

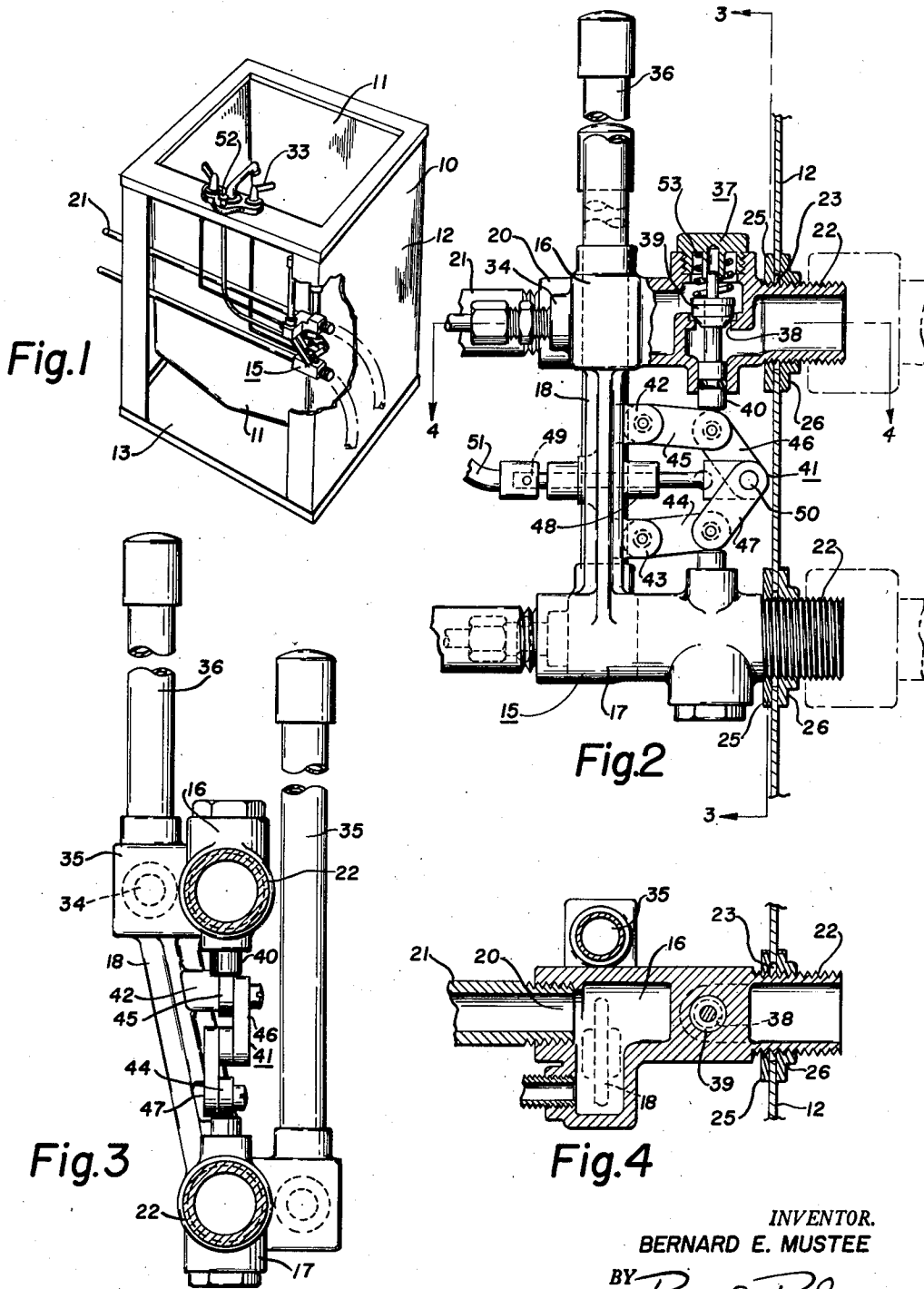
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DISTRIBUTION SYSTEM FOR LAUNDRY EQUIPMENT

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DISTRIBUTION SYSTEM FOR LAUNDRY
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This invention relates to laundry equipment in general and relates more specifically to a distribution device and plumbing construction within a cabinet type laundry tub.

This application is a continuation-in-part of application Serial No. 308,893, filed September 10, 1952, and allowed September 30, 1953.

An object of this invention is to provide an improved plumbing installation both in service and appearance, but costing less for materials and installation than conventional plumbing.

Another object of this invention is to conceal substantially the entire laundry room plumbing.

Another object of this invention is to provide a universal distribution device as the basic unit of the plumbing system and thereby reduce fittings, pipe, and a number of associated parts needed for inventory.

Another object of this invention is to provide concealed distribution chambers with feed lines from the chambers to various service outlets, such as to hose connections for automatic washers, and to provide internal valves in at least some such feed lines controlled by a remote control means from a convenient control station.

