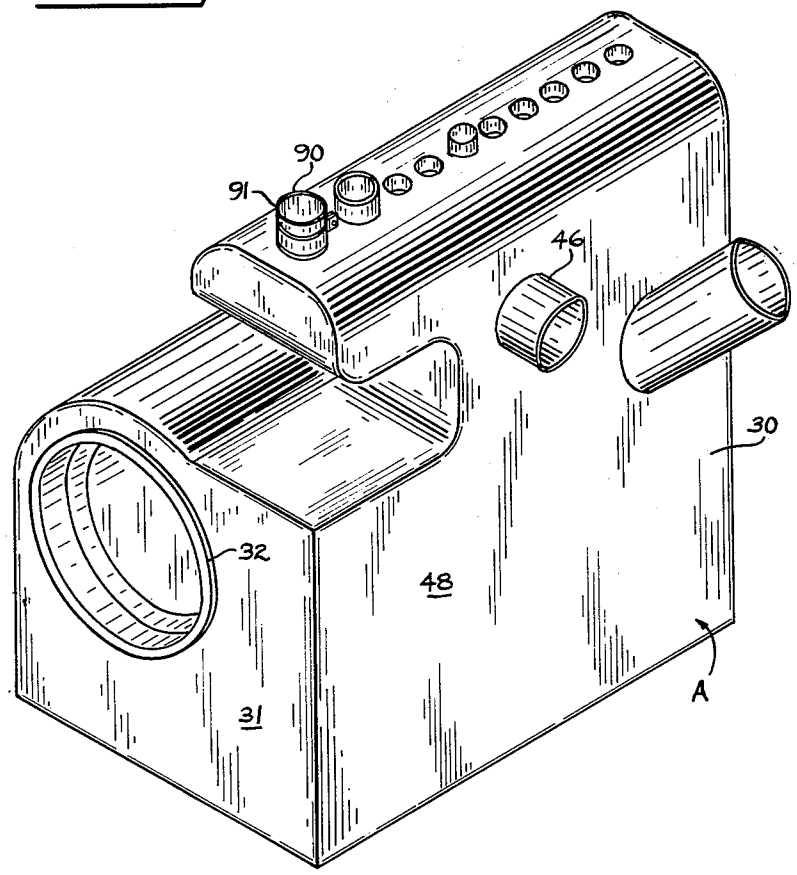
March 23, 1965 H. J. RUSSELL 3,174,158

PLUMBING CORE

Filed Oct. 14, 1963 3 Sheets-Sheet 1

Fig. 1



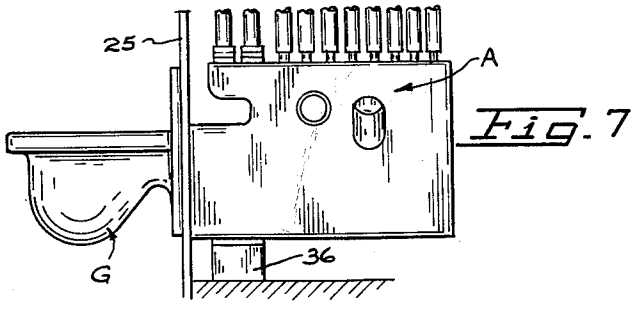


Fig. 7

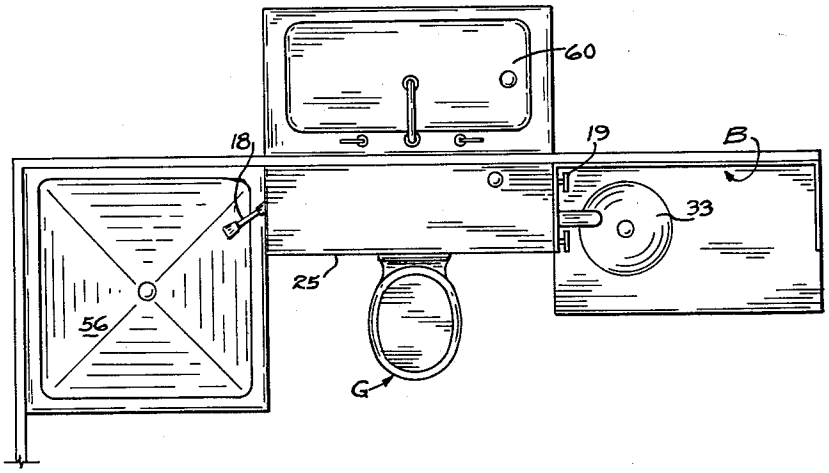
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BY
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March 23, 1965 H. J. RUSSELL 3,174,158

