May 7, 1968 R. ROTHMAYR 3,381,313

SANITARY INSTALLATION

Filed Oct. 12, 1965 3 Sheets-Sheet 1

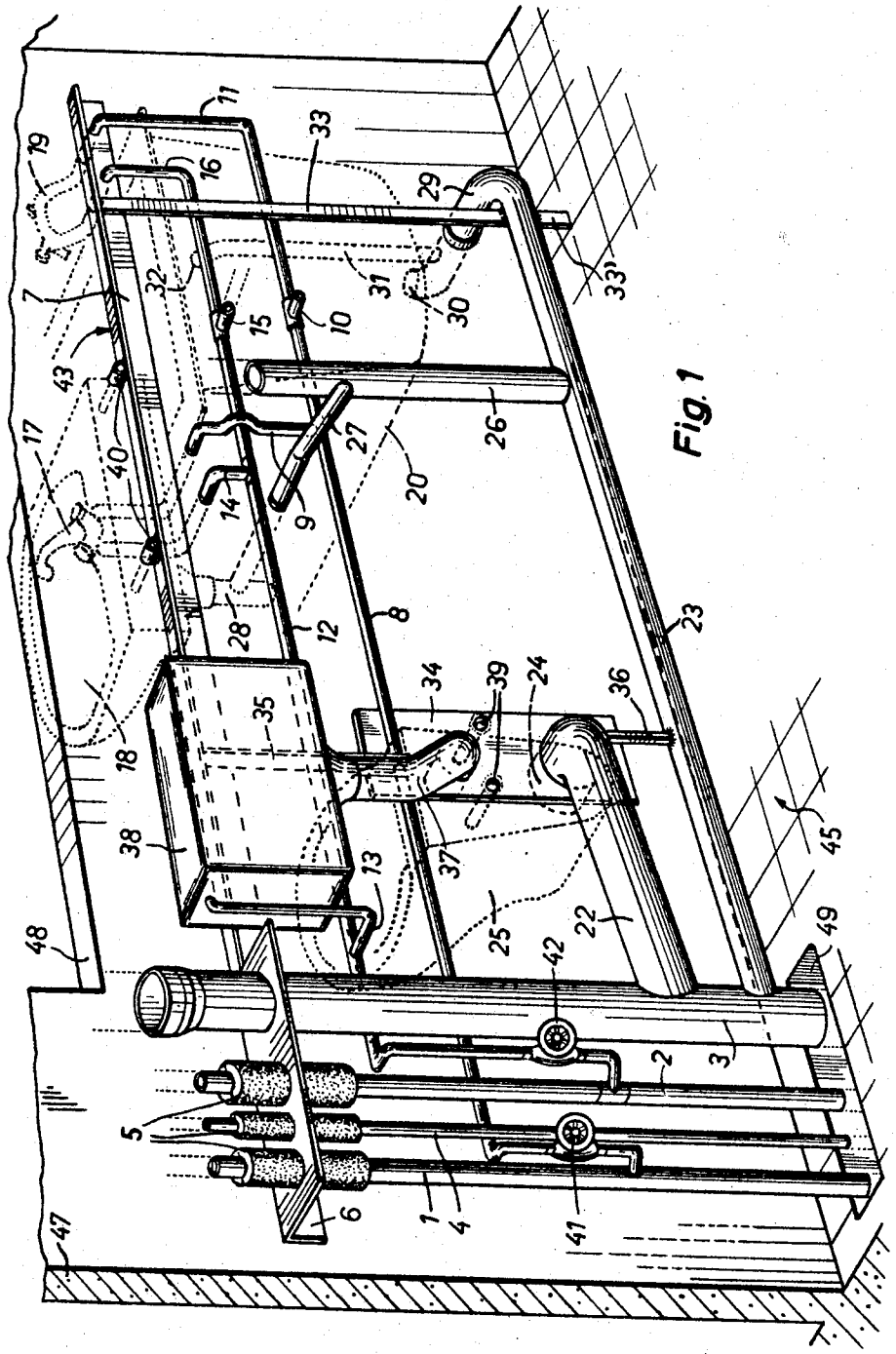

