

Sept. 29, 1953

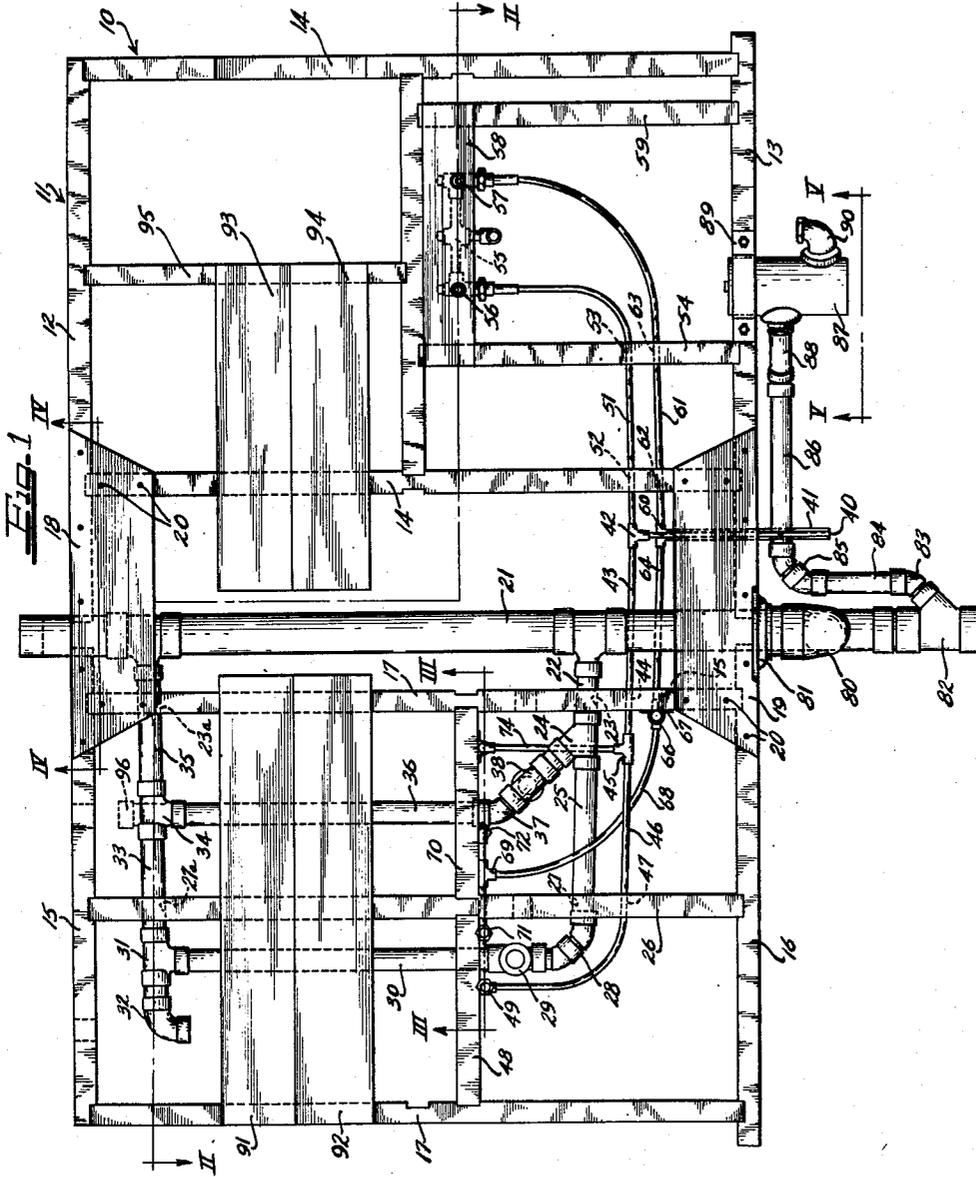
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2,653,357

