

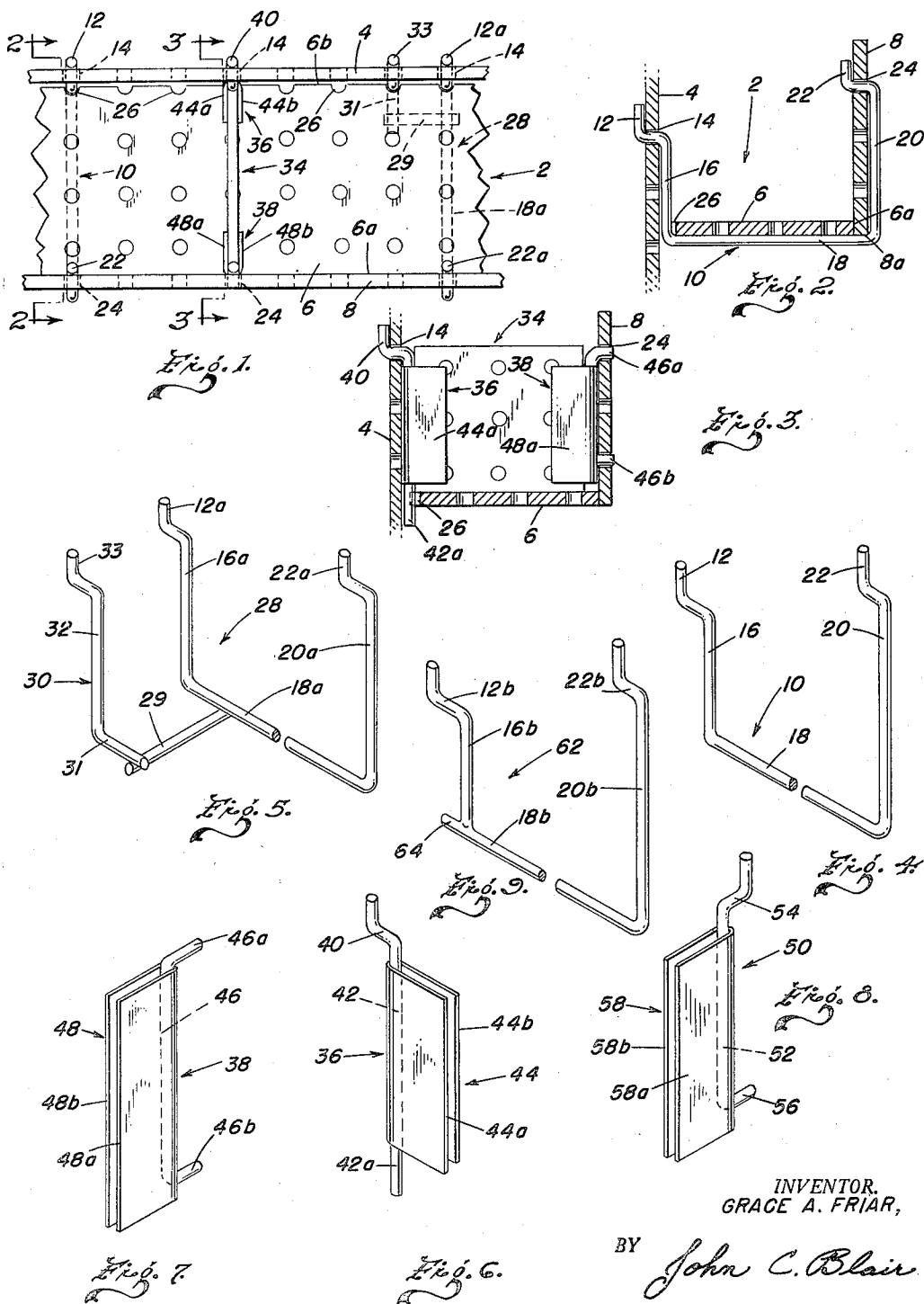
Dec. 9, 1958

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**2,863,567**

## ENCLOSED SHELVES FOR PERFORATED PANELS

Filed Dec. 28, 1955



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2,863,567

## ENCLOSED SHELVES FOR PERFORATED PANELS

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Application December 28, 1955, Serial No. 555,895

7 Claims. (Cl. 211—90)

This invention relates to improvements in shelves which are attached to perforated panels. More particularly, it relates to apparatus for forming enclosed shelves or bins on a perforated panel.