Fig. 1

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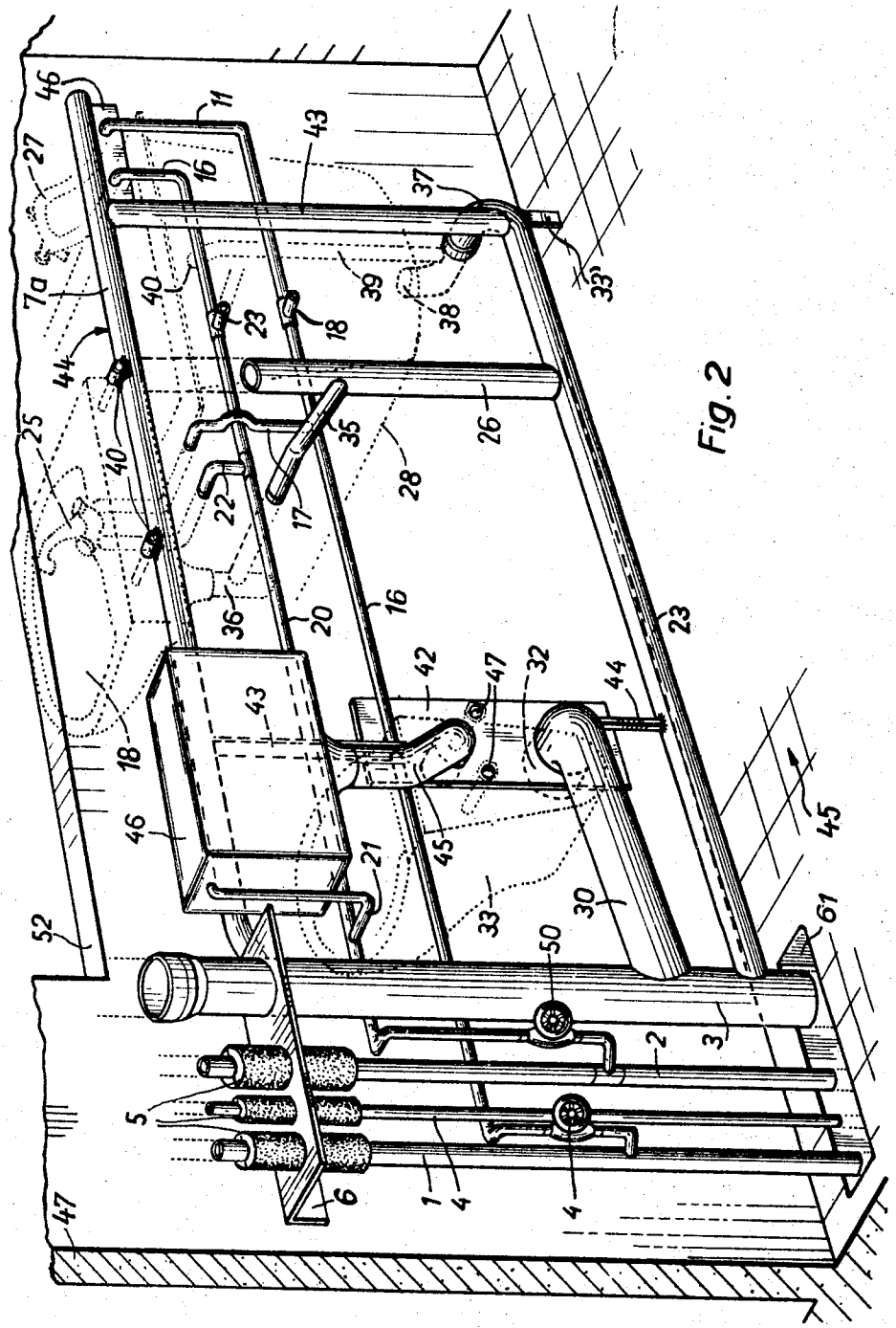