PREFABRICATED PLUMBING INSTALLATION

Filed June 7, 1949

3 Sheets-Sheet 1



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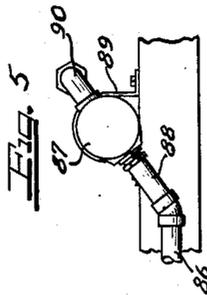
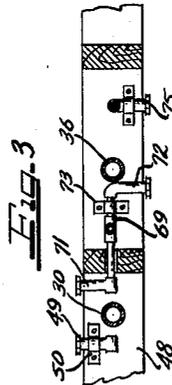
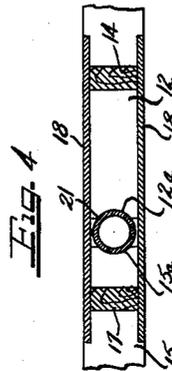
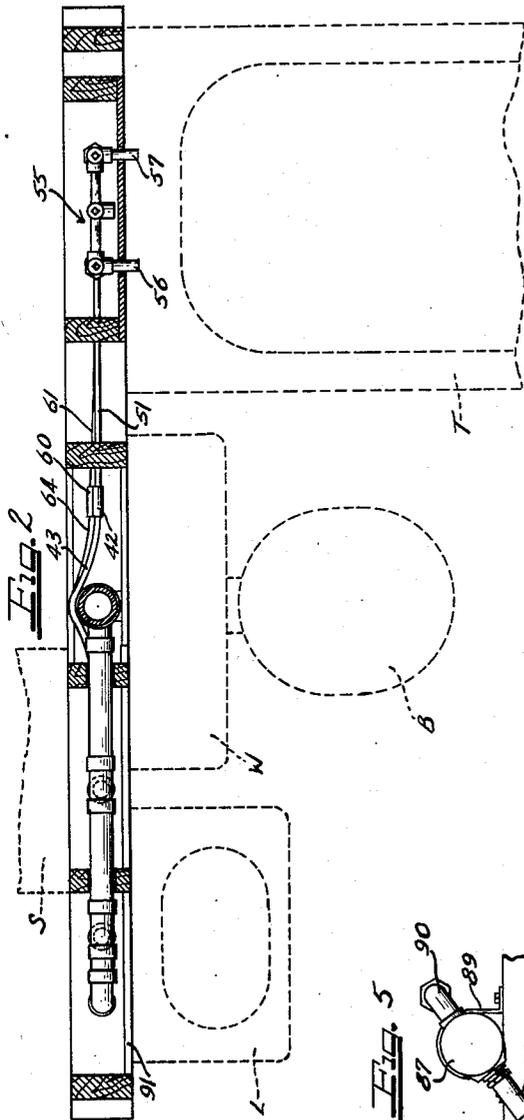
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3 Sheets-Sheet 2



