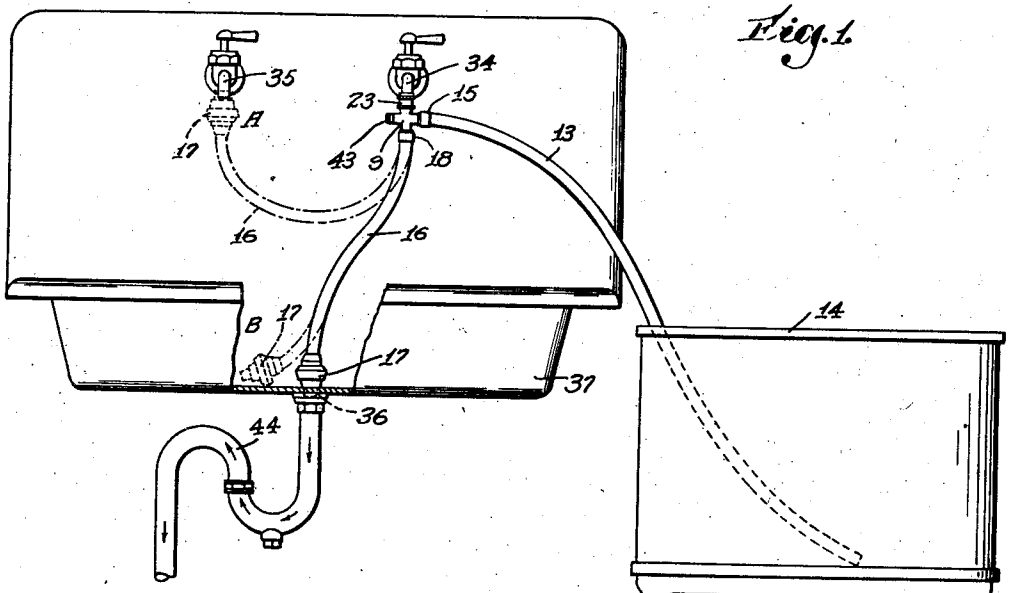
June 19, 1934. G. V. GAVAZA 1,963,522

RECEPTACLE FILLING AND DRAINING DEVICE

Filed March 2, 1932 2 Sheets-Sheet 1

Fig. 1.



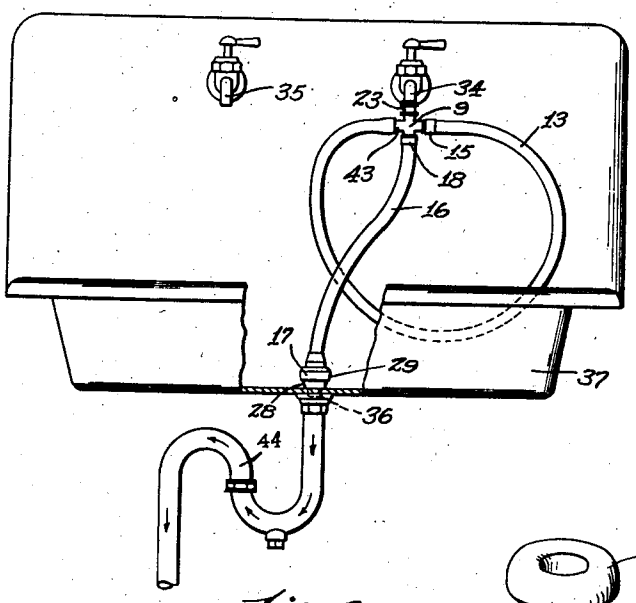


Fig. 2.

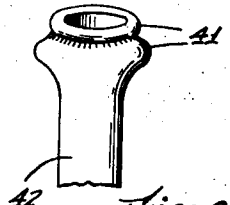


Fig. 6.

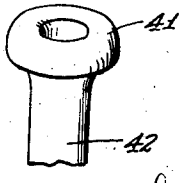


Fig. 5.

