Nov. 8, 1966 G. McMURTRIE ET AL 3,283,340

BATHTUB AND BATHTUB DRAIN STRUCTURE

Filed July 22, 1963 5 Sheets-Sheet 1

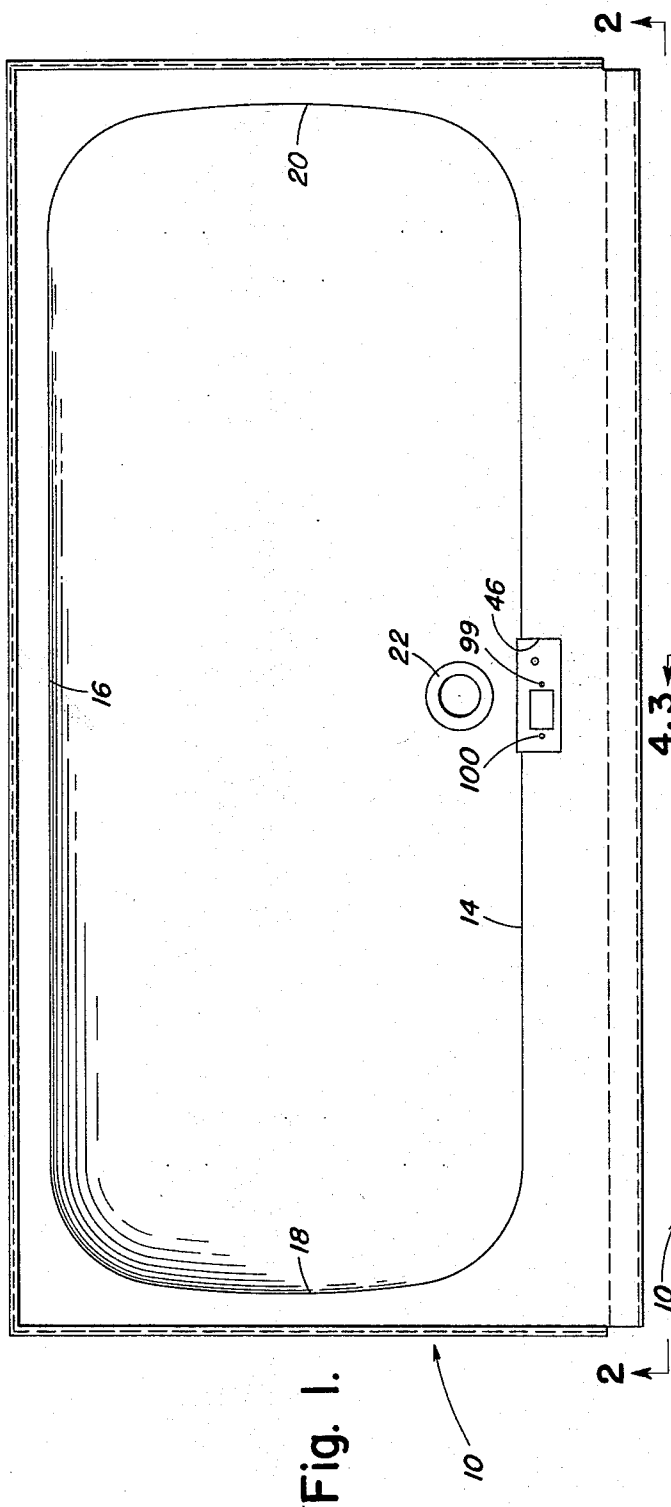

Fig. 1.

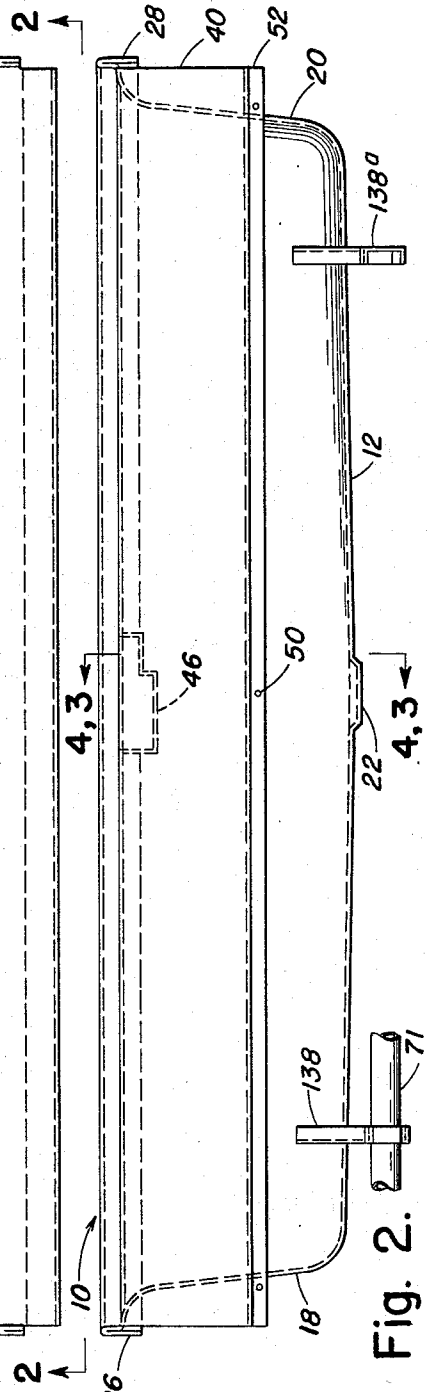

Fig. 2.

