

Aug. 1, 1967

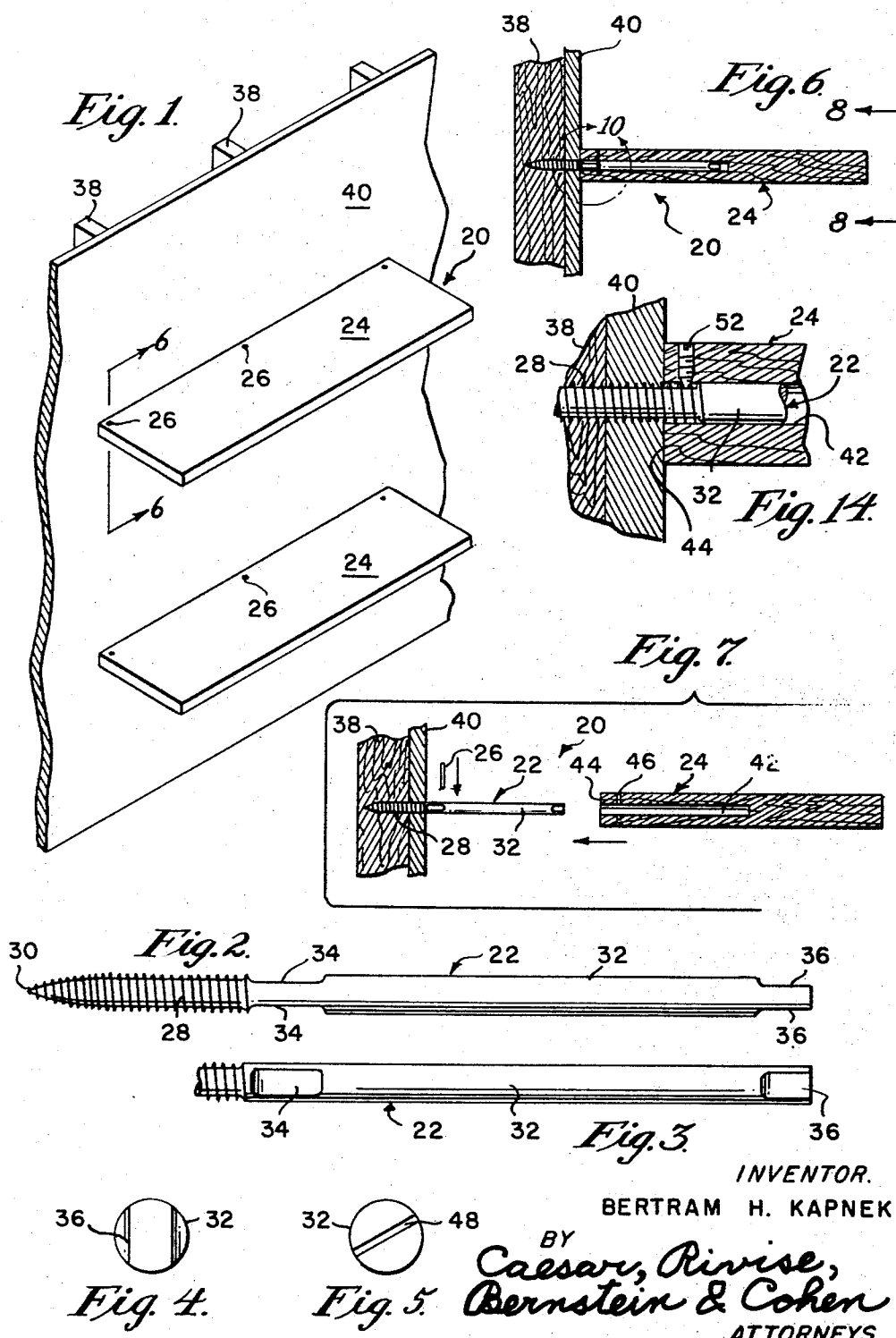
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SHELF ASSEMBLY

