United States Patent

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[45] Patented **June 22, 1971**
Continuation-in-part of application Ser. No. 713,166, Mar. 14, 1968, now abandoned.

[54] **SUSPENDED SHELVING**
9 Claims, 15 Drawing Figs.

[52] **U.S. Cl.** **108/111**, 108/152, 182/150
[51] **Int. Cl.** **A47b 5/00**
[50] **Field of Search** 108/111, 116, 149, 150, 152; 312/138; 182/150

[56] **References Cited**

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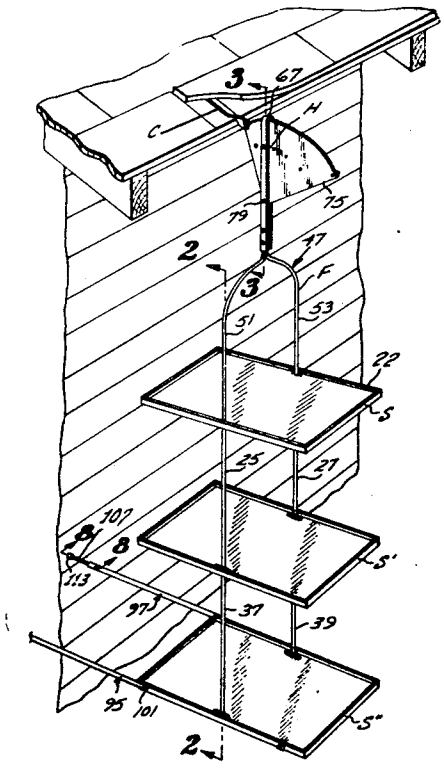
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ABSTRACT: This application relates to shelving for suspension from the eaves of a roof. The suspended shelving includes a plurality of vertically spaced shelves which are carried on a frame having a hanger connected to the upper extremity thereof. The hanger includes a transversely projecting cleat for extension under the marginal extremity of the roofing and is formed with a plurality of claws for biting into the roof whereby the cleat may be inserted under the marginal edge of the roofing and secured to the roof without removal of such roofing.