Fig. 2

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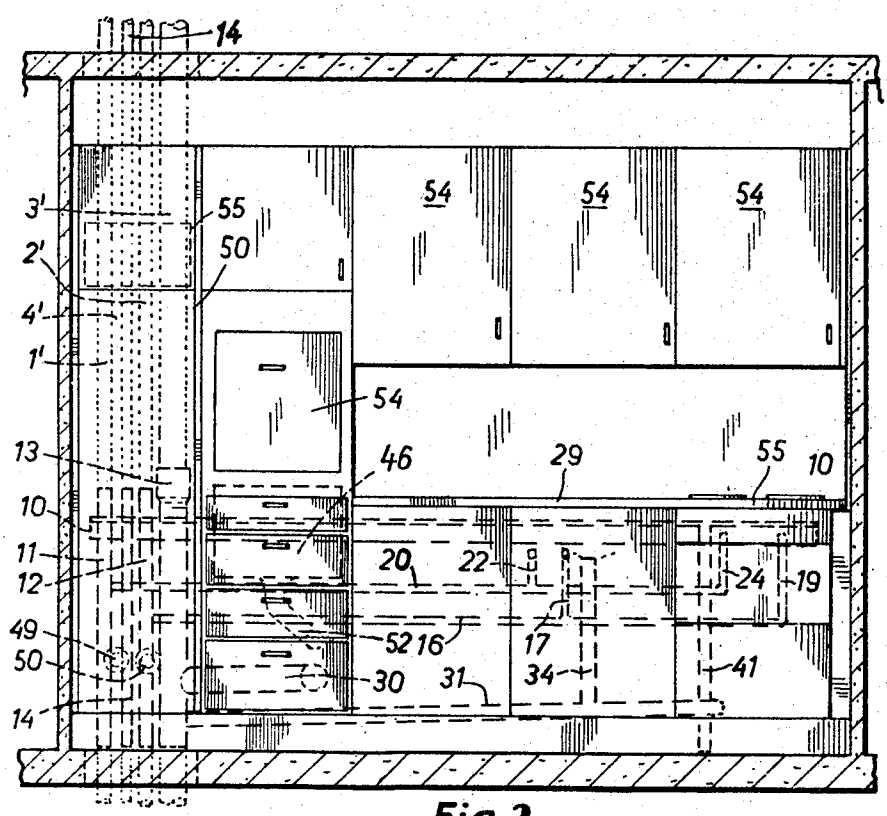

Fig. 3

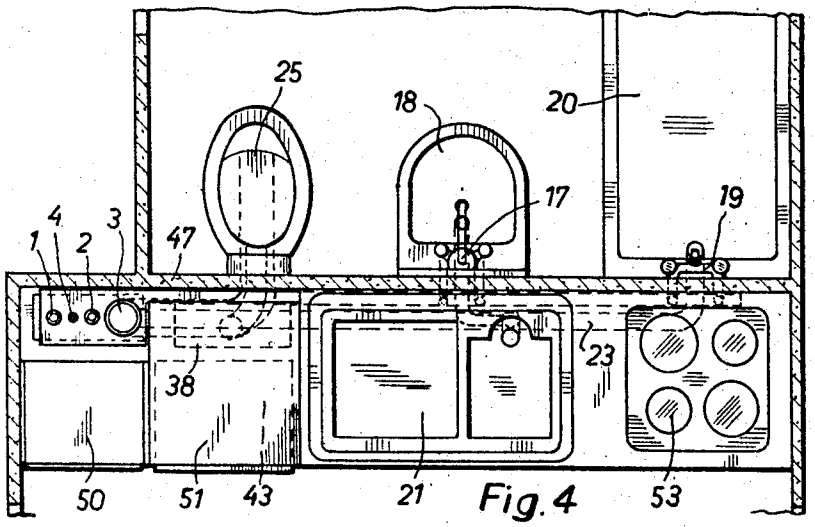

Fig. 4

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3,381,313

SANITARY INSTALLATION

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9 Claims. (Cl. 4—2)

ABSTRACT OF THE DISCLOSURE

A support arrangement formed by a frame structure for the piping and equipment of a sanitary installation in a housing unit. The main discharge conduit of the installation forms the principal load-bearing member of the frame. A pair of spaced support members arranged in aligned parallel relationship are secured to and extend generally perpendicularly from the main discharge conduit forming the horizontal portions of the frame. The frame is completed by an upright member secured and extending between the upper and lower support members and spaced from the main discharge conduit. In one arrangement of the support frame, both of the support members are pipes attached to and in communication with the main discharge conduit, in this embodiment the upright member is also a pipe providing communication between the lower and upper support members. Another embodiment utilizes a bar member for the upper support member and a discharge pipe for the lower member. The piping and certain of the equipment in the sanitary installation are supported on the frame.