Filed April 11, 1966

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SHELF ASSEMBLY

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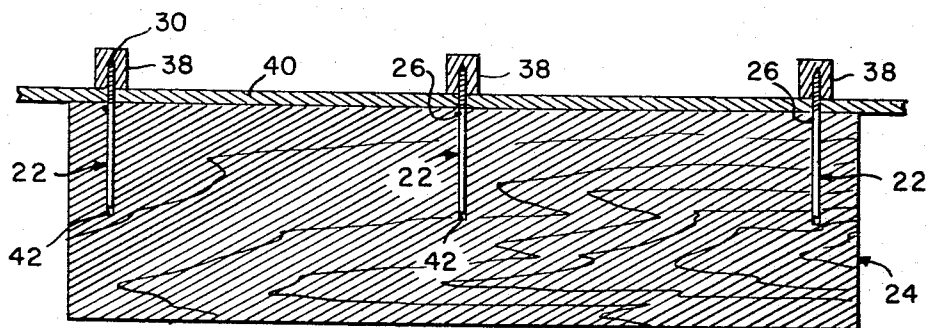


Fig. 9

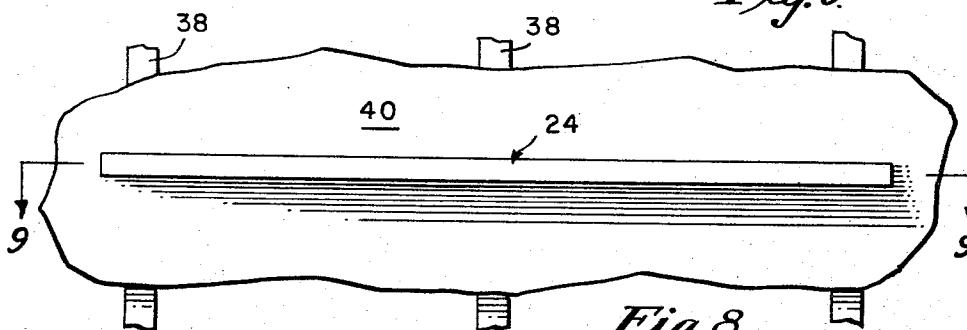


Fig. 8

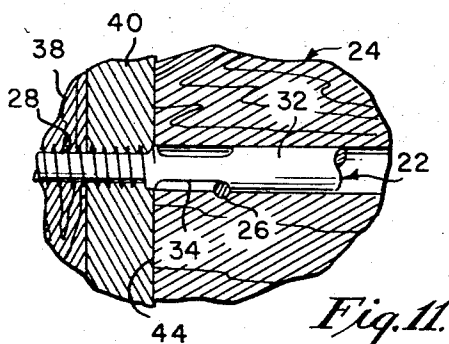


Fig. 11

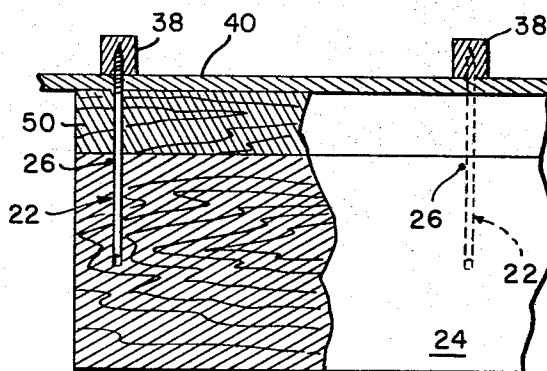