Panels of pressed wood, fiber or other suitable material having a plurality of regularly positioned holes therein, commonly known as pegboards, have heretofore been used in homes, offices and workshops to support brackets upon which are hung various items, e. g. brooms, tools, shoes and clothing. Shelves have also been supported with similar brackets to store items which do not lend themselves to individual suspension. However, heretofore these shelves have been open, thus permitting articles stored thereon to roll off. Also such open shelves are impractical for storing or binning small items such as nuts, bolts, nails, cuphooks, etc., both because these items tend to fall off the shelf and because there has been no simple method for forming partitions and sides to section off existing shelves and form edge closures therefor.

Accordingly, it is an object of this invention to provide enclosed shelves for attachment to perforated panels. It is a further object to provide shelves of the above character with interior partitions to form individual bins thereon. It is another object of this invention to provide enclosed shelves and bins of the above character which are easily assembled and installed and can be easily rearranged to fit the needs of changing situations. Yet another object is to provide enclosed shelves and bins of the above character which are susceptible to low cost manufacture. A still further object is to provide brackets for forming enclosed shelves and binned shelves of the above character. A final stated object of this invention is to provide brackets for forming partitions and ends for enclosed shelves of the above character. Other objects of this invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises the features of constructions, combinations of elements and arrangements of parts, which will be exemplified in the construction hereinafter set forth, and the scope of the invention will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawings in which:

Figure 1 is a fragmentary top plan view of a portion of a shelf and a shelf partition made according to my invention and attached to a perforated panel,

Figure 2 is a sectional view taken along the line 2—2 of Figure 1 showing the shelf bracket used to attach the shelf to a perforated panel,

Figure 3 is a sectional view taken along the line 3—3 of Figure 1, showing a shelf partition made according to my invention,

Figure 4 is a perspective view of a bracket for supporting the shelf,

Figure 5 is a perspective of another bracket for supporting the shelf,

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Figure 6 is a perspective view of a bracket used for partition support,

Figure 7 is a perspective view of another bracket used for partition support,

5 Figure 8 is a perspective view of yet another bracket designed for partition support, and

Figure 9 is a perspective view of a modified form of the shelf bracket shown in Figure 4.

10 Similar reference characters refer to similar parts throughout the several views of the drawings.

In general, the enclosed shelf made according to my invention comprises a plurality of shelf brackets which are suspended from a perforated panel and which support thereon a shelf bottom and shelf front closure. A single large bin may be formed from this shelf by adding thereto partitions supported by brackets attached to the panel and to the shelf front. Interior partitions for the shelf may be supported in the same manner to divide it into individual compartments.

20 As shown in Figures 1 and 2, the enclosed shelf, generally indicated at 2, is supported on a perforated panel 4. Shelf 2 comprises a bottom piece 6 extending outwardly at right angles to panel 4 and front closure 8 resting against the outer edge 6a of bottom piece 6 and extending upwardly therefrom. Both bottom piece 6 and front closure 8 are preferably formed from suitably dimensioned pieces of the same perforated material as is used for panel 4. The perforations in such material are uniformly spaced from each other in each direction. A plurality of U-shaped brackets 10, which can be seen at the left of Figure 1 and in Figures 2 and 4, and which are removably attached to panel 4, support and position bottom piece 6 and front closure 8.

