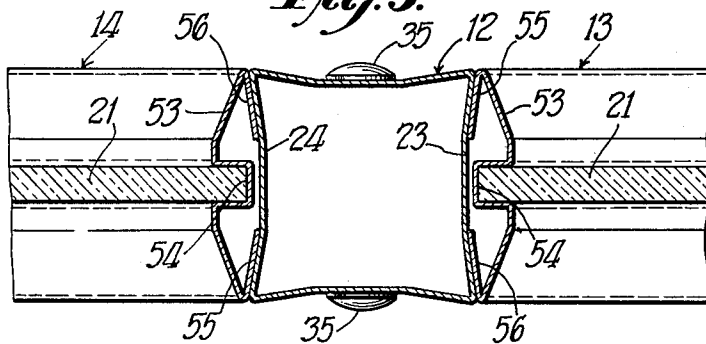
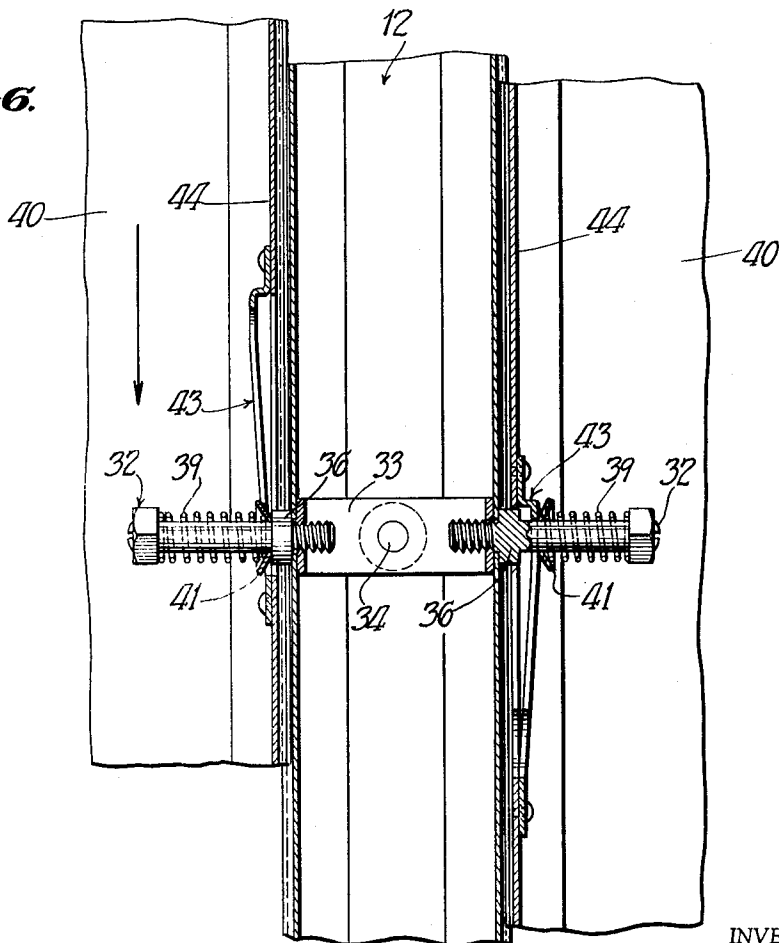


Fig. 6.