Fig. 13

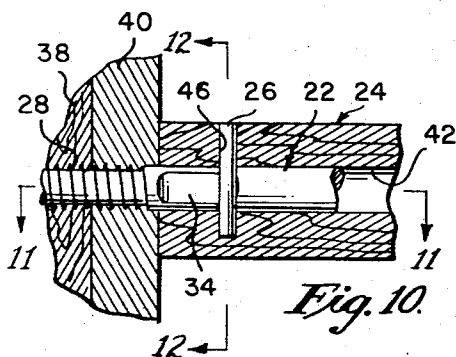


Fig. 10

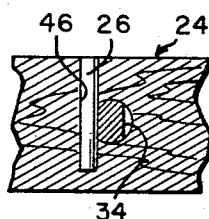


Fig. 12

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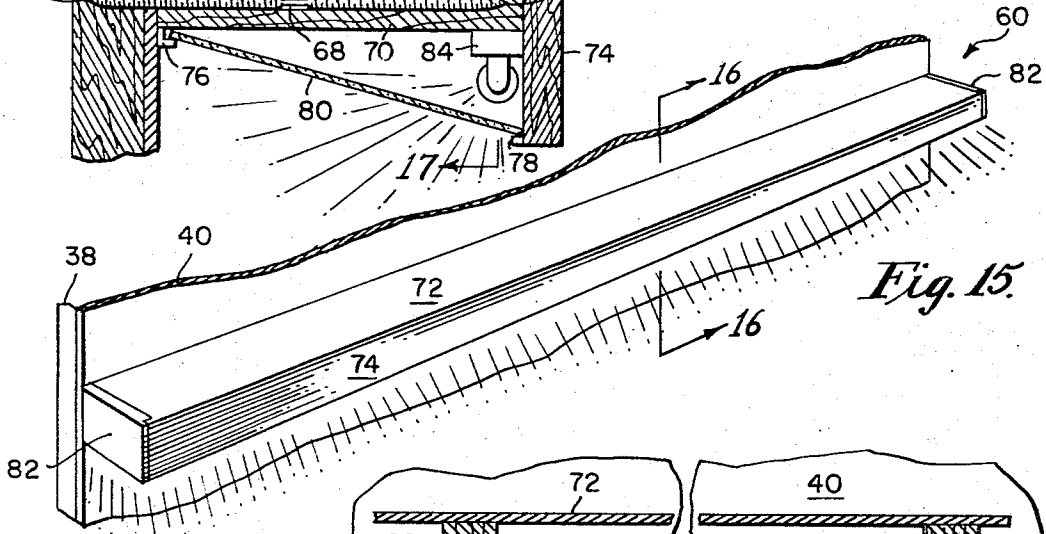
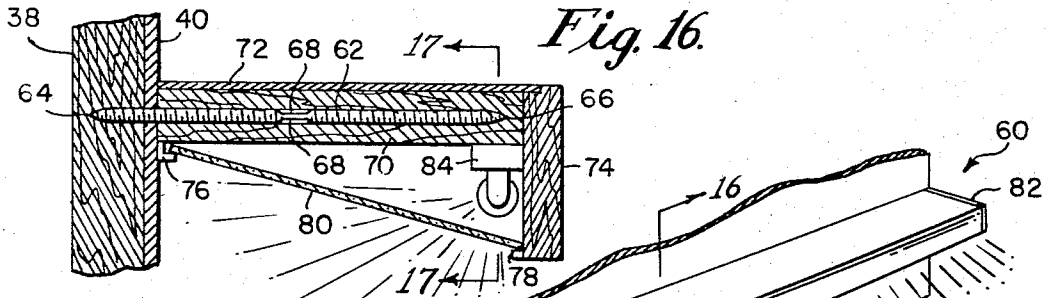


Fig. 17

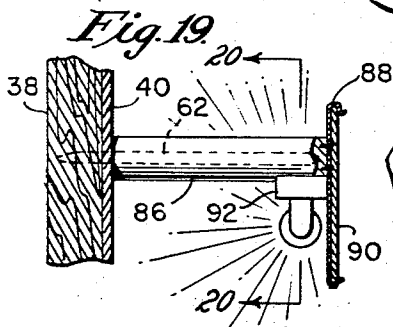
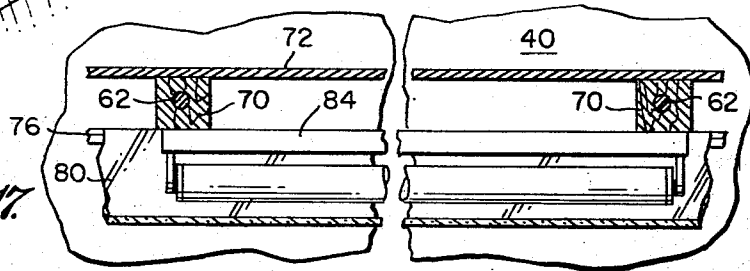