Inventor
George V. Gavaza
by Charles W. McDermott
his attorney

June 19, 1934. G. V. GAVAZA 1,963,522

RECEPTACLE FILLING AND DRAINING DEVICE

Filed March 2, 1932 2 Sheets-Sheet 2

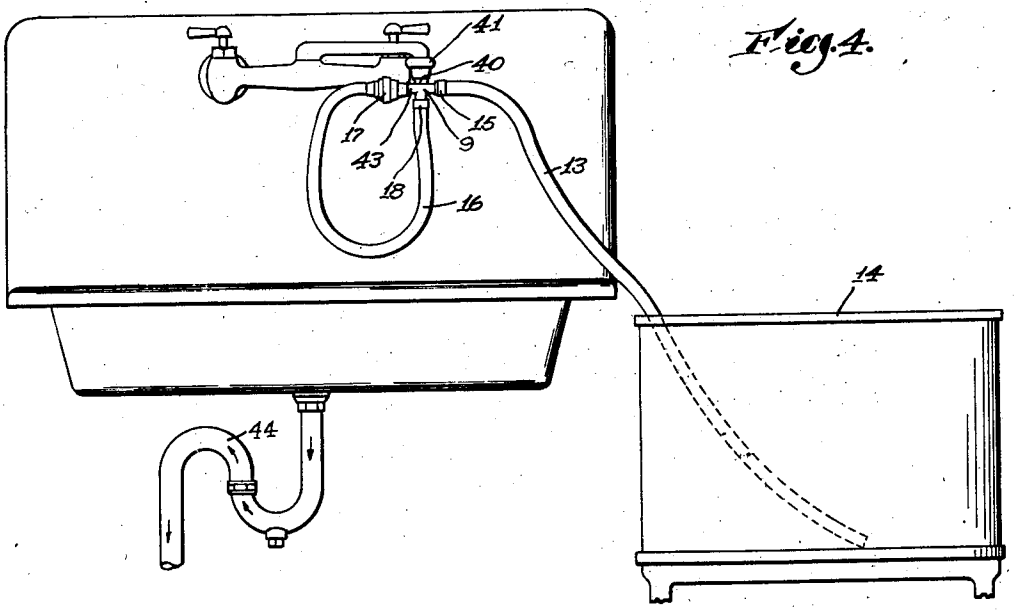


Fig. 4.

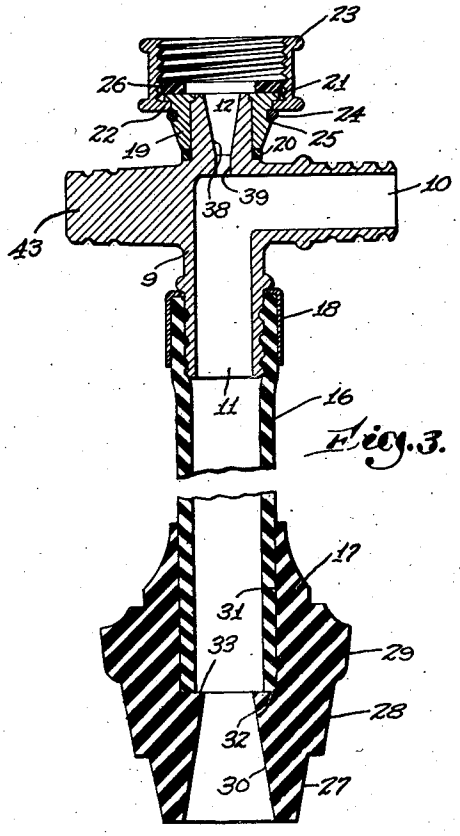


Fig. 3.

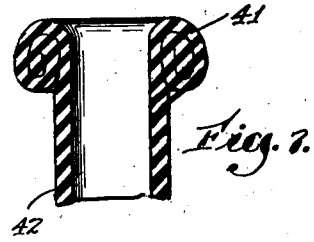


Fig. 7.

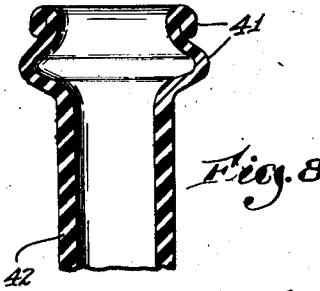


Fig. 8.

Inventor
George V. Gavaza
by Clarke & McDermott
his Attorney

Patented June 19, 1934 1,963,522

UNITED STATES PATENT OFFICE

1,963,522

RECEPTACLE FILLING AND DRAINING DEVICE

George V. Gavaza, Quincy, Mass.

Application March 2, 1932, Serial No. 596,305

9 Claims. (Cl. 137—111)

The present invention relates to receptacle filling devices, and more particularly to combined filling and draining devices such, for instance, as are used to fill and drain the tubs of household washing machines.