35 More particularly, as shown in Figures 2 and 4, bracket 10 is preferably formed by bending a single piece of wire or rod with an outward and upward reverse bend in one end to form a peg portion 12 for attachment to panel 4 by insertion in any convenient perforation 14 thereof (Figure 2). A stem portion 16 of bracket 10 depends from peg portion 12 and adjoins bottom supporting portion 18 for supporting shelf bottom piece 6, as can best be seen in Figure 2. A front supporting portion 20 in turn extends vertically upward to terminate in a peg portion 22 similar to peg portion 12. Still referring to Figure 2, peg portion 22 supports front closure 8 by insertion in a perforation 24 therein. The number of shelf brackets 10 used for supporting shelf 2 will depend on its length and the load to be supported thereon.

40 As thus seen in Figure 2, the front closure 8 derives vertical support on the one side from peg portion 22 and bottom supporting portion 18. Further, the distance between the perforations 24 of front closure 8 and edge 8a (Figure 2) is preferably equal to the length of front supporting portion 20. Thus bottom supporting portion 18, peg portion 22 and front supporting portion 20 hold bottom piece 6 and front closure 8 in a snugly interfitting relationship.

45 Turning now to Figure 1, shelf bottom piece 6, resting on bottom supporting portion 18 (Figure 2) is preferably cut to provide indentations 26 along its interior edge 6b which interfit with stem portions 16 of shelf brackets 10, thereby to lock the bottom piece against lateral movement and to form a close fit with panel 4.

50 To assemble the shelf, brackets 10 are affixed to panel 4 by inserting peg portions 12 in perforations 14. Front closure 8 is then attached to front supporting portion 20 by inserting peg portions 22 in perforations 24; and finally bottom piece 6 is dropped into place to hold front closure 8 firmly against front supporting portions 20 and thus lock the entire assembly in place. More particularly, as can be understood from a study of Figures 1 and 2, bottom piece 6 fits firmly between the inner surface of front

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closure 8 and stem portions 16, so that the interfitting indentations 26 prevent lateral displacement of the parts while the front closure 8 is held firmly against front supporting portions 20.

For support against lateral sway, one or more shelf brackets of the type generally indicated at 28 in Figure 5 may be used. Brackets 28 include peg portions 12a, stem portions 16a, bottom supporting portions 18a, front supporting portions 20a and peg portions 22a, all preferably identical with their counterparts in bracket 10 (Figure 4). Additionally, an arm 29 extends horizontally from bottom supporting portion 18a and is suitably connected to an ancillary supporting member generally indicated at 30. Member 30 includes bottom arm 31 connected to arm 29, a vertically extending stem portion 32 and a peg portion 33. Preferably two or more brackets 28 may be used in the support of a shelf in the manner shown at the right of Figure 1. Thus peg portions 12a and 33 are inserted in perforations 14 of panel 4 in the manner previously described so that bottom supporting portion 18a and arm 31 support bottom piece 6 and front supporting portion 20a supports front closure 8. Due to the double connection of peg portions 12a and 33 in rear panel 4 and the reinforcing action of arms 29 and 31, all attendant looseness otherwise leading to side sway is effectively prevented.

As shown in Figure 1, one or more partition pieces generally indicated at 34 may be secured in the shelf by a panel bracket generally indicated at 36 and a partition bracket generally indicated at 38. As best seen in Figure 6, panel bracket 36 includes a peg portion 40 formed on the upper end of shank portion 42; preferably the lower end 42a of shank portion 42 fits between an indentation 26 of bottom piece 6 and the panel 4 (Figure 3) to securely anchor the bracket against lateral displacement. Peg portion 40 fits in a perforation 14 of panel 4 in a manner previously described with respect to brackets 10 and 28. A clamp 44, having wings 44a and 44b fits about shank portion 42 with the wings engaging the opposite sides of the partition piece 34 as shown in Figures 1 and 3.

