

D. C. CHARMOIS.
 SUPPLY AND WASTE FOR BATH TUBS.
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1,001,122.

Patented Aug. 22, 1911.

2 SHEETS—SHEET 1.

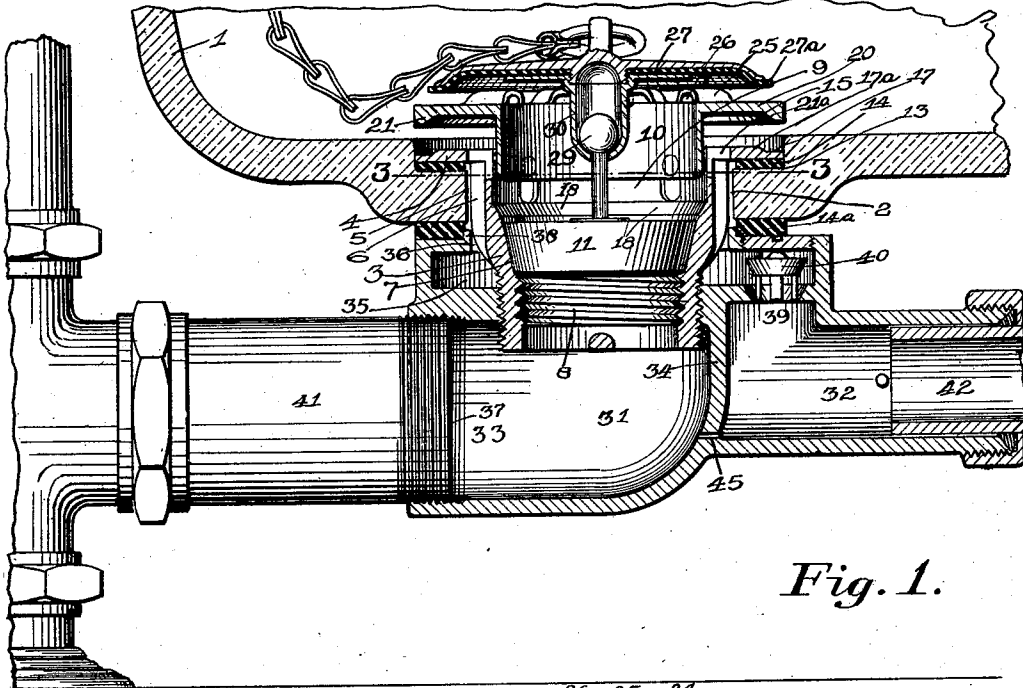


Fig. 1.

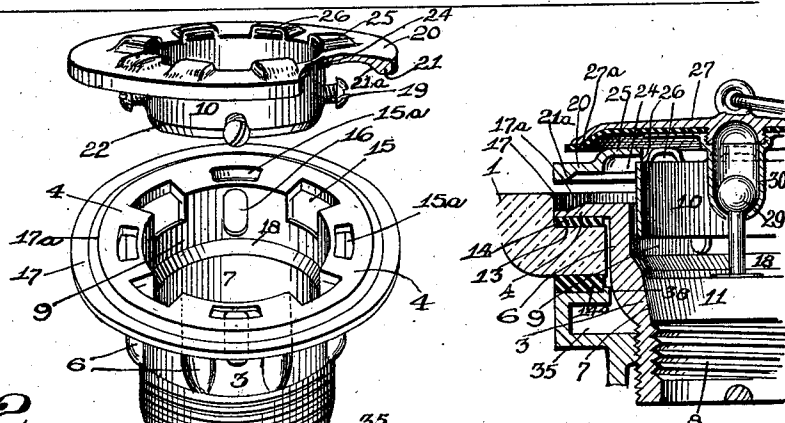
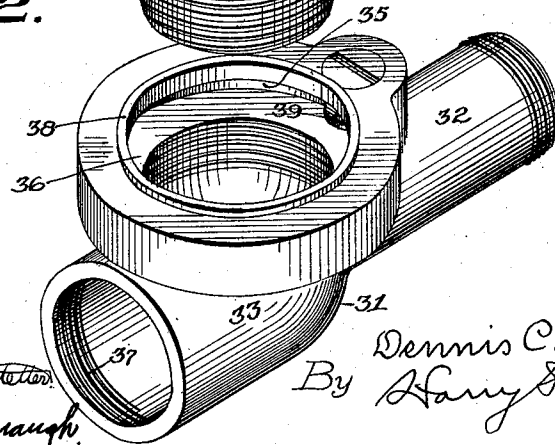


Fig. 2.