It has been proposed heretofore to provide households with devices for filling and draining the tubs of washing machines. These devices usually comprise a T having three outlets, two flexible conduits connected, respectively, to two of said outlets, and means connecting the third outlet to a threaded cold water faucet of a sink, the means usually comprising an ordinary metal coupling, but sometimes a tapered tube which must be forced over the threaded faucet and which, because of its taper, has a tendency to slip down. Each of these coupling types has its disadvantage, the latter for the reason stated, and the former because the threading renders it unfit for use on unthreaded faucets.

A further disadvantage of filling and draining devices now on the market is that when one of the conduits is not needed, as when the faucet is of the single, or swing, combination type, the conduit must be doubled or folded so that water can not pass through it. While this method effects a stoppage of water, the doubling shortens the life of the tubing.

A further disadvantage of devices previously made is that in relying upon unaided siphonic action, their draining speed is necessarily slow. This is caused by the fact that the end of the conduit out of which the tub water drains merely rests in the sink. Such a construction fails to take advantage of the increased draining speed attained by having the end of the sink conduit adapted to fit snugly into the sink drain hole.

Accordingly, it is the principal object of the present invention to produce a combined filling and draining device provided with means which will fit both hot and cold water faucets, smooth or threaded, and of varying sizes.

A further object of the present invention is to produce a combined filling and draining device in which water may be prevented from passing through an unneeded conduit without doubling the conduit to shut off the flow.

A further object of the present invention is to produce a combined filling and draining device by which the drain hole of a sink may be effectively sealed to aid the siphonic draining action.

To the accomplishment of these objects, and such others as will hereinafter appear, the features of the present invention consist in certain devices, combinations and arrangements of parts fully set forth hereinafter, and then pointed out in the claims which possess advantages readily apparent to those skilled in the art.

The various features of the present invention will be readily understood from an inspection of the accompanying drawings illustrating the best form of the invention at present known to the inventor, in which,

Figure 1 is a view in elevation showing in full and construction lines the device in use for filling or draining a receptacle when two faucets are used;

Fig. 2 is a view in elevation showing the device when used to flush the trap and drains;

Fig. 3 is a detailed view in enlarged sectional elevation showing the T provided with three outlets, the coupling for connecting the T to a threaded faucet, the boss, one of the flexible conduits (partially cut away) connected to one of the outlets, and the sink stopper;

Fig. 4 is a view in elevation showing in full and construction lines the use of the device as a filler from the single, swing, or combination type of faucet, and equipped with the modified coupling means for connecting the T to the faucet;

Fig. 5 is a view in perspective, partially in section, of the modified faucet coupling means comprising a tube provided with a circinate roll;

Fig. 6 is a view in perspective, partially in section, of the tube when the roll is evolved;

Fig. 7 is a detail view in sectional elevation of the tube and circinate roll, and

Fig. 8 is a detail view in sectional elevation of the tube with the roll evolved.

In the illustrated embodiment of the invention the combined filling and draining device comprises a T 9 (Fig. 3) having three outlets 10, 11, and 12. Adjacent the outlet 10 the T 9 is shouldered to receive one end of a long flexible conduit 13 (Fig. 4), the other end of which extends into the receptacle or tub 14 to be filled or drained. The conduit 13 is clamped to the T 9 by a metallic ferrule 15. Adjacent the outlet 11 the T 9 is shouldered to receive one end of a short flexible conduit 16 the other end of which is inserted into a hollow stopper or nozzle 17 for the sink drain hole. The conduit 16 is clamped to the T 9 by a metallic ferrule 18. A collar 19 is fitted over the portion of the T forming the walls of the outlet 12, as shown in Fig. 3, and a rubber washer 20 is interposed between the collar 19 and the T. The collar 19 is provided with a flange 21 which abuts the flange 22 of an internally threaded fau-

cet coupling 23 of the usual type. When the collar 19 and coupling 23 have been assembled, the flanges 21 and 22 are held in engagement by means of a ring 24 fitting an annular groove 25 around the collar 19. The coupling 23 is provided with the usual rubber washer 26 forming an abutment for the mouth of the faucet.

The T 9 is also provided with a tapered boss 43 of such size as to form a plug for both the free end of the conduit 13 and the hollow stopper or nozzle 17. The boss 43, and also the outlets 10 and 11, are externally corrugated to insure a firmer grip by the conduits or the stopper placed over them.

One of the features of the present invention is the construction of the stopper or nozzle 17. It is best made of rubber, and externally is tapered as shown at 27, 28, and 29 to fit drain holes of varying sizes. It is of course possible to have the outer surface of the stopper one smooth taper, but the construction shown is better because it insures a seal not only inside the drain hole by the tapered portion, but also over the drain hole by the shoulders necessarily formed between the tapered portions.