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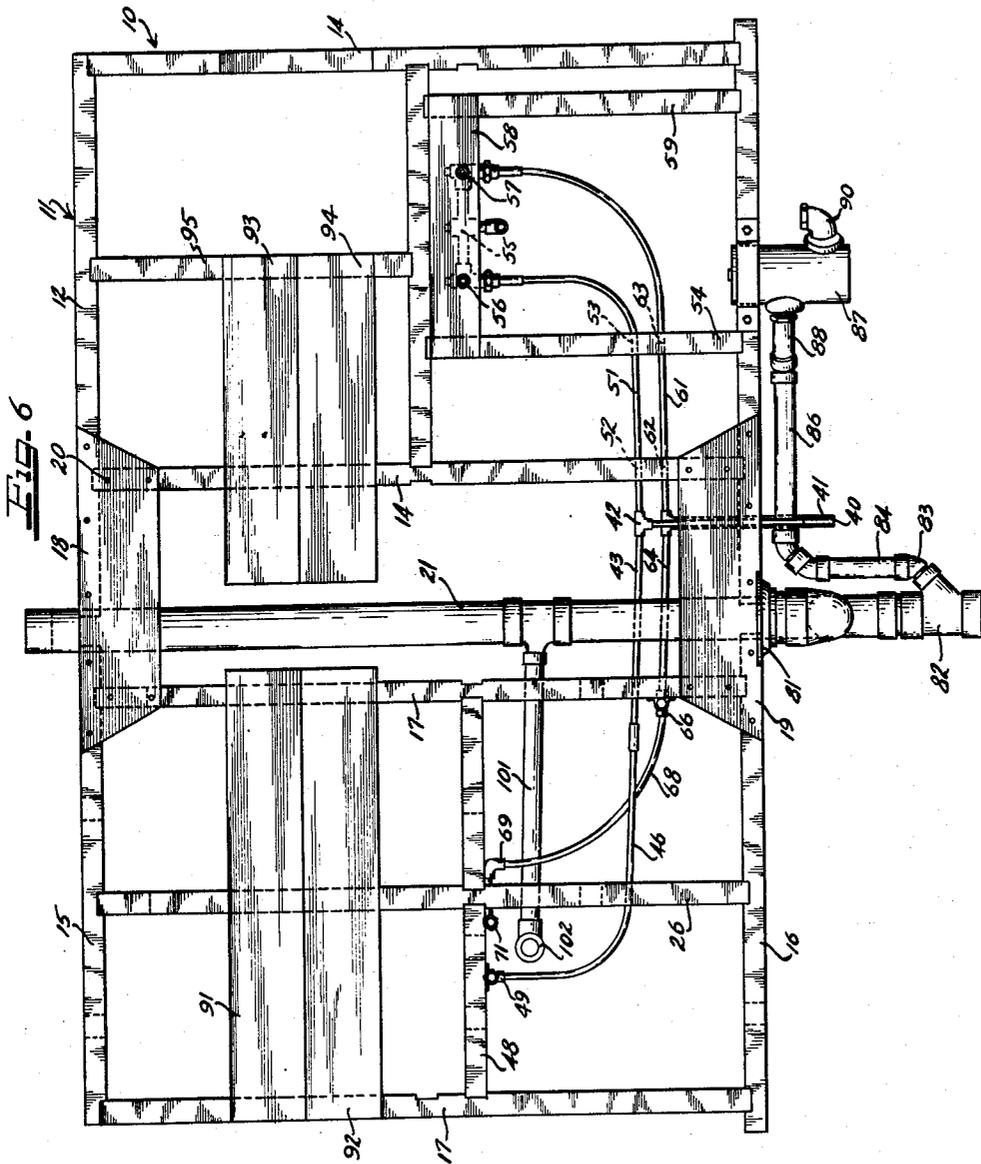
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PREFABRICATED PLUMBING INSTALLATION

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3 Sheets-Sheet 3



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# UNITED STATES PATENT OFFICE

2,653,357

## PREFABRICATED PLUMBING INSTALLATION

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5 Claims. (Cl. 20—4)

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The present invention relates to a prefabricated plumbing installation and more particularly to a plumbing installation in which the conduits and connecting pipes of the plumbing system are retained entirely within a supporting framework capable of forming a wall structure.

The prefabricated plumbing installation of the present invention comprises generally a supporting framework formed of wood or other suitable structural material, the framework having flush side surfaces which may be covered with wall-board, plaster, tile, or other desirable finished wall surfaces to form the wall of a room in which the plumbing installation is to be installed. The conduits and connecting piping of the plumbing system are so carried by the supporting framework that they are entirely disposed within the completed wall upon its being covered in the manner hereinbefore described. The only portion of the plumbing system extending beyond the finished wall surface are the lavatory or sink outlets or faucets, the bath faucets and valves, the water closet flange and elbow, and the bath drum trap. Since the water closet flange and elbow and the bath trap are normally disposed beneath the level of the floor of the room, only the lavatory and bath outlets project beyond the wall surface.

Thus it may be seen that the plumbing installation of the present invention provides a wall supporting structure and, if desired, the unit may be installed as a wall between two rooms, or against an existing wall to provide a plumbing installation for the room of which the wall is a part. In one modification of the present invention, the plumbing installation carries both bathroom fixtures and kitchen fixtures projecting from opposite sides of the supporting structure so that the wall may be readily employed between a kitchen and a bath to provide plumbing for both rooms.