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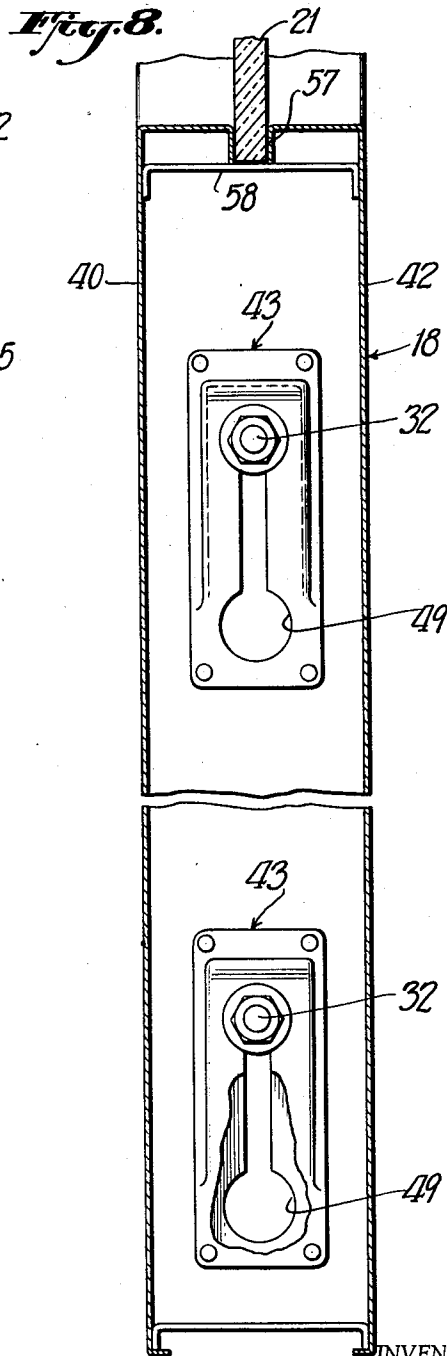
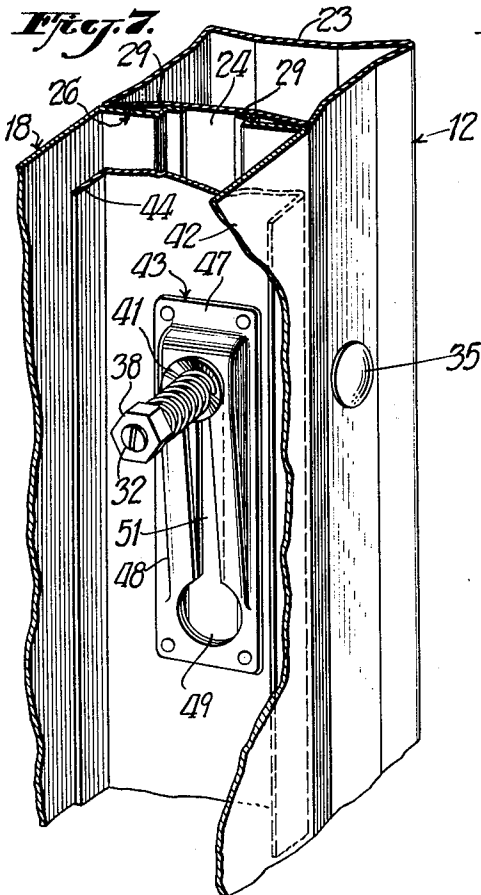
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PARTITION STRUCTURES

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3 Sheets-Sheet 3



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2,915,151

PARTITION STRUCTURES

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4 Claims. (Cl. 189—34)

This invention relates to partition structures. More particularly, this invention relates to an improved partition structure which features increased rigidity between the posts and the connecting panels.

It has become common practice in recent years to subdivide large areas of floor space in offices or other places into smaller areas by the use of portable or semi-portable partitions. Such partitions have the advantage of providing semi-private working space for small groups or individuals without the necessity of building permanent partitions. These temporary partitions usually are designed so that any particular partition which is desired can be erected by the use of one or more basic units connected together in various ways. These units usually are connected to each other and to the building structure in such a way that they can be easily disassembled and removed if it is desired to eliminate or change the partitions. It is obvious that in structures of this variety light weight and ease of assembly and disassembly are essential and generally, the various units of such partitions are designed with this in mind. Unfortunately, the partition structures previously known have suffered from a lack of lateral or sidewise rigidity, especially in the connections between the posts and the connecting panels. This has resulted in partitions which sway or displace easily in use or in partitions which are unduly heavy and bulky and/or which require excessive anchoring to the building structure. It is an object of this invention to provide a partition structure which is improved in this respect.

According to one embodiment of this invention a partition structure is provided which includes a post having generally concave sides and a panel abutting said side, the abutting portion of said panel having a thickness at least as great as the width of said side.

By constructing the post and panel in accordance with this invention, the end of the panel presses against the concave side of the post at the corners thereof. A partition constructed in this manner has greater lateral rigidity than a partition constructed in the conventional manner in which the panel presses against the post primarily near the center thereof. In the more conventional construction, a force applied to the side of the partition causes the panel portion to tend to pivot about its point of contact with the post and as a result the panel moves relatively easily and great strain is placed upon the connection between the post and the panel. Also, unsightly gaps appear between the post and the panel. Partitions constructed in accordance with the present invention, on the other hand, resist this pivoting action and hence provide a more rigid structure which is not as easily deformed or broken by such applied forces. Since it is desirable that the side of the post in contact with the panel maintain its concave shape, the end of the panel may include a projecting portion which presses against the middle of the concave side of the posts and maintains the concave shape of the side of the post when the panel is pulled up

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against the post by the means used to secure the panel to the post.