Internally the stopper 17 is provided with a tapered portion 30 and a cylindrical portion 31. The free end of the short conduit 16 fits snugly into the cylindrical portion 31, and is secured therein by cement. The end of the conduit 16 abuts a shoulder 32 formed in the stopper 17 by making the diameter of the narrowest part of the tapered portion 30 somewhat less than the external diameter of the conduit 16. However, as will be explained in detail hereinafter, the best construction is to make the diameter of the narrowest part of the tapered portion less than the internal diameter of the conduit, so that the shoulder 32 extends partially over the orifice at the end of the conduit 16, to form an annular baffle 33. The portion 30 is tapered as shown in Fig. 3 to make the walls of the stopper relatively thin. This construction greatly increases the resiliency of the walls so that little effort is required to insert the stopper into the drain hole.

The present invention may be used as a filler, or as a combined filler and drainer, and, by means of the construction shown and an alternative one presently to be described, may be used with many different sizes of faucets and in sinks provided with two faucets, or with but one supplying both hot and cold water.

The use of the present invention for filling only is shown in Fig. 1 (two faucets) and Fig. 4 (one faucet). When there are two faucets, the coupling 23 is screwed to the cold water faucet 34 (Fig. 1), the hollow stopper 17 being placed over the hot water faucet 35 as shown in construction lines at A in Fig. 1. The tapering 30 of the stopper 17 permits a tight grip on the smooth faucet 35. It will be seen that water of any desired temperature may be conducted into the receptacle 14 by regulating the amount of water discharged from the faucets 34 and 35. It is also clear that only hot or only cold water may be conducted into the receptacle 14, for water emitting from the open faucet, either hot or cold, can not pass beyond the closed valve in the other faucet, but must discharge into the receptacle.

Fig. 4 represents the use of the present invention for filling when there is but one faucet, the swing or combination type, supplying both hot and cold water. In such a case, water must be prevented from issuing out of the hollow stopper 17. As shown in Fig. 4 this is accomplished by placing the tapered portion of the stopper 17 over the boss 43, the corrugations on the boss insuring an effective plugging of the stopper. In this way water, hot, cold, or tempered, may be conducted into the receptacle 14 from the single faucet. It is to be noticed that by this means of shutting off the flow of water through the conduit 16 the conduit is not doubled but is merely curved as shown in Fig. 4. In this way the life of the conduit 16 is prolonged as doubling in such conduit material as rubber hastens the destruction of the usefulness of the tubing.

When it is desired to drain liquid from the receptacle 14, the short conduit 16 and the stopper 17 are uncoupled from the hot water faucet 35 or the boss 43, as the case may be, and the stopper 17 is plugged into the drain hole 36 in the sink 37. This is illustrated by the full line drawing of the conduit 16 and the stopper 17 in Fig. 1.

The cold water is turned on. Velocity is imparted to it by the downwardly tapering restricted passage 38 (Fig. 3) in the T 9. This restricted passage 38 converts the stream of cold water into a jet which tends to travel in a straight path through the cylindrical restriction 39 of the T 9 and down centrally through the T and conduit 16. It is clear that an annular space is left between the jet of water and the internal walls of the T 9 and the conduit 16. Because of its velocity the water tends to draw air out of the outlet 10 and the long conduit 13, thereby creating a condition of unbalanced pressure, so that the atmospheric air on the liquid in the receptacle 14 forces the liquid up the tube 13 and so into the short conduit 16.

Draining with the stopper 17 plugged into the drain hole 36 may be accomplished in two ways. The cold water may be turned on only long enough to start the siphonic action, and then may be turned off, leaving the draining to continue with siphonic action unaided.

This method may be too slow for some purposes, however. To speed it up the cold water may be turned on full force and kept so until draining is completed. When this method is used, the velocity of the jet, besides drawing air out of the outlet 10 and the conduit 13, will drive water through the trap, making the atmospheric pressure on the liquid in the receptacle 14 force the liquid faster up the conduit 13. This is a forced siphonic action which achieves quicker results.

In the use of either of the above methods for draining, it is not necessary that the diameter of the narrowest part of the tapered portion 30 of the hollow stopper 17 be less than the internal diameter of the conduit 16. It has been pointed out, however, that preferably the diameter of the narrowest part of the tapered portion 30 should be less than the internal diameter of the conduit 16 so as to form the baffle 33. When the device is so constructed, a third method of draining may be used.

