

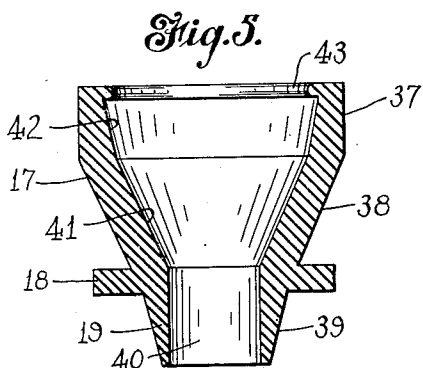
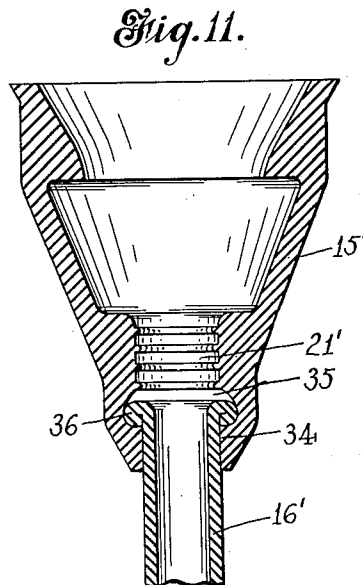
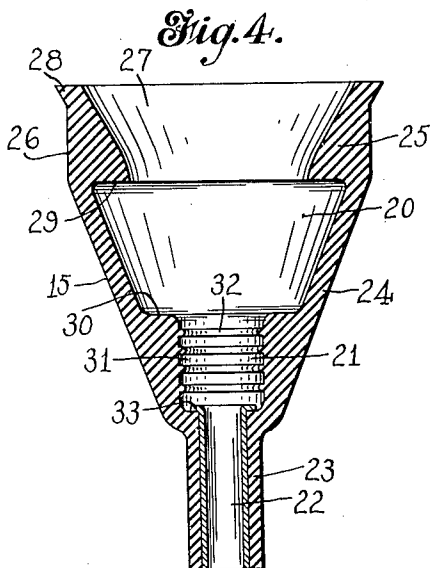
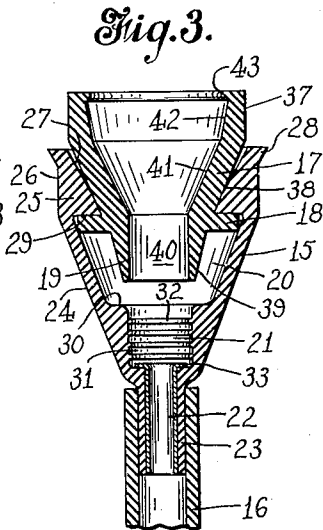
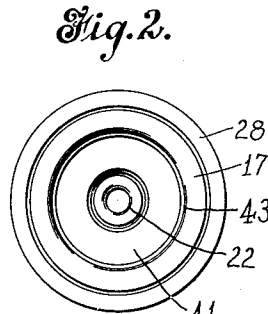
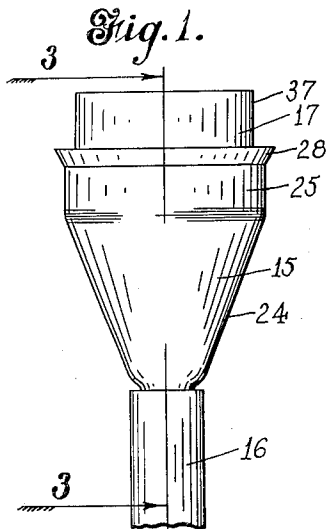
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2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 6.