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BATHTUB AND BATHTUB DRAIN STRUCTURE

Filed July 22, 1963 5 Sheets-Sheet 2

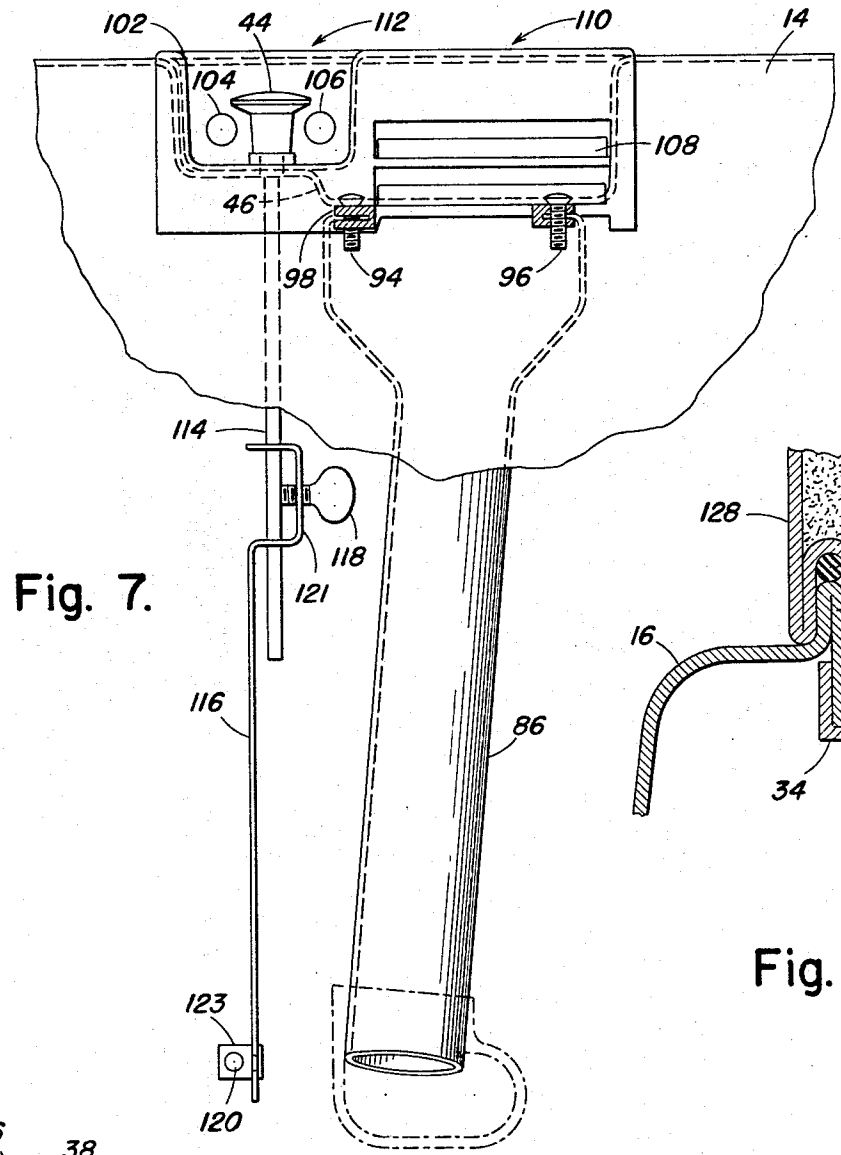

Fig. 7.

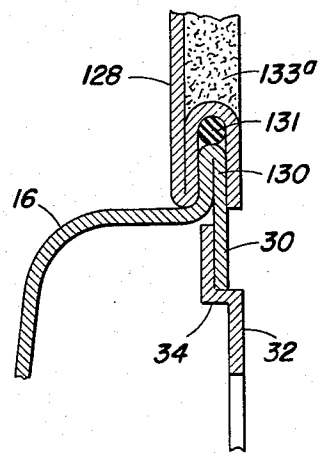

Fig. 4.

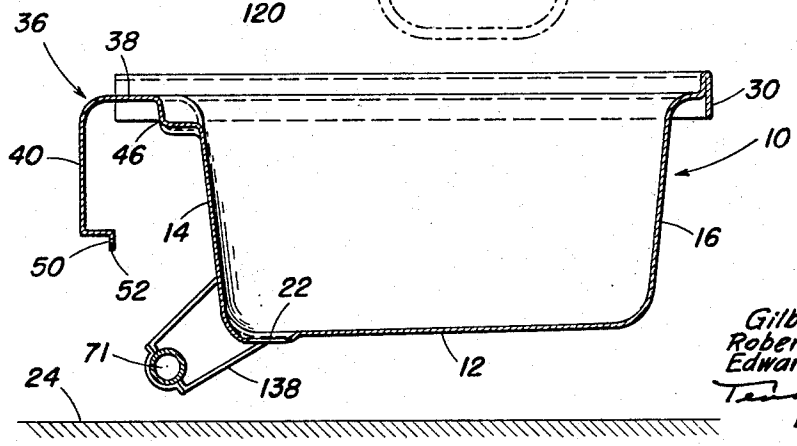

Fig. 3.