PLUMBING CORE

Filed Oct. 14, 1963 3 Sheets-Sheet 2

Fig. 3



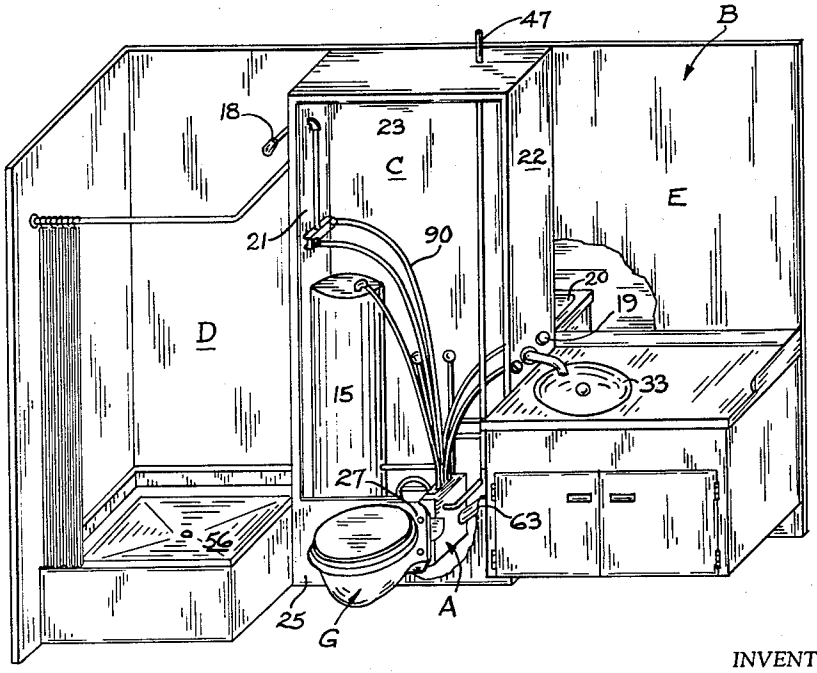


Fig. 2

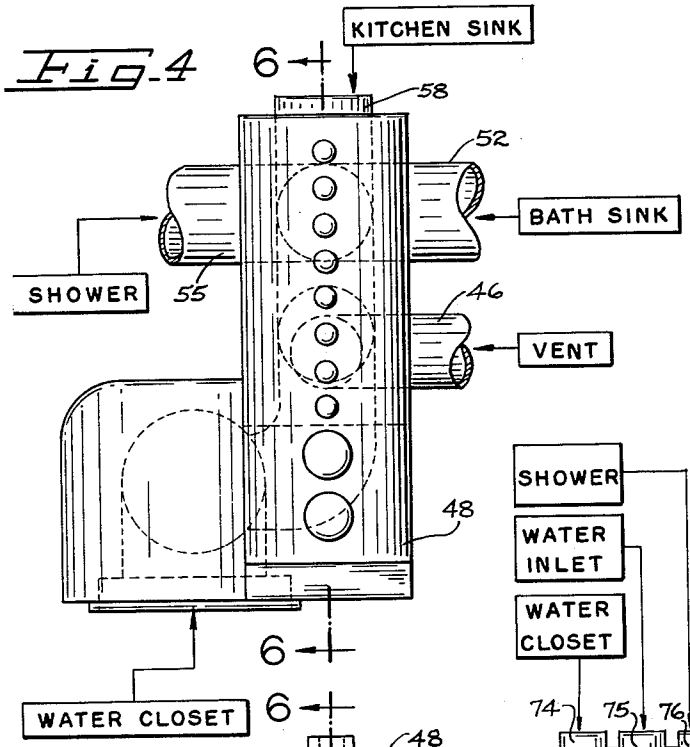
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PLUMBING CORE