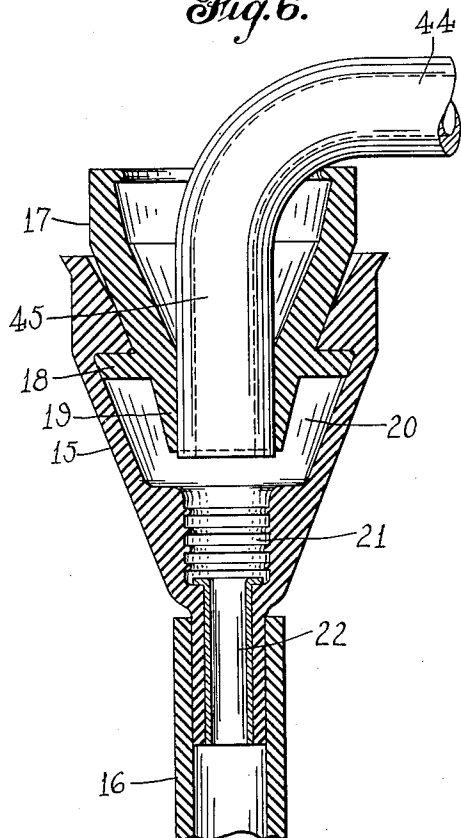


Fig. 7.

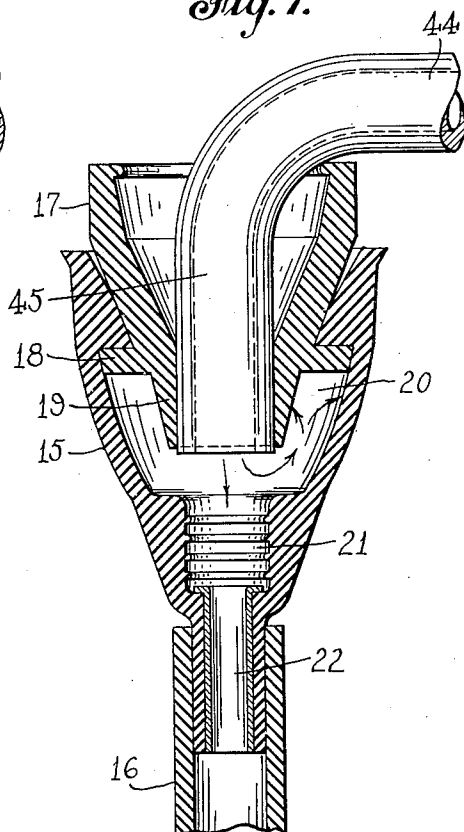


Fig. 8.

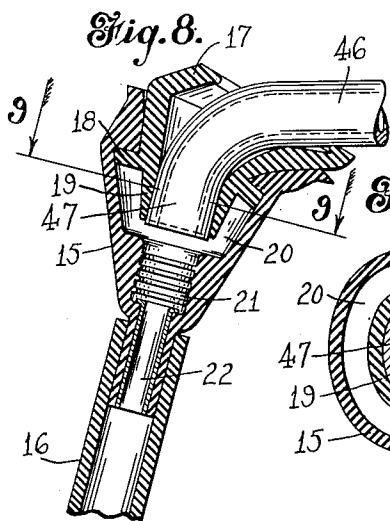


Fig. 9.

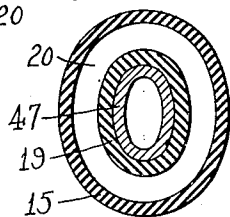
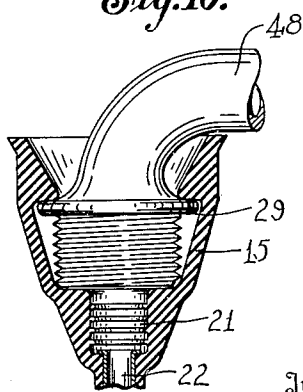


Fig. 10.



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4 Claims. (Cl. 285—90)

This invention relates to bath spray or like connectors, and more particularly to those in which the bath spray or like device is provided with a connector in the nature of a faucet adapter in order that the appliance may be used successfully in connection with faucets of different shapes and sizes.

An object of the invention is to provide a simple, inexpensive form of connector by which the appliance can be connected to any one of a large number of different faucets.

Another object is to provide a faucet adapter meeting a large number of conditions of use.