Various further and more specific objects, features and advantages of this invention will appear from the detailed description of the preferred embodiment of the invention, which description should be considered in connection with the accompanying drawings, in which:

Fig. 1 is a perspective view of an office partition constructed in accordance with the invention;

Fig. 2 is a horizontal sectional view of a portion of the partition shown in Fig. 1 and is taken along line 2—2 in Fig. 1;

Fig. 3 is a perspective view of a component part of the structure shown in Figs. 1 and 2;

Fig. 4 is a fragmentary vertical sectional view of the part shown in Fig. 3 and is taken along line 4—4 in Fig. 3;

Fig. 5 is a horizontal sectional view of a portion of the partition shown in Fig. 1 and is taken along line 5—5 in Fig. 1;

Fig. 6 is a vertical sectional view of the portion of the partition shown in Fig. 2 and is taken along line 6—6 in Fig. 2;

Fig. 7 is a perspective view, with portions cut away, showing the locking mechanism used in the partition shown in Figs. 1—6; and

Fig. 8 is a vertical sectional view of the portion of the partition shown in Fig. 1 and is taken along line 8—8 in Fig. 1.

In Fig. 1, an office partition is designated generally by the numeral and comprises a plurality of posts 12, a plurality of wall panels designated generally by the numeral 13 and a door 16. The posts 12, which, preferably, are made of steel, are provided with leg portions 17 which rest on the floor and support the partition. If desired the leg portions 17 may be anchored to the floor although normally this is not necessary.

The wall panels 13 are provided with lower portions 18 and upper portions 21. The lower portions 18 of the wall panels preferably are opaque and made of steel and resist the transmission of sound while also providing the principal structural support for the panel. The upper portions 21 of the panels are translucent or transparent and may be sheets of glass. It is, of course, within the scope of this invention to use panels 13 in which the translucent or transparent upper portions 21 are omitted, the portions 18 forming the entire panels. It is also within the scope of the invention to use combinations of wall and door panels other than those shown in Fig. 1.

Upon reference to Fig. 2, it may be seen that the post 12 has longitudinally extending sides 23 and 24 which are inwardly concave. Sides 23 and 24 of post 12 are adjacent the ends 26 and 26a, respectively, of the lower portion 18 of panel 13. In accordance with this invention, the thickness of the panel portion 18 at its ends is at least as great as the width of the sides of the post 12, and hence the ends 26 and 26a of the panel portion 18 which are adjacent the post 12 are at least as wide as the sides 23 and 24 of post 12. In this way, when the panel portion 18 is forced against the post 12 by the locking device to be described hereinafter, the longitudinally extending corners 27 and 28 of side 23, and hence the corners 27a and 28a are pulled up against the longitudinally extending corners of the panel portion 18 thereby providing two laterally displaced lines of contact between the panel 13 and the post 12 which improve the resistance of the panel 13 to rotation about the post 12 as compared to constructions in which the end of the panel bears against only the central portion of the post. End 26 of panel 13 has a projecting portion 29 which is designed to press against the center portion 31 of side 23 in order to preserve the concave shape of side 23 when the panel

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13 is locked against post 12 as described below and in addition this prevents the passage of light and resulting light cracks from appearing between the panels.

The panels and posts are locked together to form partition 11 by means of spring loaded bolts or studs 32. As shown in Fig. 2 bolt 32 is fastened to post 12 by means of a collar 33 (Figs. 2 and 3) which has threaded holes 34 adapted to receive the threaded ends of bolts 32. Prior to insertion of bolts 32, collar 33 is held in place within post 12 by frictional engagement therewith, and any holes in the collar 33 and the post 12 which are not occupied by the bolts 32 are filled by the plugs 35. The bolts 32 are inserted during erection of the partition by screwing them into the threaded holes 34. Insertion of a bolt 32 into the collar 33 is limited by the presence of a flange 36. A spring 39 fits loosely over the bolt 32 and a cupped or conical washer 41 is positioned between the flange 36 and one end of the spring 39 with its exterior 41a facing the side 23, the washer 41 being pressed against the wedge-shaped member 43 by the spring 39. The tension of spring 39 can be adjusted by the use of a nut 38 which is in threaded engagement with the threaded end of the bolt 32.