Side panels are provided upon the supporting structure to underlie the finished wall surface, thus providing an anchoring base for a lavatory, sink, and/or wall cabinet.

The utility of the present invention will be readily appreciated by those skilled in the building trades, both in the provision of an integrated, prefabricated plumbing installation and also in the disposal of the plumbing system entirely within a finished wall structure.

It is, therefore, an important object of the present invention to provide an improved prefabricated plumbing installation which may be simply and economically manufactured as an in-

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tegrated structure for incorporation into a finished wall of a building or the like.

Another important object of the present invention is to provide improved prefabricated plumbing installations including a framework capable of forming an interior wall structure for a finished building wall with the plumbing conduits and connecting piping being entirely disposed within the completed wall structure.

It is a further important object of the present invention to provide a prefabricated plumbing installation which may be disposed against an existing wall of a building or the like to provide complete plumbing connections for the room, the installation furnishing an interior wall structure for the room with only water outlets and inlets projecting beyond the finished wall structure.

Still another important object of the present invention is to provide an improved prefabricated plumbing installation which may be installed as a common wall between a bathroom and a kitchen, one wall surface of the installation carrying the plumbing connection for bathroom fixtures and the opposite wall of the installation carrying connections for the fixtures for a kitchen, with the plumbing conduits and connecting piping for each type of fixture being disposed within the common wall.

Other and further important objects of this invention will be apparent from the disclosures in the specification and the accompanying drawings.

On the drawings:

Figure 1 is a side elevational view of a plumbing installation of the present invention;

Figure 2 is a sectional view, with parts shown in plan, taken along the plane II—II of Figure 1;

Figure 3 is a sectional view, with parts shown in plan, taken along the plane III—III of Figure 1;

Figure 4 is a sectional view taken along the plane IV—IV of Figure 1;

Figure 5 is a plan view as seen from the plane V—V of Figure 1; and

Figure 6 is an elevational view similar to Figure 1 showing a modified form of plumbing fixture of the present invention.

As shown on the drawings:

In Figure 1, reference numeral 10 refers generally to a prefabricated plumbing installation of the present invention including a generally rectangular supporting framework 11 formed of suitable structural material such as wood, steel, or the like.

The supporting framework 11 includes an upper transverse member 12 and a lower transverse member 13 maintained in spaced apart, parallel relation by inner and outer upright members 14. It will be observed from Figure 1 that members 12, 13, and 14 comprise one-half of the supporting framework 11, and that substantially identical transverse members 15 and 16, and upright members 17 are provided to form the other half of the supporting framework 11.

The members 12 and 15 and the members 13 and 16 are joined by gussets 18 and 19, respectively, to form the completed framework 11. The gussets 18 may be formed of suitable sheet material such as wood, steel, or the like, and are secured to their respective members 12—15 and 13—16 by suitable means as by nails or screws 20. From Figure 4, it will be observed that the gussets 18 and 19 are recessed to lie flush with the outer side surfaces of the members 12—15 and 13—16 and that the vertically extending members 14 and 17 are recessed within their respective transverse members to provide a secure, flush fit.

A vertically extending waste and vent stack 21 is mounted between the two halves of the supporting framework 11. As shown in Figure 4, the transversely extending members 12 and 15 are arcuately recessed, as at 12a and 15a, respectively, for snugly fitting against the outer periphery of the stack 21 and the stack is of such size as to fit between the gussets 18 and 19. The stack 21 carries a drain line 22 extending laterally outwardly from the stack between the transversely extending members 15 and 16. It will be noted that the upright support member 17 is bored as at 23 to receive drain line 22, thus aiding in supporting the stack 21 against relative vertical movement within the supporting frame 11.