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BATHTUB AND BATHTUB DRAIN STRUCTURE

Filed July 22, 1963 5 Sheets-Sheet 3

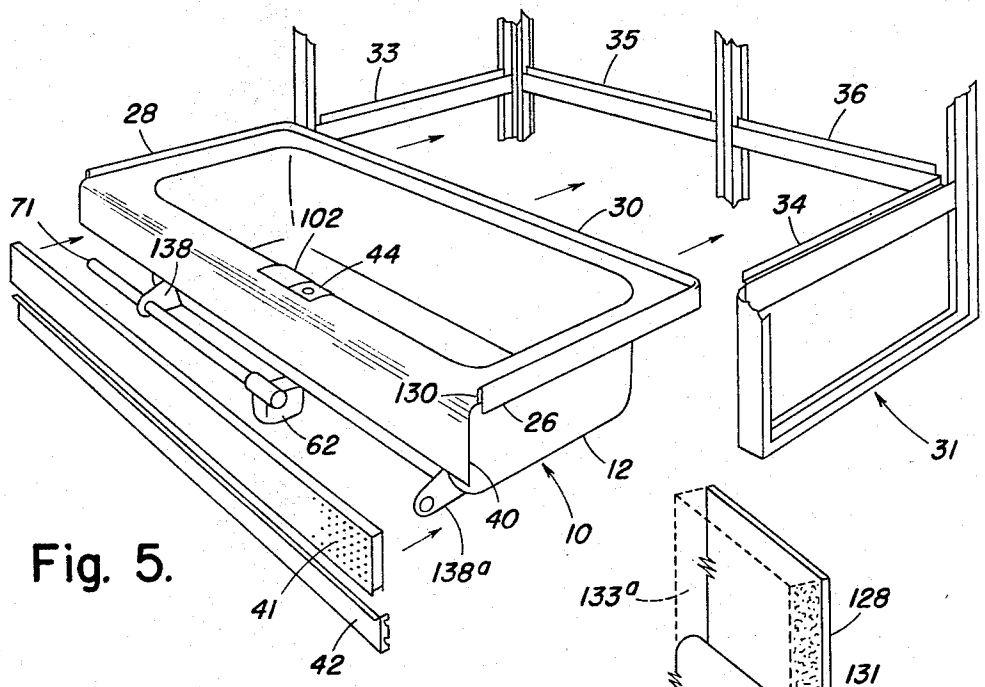

Fig. 5.

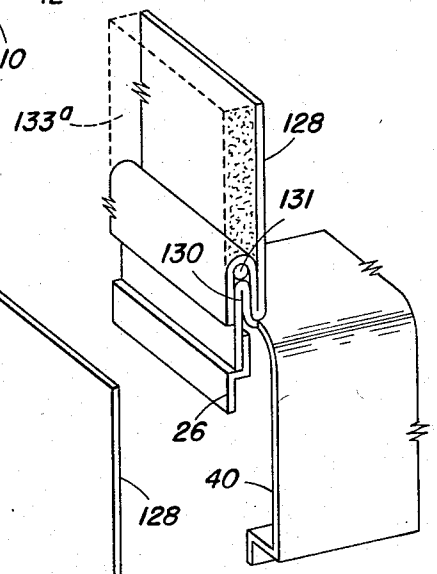

Fig. 11.

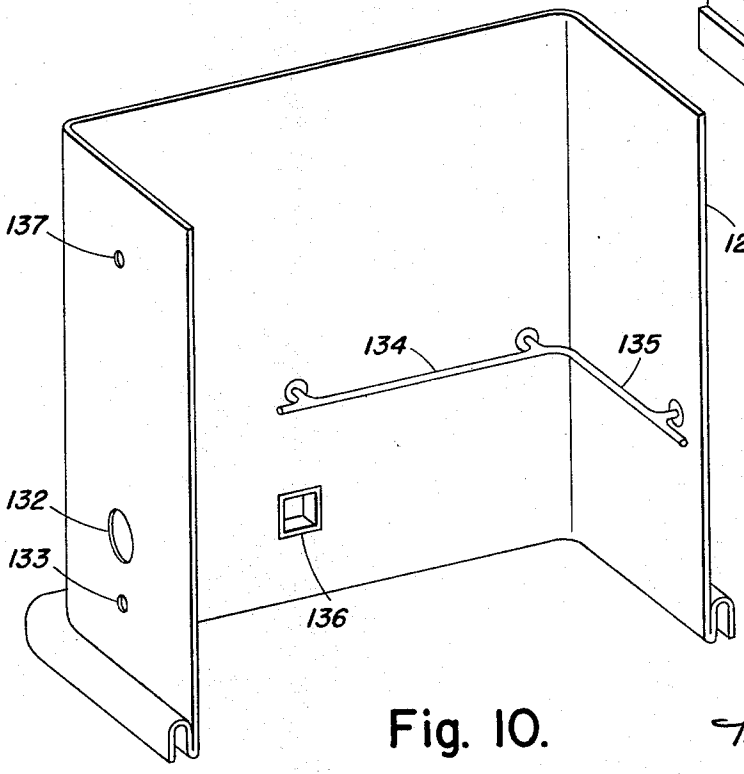

Fig. 10.

