May 29, 1956 W. G. FRENCH 2,747,236

WORK STATION FIXTURES

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Fig. 1.

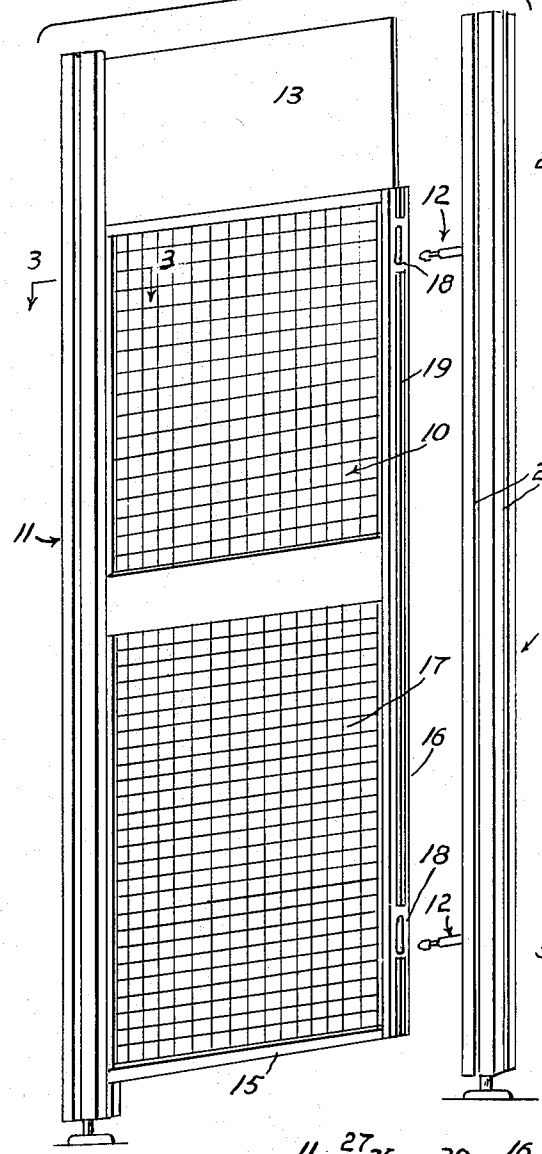

Fig. 6.

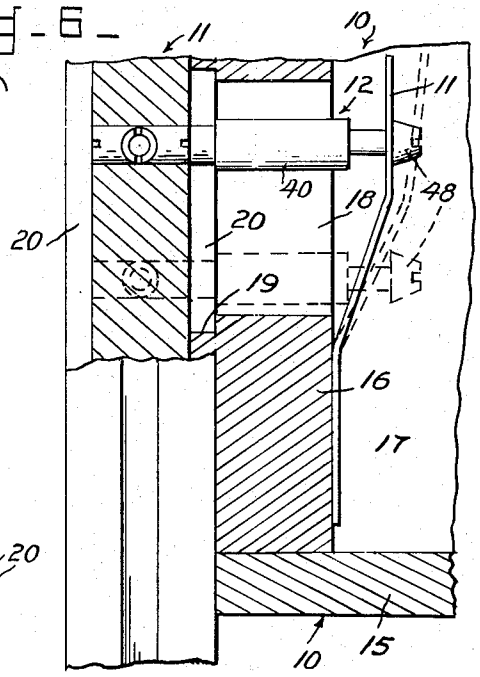

Fig. 4.

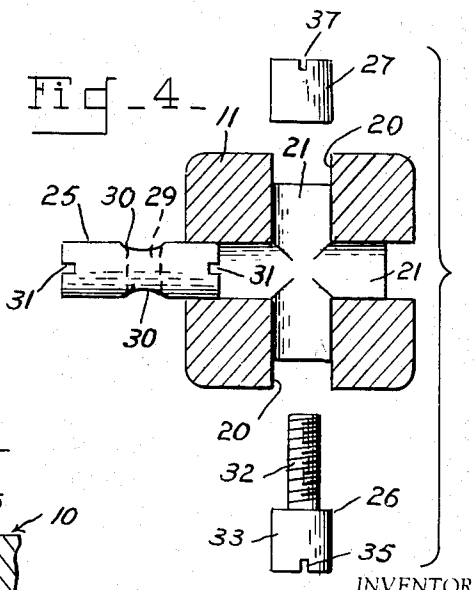

Fig. 5.