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SHEET 1 OF 3

FIG. 1

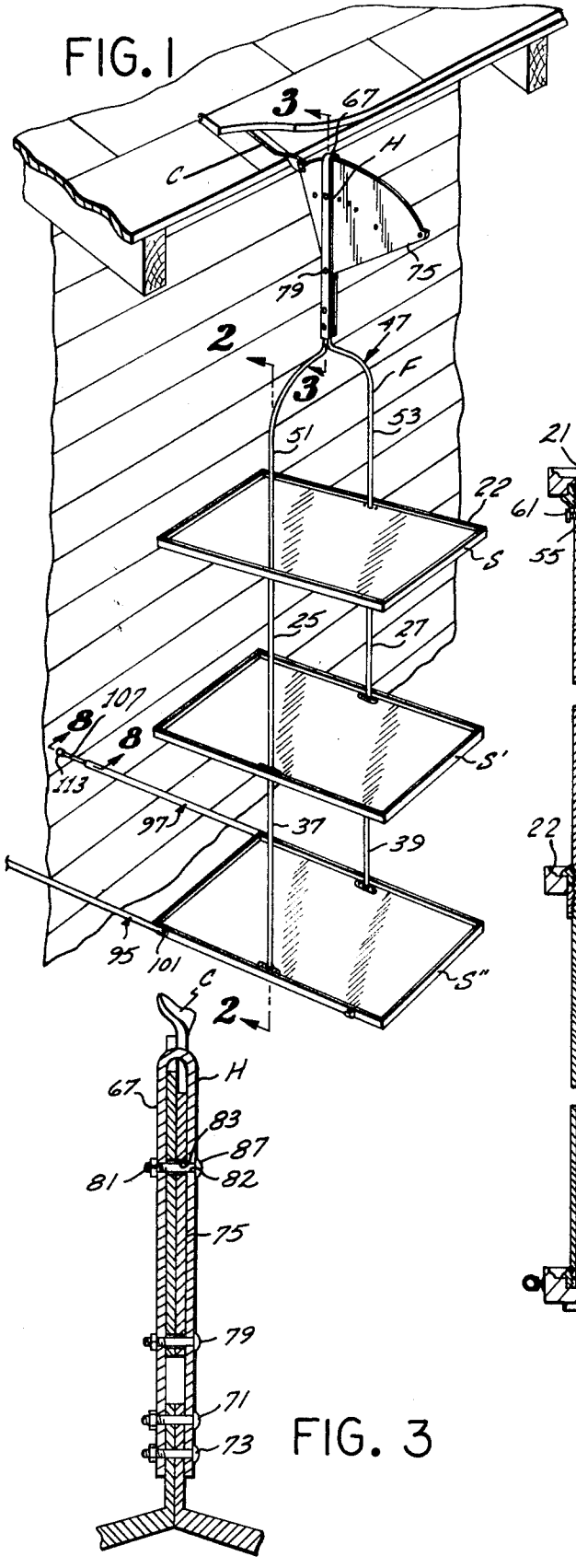
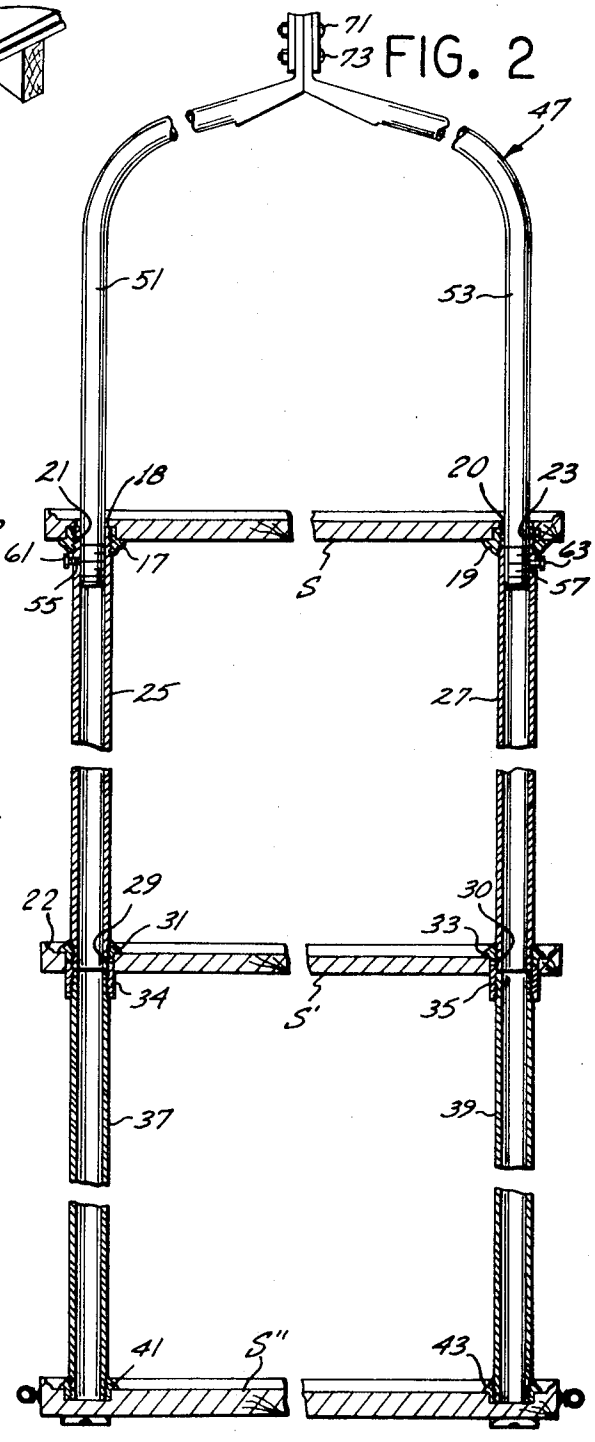