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BATHTUB AND BATHTUB DRAIN STRUCTURE

Filed July 22, 1963 5 Sheets-Sheet 4

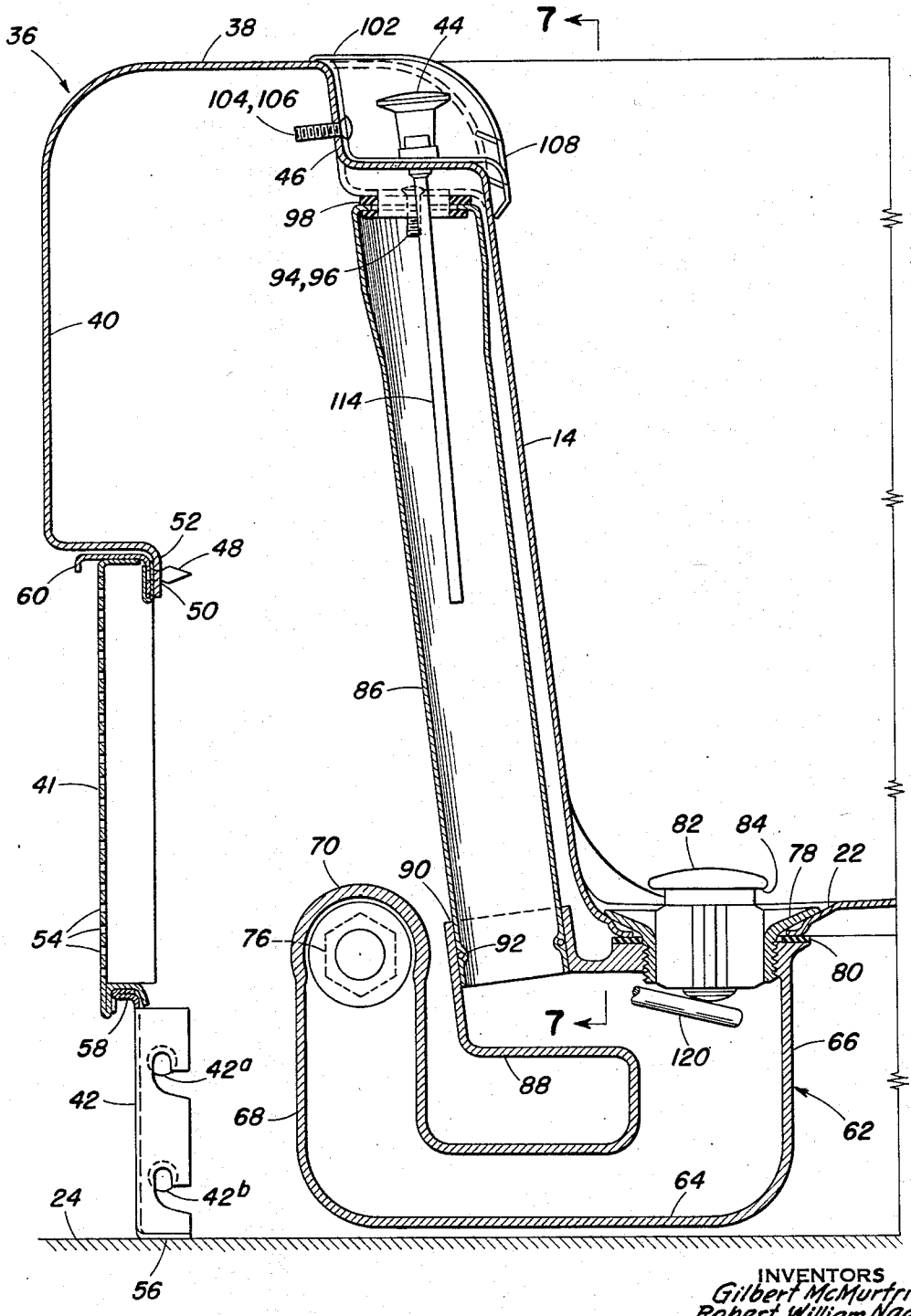

Fig. 6.

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BATHTUB AND BATHTUB DRAIN STRUCTURE

Filed July 22, 1963 5 Sheets-Sheet 5

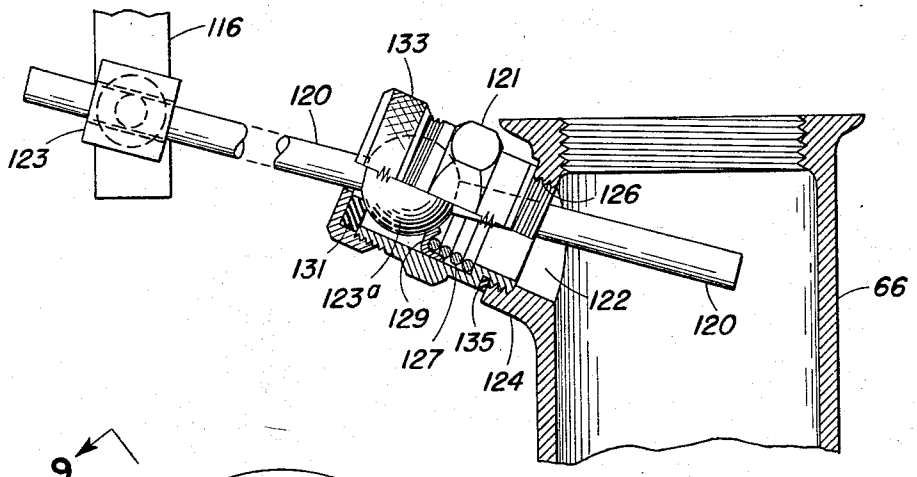

Fig. 9.

