United States Patent

Hopeman, Jr. et al.

[15] **3,651,776**

[45] **Mar. 28, 1972**

[54] MODULAR ACCOMMODATIONS

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[73] Assignee: **Hopeman Brothers, Inc.**, New York, N.Y.

[22] Filed: **Dec. 9, 1970**

[21] Appl. No.: **96,356**

Related U.S. Application Data

[62] Division of Ser. No. 829,347, June 2, 1969, abandoned.

[52] **U.S. Cl.** **114/71**, 52/484, 29/469

[51] **Int. Cl.** **B63b 29/02**

[58] **Field of Search** 52/484, 483, 664; 114/71

[56] **References Cited**

UNITED STATES PATENTS

3,302,355 2/1967 Chinneck 52/484

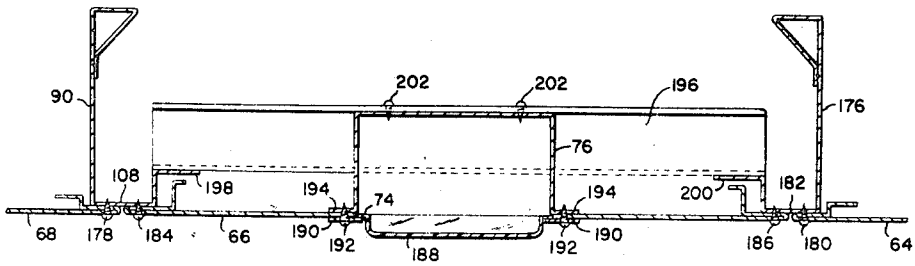
Primary Examiner—Andrew H. Farrell

Attorney—Smith, Harding, Earley & Follmer

[57] **ABSTRACT**

Ceiling panels for ships' accommodations are supported by troughlike assemblies, extending across the ceilings of cabins, the assemblies also containing lighting fixtures, air ducts and other utilities. Plumbing for a pair of adjoining cabins is preassembled into an enclosure, which extends between deck and ceiling, the bulkheads of the enclosure supporting wash basins, a toilet and associated fixtures. A prefabricated frame is provided including members for supporting ventilation ducts and lighting fixture in the bathroom ceiling and for receiving bulkhead panels and supporting bathroom ceiling panels.

3 Claims, 15 Drawing Figures



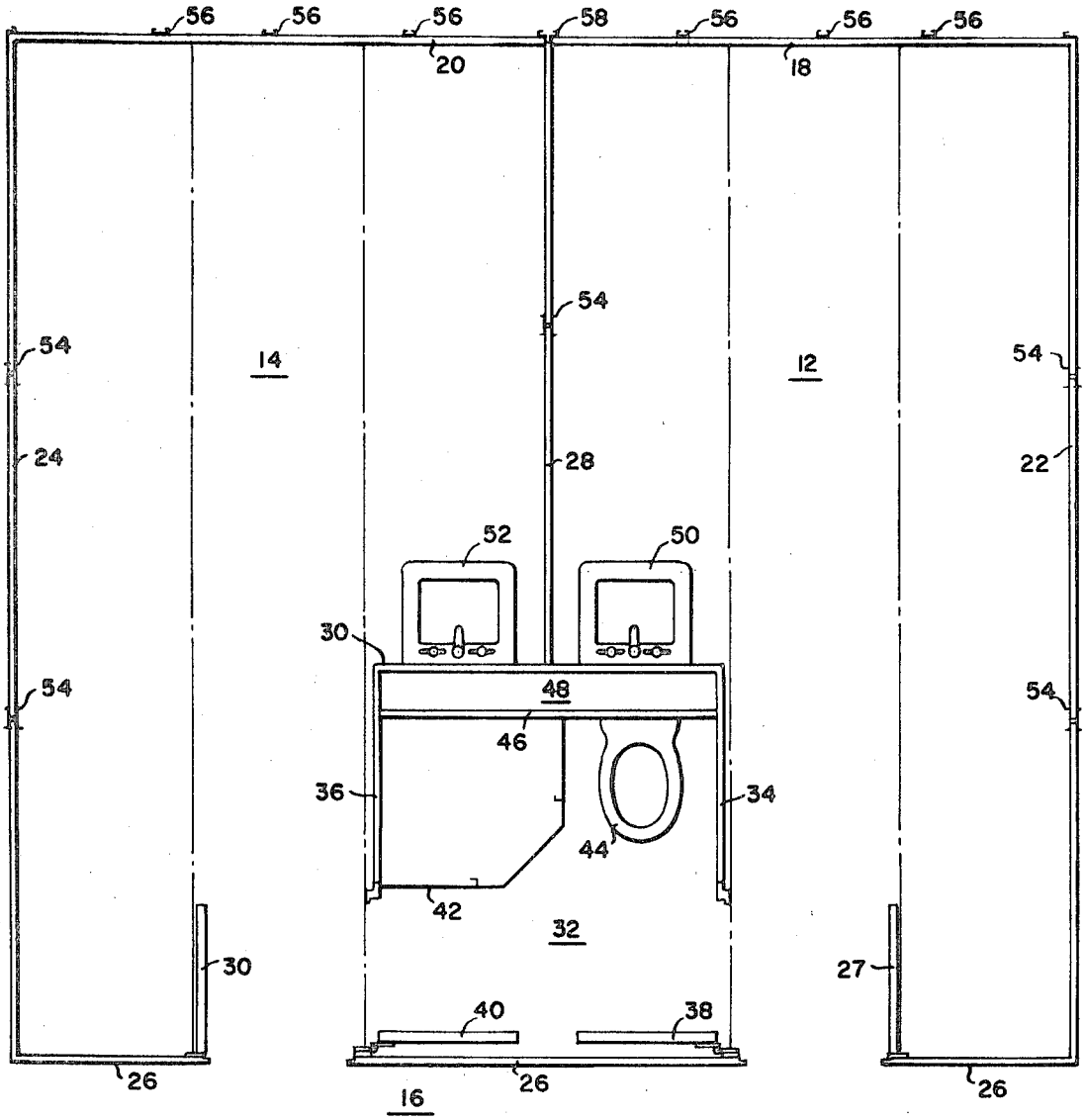


FIG. 1.