Filed Oct. 14, 1963 3 Sheets-Sheet 3

Fig. 4



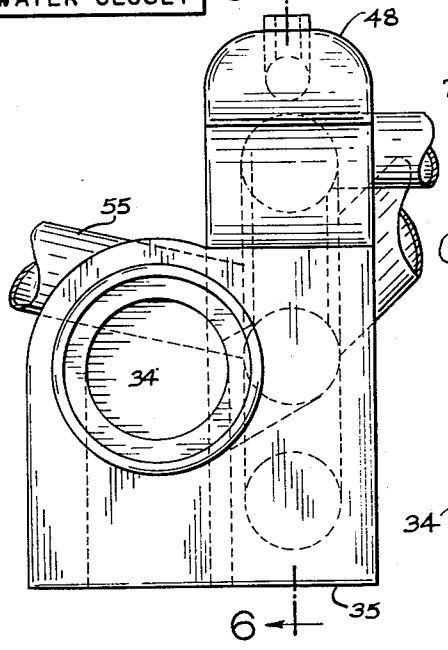


Fig. 5

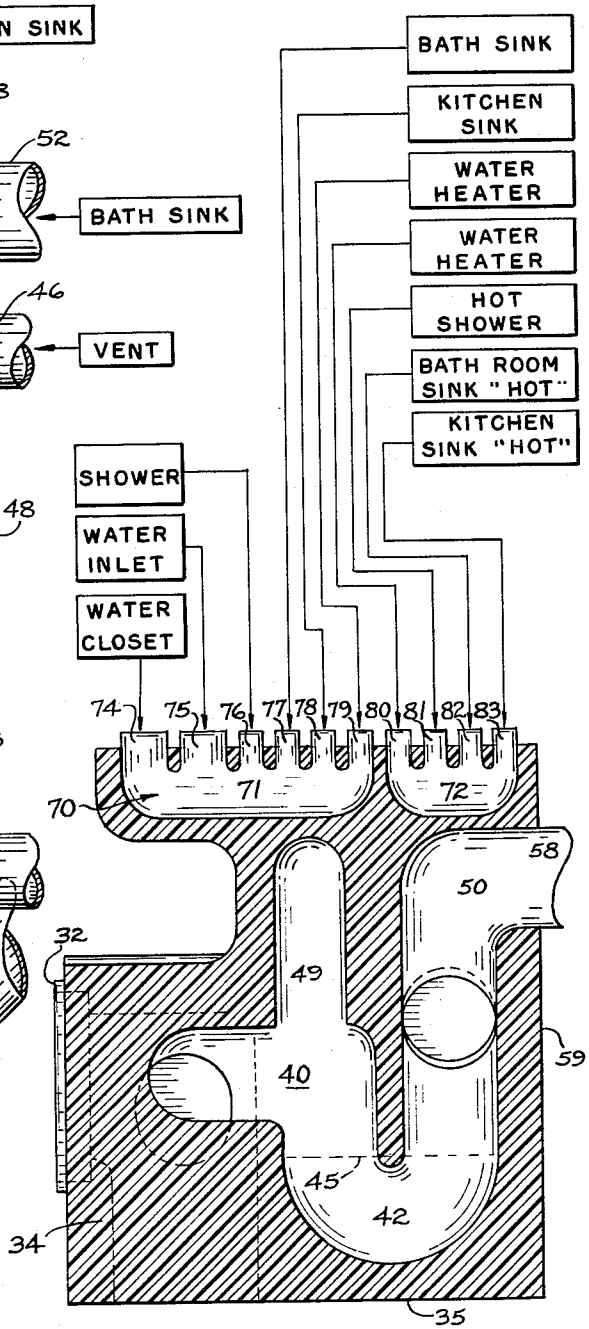


Fig. 6

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PLUMBING CORE

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5 Claims. (Cl. 4—1)

This invention relates to a plastic core structure for distributing fluid flow in an integrated plumbing network.