Fig. 20

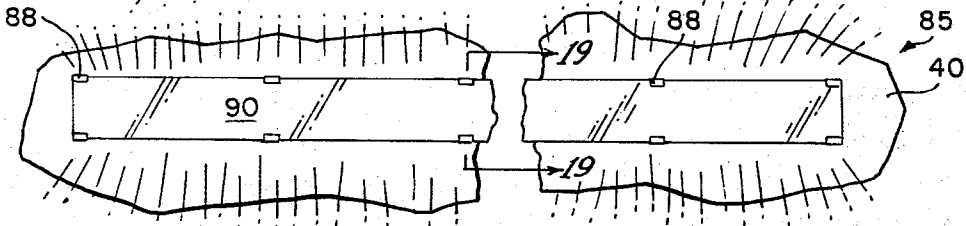
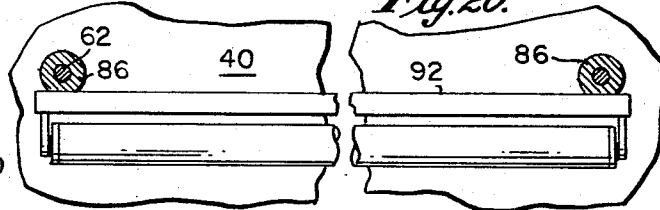


Fig. 18

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ABSTRACT OF THE DISCLOSURE

A shelf assembly including a plurality of rods secured in the studs behind a wall and a shelf supported by said rods. The rods are positioned within the shelf and are completely hidden during use. The rods are sufficiently strong to bear heavy loads and are adapted to provide the sole support for any load placed on the shelf.

This application is a continuation-in-part of my co-pending application Ser. No. 460,024, filed June 1, 1965 now abandoned.

This invention relates to a shelf assembly, and more particularly, to shelving that is adapted to be mounted on the walls of a building, such as a home.

It is now a current practice to erect shelves directly on the walls of a building, such as a home. Various types of brackets have been developed for maintaining the shelves in place. One problem which is existent in substantially all of the shelves currently in use is that the brackets are visible. In most cases, these brackets will detract from the appearance of the shelf assembly.

Attempts have been made at concealing the supporting means for shelves. Thus, screws have been inserted directly into walls with an extended shank of the screws being received in rear recesses of shelving. However, these structures, although overcoming the problem of unsightliness, still suffered the disadvantage that they were not load-bearing. Thus, they were only adapted to receive very light loads such as soap or towels. In many instances, decorative brackets still had to be used to aid in supporting the shelves.

The shelf assembly of this invention overcomes all of the prior art problems by having supporting structure for the shelves which is completely concealed in use, while at the same time, providing all of the necessary strength for maintaining the shelves in their set position. Thus, the shelf assembly of this invention is adapted to receive substantial loads while maintaining the horizontal orientation of the shelf.

It is therefore an object of this invention to provide a novel shelf assembly.

It is another object of this invention to provide a shelf assembly which includes hidden supporting structure which possesses all of the strength assets of the prior art visible supporting structure.

It is a further object of this invention to provide a shelf assembly which is economical in cost and attractive in appearance.

It is a further object of this invention to provide a shelf assembly which has sufficient inherent strength to support large and heavy loads.

These and other objects of this invention are accomplished by providing a shelf assembly comprising, in combination, a vertical wall, a plurality of vertical studs supporting said wall and a shelf mounted in a horizontal position on said wall, a plurality of rods passing through said wall and secured in said studs, said rods being adapted to support heavy loads, said rods having portions projecting horizontally outward from said wall, means covering said portions, and a shelf supported by said rods.

Other objects and many of the attendant advantages

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of this invention will be readily appreciated as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawings wherein:

5 FIG. 1 is a perspective view of the shelf assembly of this invention mounted on a wall;

FIG. 2 is a top plan view of one embodiment of a mounting rod used in the shelf assembly of this invention;

10 FIG. 3 is a fragmentary side elevational view of the rod of FIG. 2;

FIG. 4 is an enlarged end elevational view of the rod of FIG. 2;

FIG. 5 is an end elevational view of a modified form of the rod of FIG. 2;

15 FIG. 6 is an enlarged sectional view taken along the line 6—6 of FIG. 1;

FIG. 7 is an exploded side sectional view showing the elements comprising the shelf assembly shown in FIG. 6;

20 FIG. 8 is a front elevational view of the shelf assembly of this invention, taken in the direction of arrows 8—8 in FIG. 6;

FIG. 9 is a sectional view taken along the line 9—9 of FIG. 8;