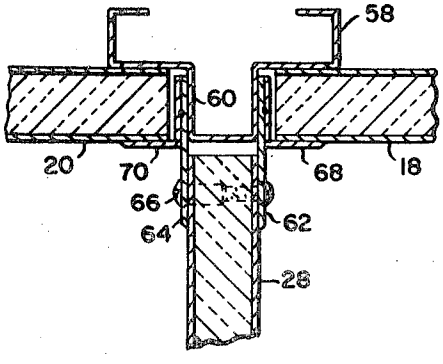


FIG. 1A.

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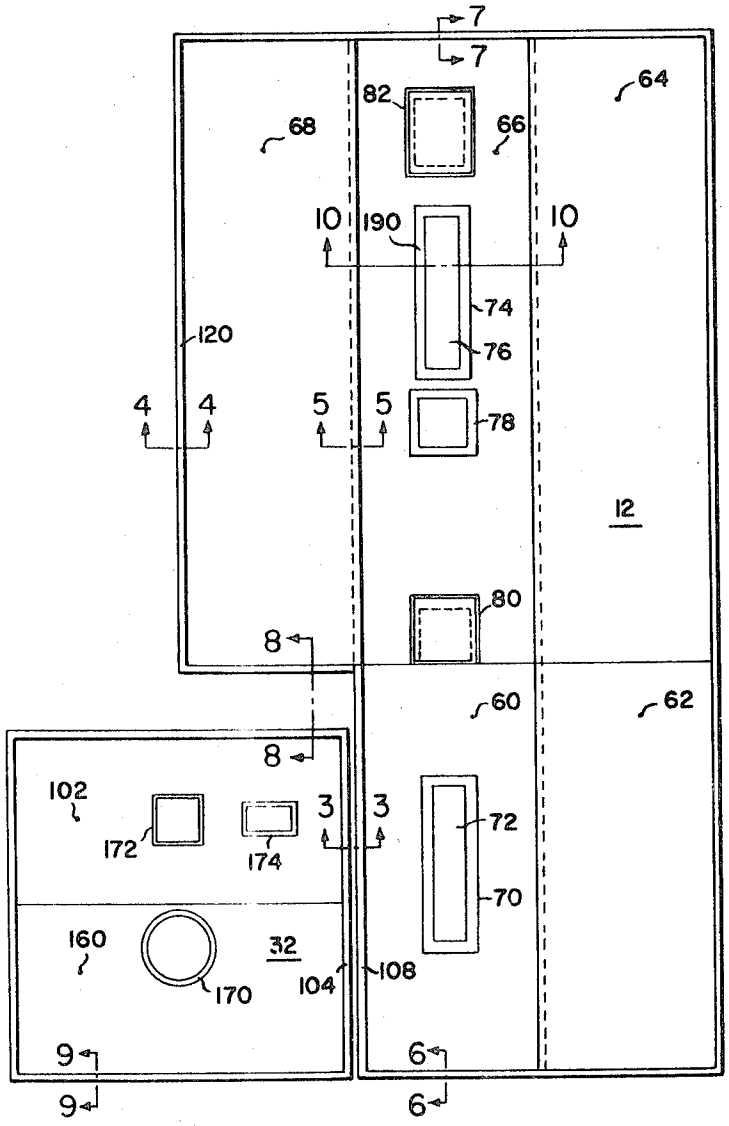


FIG. 2.

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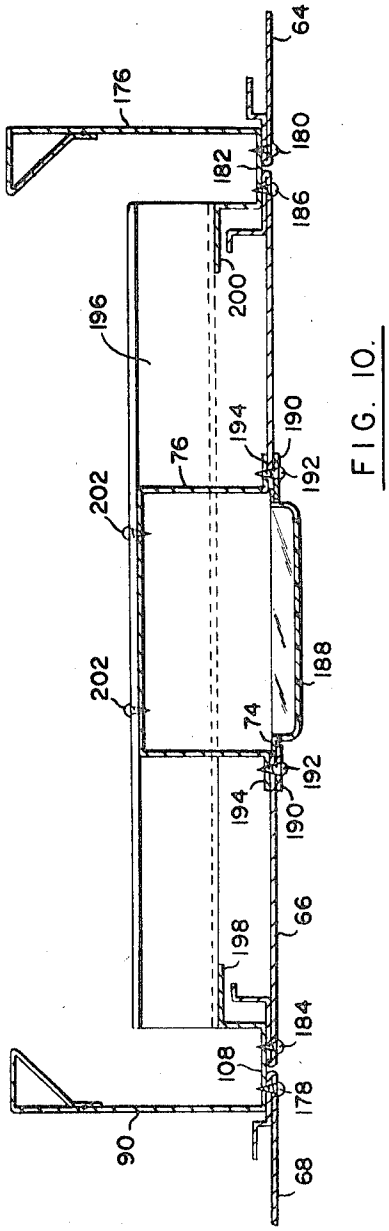


FIG. 10.

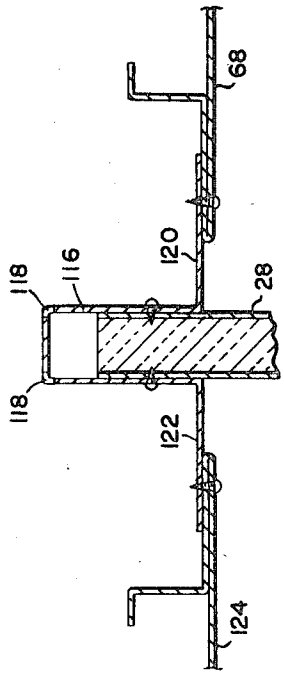


FIG. 4.