FIG. 3

FIG. 2



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FIG. 4

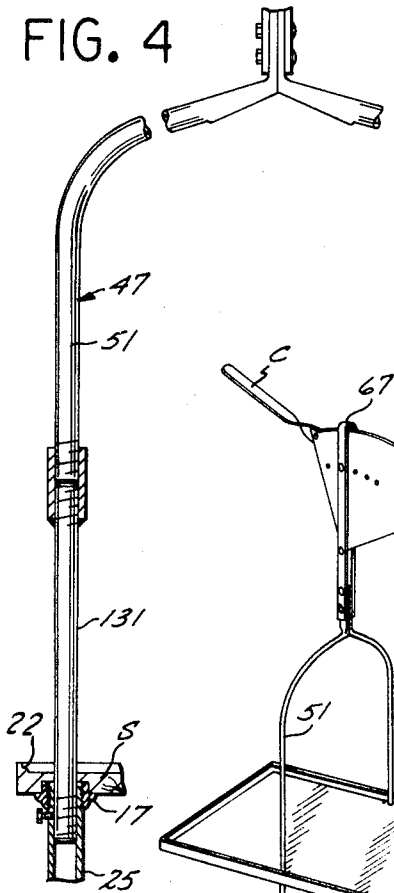


FIG. 5

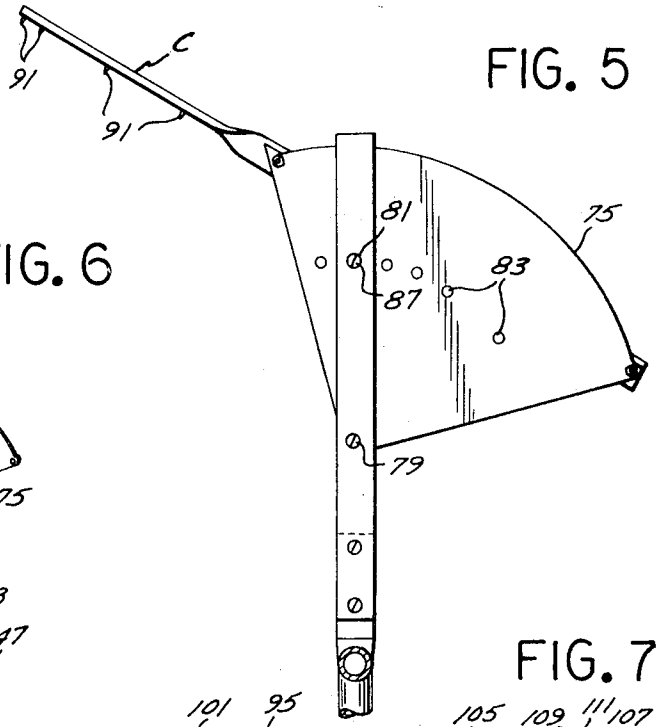


FIG. 6

FIG. 7

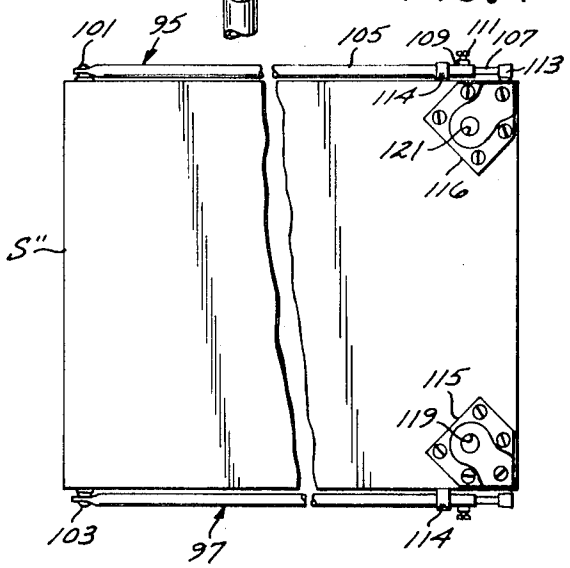
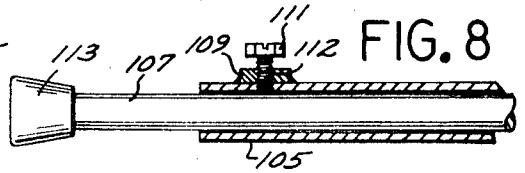
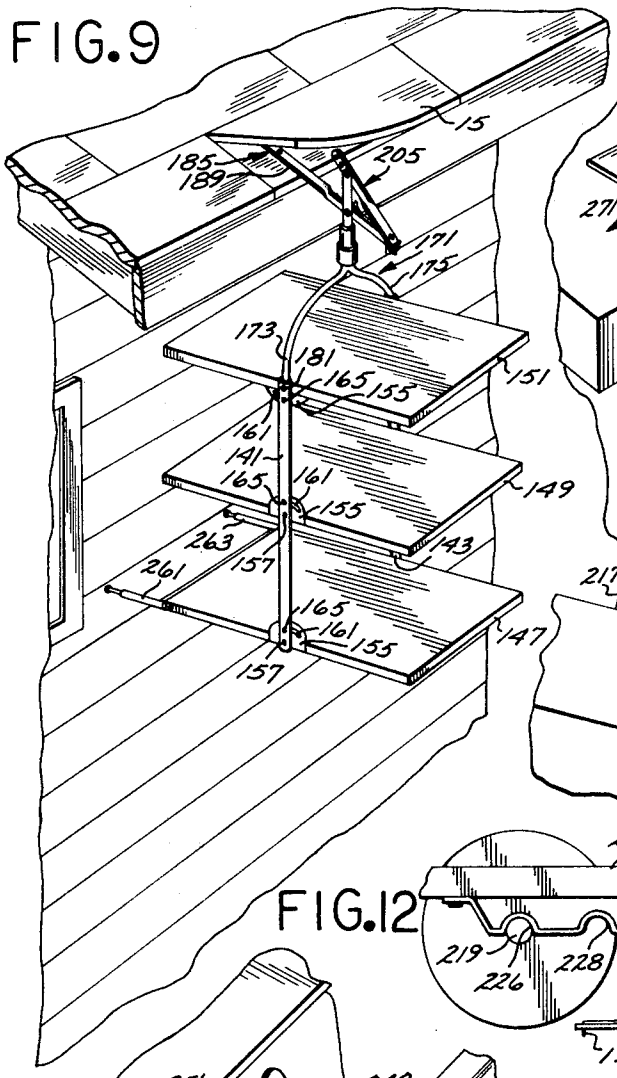