25 FIG. 10 is an enlarged view of the area indicated at 10 in FIG. 6;

FIG. 11 is a sectional view taken along the line 11—11 of FIG. 10;

FIG. 12 is a sectional view taken along the line 12—12 of FIG. 10;

30 FIG. 13 is a fragmentary top plan view, partially in section, showing a modified embodiment of this invention;

FIG. 14 is a sectional view similar to FIG. 10 but showing a modified embodiment of this invention;

35 FIG. 15 is a perspective view of a modified embodiment of the shelf assembly of this invention, as used in a cornice;

FIG. 16 is an enlarged sectional view taken along the line 16—16 of FIG. 15;

40 FIG. 17 is a sectional view taken along the line 17—17 of FIG. 16;

FIG. 18 is a front elevational view of a modified embodiment of a cornice embodying the shelf assembly of this invention;

45 FIG. 19 is an enlarged sectional view taken along the line 19—19 of FIG. 18; and

FIG. 20 is a sectional view taken along the line 20—20 of FIG. 19.

Referring now in greater detail to the various figures of the drawings wherein similar reference characters refer to similar parts, a shelf assembly embodying the present invention is generally shown at 20 in FIG. 1. As best seen in FIG. 7, shelf assembly 20 basically comprises a plurality of rods 22 (one shown), a shelf 24, and a pin 26 for each rod 22.

55 As seen in FIG. 2, rod 22 includes a forward threaded portion 28 which tapers to a point 30. The main body portion 32 of the rod is cylindrical. A pair of flattened sides 34 are formed at the forward end of body portion 32 adjacent threaded portion 28. As an optional feature, the rear end of body portion 32 can also include a pair of flattened sides 36.

60 In use, rods 22 will be secured in the studs 38 which support a wall 40. Wall 40 can be of any structural material known to the art such as wallboard, panelling or plaster. The wall material forms no part of this invention. Rods 22 are threadably secured in place by rotating the rods by a suitable wrench. This wrench is preferably applied at the flattened sides 34. However, if desired, the wrench can also be applied at the flattened end 36. As seen in FIGS. 10 and 11, the screwing of the rod into the studs is continued until substantially all of threaded

portion 28 is received in wall 40. As seen in FIG. 9, rods 22 are horizontally aligned in the studs.

Shelf 24 can be of any shelving material such as hardboard, plywood, or solid wood. Shelf 24 has a plurality of holes 42 which project inwardly from the rear edge 44. Holes 42 are cylindrical and are slightly larger in diameter than the diameter of rods 22. Additionally, the depth of holes 42 is slightly greater than the length of rods 22 after the rods have been secured in the wall. Holes 42 are on the same centers as the spacing of rods 22 in the wall. Thus, when the studs on the wall are on sixteen inch centers and a rod will be placed in each stud, the holes will likewise be on sixteen inch centers. A small hole 46 projects from the top of shelf 24 down through each hole 42.

Shelf 24 is maintained in place by first telescoping it over rods 22, whereby the rods will be received in holes 42 (FIG. 9). As seen in FIG. 8, the shelf 24 will then be in a horizontal position. In order to prevent the shelf from being inadvertently removed from the rods, a pin 26 is dropped into each hole 46. Thus, as seen in FIG. 11, the pin will rest against one of the flattened sides 34 of the rod. If any attempt is made to pull the shelf off of rod 22, the pin 26 will abut the cylindrical body portion 32, thereby preventing any further movement. Thus, so long as pin 26 is in place, it is not possible to remove the shelf from the rod 22.

It is thus seen that flattened side portions 34 serve a dual function. The first is to receive a wrench against the flattened areas. Thus, without the flattened areas a wrench would freely rotate on the cylindrical body portion 32 of the rod. The second function of the flattened areas is to serve as a recess for receiving the retaining pins 26, as best seen in FIG. 11.

As previously pointed out, the flattened areas 36 at the end of body portion 32 are an optional feature. Thus these flattened areas are also adapted to receive a wrench and may be used for this purpose when securing the rods in place. In FIG. 5, a slightly modified end of body portion 32 is shown. Thus, instead of having flattened areas 36, a transverse slot 48 is formed. This slot is adapted to receive a screwdriver. Thus the screwdriver can be used for securing rods 22 in place instead of using a wrench.