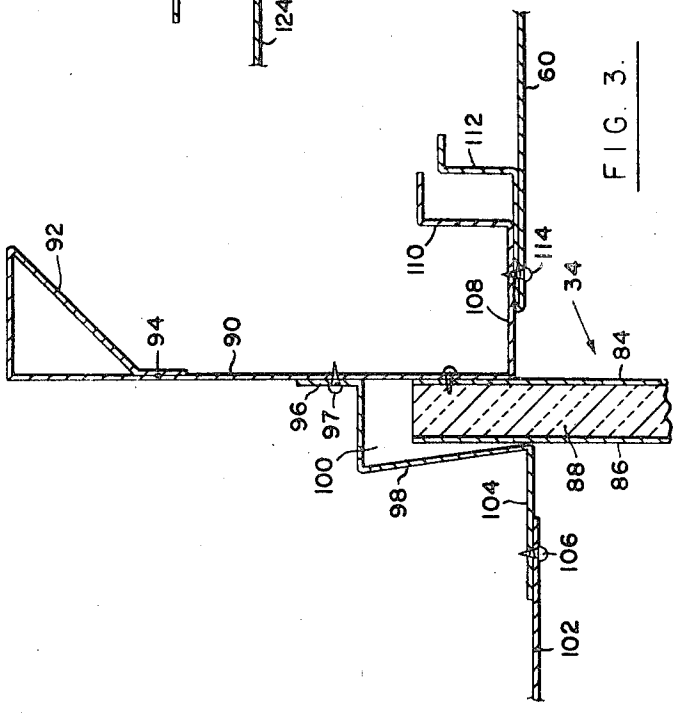


FIG. 3.

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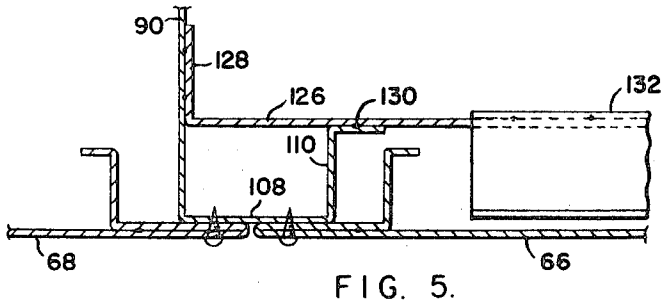


FIG. 5.

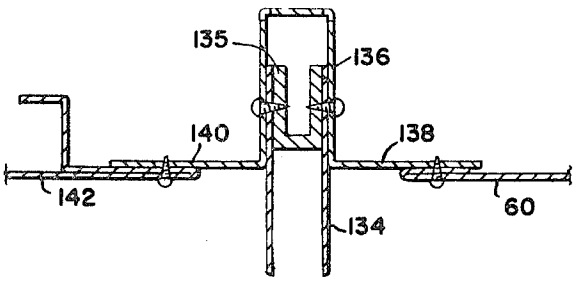


FIG. 6.

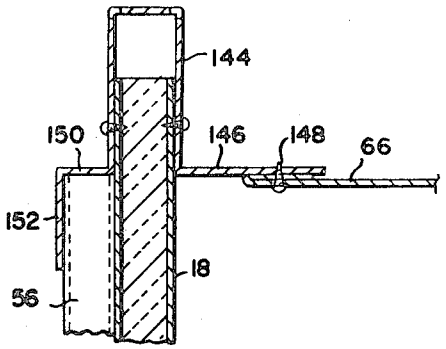


FIG. 7.

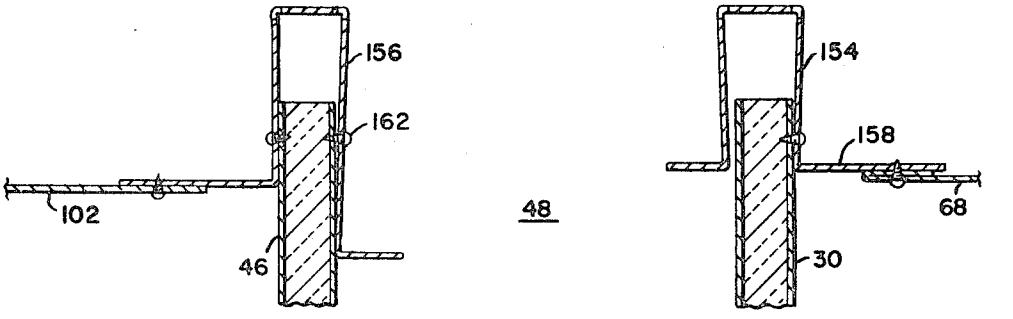


FIG. 8.

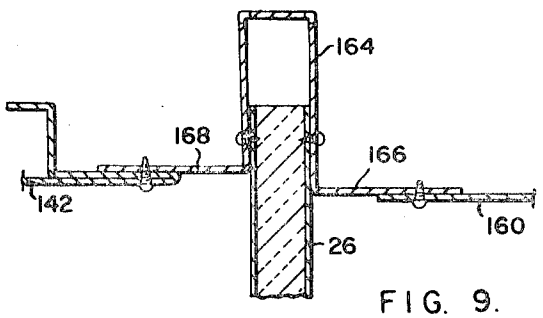


FIG. 9.