By this method the stopper 17 is not inserted into the drain hole 36, but is merely rested in the sink as shown in construction lines at B in Fig. 1. The cold water is turned on momentarily to initiate the siphonic draining of the tub.

It is clear, however, that with the stopper 17 unplugged into the drain hole 36, air is free to pass up the conduit 16 because the diameter of the jet is smaller than the internal diameter of the conduit 16. To prevent this upward passage of air is the function of the baffle 33. The baffle forms, as it were, a restriction in the conduit, which causes the water to collect at the

baffle and to form a water seal. In this way, though the end of the stopper 17 is open, water can freely drain from the receptacle 14 through the conduit 16, but no air can pass up through the conduit. Stated in another way, the jet of water, in passing the outlet 10 is able to create a condition of unbalanced pressure between the water in the receptacle 14 and the open end of the stopper 17, to cause the expulsion of the water from the receptacle 14 into the sink 37 under the influence of the atmospheric air acting upon the water in the receptacle 14.

Because of the baffle 33, the siphonic action will start as soon as the stopper 17 is uncoupled from the hot water faucet 35 or the boss 43 and positioned in the sink 37. Thus it is not necessary to pinch or bend the conduit 16 in order to initiate the siphonic action.

An additional use of the present invention is shown in Fig. 2. If the free end of the long conduit 13 be placed over the boss 43, and the stopper 17 be inserted into the drain hole 36, there will be an unbroken connection between the cold water faucet and the trap. If, now, the water be turned on full force, it will exert enough pressure to drive water through the trap 44 and the water pipes attached so as to clean them. In this way trap and drains may be cleared.

The present invention has been described above as being adapted to fit threaded cold water faucets and smooth hot water faucets. All faucets are not so constructed, however, and this is especially true in the case of the single faucet, as shown in Fig. 4. This type frequently is not only unthreaded but is also smaller than ordinary faucets. Accordingly, to adapt the present invention to such faucets a modified coupling means is provided, illustrated in Figs. 5, 6, 7 and 8. This modified coupling means comprises a rubber tube 42 one end of which fits over a modification of the outlet 12. This modification (not shown) may be made by dispensing with the coupling 23 and collar 19, and by giving the walls of the outlet 12 a shouldered construction identical with that of the outlets 10 and 11. The tube can be clamped to the modified outlet by means of a metal ferrule 40, as shown in Fig. 4, which figure illustrates the use of the present invention when provided with the modified coupling means now being described.

The tube 42 may be of any length desired. At its free end it is provided with a peculiar circinate roll 41 constituting one of the features of this invention. This roll is produced after the tube is extruded but before vulcanization. A plug is inserted into the end of the tube, whereupon the pliable rubber is rolled back, forming three convolutions. The tube is then cured with the plug still inserted in the opening. By this method there is produced a resilient circinate roll which can be unrolled and rerolled at will, always maintaining its rolled or unrolled condition. When rolled, the end of the tube presents the appearance shown in Fig. 5. When unrolled, it presents the appearance shown in Fig. 6. Viewing Figs. 5 and 7, it is clear that the end, when rolled, fits small faucets, and viewing Figs. 6 and 8 it is clear that when the end is unrolled, it fits larger or threaded faucets. Thus the same tube, by reason of its circinate construction, is adapted to be used on faucets of various types, an attribute not found in the usual faucet coupling 23.

When the extruded but unvulcanized tube is rolled back over the plug inserted in one end, the walls of the tube forming the roll are necessarily radially stretched thereby making the walls thinner at the rolled portion. Curing the tube when in this condition makes this stretching permanent. As a consequence, when the end of the cured tube is unrolled, the diameter of the opening, as shown in Figs. 6 and 8, is larger than the internal diameter of the roll proper, adapting the tube to fit larger faucets than is possible when the end of the tube is rolled.

It will be apparent, as shown in Fig. 7, that the above method of thinning the walls at the roll forms a seat for the roll along the walls of the tube where the rolling begins.

The present invention is designed primarily for filling and draining receptacles. It has alternative uses, however, one of which has been described with reference to flushing drains. A further use will be of interest to automobile owners. The conduit 16 may be removed from the T 9 and an ordinary threaded female garden hose coupling inserted in the open end. The conduit is then coupled to a garden hose and the stopper 17 inserted into one of the openings in an automobile water cooling circulating system. When the drain is open and the water is turned on it will be forced through the cooling system under pressure, thereby removing all scale and refuse.