FIG. 8



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FIG.9



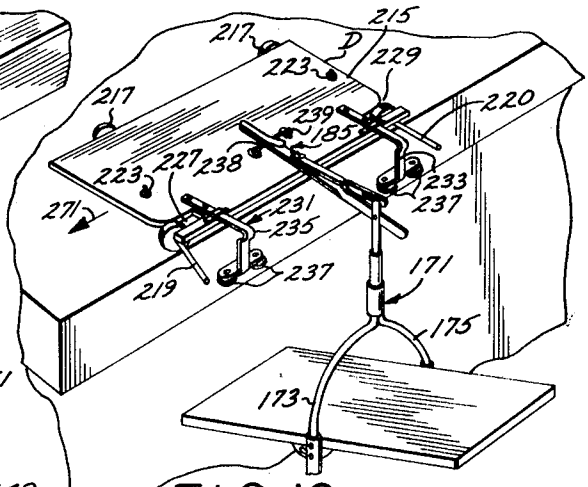


FIG.10

FIG.11

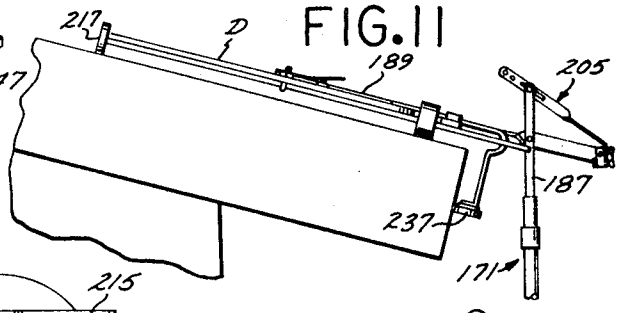


FIG.12

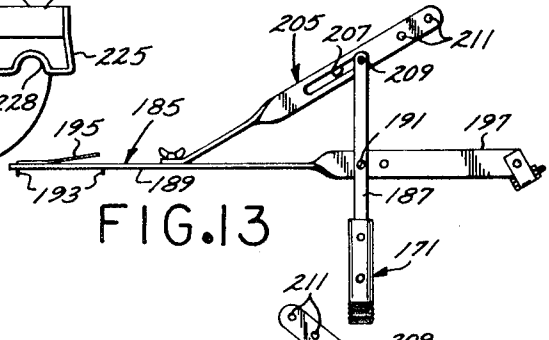


FIG.13

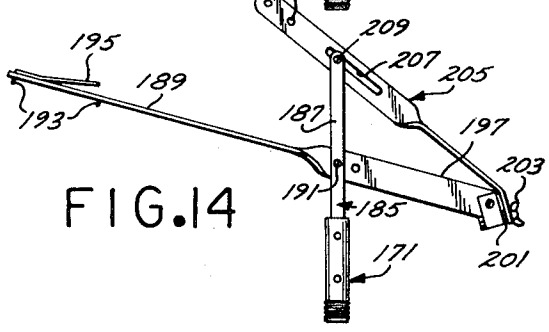


FIG.14

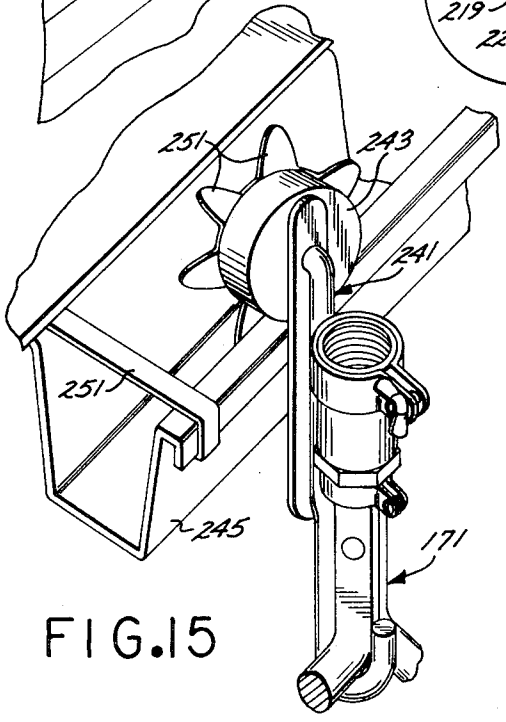


FIG.15

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SUSPENDED SHELVING

This application is a continuation-in-part of application Ser. No. 713,166 filed Mar. 14, 1968 now abandoned.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to shelving for being suspended from the roof of a house to support painting paraphernalia or the like.

2. Description of the Prior Art

There are no prior art shelving apparatuses known to applicant which include a hanger having a transversely projecting cleat which is readily insertable under the marginal edge of the roofing on a roof for convenient securement to such roof without removal of the roofing.

SUMMARY OF THE INVENTION

The present invention is characterized by suspended shelving including a plurality of vertically spaced shelves supported from a frame having a hanger connected to the upper extremity thereof. The hanger includes a transversely projecting cleat which is insertable under the marginal edge of roofing for securement to the roof.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a suspended shelving apparatus embodying the present invention;

FIG. 2 is a vertical sectional view in enlarged scale, taken along the line 2–2 of FIG. 1;

FIG. 3 is a vertical sectional view, in enlarged scale, taken along the line 3–3 of FIG. 1;

FIG. 4 is a partial side view, in enlarged scale, of the shelving apparatus shown in FIG. 1;

FIG. 5 is a detail side elevational view, in enlarged scale, of a hanger included in the suspended shelving shown in FIG. 1;

FIG. 6 is a perspective view of the shelving apparatus shown in FIG. 1, such apparatus being shown supported by legs;

FIG. 7 is a broken bottom view, in enlarged scale, of the shelving apparatus shown in FIG. 1;

FIG. 8 is a partial vertical sectional view, in enlarged scale, taken along the line 8–8 of FIG. 1;