Other objects and a fuller understanding of the invention may be had by referring to the following description and claims, taken in conjunction with the accompanying drawing, in which:

Figure 1 is a view from the rear of a modern laundry tub unit with the distribution system of this invention installed therein;

Figure 2 is an enlarged view of the distribution device installed on a sheet wall, not necessarily the tub cabinet of Figure 1, but as such installation does appear;

Figure 3 is a view taken along line 3—3 of Figure 2; and

Figure 4 is a view taken along line 4—4 of Figure 2.

In Figure 1 of the drawing there is illustrated a laundry tub 10 of a type which has recently been made available on the open market. The laundry tub 10 is not alone the subject matter of this invention, but illustrates the type of modern laundry tub device with which the present invention may best be employed. The laundry tub 10 comprises generally a basin portion 11 with a cabinet 12 to surround and support the basin 11. The cabinet 12 is preferably made with an open back 13 for economy and good ventilation to prevent the accumulation of excessive humidity.

Located rearwardly of the basin 11 and within the confines of the cabinet 12 is a fluid distribution device 15 which embodies the features of this invention. The distribution device illustrated is the preferred type made of a brass or bronze casting for simplicity and neatness of appearance, but it is to be understood that a fabricated and machined distribution device can be created which embodies the essential features of this invention.

The fluid distribution device comprises a first distribution chamber means 16 and a second distribution chamber means 17 with a web spacer means 18 holding the first and second distribution chamber means a fixed dis-

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tance apart with respect to one another. In a cast structure the web 18 is an integral part of the two distribution chamber means, but in a fabricated structure a much more simple stem could be provided.

Both the first and second distribution chamber means are substantially identical, and accordingly only one of the actual chamber devices need be fully described for an understanding of the entire fluid distribution device. Accordingly, reference hereafter will be made mainly to the first distribution chamber means 16, unless specific reference is made to the distribution chamber means 17.

Each distribution chamber means has a supply entrance 20 adapted to receive a fluid supply line 21. In the particular location of the fluid distribution device, as illustrated in Figure 1, the line 21 is a hot water supply line. Line 21 is shown extending through the side of cabinet 12. An opening, hidden from view in the drawing, is aligned with opening 23 to receive line 21. If desired, of course, line 21 may extend from above cabinet 12, or below, and not through the opening provided. By the provision of this opening, the device 15 may be mounted on either side of the cabinet, as desired, and the supply line enter through the opposite side, top, or back. An excellent advantage is obtained by this invention in that all plumbing may be roughed in prior to installing the unit, and then will be completely concealed. The supply entrance 20 and the supply line 21 may be threaded for a threadable fit, or may be soldered together as commonly done with copper alloy plumbing fixtures.

One of the desirable features provided by the present invention is the convenient location of service distribution outlets 22 on the side of the cabinet, and thus eliminating the need for unsightly and expensive plumbing mounted on the wall behind a washing machine adjacent to the laundry tub 10. It was common practice prior to this invention to extend the supply lines serving a laundry tub over to a location near the washing machine, particularly in the event that the washing machine was a modern automatic machine, and it was also common practice prior to this invention to attach air traps to the extended lines somewhere near the distribution valves at the end thereof in order to prevent a troublesome water hammer. With the device 15 of the invention located within the cabinet 12, the service distribution outlets 22 are conveniently located on the side of the cabinet 12 and are handy for attachment of hoses thereto, but nothing is visible other than the outlets themselves. No exterior plumbing is visible. Outlets 22 may be separate attached nipples, but preferably are cast integral with the basic structure of device 15. The external surface at the end thereof is threaded to receive a hose connection.

Openings 23 for the outlets 22 may be drilled, if needed, or may be originally provided in the side of the cabinet 12. The distribution device 15 is held inside the cabinet 12 and the outlet 22 inserted through the opening 23.

A flange nut 25 is provided on outlet 22 to serve as an inside abutment, and a nut 26 is turned tight against the outside of cabinet 12 around the opening 23 to hold the distribution device 15 firmly located, and to cover the opening 23 to provide a neat appearance on the outside of the cabinet 12.

A faucet valve 33, which is usually of the mixer type, is mounted in position to supply water to the basin 11. The distribution chamber means 15 is provided with an outlet supply entrance 34 to receive an interconnecting pipe extended from the faucet valve 33 to the entrance 34. Any number of additional distribution lines may be installed in the chamber means, but as thus far described, there is a service distribution outlet and the faucet valve opening from the chamber.

At least one opening into the chamber should be at the lowermost part of the chamber in order to provide for

drainage of the system for winter protection. In the illustrated embodiment, this feature is accomplished by having the opening 20 and the outlet 22 in such bottom location. Then the outlets and the faucet valve 33 may be opened after the main supply is shut off, and the system will drain dry.

Operation of any water valve, and particularly the rapid opening and closing of valves within an automatic washing machine, causes such a rapid stoppage of water flow that a shattering of the water lines often results in what is generally referred to as a water hammer action. In order to prevent such water hammer action and yet avoid the use of unsightly air traps mounted on the wall of the laundry room, an air chamber trap 35 is provided in conjunction with the chamber means 16 and air chamber trap 36 attached thereto. In the illustration as set forth in the drawing, the trap 36 comprises a length of pipe with a cap thereon. More elaborate devices are conceivable, such for example as an intricately cast bulb on the chamber. Furthermore, the entrance 35 is illustrated at the top of the chamber means 16 but could be provided at the side thereof as long as the actual air trap portion is above the chamber means in order to keep a pocket of air permanently trapped to act as a cushion.