Fig. 5.



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2 SHEETS—SHEET 2.

Fig. 6.

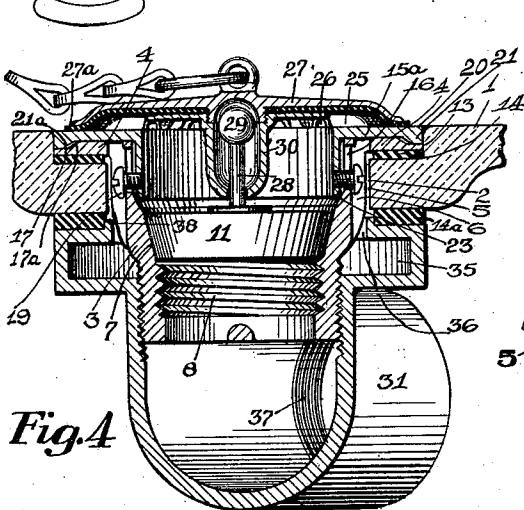
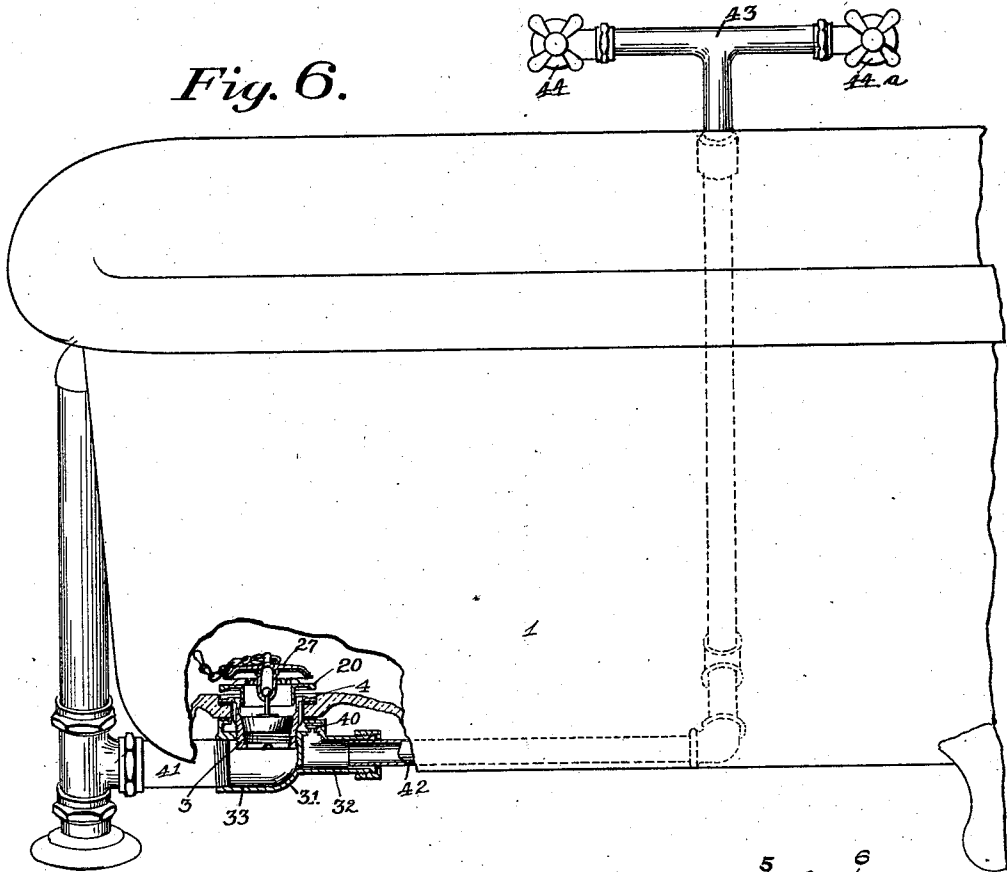