FIG. 9 is a perspective view of a second embodiment of the shelving apparatus embodying the present invention;

FIG. 10 is a partial perspective view of the shelving apparatus shown in FIG. 8 supported from a translating dolly;

FIG. 11 is a detail end view, in enlarged scale, of the dolly shown in FIG. 10;

FIG. 12 is a vertical sectional view, in enlarged scale, taken along the line 12–12 of FIG. 10;

FIGS. 13 and 14 are detail views, in enlarged scale, of a hanger included in the suspended shelving shown in FIG. 9 and depicting such hanger in two different positions; and

FIG. 15 is a perspective view, in enlarged scale, of a second hanger for use with the suspended shelving shown in FIG. 9.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIG. 1, the shelving apparatus of present invention includes a knockdown frame F suspended from a hanger H including a transversely projecting cleat C (FIG. 5) that may be conveniently inserted under the lower marginal edges of the roofing shingles 15 for securement to the roof. A plurality of shelves S, S′ and S″ are supported from the frame F for receiving painting paraphernalia and the like (not shown).

The shelves S, S′ and S″ may be of different sizes and are generally rectangularly shaped and include raised peripheral borders 22. The top shelf S includes a pair of vertical bores 18 and 20 for projection of portions of internally threaded fittings 17 and 19. The fittings 17 and 19 are removably attached to the upper shelf S and include through threaded bores 21 and 23, respectively, therein for receiving the threaded upper extremities of tubular frame members 25 and 27, respectively.

The middle shelf S′ includes a pair of through bores 29 and 30 for receiving internally threaded fittings 31 and 33, into which the threaded lower extremities of the tubular members 25 and 27 are screwed. The bottom ends of the tubes 25 and 27 project downwardly beyond the respective fittings 31 and 33 and receive couplings 34 and 35. The upper extremities of the tubular members 37 and 39 are screwed into the couplings 34 and 35, respectively, and their lower extremities are screwed into fittings 41 and 43 attached to the lower shelf S″.