What is claimed as new, is:

1. In a combined filler and drainer, the combination with a T having three outlets, two flexible conduits connected, respectively, to two of said outlets, and means for connecting the third outlet to a faucet, of means carried by the T for holding the shorter of said conduits in an undoubled condition and preventing the emission of water from said conduit.

2. In a combined filler and drainer, the combination with a T having three outlets, two flexible conduits connected, respectively, to two of said outlets, means for connecting the third outlet to a faucet, and a nozzle secured to the free end of at least one of said conduits, of means integral with the T for plugging the end of the nozzle to shut off the flow of water therethrough.

3. A combined filler and drainer having, in combination, a T provided with three outlets, two flexible conduits connected, respectively, to two of said outlets, means for connecting the third outlet to a faucet, a hollow sink drain hole stopper secured to the free end of at least one of said conduits, and means carried by the T and cooperating with the stopper when the device is used for filling for holding the stopper-carrying conduit in an undoubled condition and for preventing the emission of water from said conduit.

4. A combined filler and drainer having, in combination, a T provided with three outlets, two flexible conduits connected, respectively, to two of said outlets, means for connecting the third outlet to a faucet, a nozzle connected to the free end of one of said conduits and provided with an internal passage comprising two portions, into one of which the connected conduit fits, and the other portion having an inlet diameter less than the external diameter of said connected conduit to form a shoulder which the end of the said conduit abuts, and means carried by the T and cooperating with the second named portion of the passage in the nozzle when the device is used for filling to hold said connected conduit in an undoubled condition and to prevent the emission of water from said conduit.

5. A combined filler and drainer having, in combination, a T provided with three outlets, two

flexible conduits connected, respectively, to two of said outlets, means for connecting the third outlet to a faucet, a nozzle connected to the free end of one of said conduits and provided with an internal passage comprising two portions, into one of which the connected conduit fits, and the other portion having an inlet diameter less than the internal diameter of said connected conduit to form a baffle permitting the water to pass through the said conduit and out the open end of the nozzle during the draining operation while simultaneously preventing air from passing into the conduit, and means carried by the T for plugging the second named portion of said passage to hold said connected conduit in an undoubled condition and to prevent the emission of water from said conduit when the device is used for filling.

6. In a combined filler and drainer device, the combination with a T having three outlets, two flexible conduits connected, respectively, to two of said outlets, and means for connecting the third outlet to a faucet, of a nozzle secured to the free end of one of said conduits by which said conduit may be connected to the spout of a faucet other than the faucet to which the third outlet of the T is connected, or be connected to the drain pipe of a tub, or be rested on the bottom of the tub, according as water is to be supplied from both faucets to a vessel, or drained therefrom directly into the drain pipe of the tub, or drained merely into the bottom of the tub, respectively, said nozzle being provided with means integral therewith and cooperating with its associated conduit for preventing the simultaneous flow of water and air in the conduit in opposite directions when the nozzle is rested on the bottom of the tub during the draining operation.

7. A filling and draining device for vessels comprising: a conduit, one end of which can be placed in position to drain the contents of a vessel; and a combined coupling member and plug on the other end of the conduit by which the latter can be connected to the spout of a faucet or plugged into the drain pipe of a tub, according as water is to be supplied to the vessel or drained therefrom.

8. A filling and draining device for vessels comprising a conduit one end of which can be placed in position to drain the contents of a vessel, a nozzle on the other end of the conduit by which the latter can be connected to the spout of a faucet or connected to the drain pipe of a tub, according as water is to be supplied to the vessel or drained therefrom, and a coupling member carried by the conduit between the ends thereof for connecting the conduit to the spout of a faucet other than the faucet to the spout of which the nozzle can be connected.

9. A combined filler and drainer device having, in combination, a T provided with three outlets, two flexible conduits connected, respectively, to two of said outlets, means for connecting the third outlet to a faucet, a hollow stopper secured to the free end of at least one of said conduits, said stopper being insertable in the drain hole of a tub when the device is used for draining and being adapted to be connected to the spout of a faucet other than the faucet to which the third outlet of the T is connected when the device is used for filling from both faucets, and means carried by the T and cooperating with the stopper, when the device is used for filling from only the faucet to which the third outlet of the T is connected, for holding the stopper-carrying conduit in an undoubled condition and for preventing the emission of water from said conduit.

GEORGE V. GAVAZA.