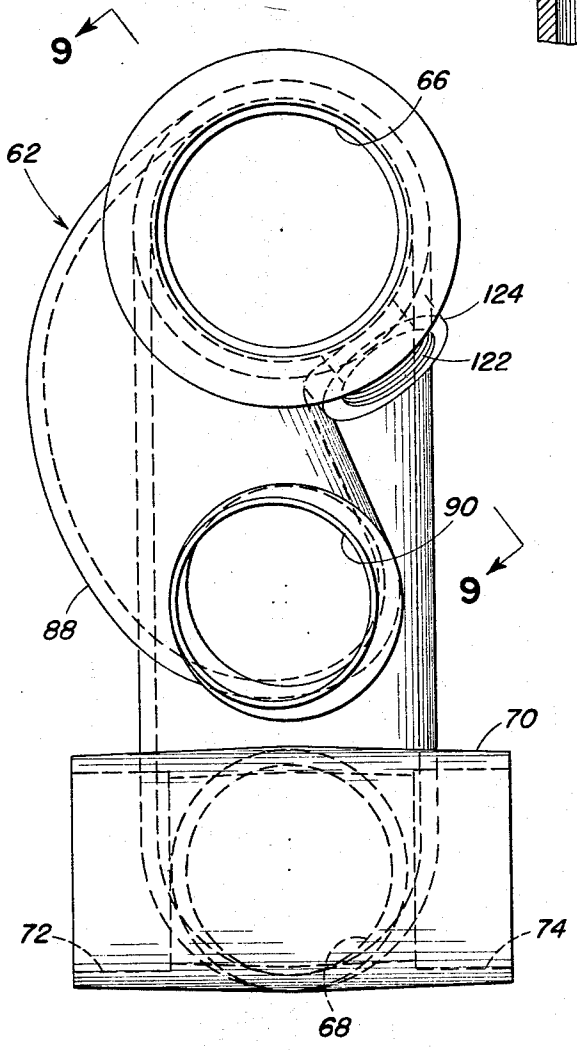

Fig. 8.

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United States Patent Office

3,283,340

Patented Nov. 8, 1966

3,283,340

BATHTUB AND BATHTUB DRAIN STRUCTURE

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Filed July 22, 1963, Ser. No. 296,570
1 Claim. (Cl. 4—173)

This invention relates to a bathing fixture assembly and particularly to an arrangement for a bathroom which includes a bathtub, shower and drain components therefor and a method for facilitating its installation.

In the practice followed heretofore in installing bathtubs, there has been considerable work involved not only in connecting the tub but also in supporting the same and joining the adjacent walls therewith. In addition, the connections, after installation, are frequently no longer accessible.

Accordingly, it is an object of the present invention to provide a bathtub shower assembly which can be installed quickly and which reduces the amount of on-site labor and time required for its installation.

Another object of the present invention is to provide a bathtub which is supported above the bathroom floor and on which a prefabricated drain conduit is carried and supported by the bathtub.

Another object is to provide a bathtub having a drain outlet located generally centrally of the longitudinal ends thereof and to provide drain outlet plumbing which is readily accessible.

Another object is to provide a bathtub unit assembly having an integral trap and overflow and drain lines.

Another object is to provide a bathtub having a drain outlet, overflow outlet and a manually operable drain stopper to one side of a generally central area of the longitudinal portion of the bathtub.

Another object is to provide an outlet fitting for a longitudinally central drain outlet of a bathtub which incorporates a trap and which is adapted to receive the operating mechanism of a remotely operated drain stopper.

Another object is to provide an outlet fitting for a longitudinally central drain outlet of a bathtub which is adapted to receive overflow from the bathtub and which has an accessible outlet and cleanout conduit extending generally longitudinally in front of the bathtub.

Another object is to provide a bathtub having a generally central drain outlet thereby providing for left hand or right hand installation.

Another object is to provide a prefabricated frame for supporting a bathtub above a bathroom floor.

Another object is to provide a prefabricated panel supported by the bathtub to form a wall around the area above the bathtub.

Another object is to provide a prefabricated bathroom tub and shower recess.

Other objects and features of the invention will appear as the description of the particular physical embodiment selected to illustrate the invention progresses.

For a better understanding of the present invention, reference should be had to the accompanying drawings wherein like numerals of reference indicate similar parts throughout the several views and wherein:

FIGURE 1 is a plan view of a bathtub constructed according to the present invention before the prefabricated plumbing has been installed.

FIGURE 2 is a side elevation thereof looking along the line 2—2 of FIGURE 1 in the direction of the arrows.

FIGURE 3 is a sectional elevation looking along the line 3—3 of FIGURE 2.

FIGURE 4 is a partial sectional view of means for supporting the bathtub of FIGURE 1.

FIGURE 5 is a perspective schematic view showing the bathtub and associated components before the bathtub is installed.

