Dec. 9, 1958 W. G. FRENCH 2,863,532

PORTABLE PARTITION STRUCTURES AND LOCKING MEANS THEREFOR

Filed Dec. 9, 1954 3 Sheets-Sheet 1

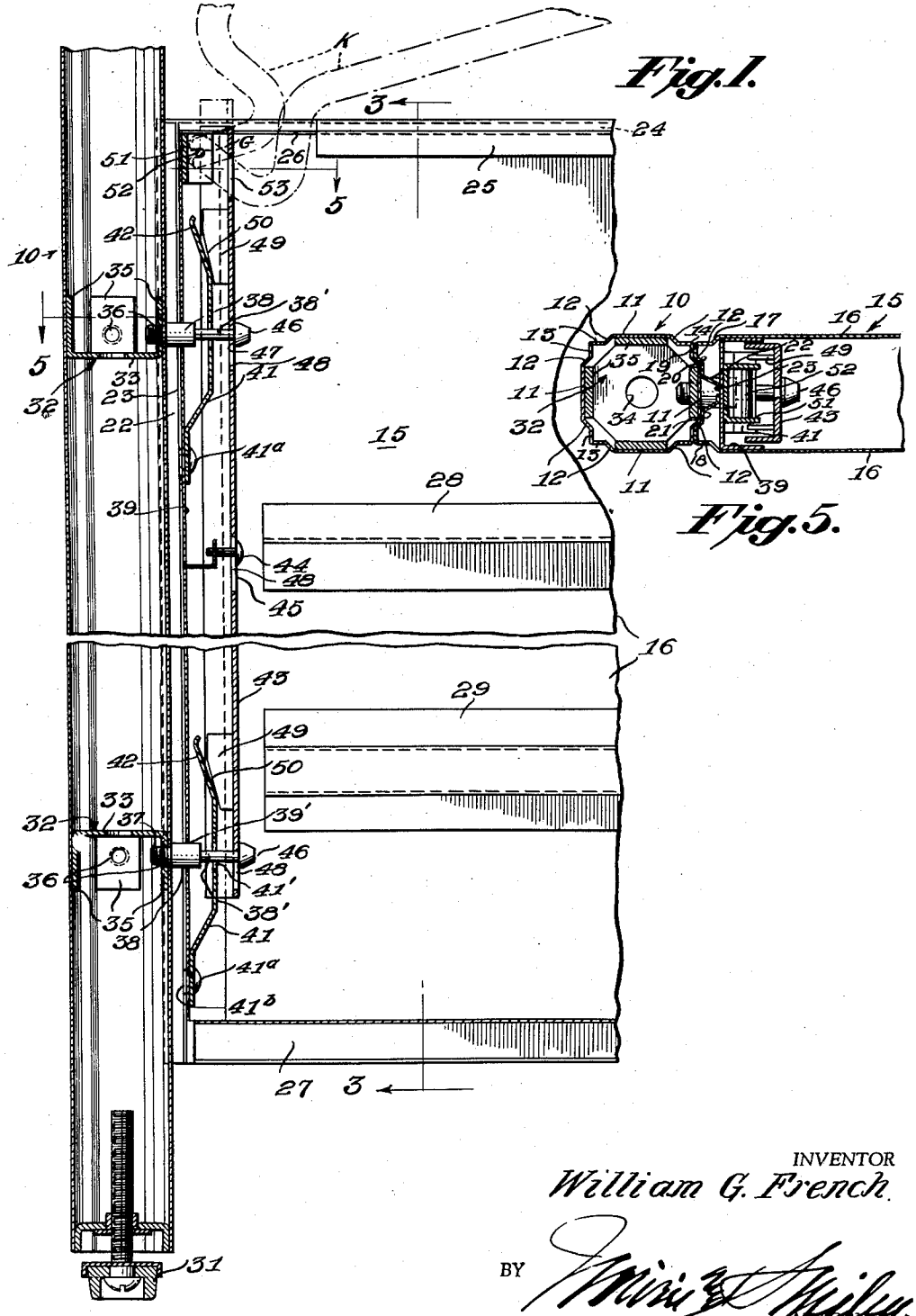

Fig. 1.

Fig. 5.

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Fig. 2.