Referring to Fig. 7, the locking member 43 is secured, as by welding, to a channel-shaped reinforcing and spacing element 44 which is secured, as by welding, to the metal face elements 40 and 42 of the panel portion 18. Locking member 43 includes a base portion 47 and a raised portion 48 having an upper surface in the form of an inclined plane. An aperture or hole 49 is provided at the base of the inclined plane formed by raised portion 48 and a slot 51 extends upwardly from hole 49 as shown in Figures 7 and 8. A hole corresponding to the hole 49 and a slot corresponding to the slot 51 are provided in the reinforcing element 44. Hole 49 is of a size sufficient to permit passage of the bolt 32, the nut 38 and the conical washer 41 therethrough, and the slot 51 is sufficiently wide to permit passage of the body portion of the bolt 32 but not the conical washer 41.

In assembling the post 12 and the panel portion 18 to form a portion of the partition 11, the post is first positioned and bolts 32 with nuts 38, springs 39 and washers 41 thereon are screwed into the collar 33 as described above until the flanges 36 engage the side 23 of the post. After the bolts 32 have been so inserted, a pair of bolts 32 extend from each side of the post 12 to which a panel portion 18 is to be secured. A panel portion 18 is then placed against the post 12 so that bolts 32 project through the hole 49 in the locking member 43. If panel 13 is pressed tightly against the post 12 during this operation, the flange 36 is between the reinforcing element 44 and side 23 of the post while the conical washer 41 extends at least partially through the hole 49 as illustrated in the left hand portion of Fig. 6. At this point the panel 13 can be locked tightly against post 12 by simply moving panel 13 in a downward direction until it assumes the position illustrated in the right hand portion of Fig. 6. When this is done, the conical washer 41 is forced outward from the flange 36 by the inclined surface on the raised portion 48 of the locking member 43, and as a result the spring 39 is compressed. The force of the spring 39 is thus employed to hold the panel tightly against the post.

As mentioned above, the ends 26 and 26a of the panel portion 18 are substantially as wide as the sides 23 and 24 of the post 12 and the sides 23 and 24 are concave with respect to such ends. Accordingly, the compressive forces produced by the springs 39 for holding the panel portions 18 against the sides of the post 12 are transmitted primarily to the corners 27 and 28 of side 23 and the corners 27a and 28a of the side 24. If the forces exerted by the springs 39 are sufficient to deform the sides of the post 12 or the reinforcing element 44, the projecting portions 29 on the ends of the panel portions 18 will also engage the sides of the post 12, but the main load bearing sur-

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faces are the lines of contact between the corners of the post 12 and the corners of the panel portions 18. If desired, the projecting portions 29 may be omitted. When it is desired to disassemble the partition, it is necessary only to raise panel 13 with respect to post 12 in order to release the tension on the spring 39 and to permit withdrawal of the bolts 32 from the holes 49.

As is illustrated in Fig. 5, the upper portion 21 of the panel 13, which portion may be a piece of glass, is held in position with respect to the post 12 by means of vertically extending clips or channel members 53. The clip 53 may be a unitary member formed from metal or other material and has a channel 54 therein for receiving an end of the panel portion 21. The clip 53 also has a pair of inwardly bent resilient arms 55 and 56 which bear against the sides of the post 12. The clips 53 may be inserted in place as shown in Fig. 5, prior to the insertion of the end of the panel portion 21 therein or a pair of clips 53 may be placed on the opposite ends of the panel portion 21, and the assembly may then be slid vertically downward between a pair of adjacent posts 12. After the clips 53 and the panel portion 21 are in place, the panel portion 21 is held in position by virtue of the frictional engagement of the arms 55 and 56 with the concave sides of the post 12.

As is illustrated in Fig. 8, the top of the panel portion 18 is constructed with a channel 57 which receives the lower edge of the member 21, this top portion is secured by welding to the member 58 to add to its rigidity.

The door 16 illustrated in Fig. 1 does not form part of my invention and may be constructed in any conventional manner. Preferably, it comprises a steel portion 59 hinged at 60-62 to the post 12 and a glass portion 63.

While the invention has been described in detail with respect to a preferred embodiment, it will be understood by those skilled in the art that various changes and modifications may be made without departing from the spirit and scope of the invention and it is intended to cover all such changes and modifications in the appended claims.