FIGURE 6 is a sectional elevation taken through a central transverse portion of the bathtub at the drain outlet and through the prefabricated plumbing thereat.

FIGURE 7 is a partial view, partly broken away, looking along the line 7—7 of FIGURE 6 in the direction of the arrows.

FIGURE 8 is a plan view of the bathtub drain outlet fitting showing in FIGURE 6.

FIGURE 9 is a section taken along the line 9—9 of FIGURE 8 looking in the direction of the arrows together with a partial view through the stopper operating rod assembly screwed into the drain fitting.

FIGURE 10 is a perspective view of a prefabricated wall adapted to be mounted above the bathtub.

FIGURE 11 is a partial persepective view of the panel of FIGURE 10 and the bathtub showing means on the bathtub for supporting the panel.

Before explaining the present invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawings, since the invention is capable of other embodiments and of being practiced or carried out in various ways. Also, it is to be understood that the phraseology or terminology employed is for the purpose of description and not of limitation.

Referring to FIGURES 1 to 3 a bathtub **10** is shown as comprising a bottom wall **12**, side walls **14** and **16**, and end walls **18** and **20**. The bottom wall **12** slopes toward a drain outlet opening **22** located generally centrally of the longitudinal length of the bathtub and generally to the front or outward side thereof. The bathtub unit assembly **10** may be made of enameled steel or other suitable materials.

In order to support the bathtub **10** above the floor **24** means are provided along the sides of the bathtub to engage a suitable adjacent support structure.

In the bathtub shown in FIGURES 1 to 3 such means of support are shown as comprising downwardly depending flanges **26** and **28** (FIGURE 2) extending from the end walls **18** and **20** respectively, and a similar downwardly depending flange **30** (FIGURE 3) extending from the rear wall **16**. These flanges **26**, **28** and **30** are adapted to fit into a suitable channel of a support structure extending partially around the bathtub. FIGURE 4 for example shows the flange **30** being supported in a support upright **32** having a channel defined by a Z section **34** along a side thereof for receiving the flange **30**.

As shown in FIGURE 5 a support structure **31** is formed in a general U-shaped configuration in perspective view, to conform to the general outline of the bathtub. Thus the bathtub **10** may be slid into the open portion of the U so that the flanges **26** and **28** will slide in Z sections **33**, **34** respectively until the rear bathtub flange **30** engages Z sections **35** and **36**. It can be seen therefore, that the bathtub will be supported above the floor **24** by the three bathtub flanges **26**, **28** and **30**.

There is also extending from the front or side wall **14** of the bathtub an extension **36** (FIGURE 3) having a generally horizontal flange portion **38** and a generally vertical flange portion **40**. The extension **36** extends the longitudinal length of the bathtub **10** and provides a means, along with a front panel **41** and a kick plate **42** (FIGURE 5), both to be further described hereinafter, for enclosing the front of the bathtub unit assembly. A

longitudinal central portion of the extension **36** is provided with an indentation **46** which is used for receiving overflow water from the bathtub and for receiving the operating handle **44** of a remotely operated bathtub drain stopper, both to be further described hereinafter.

The downwardly extending flange **40** of the extension **36** is provided with means for securing the panel **41** thereto, the panel **41** in turn cooperating, with the kick plate **42** therebelow and with the downwardly depending flange **40** as previously set forth herein, to form a complete frontal enclosure for the bathtub. The panel **41** is detachably connected to the downwardly depending flange **40** by suitable means such as resilient clips **48** which fit into openings **50** along a lower indented ridge **52** of the flange **40**. The removable panel **41** provides access to the drain system for adjustment or servicing. The panel **41** may have perforations such as at **54** therein to provide for circulation of air around the bathtub.

The kick plate **42** has a bottom edge **56** which rests on the bathroom floor **24** while the upper edge **58** fits into an indentation in the lower edge portion of the panel **41**, whereby upon pulling the panel tab member **60**, the resilient clip **48** will be forced through the openings **50** as the bottom of the panel **41** pivots on the upper edge **58** of the kick plate **42** thus making the panel **41** readily removable. The space between the front of the bathtub and the flange **40**, panel **41**, and kick plate **42** allows sufficient room for a heating unit (not shown) to be installed for furnishing heat for the bathroom making possible a warm tub. The kick plate **42** is attached to suitably supported stud heads **42***a* by means of slots **42***b* in the kick plate **42**, thereby making the kick plate removable. The stud heads **42***a* may extend from the framework surrounding the bathtub.

With the bottom wall **12** of the bathtub **10** carried at a sufficient height above the bathroom floor **24**, it is possible to provide a drain trap above the elevation of the floor **24**. In the present invention the trap is incorporated into a drain fitting **62** which serves to receive overflow water from the bathtub and to receive an operating mechanism for remotely operating a drain stopper. As best can be seen in FIGURE 6, the drain fitting **62** is provided with a U-shaped conduit portion **64** which has one end suitably connected to the tub drain outlet **22**. It will be noted that one leg **66** of the U-shaped conduit portion **64** extends beneath the tub drain outlet **22** while another leg **68** extends generally vertically at the side of the bathtub. The upper end of the leg **68** is provided with a T-shaped portion **70** (FIGURE 8) such that a drain line **71** (FIGURES 2, 3, and 5) extending generally longitudinally of the bathtub may be connected to either end **72** or **74** of the head of the T-shaped portion **70**, while a cap or cleanout plug **76** may be provided at an opposite end. Thus the bathtub is adaptable for right or left hand installation.