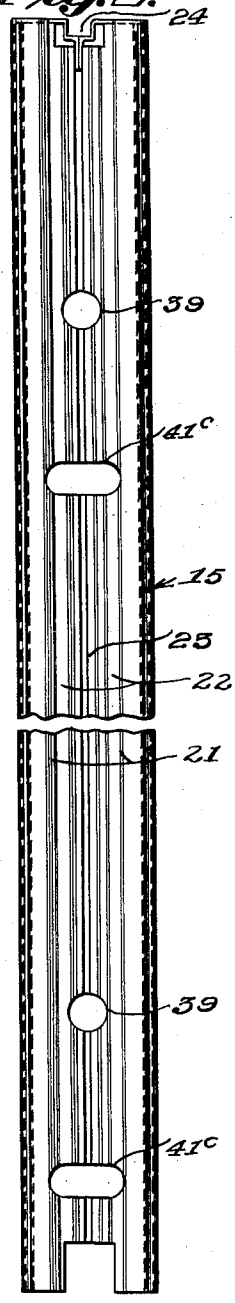

Fig. 3.

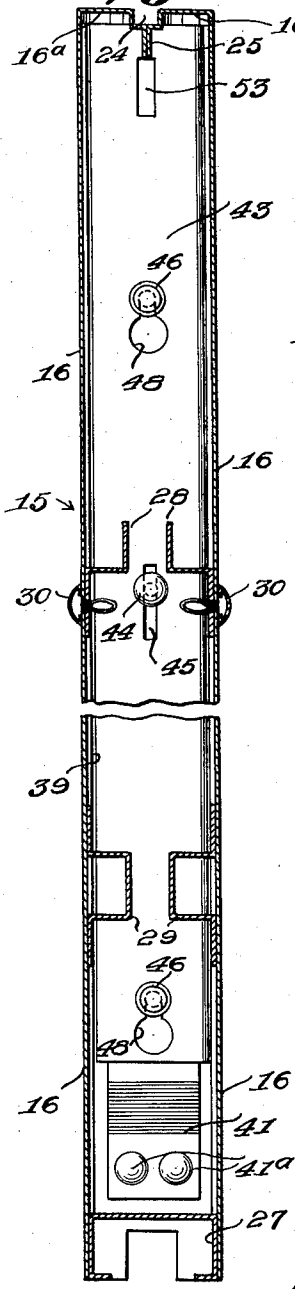

Fig. 4.

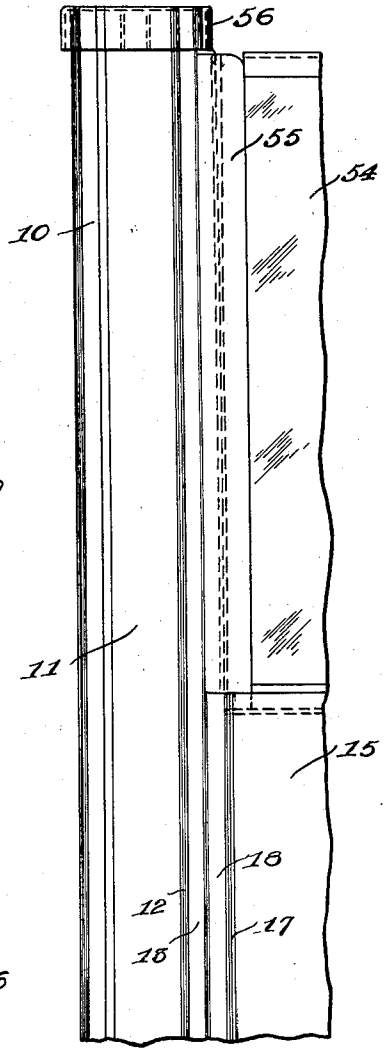

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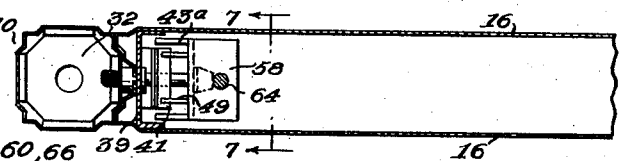
Fig. 8.