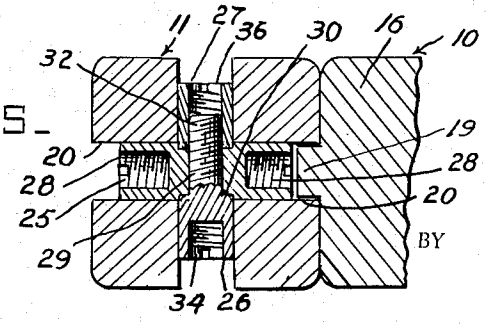

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Fig. 2.

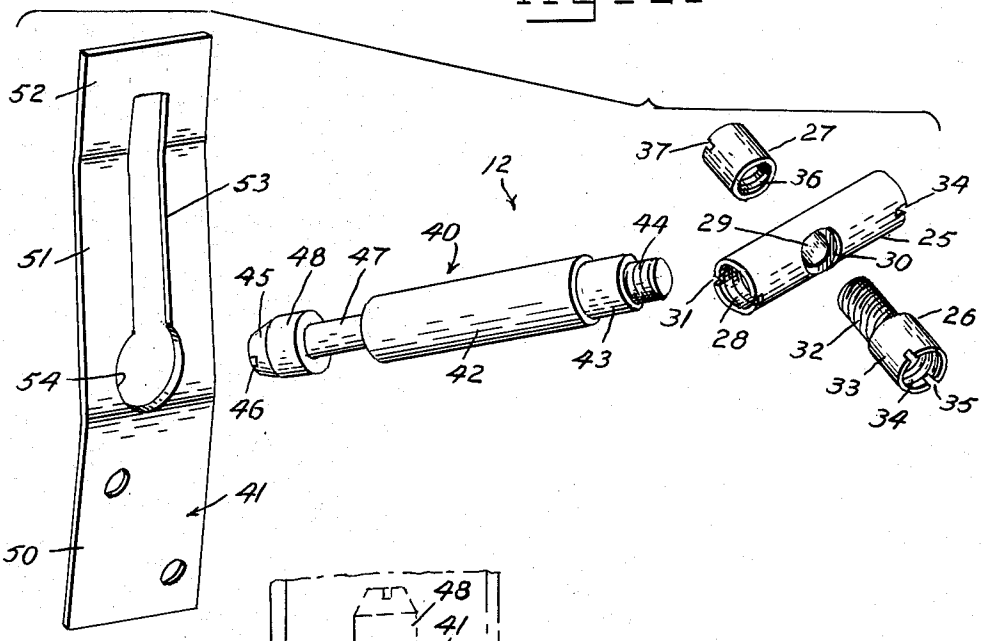


Fig. 7.