Means are provided for connecting the drain fitting **62** to the bathtub outlet opening **22** with a watertight seal. Such means is shown in FIGURE 6 as comprising flared bushing **78** having external threads thereon for engaging internal threads of the outlet fitting. Suitable sealing means such as a rubber ring **80** is provided between the bathtub and the drain fitting **62** so that when the bushing **78** is threaded into the drain fitting **62** the sealing ring **80** will be compressed therebetween to provide the seal. The flared portion of the bushing bears against the inside of the bathtub to force the drain fitting **62** up against the bathtub as the thread is made.

A drain stopper **82** is carried in the bushing **78** and has a suitable sealing surface **84** which cooperates with the flared portion of the bushing **78** to prevent water from draining from the bathtub when the stopper **82** is in a lowered position. Suitable means, to be further described hereinafter, are provided for remotely operating the stopper **82** between an upper open position and a lower closed position.

In order to prevent the bathtub from overflowing means are provided to direct water from the bathtub to the drain fitting **62** when the water in the bathtub exceeds a predetermined level. Such means may comprise an overflow tube **86** at the outside of the bathtub extending between the drain fitting **62** and the indentation **46** at the upper portion of the bathtub. The drain fitting **62** is provided with an integral elbow **88** extending to the side of the bathtub having an opening **90** for receiving the lower end of the overflow tube **86** while suitable means such as a rubber ring **92** may be provided therebetween to maintain a watertight seal.

The upper portion of the overflow tube **86** is also connected to the bathtub **10** with a watertight seal. Such a seal is shown in FIGURES 6 and 7 as comprising a seal member, such as a rubber washer **98**, which fits around the inlet opening of the overflow tube **86** while threaded screws **94** and **96** pass through openings **99**, **100** (FIGURE 1) in the bathtub at either side of the underlying overflow tube inlet opening to engage suitable threaded openings in the overflow tube **86** adjacent to the inlet opening thereof. The screws **94** and **96** force the overflow tube **86** up against the bottom of the bathtub indentation **46** to hold and support it there and to compress the washer **98** therebetween to provide the watertight seal. It will be noted that the lower portion of the overflow tube **86** may slide in the opening **90** of the elbow **88** when the screws **94** and **96** are taken up without effecting the lower watertight seal of the overflow tube.

A housing or escutcheon **102** fits into the indentation **46** of the bathtub and is secured thereto by fastening means such as the screws **104**, **106**. The housing **102** is provided with openings such as at **108** which receives overflow water from the bathtub **10** and directs it to the inlet of the overflow tube **86**. Whereas the portion **110** (FIGURE 7) of the escutcheon **102** receiving the overflow water is generally hollow, a portion **112** adjacent thereto forms an open cavity for receiving the operating handle **44** of a remotely operated stopper mechanism.

The operating handle **44** is connected to a rod **114** (FIGURE 7) which in turn is adjustably connected to a lever **116** by adjusting means such as a thumb screw **118** and a U-shaped end portion **121** on the lever **116** having openings for slidably receiving the rod **114** whereby when the thumb screw **118** is tightened the rod **114** and lever **116** are locked together.

Adjustably carried at the lower end portion of the lever **116** is a rod **120** which extends into an opening **122** (FIGURES 8 and 9) in the drain fitting **62** for operating the stopper between open and closed positions. A pivot boss **123** on the end of the lever **116** receives the rod **120** to provide for flexibility of up and down movement of the lever **116** and rod **120**. As can best be seen in FIGURES 8 and 9 the opening **122** through which the rod **120** passes is provided within an inclined integral conduit **124** extending from the side of the leg or conduit portion **66** of the drain fitting underlying the bathtub drain outlet **22**.

The centerline of the conduit portion **66** intersects the centerline of the conduit **124** so that the rod **120** may extend to a point directly below the centerline of the stopper **82**. The conduit **124** is provided with internal thread **126** for securing suitable sealing means where the rod passes through the opening **122** in the conduit **124**. As can be seen in FIGURE 9 such means may comprise a center piece **121** threaded in the conduit **124** of one of the drain fittings **62**.

The center piece **121** receives the rod **120** while a ball **123***a* affixed thereto and having an extension **123** underlying the stopper **82** is pivoted to raise and lower the stopper. A spring **127** is provided to bias a spring seat **129** against the ball **123***a* to prevent any leakage therebetween as the rod **120** is pivoted. A gasket **131** and adjusting nut **133** is provided to secure the ball within the center piece **121**. A washer **135** may also be pro-

vided between the center piece **121** and the drain fitting **62** to provide a watertight seal therebetween.

As the operating handle **44** is moved up and down, the rod **120** which extends beneath the stopper **82** will be pivoted to operate same between open and closed positions.

Above the bathtub **10** around the rear side and two transverse ends thereof, there is provided a plurality of or a single prefabricated panel **128** (see FIGURES 4 and 10) which is supported on an upwardly extending flange such as shown at **130** in FIGURE 11. The upwardly extending flange extends around the rear and two transverse ends along the upper rim of the bathtub **10**.