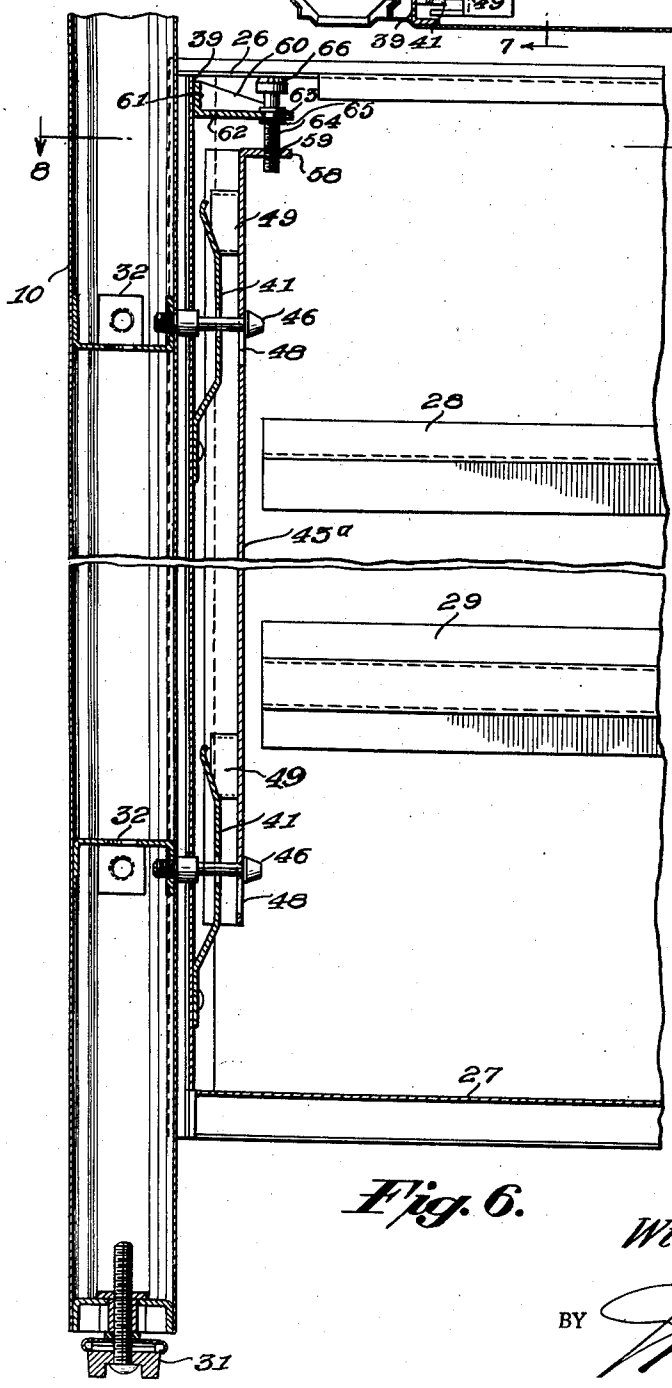


Fig. 6.

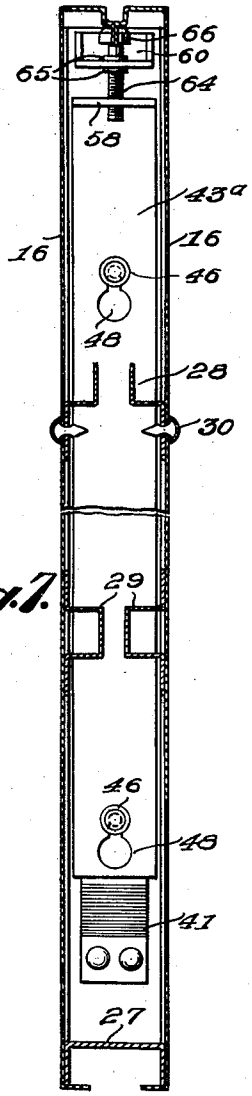


Fig. 7.

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United States Patent Office 2,863,532
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2,863,532

PORTABLE PARTITION STRUCTURES AND LOCKING MEANS THEREFOR

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Application December 9, 1954, Serial No. 474,200

7 Claims. (Cl. 189—34)

This invention relates to work station fixtures, and more particularly to portable partition-forming structures of the general character disclosed in my co-pending application Serial No. 312,309, filed September 30, 1952, now Patent No. 2,747,236.