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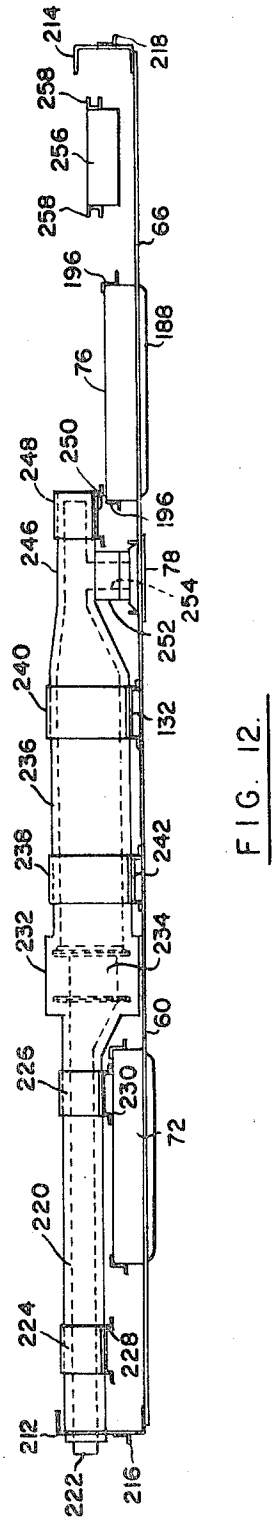


FIG. 12.

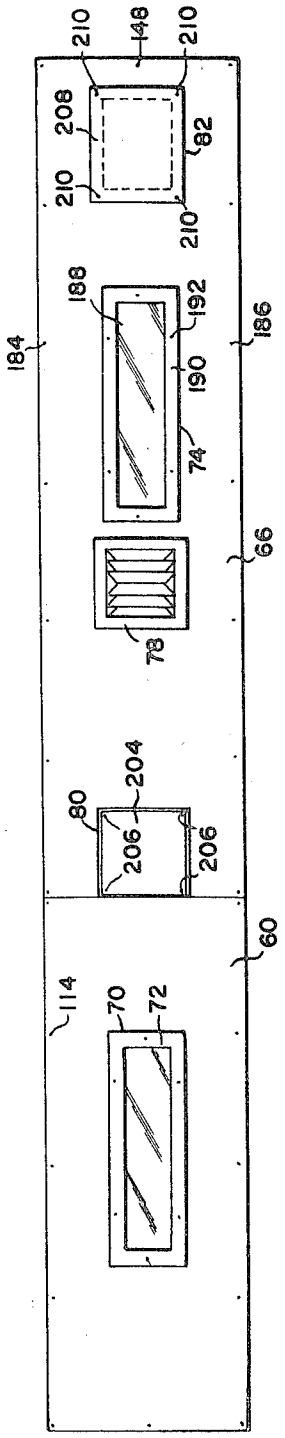


FIG. 11.

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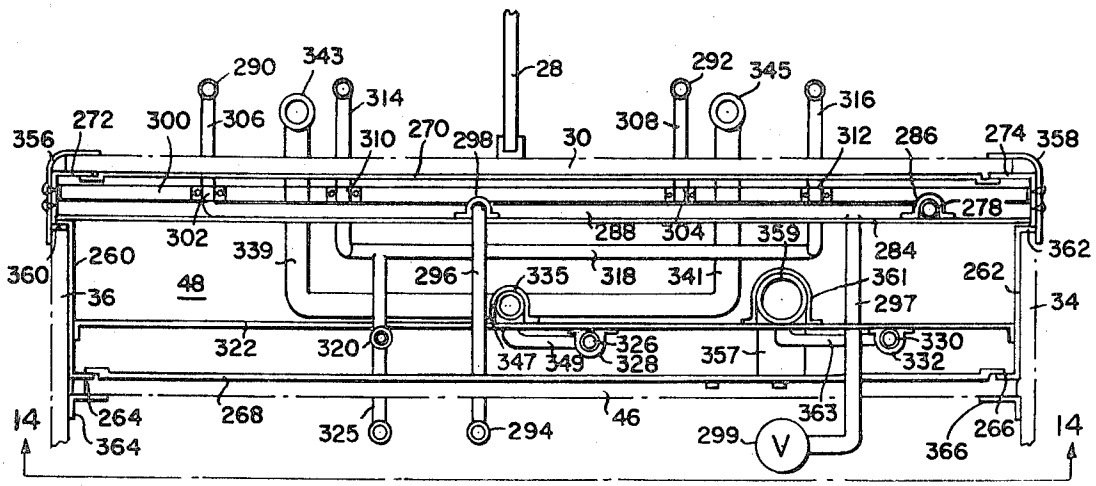


FIG. 13.