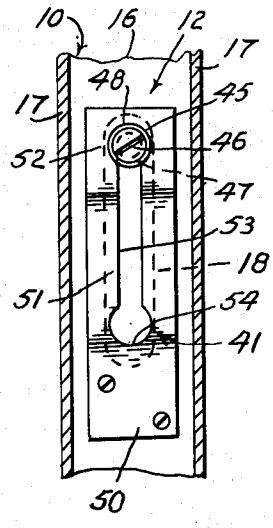
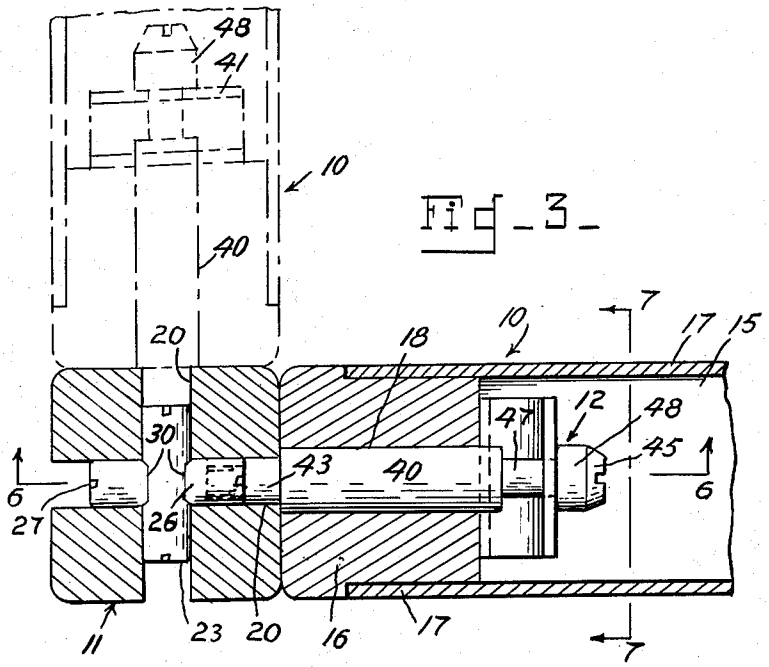


Fig. 3.



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WORK STATION FIXTURES

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3 Claims. (Cl. 20—4)

This invention relates to work station fixtures, and more particularly to partition units and connectors therefor.

In large office or work chambers, it has been the custom to assign a large number of workers to a single room or chamber. This has resulted in inefficiency due to confusion, distraction, noise and interference between personnel. To overcome this condition, it has heretofore been necessary to install permanent partitions to divide the large area into smaller more private units, but this is expensive and inefficient with respect to the use of available space. It has more recently been proposed to overcome the defects of both of the foregoing arrangements by means of portable removably connectable partitions and work fixtures to thereby afford the personnel with sufficient privacy while utilizing the available floor space with greatest economy and efficiency. The connecting means for these portable partitions, however, are unsightly, time consuming in operation, loosen with use so that the partitions are not stable and rattle and are subject to breakage due to undue stresses and strains.

Having in mind the defects of the prior art equipment, it is the principal object of the present invention to provide portable partitions and fixtures with concealed releasable securing means.

It is another object of the invention to provide a releasable securing means for portable partitions which will not loosen from use.

It is still another object of the invention to provide a releasable connection for portable partition units that will provide rigidity.

It is a further object of the invention to provide a releasable connection for portable partition units that will accommodate undue stresses and strains.

It is a still further object of the invention to provide concealed releasable connecting means for portable partitions and fixtures having simplicity of organization, economy of construction and efficiency of operation.

The foregoing objects and others ancillary thereto are preferably accomplished according to the preferred embodiment of the invention by a cruciform anchor connector adapted to selectively support a headed stud in any of its branches. This connector is preferably embedded in a post or the like. A hollow panel unit has a slot in its edge rail for receiving the stud and a leaf spring within the panel unit for cooperating with the stud, the spring having a keyhole slot for passing and spanning the stud head.

The novel features of the invention that are considered characteristic of the invention are set forth with particularity in the appended claims. The invention itself, however, both as to its organization and method of operation, together with additional objects and advantages thereof, will best be understood from the following description of a specific embodiment when read in connection with the accompanying drawings, in which:

Figure 1 is an exploded view in perspective of a portable partition structure incorporating the present invention;

Figure 2 is an exploded view in perspective of a concealed connector means in accordance with the present invention;

Figure 3 is a fragmentary cross-sectional view corresponding to line 3—3 of Figure 1;

Figure 4 is an exploded cross-sectional view, similar to Figure 3, and illustrating the manner of embedding the connecting means in a post;

Figure 5 is a fragmentary cross-sectional view, similar to Figures 3 and 4, and showing the connecting means embedded in the post;

Figure 6 is a cross-sectional view corresponding to line 6—6 of Figure 3, and

Figure 7 is a cross-sectional view corresponding to line 7—7 of Figure 3.