The invention relates to sanitary installations that provide a rigid framework of plumbing and can be quickly installed as a unit.

It is known to install these sanitary installations either in a previously manufactured section of a wall or in a framework, which latter is then concealed by a wall. In all of these known types of construction, the wall section or framework provided with the sanitary installation is installed during the erection of the building, so that the installation progresses only bit by bit as the building is brought to completion.

The invention possesses the great advantage that the entire sanitary installation can be set up in the finished building as the last step in construction, without using a framework or load bearing walls. Extra work, such as tiling, plastering, and the closing up of holes in the wall, is rendered unnecessary. Thus, the setting up of the installation and its connection to the main conduit, and the mounting and connection of the various pieces of sanitary equipment can be accomplished in a single, unbroken step.

An object of the invention is sanitary installations that can be installed in a single step in a building, that is in its last stage of construction.

Another object of the invention is sanitary installations that provide a rigid, unitary framework for holding and supporting the sanitary equipment, such as a toilet, lavatory and sink.

These and further objects of the invention will be apparent from the following detailed description, with reference to the accompanying drawings, wherein:

FIGURES 1 and 2 illustrate two embodiments of the invention in plan view;

FIGURE 3 is a plan view of the form of FIGURE 1 or 2, as installed in a kitchen;

FIGURE 4 is a top view of either embodiment of the invention, with the sanitary equipment installed in the bathroom and kitchen.

Referring to FIGURE 1, the invention has a first standpipe **1** for hot water, a second standpipe **2** for cold water, a main discharge pipe **3** (of which only a section is shown) for the waste water of the entire plumbing installation, and a fourth pipe **4** for circulating hot water for heating the building. As shown in the figures, standpipes **1**, **2** and **4** are provided with insulation **5** and supported by a bracket **6**. A horizontal support **7**, in the form of a profiled bar, is secured at one end to the main discharge pipe **3** by means of the bracket **6**. The pipe **3** serves as the principal load bearing member for the entire installation.

To the standpipes **1** and **2** are connected, respectively, a distribution pipe **8** that extends parallel to the support **7** and has three branches **9**, **10** and **11**, and a distribution pipe **12** provided with four branches **13**, **14**, **15** and **16**. All of the branch pipes can be suitably threaded on their ends for connection to supply pipes for the sanitary equipment. A mixing faucet **17** for a lavatory **18** is connected to the branches **9** and **14**, one **19** for a bathtub **20** to branches **11** and **16**, and one (not shown) for a kitchen sink **21** (FIGURE 3) connected to branches **10** and **15**.

Additional discharge pipes **22** and **23** are connected to the main discharge pipe **3**. The larger pipe **22** is connected to the outlet **24** of a toilet **25**, whereas the smaller pipe **23** is connected by a first branch **26** to the sink **21** and through a pipe **27** to the trap **28** of the lavatory **18**. In addition, the end **29** of pipe **23** is connected to the drain **30**, as well as by pipe **31** to the overflow **32** of the bathtub **20**.

Both distribution pipes **8** and **12** for hot and cold water are held, through their branches **11** and **16**, by the support **7**, which is braced by the discharge pipe **23** through a bar **33** that rests on its one end **33'** on the floor **45** and acts thereby to support pipe **23**.

The pipes **3** and **23** together with the support **7** and bar **33** constitute a substantially rectangular frame **43** which connects together all of the horizontal pipes and the anchoring points for the sanitary equipment (sink, toilet, etc.) into a unit.