The aforementioned co-pending application discloses portable partition-forming structures which generally comprise longitudinally spaced and vertically disposed posts with a panel unit disposed between each pair of posts. These panel units preferably comprise a lower opaque panel unit upon which an upper transparent or translucent panel is mounted. These panel units have releasable connections with the posts for ready assembly of any desired form of partition or partitions to suit any particular working conditions. These releasable connections include a headed stud on each post and a leaf spring in each end of the panel unit, the end wall of the panel unit and the spring having keyhole slots for receiving and engaging the headed stud, the spring acting on the stud to bias the post and panel unit together and provide a snug connection therebetween. To connect the panel unit and post, they are juxtaposed with the stud extending through the enlarged portions of the keyhole slots and the units are then lowered on the stud so that its head engages the spring on opposite sides of the narrow portions of the slot.

The present invention is more particularly concerned with the releasable interlocking connections of the panel units with the posts and constitutes an improvement over the corresponding structure of the aforementioned co-pending application.

It is a primary object of the present invention to provide simple interlocking means between spaced vertical posts and intervening panel units of a portable partition-forming structure which provides for initial assembly of the posts and partition units upon mutual movements thereof in horizontal planes with a subsequent tensioned locking connection therebetween.

It is another object of the invention to provide connecting means for releasably connecting posts and panel units in portable partition-forming structures and which have simplicity of design, economy of construction, ease of assembly and efficiency in operation.

The novel features which 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 its method of operation, together with additional objects and advantages thereof, will best be understood from the following description of specific embodiments when read in connection with the accompanying drawings, in which:

Figure 1 is a broken fragmental longitudinal vertical sectional view showing the interlocking means between one post and an adjacent vertical edge of a lower panel;

Figure 2 is an end elevational view of one of the panel units;

Figure 3 is a transverse vertical sectional view in the plane of line 3—3 on Figure 1;

Figure 4 is a fragmental side elevational view of a partition unit including the upper panel and in which the present invention is incorporated;

Figure 5 is a horizontal sectional view taken on line 5—5 on Figure 1;

Figure 6 is a view corresponding to Figure 1 and disclosing a modified embodiment of the invention;

Figure 7 is a transverse vertical sectional view in the plane of line 7—7 on Figure 8; and

Figure 8 is a horizontal sectional view in the plane of line 8—8 on Figure 6.

Referring now in detail to the drawings and specifically to Figures 1 to 5 thereof, a portable partition structure may comprise a vertically disposed tubular post 10 which, as shown more particularly in Figure 5, includes four major right angularly disposed side walls 11; each of the four corners of the post includes a pair of side walls 12 substantially at angles of 45° to the side walls 11, while the adjacent edges of said side walls 12 merge into the bases of a pair of right angularly disposed walls 13, which bases intersect in an edge 14. The posts 10 may, in fact, be considered as of square section comprising four side walls 13 with each having a projection including a major wall 11 and opposite side minor walls 12; such minor walls providing a seat for a lower panel unit, as will later appear.

The lower panel units 15 each comprises a pair of parallel side walls 16 which are spaced apart the same distance as opposite side walls 11 of the posts. The opposite vertical edge portions of the walls 16 are turned inwardly to provide relatively narrow inwardly inclined walls 17 which merge into relatively narrow walls 18 which align with the walls 13 of the posts 10. The walls 18 merge into relatively narrow walls 19, 20 and 21 which respectively abut walls 13, 12 and 11 of the posts and the opposite vertical edge portions of walls 21 terminate in inwardly converging relatively narrow walls 22 having flanges 23 formed toward each other.

The opposite side walls 16 of panel units 15 are formed at the top with an inward portion 16*a* to provide a depressed seat 24 for receiving the lower horizontal edge of an upper panel unit and the inturned portions 16*a* are suitably connected below the seat 24 by abutting flanges 25. The connected flanges 25, however, are eliminated adjacent opposite ends of the panel units 15 to provide slots 26 for purposes later to appear. The panel unit 15 is provided at its lower horizontal edge with a downwardly opening channel 27 and at intermediate top and bottom edges thereof with reinforcements 28 and 29; the reinforcements 28 provide a base for attaching suitable trim 30.

The present invention comprises novel means for removably connecting the posts 10 and panel units 15 and for this purpose the posts are provided with suitable feet 31 and with a pair of vertically spaced inserts 32, each of which comprises a base 33 having a central aperture 34, and four rectangular ears 35 projecting from one side of the base and which ears engage and are suitably secured internally of the post side walls 11 as shown in Figure 5. The ears 35 are each provided with a tapped aperture 36 into one or more of which is inserted the threaded end 37 of a post stud 38.