Referring now to the drawings, specifically to Figure 1, a portable partition in accordance with the present invention comprises a panel unit **10** adapted to be releasably connected at each side to posts **11** by a concealed connecting device **12**. A separate translucent or transparent panel element **13** may be mounted above the panel unit **10**, if desired.

The panel unit **10** preferably comprises a frame **15** including edge rails **16** and on the sides of which are mounted panels **17** to form a hollow unit, as best shown in Figure 3. The panels **17** preferably are of a sound damping formation and the space therebetween may be filled with insulation, if desired. The edge rails **16** have slots **18** for receiving the connecting devices **12** and preferably are provided with central longitudinal ribs **19**.

The posts **11** preferably are of solid square construction, as shown in Figures 3–5, but obviously may be of hollow sheet metal or extruded construction. These posts are provided with a centrally disposed longitudinal channel **20** in each of its sides for receiving the rib **19** of a panel unit connected thereto, as shown in Figure 5. The nesting of the rib **19** in the channel **20** precludes lateral play between the post **11** and panel unit **10**. To support the connecting device **12**, the post **11** is provided with transverse perpendicularly intersecting bores **21** opening through the respective channels **20** in all four sides of the post, as best shown in Figure 4.

The connecting devices **12** are best shown in Figure 2 and comprise an anchor portion including a base member **25** cooperative with cross members **26** and **27** to form a cruciform anchor embedded in the post **11**, as best shown in Figure 5. The base member **25** is cylindrical and has internally threaded sockets **28** at each end with a centrally disposed transverse bore **29**. The member **25** has recesses **30** surrounding the ends of the bore **29** to seat the cross members **26** and **27**, and transverse driver slots **31** are provided in the ends of said member.

The cross member **26** comprises a bolt including a threaded shank **32** and a cylindrical head **33** having an internally threaded socket **34** opening through the end thereof and a driver slot **35** transversely in the head end. The other cross member **27** comprises a cylindrical nut having an internally threaded bore **36** and a transverse driver slot **37** in the outer end thereof.

The outer diameters of the members **25** and **27** and of the head **33** of the member **26** preferably are uniform and of a size to snugly fit in the cross bores **21** of the post **11**. The diameters and threads of the sockets **28** and **34** and of the bore **36** are uniform. In addition, the bolt shank **32** is of a diameter to freely pass through the bore **29** of the base member **25** and to mate with the threaded bore **36** of the nut member **27**.

This anchor portion is embedded in the post **11**, as best shown in Figure 4. The base member **25** is inserted in a bore **21** until it is centrally of the post and its ends

substantially flush with the inner walls of the channels 20. The member is then rotated, if necessary, by means of a screw driver in the slots 31 until the bore 29 is substantially axially aligned with the cross bore 21. The bolt member 26 is then inserted in said cross bore 21 and its shank 32 passed through the bore 29 in the member 25. The nut member 27 is inserted in the opposite end of the cross bore 21.

Upon engagement of the shank 32 and the nut member 27, the two members 26 and 27 are relatively rotated by means of screw drivers in their slots 35 and 37 to thread the shank 32 into the bore 36 until the inner end of the member 27 and the head 33 are firmly seated in the recesses 30 of the member 25. It will be noted from Figure 5 that when the shank 32 is fully home in the the bore 36, the outer end portion of said bore 36 is still free and forms a socket equivalent to the sprockets 28 and 34.

In addition to the foregoing anchor portion, the connecting device 12 also comprises a stud portion 40 that is removably connectable with said anchor portion. As best shown in Figure 2, the stud portion 40 comprises a body portion 42, preferably cylindrical, having at one end a reduced portion 43 with a threaded shank 44. At the other end, the stud 40 is tapered or rounded to form a lead-in 45 and has a transverse driver slot 46. Spaced from the lead-in 45, the body portion is reduced to provide a neck 47 forming a head 48 at the lead-in end.