The use of this invention with an extended shelf is shown in FIG. 13. Thus, when the length of the shelf is to be increased, this can be accomplished by using a narrow insert shelf 50. A plurality of holes pass completely through insert shelf 50 and are aligned with the holes 42 in shelf 24. Thus, in use, the insert shelf 50 will first be telescoped over rods 22. Thereafter, shelf 24 will be added and will be secured in place by pins 26 in the manner described above. In this embodiment, it should be noted that the flattened side portions 34 are positioned outwardly from wall 40. Thus, pins 26 will hold both shelf 50 and shelf 24 in place.

A modified embodiment of this invention is shown in FIG. 14. In this embodiment, flattened side portions 34 have been eliminated and threaded portion 28 is extended into cylindrical body portion 32. Rods 22 are screwed into studs 38 from the rear of cylindrical body portion 32. This can be accomplished by providing flattened portions 36 (FIG. 4) at the rear end or screw slot 48 (FIG. 5) at the rear end. The shelf 24 is maintained in place by advancing a headless set screw 52 into hole 46. The tip of said screw 52 will be received in the screw threads of threaded portion 28. When the tip reaches the root of the threaded portion 28, movement of the shelf is prevented by the tip of the set screw contacting the threads of threaded portion 28.

As seen in FIGS. 1 and 8, the shelf assembly of this invention results in a shelf having no external visible supporting means. The shelves 24 appear to be freely suspended from the wall 40. This results in an extremely attractive assembly, while at the same time all the necessary strength for supporting the shelves is maintained by the rods 22.

A modified embodiment of the shelf assembly of this invention is generally shown at 60 in FIG. 15. In embodiment 60, the shelf assembly is used for forming a cornice. In this embodiment, the rods, shown at 62 in FIG. 16 are threaded along substantially their entire length and have tapered ends 64 and 66. The center of rods 62 is provided with flattened surfaces 68 to permit grasping by a wrench, as described above. A block 70, which can be of wood, is telescoped over and threadedly secured on each rod 62. As seen in FIG. 17, each block 70 has a square cross section and in its secured position will have one of its flat surfaces uppermost.

A continuous board 72, which can be formed from plywood, bridges all of the aligned blocks 70 and is secured thereto, as by nails or adhesive. Board 72 is the same length as that desired for the total length of the cornice. Where necessary, more than one board 72 can be used to complete a cornice 60. A vertical board 74 is secured onto the front surfaces of blocks 70 by any conventional means such as nails, screws or adhesive. Board 74 also extends along the entire length of cornice 60. Molding 76 is secured below rods 70 to provide a first lip. Molding 78 is secured adjacent bottom edge of board 74 to provide a second lip. A translucent screen 80 is suspended by lips 76 and 78. Screen 80 can be a plastic film, fiber glass or coated glass. Resilient caps 82 are provided at both ends of cornice 60.

Cornice 60 is adapted to be used like any of the cornices of the prior art. Thus it can be used as a support for draperies or can be used as a source of indirect lighting. When used as a source of indirect lighting, fluorescent fixtures 84 can be mounted against the underside of blocks 70, as seen in FIG. 17. Other light sources, such as incandescent lamps, can be used in a similar manner.

A modified embodiment of the cornice 60 is generally shown at 85 in FIG. 18. Device 85 includes studs 38, wall 40 and a plurality of rods 62 threadedly secured in studs 38. Blocks 86 are in turn threadedly secured on rods 62. As seen in FIG. 20, blocks 86 are circular in cross section. A spring clip 88 is secured to the outer edge of each block 86, as by nails or adhesive. A translucent screen 90 is in turn held vertically in place by clips 88. A plurality of fluorescent fixtures 92 are positioned behind screen 90 and secured against the undersurface of block 86.

It is thus seen that the shelf assembly of this invention is readily adapted for supporting any horizontal surface. It can be used for book shelves, as a bench for supporting people, for cornices, or for any other horizontal surface that is to be supported by a vertical wall. When used as a cornice, the shelf assembly can be used in connection with the fluorescent lighting shown. When so used, translucent screens 80 and 90 will serve to diffuse the light, thereby providing indirect lighting along an entire wall.