As indicated in Figure 1, the posts preferably are adapted to support two vertically spaced studs 38 on each side wall 11 to which a panel unit is to be secured. The two vertically spaced studs provide a rigid connection vertically. In the assembly of the posts and panel units, a first panel unit in vertical position is moved horizontally toward a post or the post and panel unit are moved toward each other; next a second post is moved into position at the other end of the first panel unit and then a second panel unit is moved toward the second

post etc., when a straight line of posts and panels are being erected. Of course, one or two branch partitions may be formed by abutting the ends of the panel units against other sides of the posts.

Each panel unit **15** is provided with an inwardly facing vertical channel member **39** which has secured thereto the corresponding ends of a pair of vertically spaced leaf springs **41**, the opposite ends **42** of which are inclined outwardly. The springs are preferably secured by rivets **41***a* whose shanks are provided with bases **41***b* received in openings **41***c* in the vertical edge portions **22**, **23** of the panel wall **21** as indicated in Figures 1 and 2. A lock bar **43** is vertically disposed inwardly of the springs **41** and is constrained to vertical sliding movement by means of one or more guides consisting of a headed pin **44** supported by the base of channel member **39** and extending through a vertically elongated slot **45** in the lock bar. The panel unit edges and channel member **39** and the springs **41** are provided with apertures **39'** and **41'** respectively, of a size to receive the studs **38**.

The studs **38** have reduced shanks **38'** intermediate their length, providing inwardly tapered heads **46** with outwardly facing shoulders **47**. The lock bar **43** is provided with key hole slot **48** adjacent each stud, one end of which is of a diameter to receive the head **46** while the remainder thereof is of a width to receive the reduced shank **38'** of the stud. The lock bar **43** is further provided with a wedge or cam member **49** adjacent each spring **41**, each cam member including an inclined surface **50** opposing the inclined end **42** of the spring. These cam members may be pressed out of the lock bar **43** as shown in Figure 5, or, preferably, they may comprise blocks of nylon to reduce friction.

A short inwardly facing channel member **51** is rigidly secured to the base of the channel member **39** adjacent the upper end thereof and is provided with a transversely disposed fulcrum pin **52** while the lock bar **43** is provided with a vertical slot **53** adjacent the said fulcrum pin. The lock bar **43** is moved vertically a distance equal to the length of the key hole slots **48** by means of a lever or key K shown in dot-and-dash lines in Figure 1. One end of the key is provided with a slot G which removably straddles the fulcrum pin **52**. The key K is inserted through the slot **26** in the upper edge of the panel unit and then through the slot **53** in the lock bar **43** and the slot G is then mounted over the fulcrum pin **53**. The key K is then swung about the fulcrum pin **52** for moving the lock bar upwardly or downwardly.

In the assembly operation, the lock bar **43** is in the uppermost position wherein the large ends of the key hole slots **48** are axially aligned with the apertures **39'** and **41'** so as to receive the stud heads **46**, thereby permitting the vertical edge of the panel unit **15** to move into abutting engagement with the post **10** as indicated in Figure 5. Upon movement of the key K to the lowermost position, the narrow portions of the key hole slots **48** are brought beneath the stud heads **46** with the locking bar **43** bearing against the shoulders **47**. Upon raising the lock bar **43** the wedges **49** are moved away from the springs **41** while lowering the lock bar **43**, the cam wedges **49** are lowered and bear against the upper ends **50** of the springs **41** so that the springs are tensioned by the cam wedges so that the lock bar is yieldably maintained in taut engagement with the stud heads **46** and the panel unit **15** and post **10** are biased into snug engagement.

It is to be particularly observed that the specific contour of the posts **10** and the opposite ends of the panels **15** have a two-fold function. First, the cooperating vertical wall portions **11**, **12** and **13** of the post provide a guide and interlock for the panels in vertical planes for quick and accurate alignment and engagement of the posts and panels. This interlock precludes light gaps and a marked and pleasant external appearance is provided because the walls **11** of the posts are in the same vertical planes of the panel walls **16** while the wall portions **12**, **13** of the posts and wall portions **17**, **18** of the panels provide bevel edged vertical channels with the result that the assembled posts and panels provide the effect of alternating long and short panels enhanced by the intervening vertical channels.