The drain line 22 terminates in a Y-fitting 24 with a drain line extension 25 extending in alignment with the drain line 24 through a second upright supporting member 26, identical with member 17, and bored as at 27 to receive the extension 25. The extension 25 terminates in an elbow 28 provided with a T-fitting 29 carrying a vertically extending vent pipe 30 terminating in an additional T-fitting 31. One of the substantially horizontally extending legs of the T-fitting 31 is secured to an elbow 32, while the other leg of the T-fitting 31 is connected to a line 33 passing through aperture 27a of upright member 26 and terminating in still another T-fitting 34. The T-fitting 34 is connected to a line 35 passing through an aperture 23a in upright 17 and leading back to stack 21 at a point intermediate drain line 22 and the upper transverse support member 15. The T-fitting 34 carries a depending line 36 substantially parallel with line 30 and terminating in a lower elbow 37 carrying a T-fitting 38 which in turn communicates with the Y-fitting 24 of the drain line 22.

The conduit fittings 22—38, inclusive, thus provide the drain line for a pair of plumbing fixtures, such as for a lavatory and a sink in a manner to be hereinafter more fully described.

Water is supplied to the installation 10 through a pair of water conduits 40 and 41 preferably formed of deformable tubing, such as copper tubing. The lines 40 and 41 are connected to a suitable source of hot and cold running water, respectively. The hot water line 40 terminates in a T-fitting 42 with a branch line 43 extending around the stack 21 (Figure 2) and through an aperture 44 in vertical support member 17 to lie between the drain line 22 and the lower transverse sup-

porting member 16. Branch line 43 terminates in a second T-fitting 45 from which a horizontally extending branch line 46 extends through an aperture 47 in vertical support member 26 upwardly to underlie an additional transverse supporting member 48 overlying the T-connection 29. As best shown in Figure 3, line 46 terminates in a faucet adapter 49 secured to the transverse member 48 by a strap 50.

The other side of T-fitting 42 carries a transversely extending line 51 passing through an aperture 52 in the vertically extending member 14 and an aperture 53 in a vertically extending member 54 parallel to the member 14. The upturned terminal end of the line 51 is connected to a bath faucet and mixing valve assembly 55 (Figure 2) having faucet handle extensions 56 and 57 extending through a transverse supporting member 58 secured to the upright supporting member 54 and an identical upright member 59.

The cold water line 41 terminates in a T-fitting 60 carrying a transversely extending cold water line 61 passing through registering apertures 62 and 63 in the vertically extending supporting member 14 and 54, respectively, and terminating in an upstanding portion connected to the mixing valve 55 in the same manner as the hot water line 51 hereinbefore described.

The other side of the T-fitting 60 is provided with a transversely extending line 64 also passing around stack 11 (Figure 2) and through an aperture 65 in the vertical supporting member 17. The line 64 terminates in a T-fitting 66 secured to the vertical support member 17 by means of a strap 67. The T-fitting 66 thus provides a cold water outlet for a toilet closet to be installed in the assembly as hereinafter described.

Line 68 from the T-fitting 66 extends upwardly to terminate in a T-fitting 69 directly underlying a transverse supporting member 70 identical with the member 48 hereinbefore described. The T-fitting 69 communicates with a pair of oppositely directed faucet adapters 71 and 72 to supply a cold water outlet for a pair of fixtures affixed to opposite walls of the installation 10, as hereinafter more fully described. In addition, the transversely extending support member 70 carries a depending line 74 connected to a hot water faucet adapter 75 and to the T-connection 45 of hot water line 43.

It will be seen in Figure 1 that a water closet elbow 80 is carried by that portion of the stack extending downwardly beyond the transverse supporting members 13 and 16. This elbow is turned upwardly to lie closely adjacent to the framework 11, the elbow 80 terminating in a water closet flange 81 adapted to receive a water closet thereon as is conventional in the art. The flange 81 lies in approximately the same plane as the lower extremity of the transversely extending members 13 and 16 so that it is at approximately the floor level of a room within which the installation 10 is employed.

The stack 21 terminates in a terminal Y-fitting 82 connected through an elbow 83 to a vertically extending line 84 and through a second elbow 85 to a horizontally extending line 86 closely underlying the lower transverse support member 13. The line 86 is connected to a bathtub drum trap 87 through an elbow 88 (Figure 5), the trap being secured to the member 13 by means of a strap 89 with the trap 87 extending below the member 13. The trap 87 communicates with an elbow 90 form-

ing an outlet for a bathtub as hereinafter described.