Modular and prefabricated building structures are utilized in many areas where transportation and material and labor cost are required to be kept in absolute minimum. In such prefabricated or modular building structure the plumbing has been provided in the form of a complete modular plumbing network in which a single cabinet-like structure carries with it all of the plumbing appliances, so that only a water inlet and a sewage outlet need be attached to the unit in order to provided all of the normal plumbing requirements such as showers, water closets, kitchen and bathroom sinks and the like.

This invention relates to an improved plumbing core in which the interconnecting fluid lines for the sewer outlet are joined and distributed from the core structure and which furthermore internally provides the necessary gas traps so that plumbing fixtures can be directly connected by hose to the inlet ports of the core.

The core formed in this invention is mountable directly to the water closet which is conventionally supported above the floor surface by either its own legs or wall support. Thus, this invention has the feature and advantage of being virtually integral with the water closet so that it is maintained above the floor line by the water closet's supports by which sewer connections can be made directly to the bottom sewer outlet of the core in the space between the core and the floor.

As an additional feature and advantage of this invention the core structure can be provided with a fresh water outlet manifold which can function to form the distribution linkage for water distribution throughout the various plumbing fixtures and appliances.

One of the features and advantages of this invention lies in the fact that the core can be made from lightweight economical plastic materials and will allow interconnection of the appliances to the core by way of plastic hoses rather than conventional copper or iron pipes.

Because of the economies effected by this type of novel construction for plumbing interconnections it is possible to form interconnections between the conventional plumbing appliances at a small fraction of the cost that would be incurred if conventional construction techniques and material were employed. Such a cost savings is extremely critical where housing is designed for use in impoverished or depressed areas.

Another object of the invention is to provide a core structure which will interconnect the usual number of plumbing appliances and still maintain a dimension and will comprise a sufficiently small amount of construction material. Because of this fact it can be molded from plastic in the smaller type plastic molds or dies. This is particularly significant for reasons of economies in molding due to the fact that as the amount of material increases over a predetermined maximum, the size of equipment required to manufacture the molded plastic item increases substantially. By forming the present structure in its particular shape and configuration an optimum utilisation of space and material is effected to allow the core's fabrication and molding in a smaller and thence more economical mold.

The foregoing objects, features and advantages as well

as others will be apparent from reading the following specification and attached drawing in which:

FIG. 1 is an overall perspective view of the core structure of this invention;

FIG. 2 is a perspective view of a plumbing fixture unit showing the core structure employed therein and illustrating the respective interconnecting hoses in order to accomplish fluid communication throughout the system;

FIG. 3 is a top plan view of the assembly of FIG. 2;

FIG. 4 is a top plan view of the core structure of this invention;

FIG. 5 is a view of the core structure taken at the front or water closet receiving end;

FIG. 6 is a cross-sectional side view of the core structure taken at line 6—6 of FIGS. 4 and 5;

FIG. 7 is a diagrammatic view of the core structure showing a side elevation in which a water closet is mounted on the core and on its supporting wall.

Referring to the drawings, the core structure A is mounted within a basic cabinet assembly B in which an integral unit is fabricated with a main plumbing appliance housing C, a shower area D, a bathroom sink area E, a kitchen sink area F and a water closet G. The shower D, bathroom sink E, kitchen sink F and water closet G are all mounted on the various side walls of the appliance housing C. Interior appliance housing C carries a water heater **15** and the core A as well as the respective hoses which make interconnections to the fixtures for each of the four plumbing areas D, E, F, G. The various water outlet members such as the shower fitting **18**, the bathroom sink fitting **19** and the kitchen sink fitting **20** are mounted on the side walls **21**, **22** and **23**, respectively, of main housing C. Likewise, water closet G is mounted on the front wall **25** of the main housing by conventional mounting bolts **27**.