A bale, generally designated 47, formed by a pair of tubes 51 and 53, mounts the hanger H on the frame F. The lower extremities of the tubes 51 and 53 extend slidably into the upper extremity of the open-ended tubes 25 and 27, respectively. Bores 55 and 57 are included in the walls of the tubes 25 and 27, respectively, for receipt of set screws 61 and 63 which lock the bale 47 in position.

Referring to FIGS. 5 and 6, the hanger H includes a bracket 67 which is connected to the upper extremity of the connected-together tubes 51 and 53 by bolts 71 and 73. Referring to FIG. 3, a pie-shaped web 75 is pivotally connected on its lower apex to the bracket 67 by a pivot pin 79. The bracket 67 includes a pair of aligned bores 81 and 82 and accurately arranged bores 83 in the web 75 register therewith as the web 75 is pivoted on the pivot pin 79. A nut and bolt assembly 87 extends through the bores 81 and 82 and the particular bore 83 registered therewith to lock the web in a desired angled position. The cleat C projects from the forward edge of the web 75 and includes a plurality of downwardly extending nails or claws 91.

Referring to FIGS. 1 and 7, a pair of struts, generally designated 95 and 97, are affixed to opposite sides of the lower shelf S″ by means of pivot pins 101 and 103, respectively. The struts 95 and 97 each include a female tube 105 and a male rod 107 telescoped thereinto. Referring to FIG. 8, a nut 109 is welded to the wall of the tube 105 and a screw 111 is screwed thereinto and projects through a bore 112 within the wall of the female tube 105 to abut the male rod 107 to hold it in telescopical relationship relative to the female tube 105. The projecting ends of the rods 107 include caps or cushions 113 to prevent marring the painted surface on the side of the house being painted.

Clips 114 are mounted on the sides of the shelf S″ for selectively engaging the legs 95 and 97 to hold them in their collapsed position alongside the shelf S″ as shown in FIGS. 7 and 8.

A pair of brackets 115 and 116 are affixed to the bottom of the shelf S″ and include centrally threaded bores 119 and 121 for receiving telescopical legs 123 and 125.

In use of the aforedescribed shelving apparatus, the cleat C is adjusted to the particular angle of the roof pitch for the house to be painted. This is accomplished by removing the adjustment bolt 87, rotating the web 75 to cause the cleat C to extend at the desired angle and reinserting the bolt 87. The cleat C can then be extended under the roofing on the eaves and the nails or claws 91 will penetrate the wooden roof members as the weight of the apparatus is put thereon thus suspending such apparatus. The struts 95 and 97 can be then disengaged from the clamps 114 and pivoted to extend towards the building as shown in FIG. 1, and such struts telescoped to the appropriate length to hold the bottom of the apparatus slightly away from the building thereby maintaining the pads 113 frictionally against the wall of the building and supporting the shelf apparatus against swaying to and fro.

When the lower portion of the walls of a building are being painted it may be desirable to insert extension members 131 in the upper extremities of the tubes 25 and 27, respectively, and mount the bale 47 thereon, as shown in FIG. 4. With this arrangement, the shelves will be disposed sufficiently low on the side of the building to enable the painter to have convenient access thereto while he is painting the lower walls.

The shelving apparatus may be used to paint the interior of a house when it is desirable to set such apparatus on the floor. To this end the legs 123 and 125 are screwed into the brackets

115 and 116, respectively, and the struts 95 and 97 are rotated into the positions shown in FIG. 5 and the rods 107 telescoped to provide the desired height. The legs 123 and 125 may, likewise, be adjusted to support the shelves S, S' and S'' at the desired elevation.

When it is desirable to disassemble the shelving apparatus for storage or cartage, the set screws 61 and 63 are removed and the bale 47 lifted from engagement with tubes 25 and 27. The bolts 71 and 73 are then removed to free the bracket 67 and disconnect the tubes 51 and 53. One of the fittings 17 or 19 is then removed and the associated tube 25 or 27 unscrewed from its respective fitting 31 or 33. The remaining tubes 37 and 39 can then be disconnected and the shelves S, S' and S'' stacked one on the other and frame components neatly arranged for convenient packaging or carrying.