As shown in dotted outline in Figure 2, a lavatory L is adapted to be secured to the supporting frame 11 to receive water from the faucet adapters 49 and 71 and to drain through the T-fitting 29. To accommodate the lavatory L, a pair of transversely extending structural sheets 91 and 92 of wood, metal, or the like, are provided to extend between the vertical member 17, the sheets 91 and 92 being recessed as shown in Figure 2 to lie flush with the surface of the supporting framework 11. Similarly, a sink S may be mounted on the other side of the framework 11 from the lavatory L to receive water from faucet adapters 72 and 75 and to discharge through T-connection 38. A water closet W is secured to the supporting framework by suitable means, the water closet being secured between the central vertical supporting members 17 and 14 and receiving water from the T-connection 66. A toilet bowl B is mounted on the flange 81 and discharges through the elbow 60 into the stack 21, while a bathtub T is positioned to overlie the outlet 90 and to receive water from the mixing valve 55.

An additional pair of supporting sheets 93 and 94 are supported between the vertical supporting member 14 and an additional vertical supporting member 95 to provide a base for a towel rack, a medicine chest, or other suitable bathroom appointment adjacent the tub T.

From the foregoing description, it will be seen that the prefabricated plumbing installations of the present invention may be suitably employed in a number of different ways. The entire unit 10 may be employed as a wall between adjacent rooms, as between a bathroom and a kitchen. The lavatory L, the water closet W, and the bathtub T may project inwardly into the bathroom while the sink S projects into the kitchen lying on the other side of the wall. Alternatively, the installation 10 may be mounted flush with an existing wall with the wall being drilled to receive the necessary connections to the appropriate fittings within the adjacent room.

In addition, the unit 10 may be employed in connection with an additional plumbing installation. For example, if the unit 10 is employed upon the second floor of a house, the elbow 32 may suitably receive a vent from the plumbing installation of the first floor of the house, each of the installations thus employing a single stack 21. Alternatively, if the unit 10 is employed on the first floor of a house with an additional bathroom on the second floor of the house, the additional upper bathroom may drain through the drain lines 36 and 22 by the installation of an additional fitting indicated in dotted outline at 96.

In the modified form of the invention illustrated in Figure 6, the framework 11 is substantially identical with that hereinbefore described in connection with the modification of Figure 1 and identical reference numerals refer to additional portions of the framework. The stack 21 is installed in the framework in a manner identical with that hereinbefore described, the stack communicating with the single drain line 101 carrying a terminal elbow 102 for connection to a lavatory (not shown). The hot and cold water conduits 40 and 41 are identical with those hereinbefore described with the elbow 66 providing cold water for a toilet seated upon the closet flange 81. However, in this instance, only one faucet adapter 49 is provided in the hot water line and only one faucet adapter 71 is provided

for the cold water line. The bath installation is identical with that hereinbefore described with the mixing valve 55 being carried by the transversely extending supporting sheet 58. The arrangement and installation of the trap 87 is identical with that of the modification of Figure 1.

It will be seen that the modification of Figure 6 is actually a simplified version of the modification of Figure 1 with the elimination of the drain and water supply lines for the sink S and also the elimination of the vent pipe structure for the sink S and the lavatory L.

The advantages residing in the construction of each of the modifications of Figures 1 and 6 will be readily apparent to those skilled in the art. These advantages include first, the two-piece construction of the plumbing installation, i. e. the assembly of the transversely extending members 12-15 and 13-16 about the stack 21 by the employment of the gussets 18 and 19. This two-piece construction permits the employment of relatively short transverse members and also provides for the assembly of the installation about the stack 21 without the necessity of aperturing the transverse supporting members to receive the stack. In addition, the gussets 18 and 19 strengthen the assembly so that it may properly serve as an adequate base for the wall structure later applied thereto.