What is claimed as new and desired to be secured by Letters Patent is:

1. In a partition structure, a post having a longitudinally extending side terminating laterally in a pair of longitudinally extending corners spaced by a predetermined distance, a panel mounted with an end thereof adjacent said side, said end having a pair of longitudinally extending corners spaced apart a distance substantially equal to said predetermined distance, a collar mounted on said post, said collar having a hole therein facing in the direction of said side and disposed intermediate said corners of said post, the wall of said hole having threads therein, a bolt having threads on its opposite ends, one end of said bolt being in threaded engagement with the threads in said collar, the opposite end of each bolt extending outwardly from said side and through said end of said panel, said end of said panel having a slotted locking member secured thereto with said bolt extending through the slot therein, said slot extending longitudinally of said end, a nut mounted on the opposite threaded end of said bolt and a spring and a cupped washer mounted between said nut and said locking member with the washer nearer said locking member, said locking member having a hole at the lower end of said slot larger than said nut and said washer to permit passage of said nut and said washer therethrough and said slot being wider than said bolt but narrower than said washer for preventing passage of said washer therethrough and said locking member having a surface facing away from said side which extends on opposite sides of said slot and which extends away from said side being nearer to said side adjacent said hole in said locking member, and said side being concave with respect to said end intermediate the corners of said post whereby the corners of said post are pulled into engagement with the corners of said panel by said springs and form the

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principal and load bearing areas of contact between said post and said panel.

2. In a partition structure, a post having a longitudinally extending side terminating laterally in a pair of longitudinally extending corners spaced by a predetermined distance, a panel mounted with an end thereof adjacent said side, said end having a pair of longitudinally extending corners spaced apart a distance substantially equal to said predetermined distance, a pair of collars mounted on said post in longitudinally spaced relationship, each of said collars having a hole therein facing in the direction of said side and disposed intermediate said corners of said post, the wall of said hole having threads therein, a pair of bolts each having threads on its opposite ends, one end of each bolt being in threaded engagement with the threads in one said collar, the opposite end of each bolt extending outwardly from said side and through said end of said panel, said end of said panel having a pair of slotted locking members secured thereto and spaced apart a distance substantially equal to the spacing between said collars with said bolts extending through the slots therein, said slots extending longitudinally of said end, a nut mounted on the opposite threaded end of each said bolt and a spring and a cupped washer mounted between said nut and said locking member with the washer nearer said locking member, said locking member having a hole at the lower end of said slot larger than said nut and said washer to permit passage of said nut and said washer therethrough and said slot being wider than said bolt but narrower than said washer for preventing passage of said washer therethrough and said locking member having a surface facing away from said side which extends on opposite sides of said slot and which extends away from said side, being nearer to said side adjacent said hole in said locking member, and said side being concave with respect to said end intermediate the corners of said post whereby the corners of said post are pulled into engagement with the corners of said panel by said springs and form the principal and load bearing areas of contact between said post and said panel.

3. In a partition structure, a post having a longitudinally extending, inwardly concave side portion of a predetermined width, a panel member having a longitudinally extending end portion whose width is substantially equal to said width of said side, said panel being mounted with said end portion in engagement with said side por-

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tion, a bolt mounted on one of said portions and having a head spaced from said one portion, a cupped washer and a spring mounted on said bolt between said head and said one portion, said washer being slidably mounted on said bolt nearer to said one portion than said spring and said spring acting between said head and said washer, the exterior of said cupped washer facing said one portion, and the other of said portions having a locking member mounted thereon, said locking member having an aperture therein permitting passage of said head, said spring and said washer therethrough and having a longitudinally extending slot extending away from said hole, said slot being wider than said bolt and narrower than said washer, and said locking member having a sloping face which extends alongside said slot and which is farther from said one portion at the end thereof remote from said aperture.

4. In a partition structure, a post having a longitudinally extending, side portion of a predetermined width, a panel member having a longitudinally extending end portion whose width is substantially equal to said width of said side, one of said portions being inwardly concave and said panel being mounted with said end portion in engagement with said side portion, a bolt mounted on one of said portions and having a head spaced from said one portion, a cupped washer and a spring mounted on said bolt between said head and said one portion, said washer being slidably mounted on said bolt nearer to said one portion than said spring and said spring acting between said head and said washer, the exterior of said cupped washer facing said one portion, and the other of said portions having a locking member mounted thereon, said locking member having an aperture therein permitting passage of said head, said spring and said washer therethrough and having a longitudinally extending slot extending away from said hole, said slot being wider than said bolt and narrower than said washer, and said locking member having a sloping face which extends alongside said slot and which is farther from said one portion at the end thereof remote from said aperture.

References Cited in the file of this patent

UNITED STATES PATENTS

2,352,702	Fowles et al.	July 4, 1944
2,621,357	Stuman	Dec. 16, 1952