Fig. 4

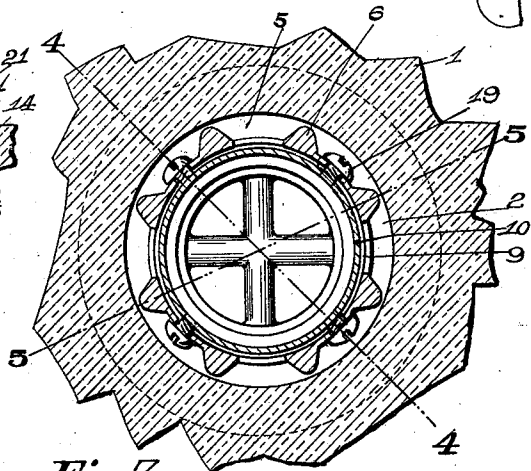


Fig. 3.

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SUPPLY AND WASTE FOR BATH-TUBS.

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To all whom it may concern:

Be it known that I, DENNIS C. CHARMOIS, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented an Improved Supply and Waste for Bath-Tubs, of which the following is a specification.

The invention relates to a device for supplying water into and wasting it from a bath tub or other similar vessel; and the general object of the improvement is to introduce the supply through and around the mouth of the waste opening above a depressed plug therein, so that the tub can be filled when the waste pipe is closed by the plug, without flushing or washing into the tub any part of the dirt or sediment which may be deposited or accumulated in the waste pipe and without any splashing or spraying of the incoming water.

Bath tubs, wash stands, and other similar vessels, are usually made of marble, porcelain or some form of enameled ware, and many kinds of water carry in solution or combination some elements or chemicals which discolor the bowl when the same is impinged by a continuous flow or intermittent dropping of water, as by leakage from a defective or slightly open faucet. This and the attendant difficulties are avoided by depressing the plug seat of the waste pipe and inserting a vertically movable free collar in the mouth thereof and providing an external annular flange on the upper end of the collar and normally resting on the ordinary flange of the waste pipe; and by bringing the water supply into the tub from under the flange of the collar, and also through the mouth of the collar from under the lower end thereof.

A further feature of the invention involves the use of a disk-like valve connected with the plug by an extensible stem and normally adapted to rest on the flange around the opening of the drain pipe or its collar, and adapted to be raised by the flow of supply water upward through the mouth of the drain pipe and thence radially outward from under the periphery of the cover.

A preferred embodiment of the invention is illustrated in the accompanying drawings, forming part hereof, in which—

Figure 1 is a sectional view of a vessel, showing the improved supply and waste device and the adjacent fittings, the plug being in position and the flanged collar be-

ing elevated as when supplying water into the vessel; Fig 2, a perspective view of the flanged collar, the waste pipe and the supply and waste fitting separated in proper position for assembling; Fig. 3, a plan section as on line 3—3, Fig. 1, but showing the flanged collar in its normal depressed condition; Fig. 4, a vertical section on line 4—4, Fig. 3; Fig. 5, a fragmentary section on line 5—5, Fig. 3; and Fig. 6, a perspective view of a portion of a bath tub, showing the preferred form of fittings, and broken away to show the general arrangement of the supply and waste device in outline section.

Similar numerals refer to similar parts throughout the drawings.

The bath tub 1 is provided with the aperture 2 in which is inserted the waste pipe 3. The waste pipe is provided with the flange 4 which is preferably countersunk and depressed below the bottom of the tub as shown. The diameter of the tub-aperture is somewhat larger than the external diameter of the waste pipe, so that the annular interval 5 is formed around the pipe; and the vertical ribs 6 are preferably provided at intervals around the sides of the waste pipe, which serve to approximately center the same in the tub aperture and to insure a free interval on all sides of the pipe.