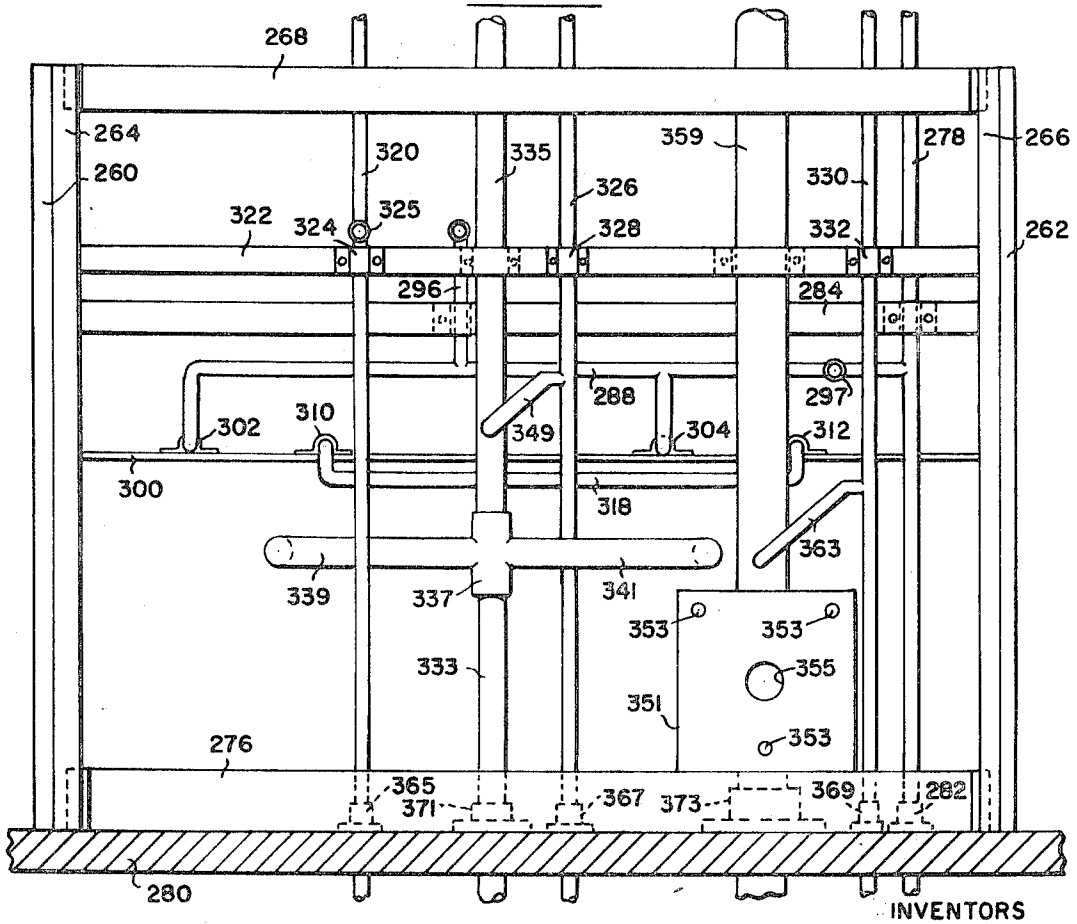


FIG. 14.

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MODULAR ACCOMMODATIONS

CROSS-REFERENCE TO RELATED APPLICATION

This is a division of our co-pending application Ser. No. 829,347, now abandoned filed June 2, 1969.

BACKGROUND OF THE INVENTION

This invention relates to accommodations for ships' crews and passengers, and particularly to modular assemblies, parts of which may be pre-fabricated on shore.

Conventional assembly of living quarters on ships involves the erection of complex frameworks for supporting bulkhead or ceiling panelling. The framework for supporting a ceiling panel is particularly complex since it is often necessary to provide a rectangular frame co-extensive with the boundaries of each ceiling panel in order to afford adequate support for the ceiling. The construction of these frameworks involves the cutting and welding of a great number of metal frame members, and not only is the process time consuming, but its cost is also increased by the likelihood of errors in measurement. These errors may result in the failure of a panel to fit its frame, and may necessitate at least partial disassembly and rebuilding of the frame.

Electrical fixtures, such as lights, electrical outlets and switches as well as ventilation ducts are difficult to install in conventional accommodation systems because of the necessity for cutting openings in bulkhead and ceiling panels, which must often be accomplished aboard ship in order to insure consistency between the positions of the openings and the positions of fixtures. Electrical cables must often be cut from almost inaccessible positions, and the framework makes the mounting of the various individual fixtures extremely difficult.

These accommodations are almost universally constructed above one another on several successive decks. Conventionally, water supply and drain pipes run vertically through the decks, and are tapped on each deck. Complex piping interconnections are then made in a step-by-step manner from the vertically extending pipes to faucets, shower heads, flushing valves, and drain openings. The making of these interconnections must often be accomplished in very restricted spaces, and is exceedingly difficult.

SUMMARY OF THE INVENTION

In accordance with this invention, a trough-like assembly, which contains air ducts, lighting fixtures, and an electrical junction box is supported between the upper end of a door frame and the opposite bulkhead of the cabin or between any other two suitable supports in such a way that it runs across the ceiling of the cabin. The underside of the trough consists of two parallel elements which are spaced from each other by a distance equal to the width of a standard panel. Additional panel supports extend along the upper edges of bulkheads, and these additional supports are parallel to and spaced from the parallel panel-supporting elements on the underside of the trough. This latter spacing is also equivalent to the width of a panel. The ceiling of a cabin, then, consists of three rows of panels. The central panels, which are aligned with the trough, are provided with openings for light and ventilation as well as openings for access.

A vertically extending rectangular enclosure containing a network of piping interconnections including sections of supply and drain pipes is pre-assembled on shore. The supply pipes extend for some distance beyond the upper end of the enclosure. Supply and drain pipes extend downwardly beyond the lower end of the enclosure. Openings for these supply and drain pipes are provided in the decks, and the downwardly extending portions of these pipes are passed through the deck openings when the assembly is brought on board. Interconnections between the supply pipes extending upwardly from their enclosure on a lower deck are made with pipes extending downwardly through openings in the next upper deck, adequate space being provided for these interconnections between the ceiling of a cabin and the deck.

The object of the invention is to provide accommodations which are relatively easy to assemble, which are relatively inexpensive to manufacture and major portions of which may be constructed on shore so that difficulties involved in constructing such portions aboard ship are avoided.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a horizontal section of a pair of adjoining cabins and their common bathroom, the section plane being located just below the ceiling;

FIG. 1A is an enlarged view showing the details of the connection between the outer bulkheads and the separating bulkhead in FIG. 1;

FIG. 2 is a reflected bottom plan view of the ceilings of a cabin and its bathroom;

FIG. 3 is a vertical section taken on the plane indicated at 3—3 in FIG. 2;

FIG. 4 is a vertical section taken on the plane indicated at 4—4 in FIG. 2;

FIG. 5 is a vertical section taken on the plane indicated at 5—5 in FIG. 2;

FIG. 6 is a vertical section taken on the plane indicated at 6—6 in FIG. 2;

FIG. 7 is a vertical section taken on the plane indicated at 7—7 in FIG. 2;

FIG. 8 is a vertical section taken on the plane indicated at 8—8 in FIG. 2;

FIG. 9 is a vertical section taken on the plane indicated at 9—9 in FIG. 2;

FIG. 10 is a vertical section taken on the plane indicated at 10—10 in FIG. 2;

FIG. 11 is a bottom plan view of a portion of the portion of a cabin which is located directly below the trough;

FIG. 12 is a side elevation of the elements contained in the trough;

FIG. 13 is a top plan view of the plumbing enclosure;

FIG. 14 is a section taken on the surface indicated at 14—14 in FIG. 13.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIG. 1, a pair of cabins 12 and 14 are shown located between a passageway 16 and the hull or house side of the ship (not shown), which is located a short distance beyond bulkheads 18 and 20. Side bulkheads are indicated respectively at 22 and 24. A bulkhead 26, which separates both cabins from passageway 16 is provided with inwardly opening doors 27 and 30, opening respectively to cabins 12 and 14. A dividing bulkhead 28 extends from the point at which bulkheads 18 and 20 meet to panel 30, which forms part of the enclosure of the bathroom 32. Bulkheads 34 and 36, along with doors 38 and 40 complete the bathroom enclosure.