Prior to this invention, the control of water flow from the outlets 22 was accomplished by the use of hand-operated sill-cocks in the manner employed to control water flow to outside hose attachments since water systems were first inaugurated. Such control necessitates the operator reaching to the back of the cabinet to gain access to the valves and also prevents placing the tub 10 close to other equipment. Space must be provided for the operator to step between the tub and other appliance, or wall, to operate such manual valves.

In the invention disclosed herein, the flow of water is controlled by valves built into the fluid distribution device 15 and operated from a remote control station. In the illustrated embodiment of the invention, control is by a flexible cable 51 and button 52. Flexible cable 51, similar to the type often employed to control the choke in automotive vehicles, is operated by a pull button 52 located at the back of the faucet valve 33 along the back rim of the tub.

The construction of the valve controls is best illustrated in Figure 2 of the drawing. Any suitable valve structure may be employed, and the valves are referred to generally by the reference character 37. Since the valves are substantially identical, reference will be made principally to the valve 37 operating in conjunction with distribution chamber 16.

Valve 37, as previously stated, may be any suitable type of valve, and is illustrated as being of the longitudinally shiftable type having a seat 38 with a plug 39 urged in a closing direction by a spring 53 and moved to an open position by the application of force on a push rod 40. Such valves are well known and are provided in many varieties and types. For example, rotatable valves, rather than the illustrated longitudinal valves may be employed if desired.

Whatever valve structure is employed, the valves are operated from a remote control station located at a convenient spot at the top of the tub and preferably in conjunction with the faucet 33. In the illustrated embodiment of the invention, a toggle actuation device 41 is provided to simultaneously move both valves 37.

Web 18 is provided with pivot hangers 42 and 43. Intermediate arms 44 and 45 swing on hangers 42 and 43. Two knuckle arms 46 and 47 are pivotally carried at the outer ends of arms 44 and 45, and the knuckles 46 and 47 are pivotally joined by a pivot pin 50.

Guide sleeve 48 carried by the web 18 is adapted to guide a rod 49 in a longitudinally reciprocal path. Rod 49 is attached to the toggle actuation device 41 by the pin 50 joining the knuckles 46 and 47. The flexible cable 51 is attached to the end of rod 49 and therefore provides

a transfer of control movement from the pull button 52 to the actuation device 41.

The operation of the valves 37 by the toggle actuation device 41 is readily understandable by referring to Figure 2. The springs 53 will tend to collapse device 41 and close the valves against flow of water from the outlets 22. When water supply to the outlets 22 is desired, the operator pulls upwardly on button 52 until the pin 50 moves past a common center line between the pivots connecting arms 44 and 45 with knuckles 46 and 47. Such a position is called an over center position, and the force of springs 53 will tend to hold the device 41 in the over center position. Thus the valves 37 will remain open until intentionally closed by the operator. Such intentional closing is readily accomplished by a slight force upon button 52 in a downward direction to force the pin 50 out of the over center position, whereupon the springs 53 will collapse the device 41 and close the valves 37.

Although the invention has been described in its preferred form with a certain degree of particularity it is understood that the present disclosure of the preferred form has been made only by way of example and that numerous changes in the details of construction and the combination and arrangement of parts may be resorted to without departing from the spirit and the scope of the invention as hereinafter claimed.

What is claimed is:

1. A service appliance comprising, a tub unit having a water basin portion and a housing cabinet, a water distribution device mounted within said cabinet, said water distribution device having a first and second distribution chamber, a spacer holding said first and second chambers at a fixed distance apart, each distribution chamber having a supply entrance adapted to receive a water supply line, a first outlet line attachment means from each chamber, a second outlet line attachment from each chamber, valve means to simultaneously control the flow of water from both said first outlet line attachment means, said valve means having a full-open and a full-closed position, faucet means mounted on said appliance in position to direct water into said basin, said faucet means having a variable flow control of water therefrom, fluid line means within said cabinet inter-connecting said second outlet line attachment to said faucet means, and remote control means for said first valve means having a control device at said first valve means and a control station at said faucet means with a force transmission means extending therebetween.

2. A laundry device comprising, a tub unit having a water basin portion and a housing cabinet, a fluid distribution device mounted within said cabinet, said fluid distribution device comprising a distribution chamber means, said distribution chamber means having a supply entrance adapted to receive a fluid supply line, a service distribution outlet from said chamber, an opening through the wall of said cabinet aligned with tub faucet means mounted on said laundry device, said chamber means having an outlet supply entrance, fluid line means within said cabinet interconnecting said outlet supply entrance and said faucet means, distribution valve means to control the flow of water from said service distribution outlet, and remote control means for said distribution valve means having a control device at said distribution valve means and a control station at said faucet means with a force transmission means extending therebetween.

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