The preferably tapered plug seat 7 is provided in the waste pipe, below which plug seat may be provided the internal screw thread 8 for supplemental attachments, not shown, and above which plug seat the bore of the waste pipe is somewhat enlarged to form the cylindrical recess 9 for the flanged collar 10, and the parts are so proportioned and arranged that the interior of this collar is of larger diameter than the larger end of the plug 11, so that the plug may pass freely through the collar to and from the plug seat.

The flange 4 of the drain pipe is arranged to rest in the countersink 13 in the bottom of the tub, preferably with the intervening washer 14, and the series of apertures 15 is provided at intervals around the inner side of the flange and extending downward in the wall of the pipe around the collar recess. A series of vertical guide slots 16 is provided in the wall of the pipe around the collar recess and a corresponding series of apertures 15^a is preferably provided in the adjacent portion of the pipe flange intermediate the apertures 15. The peripheral rabbet 17,

preferably with the inclined shoulder 17^a, is provided on the upper face of the pipe flange outside the apertures 15 and 15^a; and the internal shoulder 18 formed at the bottom of the collar recess is preferably beveled as shown.

The collar 10 normally shields the pipe wall apertures and is made with its external diameter slightly less than the internal diameter of the pipe recess 9, thus leaving a slight free annular space between the collar and the wall of the recess; and the radial studs, which may be in the form of screws 19 as shown, are provided around the lower end of the collar and are adapted to extend through and operate in the guide slots 16, which studs permit a free vertical movement of the collar in the recess within the limits of the slots; but the stops formed by the upper end of the slot prevent the collar from being entirely withdrawn from the recess.

The flange 20 of the collar is adapted to normally rest on the flange 4 of the pipe approximately flush with the bottom of the tub, as shown in Fig. 4, and the peripheral rib 21 is preferably provided on the under side of the flange, which rib is adapted to normally rest in the peripheral rabbet 17 of the pipe flange and the inner shoulder 21^a is preferably beveled, like the shoulder of the rabbet, as shown. The lower end 22 of the collar is preferably beveled like the inclined shoulder 17^a between the pipe recess and the plug seat, and the parts are so arranged that when the collar flange is seated on the pipe flange the lower end of the pipe will be free of the adjacent pipe shoulder so there is always left the slight annular interval 23 around the lower end of the pipe.

When necessary or desirable to increase the number and area of the supply openings, the apertures 24 are preferably provided in the inner part of the collar flange, which apertures, when used, are arched over by the shields 25 which are closed at their outer ends but are open at their inner end to form the inwardly-directed supply openings 26 just above the mouth of the waste pipe, which in the present instance is formed by the flanged collar 10. The shielded apertures 24 are preferably located to register with that portion of the drain pipe flange between the apertures 15 and 15^a therein, so that when the collar flange is seated on the pipe flange the apertures in the lower flange will be closed by the upper flange.

The disk like cover or valve 27 may be employed to normally close the mouth of the drain pipe, and when the shielded apertures 24 are provided in the mouth flange of the drain pipe, this cover is sufficiently arched in its middle portion to permit the peripheral edges 27^a to rest on the flange outside the shields. The mouth cover is preferably connected with the plug 11 by an extensible

stem, which in the present instance is formed by the axial rod 28 formed or secured on the plug and having the head 29 on its end; and the axial tube 30 formed or secured on the cover and adapted to operate around the stem rod and its head, and having its lower end reduced in size to engage the lower side of the head of the rod, as a stop, to prevent the complete separation of the cover from the plug.

The supply and waste fitting 31 includes the supply branch 32 and the waste branch 33 with the intervening partition 34, on the upper side of which branches is formed the annular supply chamber 35 in the upper end of which is provided the aperture 36 substantially corresponding to the tub aperture 2; and in the bottom of which chamber, leading to the waste branch, is provided the threaded aperture 37 in which the lower end of the drain pipe is adapted to be screwed, as shown in Figs. 1 and 5. The upper end of the annular supply chamber is adapted to abut the lower side of the tub around the aperture 2, preferably with the intervening washer 14^a and the rim flange 38 is preferably provided around the chamber aperture 36 to hold the packing in proper position. The supply port 39 is provided between the inlet branch 32 and the annular chamber 35, which port is controlled by the check valve 40.