The shelving apparatus shown in FIG. 9 includes a frame formed by a pair of vertical side tubes 141 and 143 which have vertically spaced shelves 147, 149 and 151 supported therefrom by means of hinge plates 155. The hinge plates 155 are affixed to the respective shelves 147, 149 and 151 and are pivotally carried from the respective tubes 141 and 143 by means of pivot pins 157 and include arcuate slots 161 which receive adjustment screws 165 whereby such screws may be loosened to pivot the respective shelves 147, 149 and 151 to a vertical disposition to be relatively coplanar with the tubes 141 and 143 to provide a rather compact package for storage. It is noted that the top shelf 151 is pivoted in the opposite direction of the shelves 147 and 149 to facilitate storage.

The tubes 141 and 143 are open on their top ends and a bale, generally designated 171, is formed with a pair of downwardly projecting tines 173 and 175 which are received in the upper extremities of the respective tubes 141 and 143 and are secured in position by lock studs 181 (FIG. 9).

Referring to FIGS. 13 and 14, a hanger, generally designated 185, is connected with the upper extremity of the bale 171 and includes a vertical post 187 which has a transverse cleat 189 pivotally connected therewith by means of a pivot pin 191. The cleat 189 includes a plurality of downwardly projecting claws 193 for biting into the roof and has a lock tab 195 affixed to the upper side thereof, the purpose of which will be made apparent hereinafter. The cleat 189 projects rearwardly from the pivot pin 191 to form an arm 197 which includes a transversely extending tab 201 having a bore therein for receipt of a nut and bolt assembly 203 which may be utilized for connecting one end of a strut, generally designated 205, therewith. The strut 205 is formed with a longitudinal slot 207 which receives a mounting bolt 209 that supports such strut from the upper extremity of the post 187. The lower end of the strut 205 includes a bore for receipt of the nut and bolt assembly 203 whereby the lower end of such strut 207 may be pivoted to the position shown in FIG. 13 and connected with the arm 197 to angle the cleat 189 to accommodate the pitch of a roof. It is noted that there are several adjustment bores 211 in the strut 205 to provide for further adjustment for the slope of the cleat 189. The strut 205 may also be rotated to the position shown in FIG. 12 and its lower end secured to the cleat 189 to hold the arm 197 extending horizontally for hooking over a horizontal surface such as the top edge of an open door.

Referring to FIGS. 9 and 10, a transfer dolly D is provided for conveniently carrying the shelving for translation along the eaves of a roof. The dolly D includes a flat body 215 which is supported on two pairs of wheels 217 journaled on transverse shafts 219, which are secured to the under side of the frame 215 by means of pivot joints 223. The frame 215 is formed with forwardly and rearwardly opening cutouts 227 and 229, respectively, and adjustment brackets 225 are disposed adjacent thereto and secured to the underside of such frame and are formed with notches 226 and 228 for selectively receiving the extremities of the respective shafts 219 to set the desired angle of such shafts for purposes which will be made clear hereinafter.

A pair of guides, generally designated 231 and 233, are secured to the dolly D and include brackets 235 which are bent downwardly and support rollers 237 for engagement with the edge of the eaves to limit the distance which the dolly D may move up the roof away from such edge. A hook 238 is pivotally connected on one end to the dolly D and has its free end engageable with an eye 239 to secure the cleat 189 to the dolly D.

Referring to FIG. 14, a wheel hanger, generally designated 241, is provide for securement to the bale 171 and includes a wheel 243 for rolling along the upper edge of the outer wall of an eave trough 245. The wheel 243 includes a plurality of radially extending spokes 251 engaged behind the wall of the gutter 245 to hold the wheel 243 in position. The spokes 251 are spaced circumferentially on the wheel 243 to enable hanger brackets 251 which suspend the gutter 245 to be accommodated as the wheel rolls therealong.

A pair of pivotal struts 261 and 263 are pivotally supported on their one ends from one side of the lower shelf 147 and may be pivoted into position to space such shelf from the sidewall of a building from the eaves of which the apparatus is suspended or may, alternatively, be turned downwardly and a pair of legs similar to those shown in FIG. 6 installed on the other side of the shelf 147 to support the apparatus on a floor for painting a house interior, or the like.

In operation, the shelving apparatus shown in FIGS. 9 through 15 is utilized in a manner similar to that for the shelving shown in FIG. 1 except that the angle of the hanging cleat 189 is set by locking the adjustment bolt 209 (FIG. 13) in a selected position in the slot 207 or in one of the adjustment bores 211. The shelving may then conveniently be suspended as shown without removal of the shingles 15. When the shelving is to be stored, the lock nuts 165 may be conveniently loosened and the two lower shelves 147 and 149 pivoted in one direction to be oriented generally coplanar with the tubes 141 and 143 and the top shelf 151 pivoted in the opposite direction to also be disposed generally coplanar with the tubes 141 and 143. The bale 171 may easily be removed for storage by loosening the locking studs 181.