The panel **128** eliminates the requirement of having to provide a plaster or other type wall around the upper reaches of the bathtub **10** while it is particularly adaptable for cooperation with the framework used for supporting the tub **10** to provide a prefabricated bathroom recess.

The panel **128** is provided with suitable openings for the shower head, bathtub faucet and for the control valves thereof. The opening **132** illustrating for example, the opening for a mixing control valve (not shown) which may be used both for controlling the flow of hot and cold water to a shower head and the bathtub faucet (both not shown). The openings **133** and **137** are for the bathtub faucet and shower heads respectively.

A water seal is provided between the lower edges of the panel **128** and the upwardly extending flange **130**. Thus the panel **128** may be set with a vinyl cushion serving as the water seal and the seal is completed by forcing the panel **128** over the upwardly extending flange of the tub **130** wherein a sealing strip **131** is provided to form a watertight seal between the flange **130** and the panel **128**. Where a plurality of walls is used instead of the single panel **128**, a retaining cap-strip may be provided secured to the supporting frame at the top of the recess **130**. Since the tub **10** is supported from the structure **31** (FIGURE 5), precision of dimension is provided to permit the various screw holes to match. The wall panel above the bathtub may be plastic, aluminum sheeting, or other wall coverings and it may be designed to hold ceramic tile, wallpaper, or plastic. In the illustration shown in FIGURE 4, the wall panel is made from sheet aluminum which is coated on one side with a single coating and on the other side with a foamed plastic material **133***a* to provide rigidity, insulation and sound deadening. The vinyl coating provides a sanitary, easily cleaned surface.

A suitable hand railing **134** is attached to the panel **128** as shown in FIGURE 10. The panel **128** may be prefabricated so that it may be fitted onto the channels **130** of the bathtub **10** to thereby facilitate construction and installation of the bathroom recess. The handrail **134** may be suitably attached to the prefabricated panel and spaced therefrom by the supports **135** before it is shipped to rigidify same thereby tending to reduce the possibility of damage to the panel **128** during transit. A removable snap-in soap dish **136** may be provided in the panel **128** as shown in FIGURE 10.

The bathtub **10**, the drain **62**, the drain pipe **71**, the overflow tube **86**, the operating mechanism for the stopper, the escutcheon, and various associated components and interconnections therebetween may be shipped in prefabricated condition to facilitate installation of the bathtub. Accordingly, brackets **138** and **138***a* extending from external corner edges of the bathtub to support the drain pipe **71** are provided. The brackets **138** and **138***a* are suitably attached to the tub **10** such as by welding in the case where the tub **10** is made of steel. The prefabricated drain line **71** is shipped with the bathtub and is connected to a suitable drain line in the building in which it is to be installed. The drain line **71** may be supported by the bracket **138** or **138***a* depending on whether a right or left hand outlet is desired.

The panel **128** is easily installed at the building site by fitting the lower edge thereof over the flange **130** while the upper edge is attached to the frame by a moulding.

From the above description it can be seen that the bathtub of the present invention may be readily installed in a building with a minimum amount of time and cost. The drain plumbing is prefabricated and connected to the bathtub in left hand or right hand arrangement before it is shipped and such plumbing is readily accessible after the bathtub has been installed. A drain fitting provided with the bathtub, serves as a trap and receives overflow water and an operating mechanism for a remotely operated drain stopper. The bathtub is supported above the floor and is provided with a drain outlet and an operating handle at a central longitudinal portion of the tub. The bathtub supports the drain outlet fitting, the drain piping, and a prefabricated panel above the bathtub.

The invention hereinabove described may be varied in construction within the scope of the claim, for the particular device selected to illustrate the invention is but one of many possible embodiments of the same. The invention, therefore, is not to be restricted to the precise details of the structure shown and described.

What is claimed is:

A bathtub structure comprising an elongated tub body portion including a bottom wall, end and side walls, a drain opening in the bottom wall of the tub close to the outer side wall thereof and substantially at the longitudinal center of the tub, a drain fitting and trap disposed beneath the bottom wall and outer side wall of the tub and having a first vertical leg directly connected to said drain opening, a horizontal outwardly extending trap portion and a second vertical leg outwardly of the outer tub side wall and rising above said horizontal portion and having its top near the elevation of the tub bottom wall, a T-fitting on the top of the second vertical leg adapted for connection at either end thereof to a drain pipe extending longitudinally of the tub outwardly of the outer side wall and near the bottom wall of the tub, a plug element for one end of the T-fitting facilitating cleaning out said drain fitting and trap, a top wide horizontal flange on said tub projecting a substantial distance outwardly of the outer tub side wall and including an outer depending portion, floor-engaging support panel means connected with said depending portion and supporting the outer side of the tub whereby the tub bottom wall, said drain fitting and trap, and drain pipe may all be spaced bodily above the floor, an overflow drain formed in said top horizontal flange, a generally vertical overflow tube connected with the overflow drain and extending close to the outer side wall of the tub externally thereof, a fitting on the first vertical leg of said drain fitting and trap and extending between the first and second legs thereof and directly connected to the lower end of the overflow drain tube and communicating with the first vertical leg immediately below the tub drain opening, a stopper for the tub drain opening, and a manually operable linkage connected with said stopper including parts extending inside of the drain tube and said fitting and trap and having an operating knob disposed within a recess of said top horizontal flange.

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