Also, in the installation of the present invention, all connections within the installation are made prior to the adaption of the installation to the specific building structure into which it is to be incorporated. By thus previously making these connections, it is possible to wipe and properly seal all of the malleable pipe connections, both to the stack and to the various drain and vent lines. In addition, the copper joints of both the hot and cold water lines may be previously connected and crimped, obviating the necessity of making these connections at the building site.

The bath mixing valve 55 and the faucet adapters for the bath are installed within the installation prior to its assembly at the building site, thus making unnecessary this expensive installation as a separate operation. Each of the water supplying lines is provided with faucet adapters which are secured to the supporting framework by means of metal straps and/or wood or metal perforated plates, so that it is only necessary to connect the adapters to the faucet lines of the various fixtures. Even the bath drum trap 67 is installed within the installation so that only the connection to the bath drain need be made at the building site.

Further, the fixture backing is included with and is built into the unit prior to installation, thus further insuring the ready installation and connection of the various fixtures at the building site.

From the foregoing, those skilled in the art will readily comprehend the improved prefabricated plumbing installation of the present invention and the advantages residing therein will be fully appreciated by such persons.

It will be understood that modifications and variations may be effected without departing from the scope of the novel concepts of the present invention.

We claim as our invention:

1. In a prefabricated plumbing installation, a composite planar wall assembly comprising a pair of supporting wall frameworks and an upright drain stack interposed between said frameworks, supply and drain lines secured within said

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frameworks and detachably connecting said frameworks, and tie members detachably joining said wall frameworks rigidly with said drain stack, whereby said wall frameworks including said supply and drain lines may be separated from said drain stack.

2. In a prefabricated plumbing installation, a composite planar wall assembly comprising a pair of wall frameworks and an upright drain stack interposed between said wall frameworks, said wall frameworks having upper and lower portions abutting said stack on opposite sides thereof, supply and drain lines secured within said wall frameworks and making detachable connection between said wall frameworks, and tie members joining the respective opposed upper and lower portions of said wall frameworks detachably to secure the same in rigid abutment with said drain stack, whereby said frameworks including said supply and drain lines may be separated from said stack.

3. In a prefabricated plumbing installation, a composite planar wall assembly comprising a pair of wall frameworks and an upright drain stack interposed between said wall frameworks, each of said wall frameworks including an upright member adjacent said drain stack and an upper and lower horizontally extending member in endwise abutment with said drain stack, tie members on either side of said drain stack joining said wall frameworks in rigid abutment with said drain stack, and fixture lines carried within said wall frameworks and jointed between said upright members.

4. In a prefabricated plumbing installation, a composite planar wall assembly comprising a basin framework, a bath framework, and an upright drain stack interposed between said frameworks, each of said frameworks including an upright member adjacent said drain stack and an upper and lower horizontally extending member in endwise abutment with said drain stack, gussets on opposite sides of said drain stack joining the respective upper and lower members to secure the same in opposed rigid abutment with said drain stack, a basin drain line carried by said basin framework and making detachable connection to said drain stack between said upright members, a bath drain line

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detachably supported by said bath framework and connected to said drain stack, and supply lines, including inlets carried by one of said frameworks and outlets carried by both of said frameworks in jointed connection between said upright members to permit separation of said frameworks from said drain stack.

5. In a prefabricated plumbing installation, a composite planar wall assembly comprising a basin wall framework, a bath wall framework, and an upright drain stack interposed between said wall frameworks and extending therebeneath, each of said wall frameworks including an upright member adjacent said drain stack and an upper and lower horizontal member spaced by said upright member, gussets on either side of said drain stack joining said horizontal members of each framework in opposed endwise abutment with said drain stack, a basin drain line rigidly carried within said basin framework and connecting with said drain stack between said upright members, a bath drain line dependently supported by the lower horizontal member of said bath wall framework and making connection with said drain stack between said frameworks, a water closet drain line carried by said drain stack outwardly of said wall frameworks, supply lines associated with said drain lines carried securely by said wall frameworks and including branch lines extending through said upright members, and inlet lines extending through one of said lower horizontal members and connecting with said branch lines between said upright members.

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