Referring now to Figure 7, partition bracket 38 includes a shank portion 46 whose ends 46a and 46b extend therefrom substantially at right angles thereto to fit within a pair of perforations 24 in the front closure 8. Partition bracket 38 is also provided with a clamp 48 having wings 48a and 48b fitting over the opposite sides of the partition piece 34, as can be seen in Figures 1 and 3. Accordingly, panel bracket 36 and partition bracket 38, together with their associated clamps 44 and 48, firmly support partition piece 34 between panel 4 and front closure 8 and immediately above bottom piece 6, as can be seen in Figures 1 and 3. If desired partition brackets 38 may be used in both panel 4 and front piece 8 for partition support. It will be appreciated that these partition pieces may be installed at any point in the assembly thus to provide ends for a single compartment mounted on panel 4 or a plurality of individual compartments therein according to the desires of the user.

To assemble an enclosed shelf with partitions, shelf brackets 10 and 28 and a panel bracket 36 are attached to panel 4 by insertion of peg portions 12, 12a, 33 and 40 in suitable perforations 14. Front closure 8 and bottom piece 6 are then fitted in place as previously described. Ends 46a and 46b of partition bracket 38 are next inserted in perforations in front closure 8 opposite panel bracket 36 as best seen in Figures 1 and 3; and finally partition piece 34 is inserted in clamps 44 and 48. In this manner partitions may be located at any point between panel 4 and front closure 8.

Figure 8 illustrates a bracket generally indicated at 50 which may be used in place of either panel bracket 36 or partition bracket 38. This bracket preferably includes a shank portion 52 having a peg portion 54 at one end and a right angle bend in the other end 56. A clamp 58

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with wings 58a and 58b fits on shank portion 52 to support the partition piece 34. Brackets 50 may be used on either the panel 4 or the front closure 8 in a manner which will be readily apparent from the above description. Further, this bracket may be installed at any point without removal of the bottom piece 6, thus facilitating changes in the partition arrangement.

In Figure 9 a shelf supporting bracket, generally indicated at 62, includes a peg portion 12b, a stem portion 16b, a bottom supporting portion 18b, front supporting portion 20b, and a peg portion 22b, all preferably identical with their counterparts in bracket 10. Additionally there is provided a rearwardly extending peg portion 64, preferably in alignment with bottom supporting portion 18b which is shaped and dimensioned to fit into a perforation 14 in panel 4. Accordingly, the method of assembly is preferably similar to that described in the structure shown in Figure 2 except that extension 64 is inserted in a perforation 14. This structure adds greatly to the security of the assemblage and inhibits side sway.

Thus I have described an enclosed shelf which can be attached to and suspended from perforated panels and which has a front closure to prevent stored objects from rolling or falling therefrom. Also partition pieces may be installed to divide the shelf into bins which permit piling and stacking or otherwise storing different articles without intermixture. The brackets for supporting and forming the shelf and bins are simple in construction and can be made at low cost from inexpensive materials. The shelf compartments, i. e. front closures, bottom pieces, and partition pieces, may be made from compressed fiber board which is easily cut to desired size. Erection and installation of the shelves and bins on the panel can be accomplished quickly without tools or special talents. The method of construction also permits quick and simple dis-assembly or re-arrangement of the shelves, bins or partitions.

It will thus be seen that the objects set forth above, among those made apparent from the preceding descriptions, are efficiently attained. Since certain changes may be made in the above construction without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention, which as a matter of language, might be said to fall therebetween.

I claim:

1. A shelf attached to a panel comprising, in combination, a plurality of substantially U-shaped brackets, each of said brackets comprising a bottom portion with two end portions extending upwardly therefrom, the upper end of each of said end portions having a peg portion formed thereon, the peg portion on one end portion of each of said brackets being inserted into a perforation in said panel with its associated end portion resting thereagainst, thereby to attach said brackets to said panel; a shelf bottom piece supported on said bottom portions; and a separate shelf front closure having perforations engaging the peg portions on the other end portions and resting against said other end portions to be supported in a substantially vertical position thereby.