The core structure of this invention is formed with a main body section having a main housing **30** formed of a molded thermoplastic material in which the front wall **31** of the body is formed with a collar **32** adapted to fit into the mating outlet collar of the water closet G. Mating collar **32** is fitted in water-tight supporting union with the water closet so that the housing is maintained above the floor of the basic cabinet assembly. The interior of the core is formed with a main sewer outlet passageway **34** passing horizontally and thence vertically downwardly to the bottom face **35** of the core. The sewer outlet pipe **36** of the dwelling can thence be connected to passageway **34** so that the outflow through the water closet will pass outwardly through passageway **34** and thence through the main sewer outlet **36**.

The accumulation of gas which is harmful because of both the unpleasant odor and bacteria or germ contamination is trapped by a water trap formed in the water closet assembly itself. The water trap in the water closet is conventional and comprises a generally U-shaped piping for the water closet bowl to the outlet opening in which there is always sufficient quantity of water to form a gas blockage or gas trap. Because of this factor there is no need to provide such a trap in the core structure. However, in the event a water closet was used not having a trap, a trap passageway could be formed in the core.

The remainder of the core structure comprises a sewage outflow canal **40** opening into passageway **34** opening at a position located on the side wall of the passageway, so that canal **40** will not have its mouth end opening in the direct line of sewage flow from the water closet into passageway **34**. Passageway **34** extends thence horizontally and thence downwardly and upwardly to form a gas trap **42** in which in normal usage liquid would be, as indicated by broken lines **45**, to prevent gas from passing through the sewer outlet to the open end. A vent port

46 is provided on the right side 48 of the core body which communicates through a vent passageway portion 49 of the passageway 40 between the sewer outlet passageway 34 and trap 42. Vent 46 is connected and vented to atmosphere by a venting pipe 47. The vent allows for escape of gas to atmosphere through appropriate pipes to eliminate gas pressure build up which could cause the water in the gas traps to submit to the pressure and allow percolation or bubbling of sewer gas into the plumbing fixtures. The opposite end of passageway 40 is provided with an auxiliary sewer outlet passageway 50 connected directly in communication with gas trap 42. Passageway 50 opens to a side outlet pipe 52 which may be connected to the bathroom sink 53. The opposite side of passageway 50 extends to an upwardly angularly extending outlet pipe 55 which may, for example, be connected to shower basin 56. The bottom of the shower basin is, of course, mounted above the elevation of the top of sewer outlet passage 43 so that there will be enough head to provide a downward drainage flow from the shower basin to the core. A further outlet fitting 58 is provided extending from the rearward wall 59 of the core body to provide an outlet port for, for example, kitchen sink 60. The sewer outlet pipes can be effected by employing plastic hoses 63 which are connected to interconnect the shower basin, kitchen and bathroom sinks to the respective fittings or outlet pipes 55, 52 and 58, respectively. It can thus be seen that the outlet from any of these three fixtures will go directly into channel 50 and thence through water trap 42 upwardly to the sewer outlet passageway 34 and out the main sewer line 36. The manner of connection of the hoses to the core can comprise any of the acceptable line connecting fittings and in the case of plastic tubing can be effected by a clamp-type ring forming a friction fitting of the hose around the outlet pipes or tubes. By this means the three fixtures, namely the shower basin and the two sinks share the same water trap 42.

The core of this invention, in addition, has the unique feature of allowing the combination of the inclusion of a water outlet manifold system generally indicated at 70. The water outlet manifold is formed into two manifold sections 71 and 72. Manifold section 71 is for the cold water and manifold section 72 is for hot water. Manifold 71 is provided with an inlet fitting 75 which is connected to the main water supply. Another opening of comparable dimension 74 is arranged adjacent thereto in which a fitting is arranged for connection of appropriate hoses for connection to the water closet to provide flushing water for water closet G. Three additional fittings 76, 77 and 78 are provided to manifold 71 with fittings for connection of hoses to shower fitting 18, bathroom sink fitting 19 and kitchen sink fitting 20, respectively. An additional fitting 79 is provided for a hose connection to the inlet end of hot water heater 15. Outlet fittings 76, 77, 78, 79 can be of somewhat smaller diameter in that the flow requirements are not as great as required for the basic inlet or for the flushing water for the water closet.