Referring to FIG. 10, the shelving may be suspended from the dolly D by merely placing the cleat 189 on the dolly D and hooking the hook 238 thereover whereby the clip 195 will engage such hook. The dolly is then placed on the lower edge of the eaves and for travel in the direction of the directional arrow 271. The shaft 219 is pivoted forwardly on its lower end as shown in FIG. 10 and locked in the depression 229 (FIG. 11). The dolly D can then be pulled along the roof and the wheels 217 will tend to draw it upwardly along the pitch of the roof and such upward movement will be limited by the guides 231 and 233 to thereby maintain the dolly at a selected distance from a roof edge.

When the shelving is utilized to paint a house having an eave trough 245, the wheel hanger 241 may be attached and utilized for suspending the shelving from the eave trough as shown in FIG. 14. When a hanger 251 is encountered, the wheel 243 will easily pass thereover while being retained on the wall 245.

From the foregoing it will be apparent that the shelving apparatus of present invention is straightforward in design and economical to manufacture. The shelving apparatus is readily adjustable from one pitch roof to the next and is conveniently suspended from a building roof. Further, the apparatus can conveniently be assembled and disassembled.

Various modifications and changes may be made with regard to the foregoing detailed description without departing from the spirit of the invention.

I claim:

1. Suspended shelving for suspension from the eaves of a roof having roofing thereon, said apparatus comprising:

a frame;

a plurality of vertically spaced shelves;

means for securing said shelves on said frame;

a hanger connected to the top of said frame and including a transversely projecting cleat for extension under the marginal extremity of the roofing and including claws for biting into the roof whereby said cleat may be extended under said roofing and said claws inserted to secure said hanger to said roof without removal of said roofing.

2. Suspended shelving as set forth in claim 1 wherein:

said cleat is pivotal to different angles to accommodate different pitch roofs and said hanger includes locking means for locking said cleat in different angular settings.

3. Suspended shelving as set forth in claim 1 that includes:

a wheel secured to the upper extremity of said frame for rolling along the upper edge of an eaves trough wall and including a radial extension for engagement behind said trough wall to maintain said wheel tracking along said upper edge of said trough wall.

4. Suspended shelving as set forth in claim 1 wherein:

said cleat is pivotally connected to said frame and includes an arm projecting rearwardly of the pivotal connection and said hanger includes a strut pivotally connected on one end to said frame and means for selectively connecting the opposite end of said strut with said cleat to hold said arm disposed horizontally and for selectively connecting said opposite end with said arm to hold said cleat at an angle whereby said apparatus may be suspended from an angled roof by said cleat or from a horizontal member by said arm.

5. Suspended shelving as set forth in claim 1 wherein:

said means for securing said shelves to said frame includes pivot elements about which said respective shelves may be rotated to a vertical orientation for storage of said apparatus.

6. Suspended shelving as set forth in claim 1 that includes:

a dolly including a plurality of wheels for supporting said dolly on said roof, at least one of said wheels being adapted to be angled to tend to draw said dolly away from the edge of said roof as said dolly is moved in one direction therealong;

a guide carried on said dolly and projecting downwardly to engage the edge of said roof to limit dolly travel thereaway from; and

means for securing said cleat to said dolly whereby said dolly may be placed on said roof, said cleat secured thereto, and said dolly moved in said one direction to move said shelving along said roof.

7. Suspended shelving as set forth in claim 1 wherein:

said frame includes a pair of upwardly opening vertical tubes, a bale connected on its upper end with said hanger and including a pair of downwardly projecting tines telescoped into said tubes and means for locking said tines into said tubes.

8. Suspended shelving as set forth in claim 1 that includes:

a pair of struts pivotally connected on their respective one ends to one side of the bottom shelf and selectively pivotal to extend horizontally to engage the wall of a building from which said shelving is suspended or to project downwardly in a supporting position; and

a leg for connection to the side of said bottom shelf opposite said one extremity; and

means for connecting one extremity of said leg to said bottom shelf.

9. Suspended shelving as set forth in claim 1 wherein:

said frame includes a pair of upwardly opening hollow frame members;

a pair of extension elements having respective one ends extendable into the top end of said member;

coupling means for coupling said elements to said members;

and a bale having said hanger connected to the top thereof and including a pair of downwardly projecting tines; and

means for connecting the upper ends of said respective extension elements with said tines.