A plate **34**, serving to secure the toilet **25**, is anchored by a bar **35**—itself secured to the bracket **7** at its upper end—and the toilet discharge pipe **22**, which latter is supported by a bar **36** joined to the pipe **23**. The plate **34**, through discharge pipe **37**, also serves to support the tank **38**, which is also braced by the support **7**. The branch pipe **13** connects the tank **38** to the cold water distribution conduit **12**. For anchoring the toilet **25**, the plate **34** has tapholes **39**. Two threaded sockets **40**, welded to the support **7**, serve to hold the lavoratory **18**.

Two shutoff valves **41** and **42**, respectively connected in lines **8** and **12** near the standpipes **1** and **2**, can cut off the flow of water should, for example, one of the mixing faucets become defective and require replacement.

FIGURE 2 illustrates a second embodiment of the invention, wherein the horizontal support **7*a*** (which bears the tensile forces) of the frame **44** consists of a pipe, which, through the vertical main discharge pipe **3** and a connecting pipe **43** (replacing the support bar **33**), is connected to the horizontal discharge pipe **23**, located near the floor **45** and bearing the thrust forces. The one end of pipe support **7*a*** is connected to the main discharge conduit **3**.

The above form of the invention realizes the important advantage that all of the drains of the sanitary equipment, such as the bathtub, the sink, and the lavatory, are automatically ventilated, whereby the gurgling noise that accompanies the discharge of a liquid is eliminated. That is, the air, rather than mixing with the draining water and so causing a noisy turbulence, is permitted to escape through pipes **43** and **46** to the discharge pipe **3**.

Moreover, the compression and tenion members **23** and **7a** and the pipe **43** connecting them can be of the same pipe material having the same cross section.

In accordance with the invention, this embodiment can offer the further advantage that the connecting pipe **43** can be designed to be used directly for carrying the drain water of the lavatory and/or the kitchen sink.

Further in accordance with this form of the invention, the branch pipes **11** and **16** are held by a plate **46** rigidly connected to the support **7a**. As in the previous form, two threaded sockets **40** for anchoring the lavatory **18** are welded on the support. In other respects the form of FIGURE 2 corresponds to that of FIGURE 1, like elements being designated by like reference numerals.

By eliminating the vertical ventilation pipe **43**, the discharge pipe **26** can be extended (as suggested by the dotted lines) to connect with the pipe support **7a** (while remaining connected to the sink), whereby the pipes **3**, **7a**, **23** and **26** form a rigid, load bearing frame. In this form, also, the gurgling noise is eliminated, because the air can escape by way of conduits **26** and **7a** to the pipe **3**.

The horizontal support **7a** and either the pipe **43** or **26** permit a "secondary ventilation," which can be used in every installation.

As seen in either FIGURE 1 or 2, the sanitary installation is arranged on one side of a wall **47** that separates the bathroom from the kitchen. In the two figures the installation is shown mounted in the kitchen. The wall includes an opening **52** in which a medicine cabinet for the bathroom can be mounted, closing the opening. The pipes **22** and **37**, **9** and **14** and **27**, **11** and **16** and **29** are led through the wall **47** through suitable openings. Thus, the installation is connected to the wall **47**, which, as it were, is squeezed between the sanitary equipment and its anchoring points.

During installation the plumbing simply can be moved towards the wall provided with the openings for the pipes and the pipes **1**, **2**, **3** and **4** allowed to pass through the kitchen floor by means of an opening **49**, which latter is then filled with concrete to provide an absolutely firm support for the main discharge pipe **3**, which acts as a pillar. Thus installed, the pipe **3** is capable of supporting the load conveyed to it through the frame **43** (or **44**) from the sanitary equipment.

As should be immediately apparent, the installation of the arrangement of the invention can be deferred until the last work is done on the building. In contrast to what has been the practice until now: of having to install the pipes and certain other pieces of plumbing during the early stages of construction, whereas the sanitary equipment and other parts could only be installed and connected in the finishing stages of construction, the whole arrangement of the invention can be installed at once.