A shower stall is provided at 42, and a toilet is provided at 44. The shower stall and toilet are located against panel 46, which is separated from panel 30 to provide a space 48, through which water supply and drain pipes run. These pipes supply not only the shower and toilet, but the individual wash basins indicated at 50 and 52, and which are supported on bulkhead 30 in the interior of each cabin. The drain pipes for the basins and the toilet are located within space 48. The plumbing within space 48 will be described in detail later with reference to FIGS. 13 and 14. The shower drain does not pass through space 48.

All of the bulkheads are composed of panels, desirably consisting of rectangular pieces of non-combustible panelling disposed between pairs of metal or decorative laminate sheets in sandwich fashion. The lower bulkhead panels rest in channels (not shown) provided on the deck. Individual panels in bulkheads 22, 24 and 28 are separated by vertically extending strips 54, which provide oppositely facing channels for receiving vertical edges of the bulkhead panels. Bulkheads 18 and 20 are provided with vertically extending furring strips 56.

The interconnection between bulkheads 18 and 20 and wall 28 is illustrated in detail in FIG. 1A. A vertically extending

strip 58 having substantially a "T" cross section is arranged with its leg 60 extending between adjacent ends of bulkheads 18 and 20. Strips 62 and 64 are fastened on opposite sides of bulkhead 28 by fasteners, one of which is located at 66. Strips 62 and 64 are disposed on opposite sides of leg 60, and L-shaped strips 68 and 70 are welded to strips 62 and 64, respectively, in such a way as to cooperate with member 58 to form channels receiving ends of bulkheads 18 and 20.

FIG. 2, which is a reflected plan view of the ceilings of cabin 12 and bathroom 32, serves primarily to show the positions of the sectional views in FIGS. 3 through 10, but further shows the arrangement of ceiling panels in the cabins. In the particular embodiment described herein the ceiling of each cabin consists of five panels. Panels 60 and 62 are identical in size, as are panels 64, 66 and 68. The latter three panels have a greater length than the first two, but all panels have identical widths. The ceiling panels may consist of metal or non-combustible composition panels.

Panels 62, 64, and 68 have no perforations. Panels 60 and 66, however, cover the central part of the cabin, and are prefabricated with openings for various fixtures. Panel 60 is provided with opening 70 for a fluorescent light fixture 72. Panel 66 is also provided with an opening 74 for a fluorescent light fixture 76. Opening 78 is provided for ventilation. Opening 80 is provided for access to controls in the ventilation system, and opening 82 is provided for access to an electrical junction box.

Referring to FIGS. 2 and 3, the bulkhead 34, which forms part of the separation between cabin 12 and bathroom 32 is shown as comprising a pair of metal or decorative laminate sheets, 84 and 86 separated by a piece of non-combustible panel 88. Beams 90 and 176 (see FIG. 10), constitute the trough, which not only supports utility fixtures including fluorescent lights, ventilation ducts, etc. but also supports ceiling panels. Beam 90, as well as beam 176, is provided at its upper edge with a reinforcement consisting of a portion 92 of metal bent into a triangle and welded at 94. A vertical flange 96 of a bathroom ceiling frame 98 is fastened to the vertically extending portion of beam 90 by sheet metal screws, one of which is indicated at 97. Frame 98 is bent to form a channel 100, into which the wall 34 extends. A bathroom ceiling panel 102 is fastened to a horizontal portion 104 of the bathroom ceiling frame by sheet metal screws, one of which is indicated at 106. The lower edge of beam 90 is bent to form a horizontal portion 108. A reinforcement portion 110 extends upwardly from portion 108. The edge of ceiling panel 60 is folded over on itself to form a double thickness in the area underneath supporting portion 108 of beam 90, and the folded-over portion of panel 60 terminates in a reinforcing portion 112. Sheet metal screws 114 extend through the folded-over portion of panel 60 to secure it to support portion 108 of beam 90.

FIG. 4 shows bulkhead 28 which separates cabins 12 and 14, extending into a downwardly open channel formed by channel member 116, which runs along the upper edge of bulkhead 28. Member 116 is provided with slots 118 at its upper corners for flexibility. Member 116 is further provided with horizontal supporting portions 120 and 122, to which are fastened, respectively, ceiling panel 68 in cabin 12 and a similar ceiling panel 124 in cabin 14.

FIG. 5 illustrates the manner in which ceiling panels 66 and 68 are supported by supporting portion 108 of beam 90. A member 126, having vertical portion 128 welded to beam 90, is supported by and welded to portion 110 at 130. Member 126 supports a bracket 132, which is similarly supported on the opposite side of the trough. Bracket 132 is used as a supporting member for an attenuation box located above the ceiling.

FIG. 6 shows a top partition 134 forming the upper part of a frame for door 28. Member 134 consists of a pair of sheet metal panels held in spaced relationship to each other by a spacer 135. An inverted channel 136 fits over member 134, and its horizontally extending portions 138 and 140 respectively support panel 60 and panel 142, which forms part of the ceiling of passage 16.