One feature that all of the rods of this invention have in common is that they are adapted for bearing heavy loads. A preferred material for the rods is therefore steel. The securement of the rods through a wall and into the studs permits the functioning of the shelf assembly of this invention for bearing heavy loads. Thus, it has been found in actual practice that two rods secured in a wall in the manner described and having a shelf supported by the rods will result in a bench which can easily support the weight of a 200 pound man.

Any of the means shown can be used for maintaining a shelf in place. Thus, the pin 26, the set screw 52, or the threaded securement of both ends of the rod may be used interchangeably. Regardless of the securement method used, the rods will always be concealed and will supply sufficient strength to readily support any load normally used within a home thereon. Thus, the rods are either concealed in recesses within the shelves or by the blocks 70 or 86.

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The rods of this invention can also be used for supporting shelves which could previously only be supported by extremely large and cumbersome brackets. Thus, the rods can be used for forming shelves from such items as glass, marble, slate and other heavy materials. When supporting these materials, the rods will be threadedly secured in a wall, such as shown in FIGS. 16 and 19, and blocks will be secured on the outer ends of the rods. Each of the blocks will include a forward, upwardly-projecting lip. The heavy shelf material, such as glass or marble, will then rest on top of the blocks and be secured against longitudinal movement by the wall and the upwardly projecting lip.

The load bearing characteristics of the shelf of this assembly are completely unique. Any prior attempts at concealing supporting rods for shelving relied solely on whatever strength was available in a wall. Since the inherent strength of wall board or plaster is very small, only such light items as soap dishes or towel bars could be suspended from the wall. The shelf assembly of this invention combines the supporting strength of the vertical studs behind the wall with the inherent strength of the load bearing rods to provide a decorative and structurally sound shelf. It is through these load bearing characteristics that such extremely heavy shelving material such as marble and slate can easily be supported without the prior art unsightly brackets.

Obviously many modifications and variations of the present invention are possible in the light of the above teachings. It is, therefore, to be understood that within the scope of the appended claims, the invention may be practiced otherwise than as specifically described.

What is claimed as the invention is:

1. A shelf assembly comprising, in combination, a vertical wall, a plurality of studs supporting said wall and a shelf mounted on said wall, a plurality of rods passing through said wall and secured in said studs, said rods being adapted to support heavy loads, said rods having portions projecting horizontally outward from said wall, means covering said portions, and said shelf being supported by said rods, whereby a load on said shelf is transmitted to said wall solely through said rods.

2. The shelf assembly of claim 1 and further including means for maintaining said shelf on said rods.

3. The shelf assembly of claim 2 wherein said maintaining means comprises at least one member inserted through said shelf and into contact with at least one of said rods, said inserted member adapted to contact said rod in such a manner as to prevent longitudinal removal of said shelf from said rod.

4. The shelf assembly of claim 1 wherein said rods are threadedly secured in said studs.

5. The shelf assembly of claim 1 wherein said means covering said portions comprise a plurality of recesses pro-

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jecting inwardly from the rear edge of said shelf, said portions being received in said recesses.

6. The shelf assembly of claim 1 wherein said means covering said portions comprise blocks secured on said portions.

7. The shelf assembly of claim 6 wherein said shelf is mounted in a horizontal position and is secured to said blocks, said shelf assembly further including a vertical shelf positioned at the front edge of said blocks whereby said shelf assembly forms a cornice.

8. The shelf assembly of claim 7 and further including light means associated with said blocks whereby said cornice is illuminated.

9. The shelf assembly of claim 8 and further including a translucent screen mounted in said cornice.

10. The shelf assembly of claim 6 wherein said shelf is vertically mounted.

11. The shelf assembly of claim 10 and further including light means associated with said blocks, said shelf comprising a translucent screen to diffuse the light emanating from said light means.

12. The shelf assembly of claim 1 wherein said shelf is mounted in a horizontal position and comprises a plurality of sections, at least one of said sections having holes passing therethrough, said rods passing through said holes, with one other of said sections having recesses formed in the rear edge thereof, said rods being received in said recesses, said section having said recesses being spaced farther from the wall than said section having said holes, with said sections being horizontally aligned.

13. The shelf assembly of claim 12 wherein said recessed section is secured on said rods.

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