The outlet of water heater 15 is connected through hoses to a fitting 80 of hot water manifold 72. Hot water manifold 73 has additional water outlets 81, 82 and 83 which are connected to the hot water outlet of shower fitting 18, the hot water outlet of bathroom fitting 19 and the hot water outlet of kitchen sink fitting 20, respectively. The various water outlet and inlet fittings are connected to the respective fixtures via plastic hoses 90 and can as such be connected to the fitting simply by a friction fit with a companion connector ring 91 as shown, for example, in FIG. 1.

It can thus be seen that with the use of a core of this invention all of the inlet and waste lines terminate or enter the core structure and are switched, mixed and disseminated within the core for appropriate distribution for the various outlet hosings. This eliminates much of the usual plumbing hardware and allows for great simplicity of plumbing control.

While one embodiment of this invention has been shown and described, it will be apparent that other adaptations and modifications can be made without departing from the true spirit and scope of the invention.

What is claimed is:

1. A fluid distribution core for mixing waste fluids for entry to a sewage disposal channel comprising a main body structure, said structure forming a plurality of waste fluid flow passageways, the first one of said passageways extending from and opening horizontally from said core and thence passing downwardly for connection to the sewer outlet, the second of said passageways opening to said first passageway and extending thence downwardly and upwardly to form a fluid containing gas trap, the termination end of said second passageway opening to a plurality of outlet ports for connection to the outlet drain of plumbing fixtures, a third section of said passageway extending from the exterior of said housing and joining the first portion of said passageway to form a gas vent, a water closet having a gas trap mounted in elevated relation ship on a main support, said core structure mounted on and carried by said water closet with the horizontally open end of the first section of said channel being connected to the waste outlet of said water closet.

2. A fluid distribution core for mixing waste fluids for entry to a sewage disposal canal, comprising a main integral body structure formed with a plurality of fluid passageways, a first one of said passageways opening on one side of said main body and adapted to be connected to the outlet of a water closet, the opposite end of said first passageway opening at the bottom of said main body structure, a plurality of second passageways formed in said body and formed in fluid communication with said first passageway, each said second passageway having an opening to the side walls of said body structure for connection of plumbing fixtures thereto.

3. A fluid distribution core for mixing waste fluids for entry to a sewage disposal canal, comprising a main integral body structure formed with a plurality of fluid passageways, a first one of said passageways opening on the upper side of said main body and adapted to be connected to the outlet of a water closet, the lower end of said first passageway opening at the bottom of said main body structure, a gas trap passageway formed within said body structure in a configuration of an inverted "U," a first end of said gas trap being connected to said first passageway between the upper and lower opening thereof, a plurality of second fluid passageways opening to the exterior of said body structure and connected to the second end of said gas trap.

4. A fluid distribution core according to claim 3 and wherein a gas release outlet is formed in said body structure communicating with said first fluid passageway above the inlet to said first fluid passageway for said gas trap.

5. A fluid distribution core for mixing waste fluids for entry to a sewage disposal canal and for distributing water to various outlets comprising a main integral body structure formed with a plurality of fluid passageways, a first one of said passageways opening on one side of said main body and adapted to be connected to the outlet of a water closet, the opposite end of said first passageway opening at the bottom of said main body structure, a plurality of second passageways formed in said body in fluid communication with said first passageway, each said second passageway having an opening to the side walls of said body structure for connection of plumbing fixtures thereto, a hot water and a cold water manifold formed in said body structure above said first and second fluid passageways, means to provide water inlet to said cold water manifold opening into the top upper portion of said body structure, and means to provide a plurality of water dispensing outlets from said cold water manifold opening to the upper portion of said body structure, means to pro-

vide water inlet to said hot water manifold opening to the top portion of said body structure and means to provide a plurality of water dispensing outlets from said hot water manifold opened to the upper portion of said body structure, whereby at least one of the outlets from said cold water manifold is adaptable for connection to the inlet of a water heater and the water inlet means of said hot water manifolds is adaptable for connection to the outlet connection of the water heater.

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