2. An enclosed shelf attached to a panel comprising, in combination, a plurality of substantially U-shaped brackets, each of said brackets comprising a bottom portion with two end portions extending upwardly therefrom, the upper end of each of said end portions having a peg portion formed thereon, the peg portion on one end portion of each of said brackets being inserted into a perforation in said panel with its associated end portion resting thereagainst, thereby to attach said brackets to said panel; a shelf bottom piece supported on said bottom

portions; a shelf front closure having perforations engaging the peg portions on the other end portions and resting against said other end portions; and end closures disposed at the ends of said shelf and connected to said panel and front closure, whereby an enclosed shelf or bin is formed.

3. An enclosed shelf attached to a perforated panel comprising, in combination, a plurality of substantially U-shaped brackets, each of said brackets comprising a bottom portion with two end portions extending upwardly therefrom, the upper end of each of said end portions having a peg portion formed thereon, the peg portion on one end portion of each of said brackets being inserted into a perforation in said panel with its associated end portion resting thereagainst, thereby to attach said brackets to said panel; a shelf bottom piece supported on said bottom portions; a shelf front closure having perforations engaging the peg portions on the other end portions and resting against said other end portions; and end closures, each of which comprises a panel bracket secured to said panel, a front bracket secured to said front closure opposite said panel bracket, and a partition piece disposed between said brackets and secured thereby, whereby an enclosed shelf or bin is formed.

4. An enclosed shelf attached to a perforated panel comprising, in combination, a plurality of substantially U-shaped brackets, each of said brackets having a bottom portion with two end portions extending upwardly therefrom, the upper end of each of said end portions having a peg portion formed thereon, the peg portion on one end portion of each of said brackets being inserted into a perforation in said panel with its associated end portion resting thereagainst, thereby to attach said brackets to said panel; a shelf bottom piece supported on said bottom portion, a shelf front closure having perforations engaging the peg portions of the other end portions and resting against said other end portions; and end closures, each of which comprises a panel bracket secured to said panel, a front bracket secured to said front closure opposite said panel bracket, each of said brackets having a pair of substantially parallel vertically disposed spaced apart wings and a partition piece disposed between said brackets and secured in place by said wings, whereby an enclosed shelf or bin is formed.

5. A substantially U-shaped shelf bracket for supporting a shelf from a panel, comprising a bottom portion for supporting a shelf bottom piece, an end portion extending upwardly from said bottom portion and having at its upper end a peg portion adapted to be inserted into a perforation in said panel, said peg portion comprising an outward and upward reverse bend in said end por-

tion, thereby to attach said bracket to said panel, and another end portion extending upwardly from said bottom portion and having at its upper end another peg portion adapted to be inserted into a perforation in a front closure of said shelf, said other peg portion comprising an inward and upward reverse bend in said other end portion, thereby to support said front closure of said shelf.

6. A substantially U-shaped shelf bracket for supporting a shelf from a panel, comprising a bottom portion for supporting a shelf bottom piece, an end portion extending upwardly from said bottom portion and having at its upper end a peg portion adapted to be inserted into a perforation in said panel, said end portion also having at its lower end a peg portion adapted to be inserted into a perforation in said panel, thereby to attach said bracket to said panel, and another end portion extending upwardly from said bottom portion and having at its upper end means for attaching to a front closure of said shelf, thereby to support said closure.

7. A partition bracket for securing a partition piece of a shelf to a perforated panel, comprising an elongated rod-like shank portion having at each end a peg portion adapted to be affixed in a perforation in said panel, the peg portion at one end of said shank portion being formed by a substantially right angle bend in said end and the peg portion at the other end being formed by a substantially right angle bend in said other end and a second substantially right angle reverse bend, the second bend portion in said other end thereby being substantially parallel to said shank portion and pointing away therefrom, and a pair of spaced apart wing portions affixed to said shank portion, substantially parallel to each other and to the common plane passing through both of said peg portions.

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