As apparent from FIGURES 3 and 4, the installation, located in the kitchen, is entirely covered by the kitchen equipment. The standpipes **1** and **2**, discharge pipe **3**, and pipe **4** for central hot water heating are located in a broom closet **50**, through which the shutoff valves **41** and **42** can be reached. A refrigerator **51** hides the toilet tank **38**, the supply pipe **37** connecting the tank **38** to the toilet **25**, and the discharge pipe **22** connecting the toilet to the main discharge pipe **3**. Next to the drawers **52** (FIGURE 3) are successively located the sink **21** and a range **53**. A kitchen cabinet **54** having three doors is located above the sink and range.

The standpipes **1**, **2**, **3** and **4** on each floor of a house can be extended by additional sections **1'**, **2'**, **3'** and **4'**, as apparent from FIGURE 3, wherein the additional sections are shown in dotted line, whereas the pipes **1**, **2**, **3** and **4** are shown in dashed line. Thanks to this construction the sanitary installation of the invention is suitable for buildings of any height, simply by employing as many additional sections **1'**, **2'**, **3'** and **4'** as required by the number of floors.

The necessary electrical elements are installed with the sanitary installation of the invention. The wall sockets for the range, refrigerator, household appliances, and electric razor are mounted on individual members for immediate installation. The fuse box **55** (FIGURE 3) for the entire living quarters is installed in the broom closet in accordance with regulations. Illumination for the bathroom and kitchen is provided in a similar manner by individual elements ready for installation.

The invention admitting of various modfications, its scope is limited solely by the appended claims.

I claim:

1. A support arrangement for a sanitary installation in a housing unit for installation along a previously constructed wall comprising a vertical main discharge conduit for the sanitary installation extending upwardly through and arranged to be anchored to the floor of the housing unit and acting as the main load bearing member for the sanitary installation, a horizontally arranged lower support member secured to and extending from said discharge conduit, a horizontally arranged upper support member secured to and extending from said discharge conduit and being aligned above and in generally parallel relationship with said lower support member, an upright member spaced from said main discharge conduit and secured to said lower and upper support members whereby said discharge conduit, lower and upper support members, and upright member form a supporting frame-like unit arranged to support the various piping to the equipment in the sanitary installation and to support certain of the equipment in the sanitary installation.

2. A support arrangement, as set forth in claim **1**, wherein said upper support member is in the form of a profiled bar, and a bracket is secured to said bar and to said discharge conduit.

3. A support arrangement, as set forth in claim **2**, wherein said bracket has an opening therethrough for receiving said discharge conduit.

4. A support arrangement, as set forth in claim **2**, wherein said lower support is a discharge pipe connected to and in communication with said discharge conduit.

5. A support arrangement, as set forth in claim **4**, wherein said upright member comprises a bar member rigidly secured to said upper support member and extending downwardly therefrom and rigidly secured to said lower support member and arranged whereby its lower end is supported on the floor of the housing unit.

6. A support arrangement, as set forth in claim **1**, wherein said upper support member is a discharge pipe secured to and in communication with said discharge conduit, and said lower support member is a discharge pipe secured to and in communication with said discharge conduit and wherein said upright member is a tubular member secured to and intercommunicating between said upper and lower support member whereby air can be conveyed from said lower to said upper support member and then to said main discharge conduit for avoiding gurgling noises in the discharge pipes due to air entrapment.

7. A support arrangement, as set forth in claim **6**, wherein said upright member comprises an extension secured to and depending downwardly from the lower support member and arranged whereby its lower end is supported by the floor of said housing unit.

8. A support arrangement, as set forth in claim **1**, wherein a generally horizontally arranged component discharge member is secured to said main discharge conduit and extends therefrom to a bar member secured to said component discharge member and extending downwardly therefrom and secured to said lower support member, a dependent support element secured at its upper end to said upper support member and depending downwardly therefrom, a plate member secured to said support element and extending downwardly therefrom, an opening in said plate arranged to receive and support a discharge pipe from a toilet tank and a pair of openings in said plate arranged to receive inserts for supporting said toilet.

9. A support arrangement, as set forth in claim 1, wherein a pair of threaded sockets are integrally secured to said upper support member in spaced horizontal relationship and are arranged to support a lavatory of the sanitary installation.

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