Figure 4 illustrates an upper panel **54** which is connected to the posts **10** by channel members **55** of the general character disclosed in my co-pending application Serial No. 354,235, filed on May 11, 1953, and which are modified to properly engage the post **10**. The posts **10** are provided with caps **56** which, as disclosed in my said co-pending application, may be utilized to hold the upper ends of the channel members **55** in post engaging position.

A modified embodiment of the invention is illustrated in Figures 6, 7 and 8 which provides means, unitary with panels, for effecting locking and unlocking of the panels to the posts. In this embodiment of the invention, the parts are identical to the previously described embodiment except that the lock bar **43***a* is provided at its upper end with an inwardly directed horizontal flange **58** which is provided with a tapped aperture **59**. A bracket **60** having a vertical flange **61** and a horizontal flange **62** is secured by the vertical flange to the base of channel member **39** at the upper end thereof with the horizontal flange **62** overhanging the lock bar flange **58**. The flange **62** is provided with an aperture **63** vertically aligned with the tapped aperture **59** in the flange **58**.

A vertically disposed screw bolt **64** is swivelly supported in the aperture **63**, as by means of split rings **65** on opposite sides of the flange **62**, and the lower threaded end of said bolt is operatively engaged within the tapped aperture **59**. The bolt is provided with a head **66** which is tool accessible through the slot **26** in the upper edge of the panel unit **15**, whereby upon turning of the bolt the lock bar **43***a* is readily raised or lowered to effect unlocking or locking of the posts and panels. This embodiment of the invention has the advantage over the first disclosed embodiment in that there are no loose parts, such as the key K, which, if lost or misplaced, will cause delay in assembly operations.

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 in so far as is necessitated by the prior art and by the spirit of the appended claims.

What I claim and desire to secure by U. S. Letters Patent is:

1. In a partition-forming structure wherein a panel unit having a vertical edge wall of a transverse configuration to substantially conform to an abutted portion of a post fixedly carrying a stud having an enlarged head insertable in said panel unit, the improvement in said panel unit comprising locking means for interengaging the enlarged head of the stud and including a shiftable member concealed within said panel unit for rendering said locking means operative and inoperative, said shiftable member being provided with a keyhole slot which receives the head in one portion of the member and locks the head in another portion thereof, spring means disposed within the panel intermediate said edge wall and said shiftable member, and cam means carried by the shiftable member and operative to tension the spring means upon movement of the member to locking position to bias the edge wall and post together.

2. The structure according to claim 1, wherein said shiftable member comprises a vertically disposed bar having a vertical slot therein adjacent its upper end, and a fulcrum pin supported by the panel adjacent said slot adapted to be engaged by one end of a key, the body portion of which is extendable through said slot for vertically shifting the bar upon rotation of the key about said fulcrum pin,

3. The structure according to claim 1, wherein said shiftable member comprises a vertically disposed bar having a horizontal flange on its upper end, a tapped aperture in said flange, a screw bolt swivelly supported by said panel and having threaded engagement with said aperture, said bolt having an operating head accessible through a slot in the upper edge wall of said panel.

4. The structure according to claim 1, including means at the upper portion of the panel for moving said shiftable member for rendering said locking means operative or inoperative.

5. A panel unit for connection with a post having a headed stud, said panel unit comprising an end wall engageable with the post, and locking means cooperative with the head of the stud to secure the panel unit to the post, said locking means including a spring attached to a wall of the panel unit, a shiftable member concealed within the panel unit and provided with a keyhole slot to receive the head of the stud, cam means integral with said shiftable member and movable therewith to tension the spring upon movement of the member to locking position, and means at the upper portion of the panel unit for moving said shiftable member for rendering said locking means operative or inoperative.

6. A panel unit as set forth in claim 5, wherein said shiftable member comprises a vertically disposed bar having a horizontal flange on its upper end and an internally threaded portion, a screw member supported by said panel unit and having threaded engagement with the threaded portion of the flange, said screw member having an operating head accessible through a slot in the upper edge wall of the panel unit.

7. A panel unit as defined in claim 5, wherein said shiftable member comprises a vertically disposed bar having a slot therein adjacent its upper end, and a fulcrum pin supported by the panel unit adjacent said slot and adapted to be engaged by one end of a key, the body portion of which is extendable through said slot for vertically shifting the bar upon rotation of the key about said fulcrum pin.

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