The stud portion 40 is removably mounted, as desired, to the cruciform anchor portion embedded in the post 11. The threaded shank 44 is adapted to mate with any of the sockets 28, 34 or 36, and the reduced end portion 43 is of a size to snugly fit in a channel 20 in the post with the shoulder surrounding said portion 43 preferably abutting the side of the post 11, as shown in Figures 3 and 6. The stud 40 then protrudes from the post 11, as shown in Figure 1. As indicated in Figure 3, a stud 40 may be mounted on more than one side of the post 11 depending upon the particular partition under assembly.

Cooperative with the stud 40 is a relative stiff leaf spring 41 having a base portion 50 and a bowed or bent portion 51 terminating in a free end portion 52. This spring is provided with a keyhole slot 53 having an enlarged opening 54 adjacent the base portion 50, and the slot extends from said opening along the bent portion 51 and into the end portion 52. The opening 54 is of a size to pass the head 48 of the stud 40, while the slot 53 is of a size to receive the stud neck portion 47 but narrower than the diameter of said head.

The spring 41, as best shown in Figures 3, 6 and 7, is mounted, by means of its base portion 50, on the inner side of the panel unit edge rail 16 with the spring slot 53 in alignment with the rail slot 18. Like the cruciform anchor portion which is rigidly, and normally permanently, embedded in the post 11, the spring 41 is also fixed or permanently mounted within the panel unit 10. On the other hand, the stud 40 is removably mounted as required, depending upon the extent and shape of the particular partition being erected.

It will be understood that the panel units 10 and posts 11 are prefabricated for selective connection as and when desired. During fabrication of the post 11, the cruciform anchors are embedded within the posts and normally remain during the life of the posts. In view of the tongue and groove connection of the ribs 19 and channels 20, a single connecting device 12 may be used for connecting each post and panel unit. Preferably, however, there are two of the connecting devices for each post and panel unit, as shown in Figure 1. To erect any desired partition, then, it is only necessary to provide the selected number of panel units 10, posts 11, studs 40 and panel elements 13, if used, and a screw driver is the only tool necessary.

In erecting a partition, the studs 40 are mounted on

one side each of two posts 11. One post 11 is then disposed adjacent one edge rail 16 of a panel unit 10, the studs 40 thereof being inserted in the slots 18 in the edge rail 16, and their heads 48 are passed through the openings 54 in the springs 41, the rib 19 of the edge rail 16 being seated in the channel 20 in the adjacent face of the post 11. This disposition of the panel unit and post is illustrated in Figure 6, the stud 40 and spring 41 being in broken line, wherein it will be noted that the spring 41 is in relaxed position.

The panel unit 10 and post 11 are then relatively moved longitudinally to pass the stud neck 47 into the spring slot 53, with the stud head 48 bearing against the spring 41 and tensioning the spring toward the post 11, as shown in full lines in Figure 6. The springs 41 are arranged with the openings 54 at the bottom of the slots 53, so that the weight of the panel unit 10 is operative to hold the springs down with the stud necks 47 in the upper end of the slots 53 with the free end portions 52 acting on the stud heads 48.

When the one post 11 and panel unit 10 are properly connected, the other post 11 is then connected with the opposite edge rail 16 of the panel unit 10 in exactly the same manner as the first-mentioned post. This is the relation of the posts 11 and panel 10 illustrated in Figure 1. The panel element 13 is mounted on top of the panel unit 10 with its lateral edges seated in the facing channels 20 of the two posts 11.

The partition is extended by mounting additional studs 40 on another face of one of the posts 11 and then connecting another panel unit 10 to said post, as indicated in phantom lines in Figure 3. Obviously, the additional panel units 10 may be connected to any or all of the remaining three sides of a post 11, depending on the particular formation of partition desired. In other words, the partition may be extended in planar relation, may form a corner, as indicated in Figure 3, or it may form a T or cross intersection.