The rear bulkhead 18 of cabin 12 is shown in FIG. 7 extending upwardly into an inverted channel formed in member 144. Ceiling panel 66 is fastened to a horizontal portion 146 of member 144 by sheet metal screws, one of which is indicated at 148. Horizontal portion 150 and vertical portion 152 of member 144 fit over furring member 56, which extends downwardly, and which is supported from the deck. The remaining furring members 56 located behind bulkhead 18 provide additional support for member 144. It will be seen that member 144, in turn, supports one end of the trough, and therefore requires the additional support afforded by furring members 56.

FIG. 8 shows bulkheads 30 and 46, which enclose pipe space 48, extending upwardly into channels formed respectively in members 154 and 156. Horizontally extending portion 158 of member 154 supports panel 68. Member 156 is part of the bathroom ceiling frame, and is integrally attached to member 98, which is shown in FIG. 3. The bathroom ceiling frame supports panels 102 and 160 (FIG. 2). Sheet metal screws including screw 162 secure member 156 to bulkhead 46.

Referring now to FIG. 9, bulkhead 26 is shown extending upwardly into an inverted channel formed in member 164. Member 164 is also part of the bathroom ceiling frame, and is integrally attached to member 98 (shown in FIG. 3). A horizontal flange 116 of member 164 supports bathroom ceiling panel 160, while the opposite flange 168 supports ceiling panel 142 covering passageway 16. Referring now to FIG. 2, circular opening 170 in bathroom ceiling panel 160 is provided for a lighting fixture, while rectangular openings 172 and 174 are provided in ceiling panel 102 for access and ventilation respectively.

Referring to FIG. 10, the trough is shown as comprising beam 90, referred to previously, arranged in horizontally spaced and parallel relationship with a similar beam 176. Sheet metal screw 178 fastens ceiling panel 68 to horizontal member 108, and sheet metal screw 180 likewise fastens ceiling panel 64 to horizontal member 182, which forms part of beam 176. Panel 66 is secured to members 108 and 182 by sheet metal screws 184 and 186.

Fluorescent fixture 76 includes a transluscent cover 188, which covers opening 74. Trimming is provided at 190, and sheet metal screws 192 pass through aligned openings in trim 190 and panel 66 to secure them to horizontal flanges 194 of the upper part of the housing of fixture 76.

A cross-member 196, having a Z-shaped cross section, is secured to horizontal members 198 and 200 of beams 90 and 176. The upper part of member 196 supports the weight of lighting fixture 76, which is attached to it by screws 202.

FIG. 11 shows the underside of panels 60 and 66, which extend between the door frame and bulkhead 18 along the underside of the trough. Access opening 80 is shown provided with a cover 204, which is removably held in position by screws 206. Ventilation opening 78 is louvred in order to direct the flow of air to all parts of the cabin. Opening 82, which provides access to an electrical junction box is provided with a cover 208, which is removably secured to the panel by screws 210.

FIG. 12 shows end members 212 and 214 of the trough, which are respectively provided with brackets 216 and 218. Bracket 216 fits on top of member 136 (FIG. 6), which runs along the upper edge of the door frame. Bracket 218 fits on top of member 144 (FIG. 7), which runs along the upper edge of wall 18. A duct 220 passes through an opening in member 212, and its end 222 is connected to ventilation ducts running above the ceiling of passageway 16. These ducts are desirably connected to a central air conditioning system providing hot or cold air depending on outside temperature. Brackets 224 and 226 support duct 220 from the sides of the trough through horizontally extending members 228 and 230. Duct 220 is raised by these brackets above panel 60 in order to provide space for fluorescent fixture 72.

Duct 220 leads into an enclosure 232, which houses an electrically operated auxiliary air heater, indicated diagrammatically at 234.

An attenuation box 236 receives the output of the auxiliary air heater, and is supported by brackets 238 and 240, which are respectively fixed to sides of the trough through members 242 and 132. Attenuation box 236 leads to a narrowed duct 246, which is supported by bracket 248 from the sides of the trough through member 250. A vertical duct 252 has an internal passage 254, which connects the interior of the horizontal duct to opening 78.

The entire duct, heater and attenuation box assembly is preferably covered with insulation and vapor seal (not shown).

Electrical junction box 256 is supported above panel 66 by brackets 258, which extend between opposite sides of the trough. The significance of this junction box is that it may be installed in the trough before the trough is brought aboard ship, and the various electrical cables which will lead from it to bulkhead outlets and switches may be provided already cut to the proper length.

It will be seen from what has been described that the trough serves a two-fold purpose. First, it carries all of the necessary ventilation fixtures and most of the necessary electrical fixtures in the cabin, and may be brought aboard ship in a completely assembled condition. Secondly, it greatly simplifies the supporting of the ceiling panelling.

With the use of the trough, many arrangements are possible which are different from that shown in FIG. 2. For example, the trough does not have to be located along the center of the ceiling. In a larger cabin, four rows of ceiling panels could be provided. A single utility trough would support the panels underneath it as well as the near edges of the panels in adjacent rows. Additional furring could be provided to support the panel edges which are not supported by the trough or by the bulkheads.

FIGS. 13 and 14 illustrate the plumbing interconnections which are pre-assembled on shore and installed aboard ship in pipe space 48. The pre-assembled structure which is brought aboard ship as a unit, consists of a metal framework in which various interconnected pipes are supported. Ends of the pipes extend outwardly from the upper and lower ends of the framework, and interconnections are made both above the ceiling of the cabin and below the deck with supply and drain pipes.