The waste branch 33 is connected with the drain pipe 41 and the supply branch 32 is connected with a suitable supply pipe 42 which is preferably branched as at 43 to receive hot and cold water, the supply of which is controlled by suitable valves as 44 and 44^a. The small drain port 45 is preferably provided in the partition 34 connecting the bottom of the supply branch with the waste branch which is adapted to drain the supply branch and pipe directly into the waste branch, when the valves are closed, and this port is so small as to be negligible with respect to such water as may pass through the same when the valves are open.

In the operation of the device, the plug 11 being in position as shown in Fig. 1, and one or more of the supply valves open, the water flows from the supply branch into the supply chamber by opening the check valve 40 and thence finds its way upward around the annular interval formed around the outside of the drain pipe and thence on upward through the apertures 15 and 15^a in the flange thereof; and thence by impinging the flange of the collar the force of the flow of water serves to raise the flanged-collar to the position shown in Fig. 1, whereupon the water flows radially outward in all directions into the tub from under the peripheral edge of the collar flange; the inclined shoulder of the edge rib thereof serving to deflect the water downward thus rendering impos-

sible any upward splashing of the same: and also, when the shielded apertures are provided in the collar flange, the water flows radially inward through the supply openings thus formed just above the mouth of the waste opening. At the same time, a lesser amount of water flows inward through the collar wall portions of the apertures 15, and also through the free portions of the guide slots 16, and thence downward through the annular interval 23 between the collar and the drain pipe and thence inward under the free lower end of the collar and upward through the collar into the tub. And, when the cover 27 is used on the mouth of the drain opening, the supply water from under the lower end of the collar and also from the openings 26 above the mouth of the collar first fills the cavity between the plug and the cover, and, holding the plug in place by weight and pressure, then impinges and raises the cover and flows radially outward from under the peripheral edge thereof; thus preventing any splashing or undue agitation of the incoming supply.

It will be understood that it is not essential to use the shielded apertures in the collar flange, nor is it essential to use the apertures in the wall of the waste pipe, although the latter are preferably used to take care of any leakage which may find its way into the annular supply chamber. Furthermore, it is not essential to use the cover over the waste opening, although the same is preferably employed when supply openings are provided in or adjacent to the mouth of the waste pipe to shield the opening and prevent the supply from splashing upward therefrom.

I claim:

1. A supply and waste for a bath tub or the like including a waste pipe with a flange thereon and having supply apertures in the flange, and a loosely fitting collar adapted to move endwise in the pipe and having a flange on its upper end normally closing the pipe-flange apertures, there being a depending inclined rib on the rim of the collar flange serving to deflect the supply downward.

2. A supply and waste for a bath tub or the like including a waste pipe with a flange

thereon and having supply apertures in the flange, a loosely fitting collar adapted to move endwise in the pipe and having a flange on its upper end normally closing the pipe-flange apertures, with means for guiding and stopping the upward movement of the collar.

3. A supply and waste for a bath tub or the like including a waste pipe with a flange thereon and having supply apertures in the flange, a loosely fitting collar in the pipe having a flange normally closing the pipe-flange apertures, and an annular supply chamber around the pipe, there being vertical ribs on the sides of the pipe serving to guide the supply directly upward.

4. A supply and waste for a bath tub or the like including a waste pipe with a flange thereon and having supply apertures in its wall and flange, and a loosely fitting collar normally shielding the pipe-wall apertures adapted to move endwise in the pipe with a free lower end and having a flange on its upper end normally closing the pipe-flange apertures.

5. A supply and waste for a bath tub or the like including a waste pipe with a flange thereon and having supply apertures in the flange, and a loosely fitting collar adapted to move endwise in the pipe and having a flange thereon normally closing the pipe-flange apertures.

6. A supply and waste for a bath tub or the like including a waste pipe with a flange thereon and having one or more supply apertures in the flange, and a supplemental flange normally closing the supply aperture or apertures and adapted to be raised by the flow of the supply through the aperture or apertures.

7. A supply and waste for a bath tub or the like including a flanged collar forming the mouth of the waste pipe and having apertures in the flange, there being shields over the apertures forming inwardly-directed supply openings above the mouth of the waste opening.

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