It will be noted that the connections 12 between the posts 11 and panel units 10 are completely concealed, and that assembly may be effected without tools other than a screw driver to tighten the studs 40. Moreover, the springs 41 bias the posts and panel units toward each other to provide a snug fit that will not loosen and weaken with use, while the interfitting rib 19 and channel 20 preclude lateral play and assist in providing a firm joint. On the other hand, in the event of undue twisting strain, as at the intersection joint of a partition structure, the springs 41 will resiliently yield and thereby prevent breakage.

Although a certain specific embodiment of the invention has been shown and described, it is obvious that many modifications thereof are possible. The invention, therefore, is not to be restricted except insofar as is necessitated by the prior art and the spirit of the appended claims.

That which is claimed is:

1. In a self-supporting, movable, room dividing partition structure comprising a plurality of partition forming units having abutting vertical edges, means interlockingly joining adjacent units at their abutting vertical edges, said interlocking means including a horizontal stud fixed at one end to one unit and projecting from the abutting edge of said one unit, the adjacent unit having an aperture in the abutting edge thereof into which said stud projects, said stud having an enlarged head on the free end thereof, said adjacent unit having a hollow space into which said aperture opens, keeper means disposed in said hollow space in communication with said aperture interlockingly engaging the enlarged head of said stud, said keeper means including a relatively stiff generally vertically extending resilient leaf spring attached to said adjacent unit only at one end portion thereof and having an inclined portion extending from said one end portion away from the fixed end of said stud terminating in a freely movable unattached portion including a generally flat section through

which said stud projects disposed on a plane generally perpendicular to said stud, said unattached portion maintaining tension on the enlarged head of said stud to maintain the units in abutment under changing physical forces.

2. In a self-supporting, movable, room dividing partition structure comprising a plurality of partition forming units having abutting vertical edges, means interlockingly joining adjacent abutting units comprising a stud projecting from the vertical edge of one unit and having an enlarged head on the free end thereof, keeper means carried by the adjacent unit interlockingly engaging said stud and exerting a continuous resilient tension on said stud and maintaining the adjacent vertical edges of the units in abutment with one another, said keeper means including a resilient leaf spring attached at one end thereof to the adjacent unit, the other end of said spring being loose, said spring having a generally vertically disposed flat portion generally parallel to the vertical edge of the adjacent unit and being rearwardly offset from the attachment of said one end of said leaf spring to said adjacent unit, said vertically disposed flat portion being joined to said one end by a connecting portion extending angularly away from said one end and having an aperture through which said stud projects, said leaf spring maintaining a continuous resilient tension on said enlarged head of said stud.

3. In a self-supporting, movable, room dividing partition structure comprising a plurality of partition forming units having abutting vertical edges, means interlockingly joining adjacent abutting units comprising a stud projecting from the vertical edge of one unit and having an enlarged head on the free end thereof, keeper means carried by the adjacent unit interlockingly engaging said stud and exerting a continuous resilient tension on said stud maintaining the adjacent vertical edges of the units

in abutment with one another, said keeper means including a resilient leaf spring attached at one end thereof to the adjacent unit, the other end of said spring being loose, said spring having a vertically extending substantially flat portion generally parallel to the vertical edge of the adjacent unit and being rearwardly offset from the attachment of said one end of said leaf spring to said adjacent unit, said vertically disposed flat portion being joined to said one end by a connecting portion extending angularly away from said one end and having an aperture through which said stud projects, said flat portion maintaining a continuous resilient tension on said enlarged head of said stud, said spring having a keyhole slot therein with the larger opening of the slot being in said connecting portion and the smaller opening thereof being in said flat portion and constituting said aperture, the enlarged head of said stud fitting initially through said large opening and movable along said connecting portion through said smaller opening into seating engagement with the rear surface of said flat portion.

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