The pre-assembled framework comprises a vertically extending member 260, and a similar vertically extending member 262 disposed in spaced relationship to define opposite ends of space 48. Members 260 and 262 are respectively provided with flanges 264 and 266 to which are welded the opposite ends of a cross-member 268 located at the upper end of the framework on the bathroom side. An upper cross-member 270 is welded between flange 272 of member 260 and flange 274 of member 262. Cross-members are provided at the bottom of the framework, the cross-member on the bathroom side being indicated in FIG. 14 at 276. A cold water supply pipe 278 extends from a point above the upper end of the framework, through the pipe space and through an opening provided in deck 280, to a point below the deck, a flange 282 being provided on the deck. Pipe 278 is supported by a cross-member 284, which extends between and which is welded to members 260 and 262. Pipe 278 is fastened to cross-member 284 by a clamp 286. A horizontal cold water pipe 288 is in communication with supply pipe 278, and delivers cold water to outlets 290 and 292 serving the wash basins in the cabins. Pipe 288 also delivers cold water through L-shaped pipe 296 to a shower outlet 294 and through pipe 297 to a flushing valve 299. The vertically extending section of L-shaped pipe 296 is fastened to cross-member 284 by clamp 298. A cross-member 300, which also extends between members 260 and 262 is provided with clamps 302 and 304 which respectively support portions 306 and 308 of the cold water supply pipe 288. Clamps 310 and 312 respectively support sections 314 and 316 of a hot water pipe 318. Pipe 318 receives hot water from vertical supply pipe 320, and serves the wash basins. Supply pipe 320 is supported by cross-member 322, to which it is connected by clamp 324.

A horizontal hot water connection for the shower is provided at 325.

Cross-member 322 also supports a first vent pipe 326, secured by clamp 328, and a second vent pipe 330 secured by clamp 332. Pipe 333 and pipe 335 are connected by connector 337 within the pipe space and, together, constitute a vertical drain pipe extending through the pipe space from a point above its upper end to a point below its lower end. Interconnections are made through pipes 339 and 341 to the wash basin drains 343 and 345 respectively. A clamp 347 secures pipe 335 to cross-member 322.

Pipes 335 and 333 carry the drainage from the wash basins on the upper decks. Within the pipe space, interconnection 349 is provided between pipe 335 and vent pipe 326.

Flange 351 is a toilet support flange having studs 353 on which a toilet can be hung. Flange 351 is welded to member 276 of the frame. This type of mounting permits relatively easy cleaning of the floor since there is no support underneath the toilet. An opening 355 in flange 351 communicates through a pipe 357 with a vertical drain pipe 359 which extends from a point above the upper end of the pipe space to a point below its lower end. A clamp 361 secures pipe 359 to cross-member 322. An interconnection is made through pipe 363 between pipe 359 and vent pipe 330.

A flange 365 is provided on the deck above an opening for hot water supply pipe 320. Openings for the vent pipes 326 and 330 are respectively provided with flanges 367 and 369. Openings in the deck for the drain pipes 333 and 359 are respectively provided with flanges 371 and 373.

The pipe assembly just described is assembled on shore or at any convenient location aboard ship. When assembled, it constitutes a unit, since each of the pipes is secured to at least one cross-member of the framework. The pipes extend outwardly from the pipe space at positions which can be easily made standard so that the pipes extending downwardly from a pipe space on an upper deck are aligned with corresponding pipes extending upwardly from the pipe space on the next lower deck.

The assembly just described is installed aboard ship as a unit. Openings are provided in the deck for the various pipes which extend downwardly through the deck. The position at which openings must be provided can be made standard since the positions of the pipes in the pipe space are standard. The assembly is lifted so that the downwardly extending pipes can be lowered through the deck flanges. The various necessary interconnections can then be made below the deck, and interconnections can likewise be made in the space above the framework and below the ceiling.

Water supply pipes 278 and 320 are preferably connected below the deck with the upper ends of similar water supply pipes which extend upwardly from a similar pipe space on the next lower deck. The water supply pipes, thus interconnected, may extend continuously through several decks and through several vertically aligned pipe spaces. In this way, horizontal supply piping can be eliminated. The drain pipes, as well, are arranged to pass from one deck to another through vertically aligned pipe spaces. The vent pipes 326 and 330 are interconnected above the upper end of the pipe space with corresponding vent pipes passing through vertically aligned pipe spaces.

To complete the enclosure, bulkhead panel 30 is clamped against flanges 272 and 274 of the vertical frame members by corner members 356 and 358. Bulkhead panel 36 is inserted into a space 360 between member 260 and the end of corner member 356. Bulkhead panel 34 is likewise inserted into a space 362. Bulkhead panel 46 is placed up against flanges 264 and 266, and is held in place by trim members 364 and 366.

Bulkhead panels 30 and 46, of course, are provided with openings for the various pipes which extend through them,

and panel 46 is provided with a large opening for mounting the toilet on the studs of the support flange. Since the entire pipe assembly is pre-fabricated, the positions of these openings will not be in doubt and the openings can be made in the panels before bringing them aboard ship.

The pipes within the pipe enclosure and vents, ducts, wiring and lights within the utility trough can be arranged in whatever sizes, numbers or configurations are desired.

It will be evident that what has been described accomplishes a great simplification of the assembly of accommodations on ships by permitting a large percentage of the labor involved to be accomplished under more ideal conditions.

We claim:

1. The method of assembling a ceiling for a ship's cabin comprising:

fastening a pair of beams together in parallel, spaced relationship to each other thereby forming a rigid, elongated ceiling support structure,

following the step of fastening the beams together, fastening the respective ends of said elongated ceiling support structure to bulkheads forming opposite boundaries of a cabin, and

fastening at least one ceiling panel between the lower edges of said beams and fastening at least one other ceiling panel to the lower edge of one of said beams so that edges of said ceiling panels are fastened alongside each other to said lower edge of said one of said beams.

2. The method according to claim 1 in which the step of fastening the respective ends of said elongated ceiling support structure to bulkheads is preceded by the step of fastening at least one utility fixture to said ceiling support structure.

3. The method according to claim 1 including the step of fastening a third ceiling panel to the other of said beams so that edges of the third ceiling panel and of the panel fastened between the lower edges of the beams are fastened alongside each other to the lower edge of said other of said beams.

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