In the accompanying drawings:

Fig. 1 is a side elevation of a connector embodying the invention, illustrating the same as carried by a bath spray hose of rubber;

Fig. 2 is a top plan view of the device of Fig. 1;

Fig. 3 is a section on line 3—3 of Fig. 1;

Fig. 4 is an enlarged sectional view showing the upper or auxiliary member removed;

Fig. 5 is a sectional view of the upper or auxiliary member;

Fig. 6 is a sectional view showing the assembly of Fig. 3 applied to a faucet;

Fig. 7 is a view similar to Fig. 6 illustrating the action of the device when water is flowing;

Fig. 8 is a view similar to Fig. 7 showing the device applied to a different kind of faucet;

Fig. 9 is a section on line 9—9 of Fig. 8;

Fig. 10 is a sectional view showing the use of the device with a faucet of a different kind; and

Fig. 11 is a sectional view of a modified form of main casing member.

In the device illustrated on the drawings, there is provided a casing adapted to be used as a connector applicable to faucets of different kinds and sizes, said casing being a flexible casing made of rubber, the term "rubber" being used in the broad sense. This casing is made of two principal parts, one being a cup-like part connected at its lower portion, as illustrated in Figs. 1 and 3, to a flexible hose or tube, such as commonly used in connection with a bath spray or like appliance. The casing part referred to is open at the top and contains within its upper portion a second part adapted to engage a faucet, the second part in this particular instance being supplied exteriorly with a flexible flange by means of which it is detachably engaged with and held within the first casing part. The second casing part has a funnel-like upper portion and a lower sleeve-like portion adapted to engage the side surface of a faucet, the sleeve-like portion projecting down-

wardly into a chamber with which the first part is provided. The first part, moreover, is provided in a location below the sleeve-like portion with a passage leading to the flexible hose and adapted to serve as a retarder or pressure-creating means in the use of the device, as will hereinafter be more particularly described.

In the drawings, the first casing part referred to above is illustrated at 15, the same being secured to the end portion of a rubber hose 16. The second casing part, which is the upper or the auxiliary part, is shown at 17, the same having a lateral flange 18 by which it is detachably held in the part 15. The sleeve-like portion of part 17 is indicated at 19, the same projecting downwardly into a chamber 20 of part 15. In the lower portion of part 15 and in line with the sleeve-like portion 17 is the retarding passage 21 in communication with a ferrule 22 leading into the hose 16. The part 17 as illustrated has an open upper end which flares from the sleeve portion 19 to this end, as shown in Fig. 3.

Referring now to the details, it will be seen that the main casing part 15 made of flexible vulcanized rubber is characterized by a cylindrical projection 23 at the lower part with which is integral a generally conical portion 24 in which chamber 20 is provided, and that integral with portion 24 is a mouth portion 25. The mouth portion 25 has an external cylindrical surface 26, and in the mouth portion is a generally conical upwardly flaring recess 27 leading to the upper end of the part 15. Above the cylindrical surface 26 there is provided a lateral flange 28 of angular section whereby the flexible wall of the article is somewhat thickened adjacent the upper end of the recess 27.

The recess 27 leads downwardly to the chamber 20 and provides a round aperture of less diameter than the upper part of the chamber 20 so that there is thus provided an overhanging portion or shoulder 29 that provides an upper wall for the chamber and which acts as a holding shoulder in connection with the flange 18 above mentioned. By reference to Fig. 4, it will be seen that immediately above the chamber 20 the wall of the casing is quite thick and that from this region the thickness decreases progressively in an upward direction substantially to the mouth of the flaring recess 27. The portion 24 of the casing being substantially conical, the ceiling provided for the chamber 20 in this portion is of substantially greater diameter than the floor portion 30 of this chamber.

From the floor of the chamber the retarding

passage 21 extends downwardly. This passage may, as shown, have a cylindrical inner surface 31 upon which are provided a number of transverse ribs 32 projecting inwardly. The inner surface of chamber 21 being cylindrical, and the outer surface of the casing in this region being conical, the thickness of the casing wall from the floor of the chamber 20 substantially to the downward projection 23 diminishes progressively in a downward direction. The ferrule 22 mentioned above may be made of a suitable metal, and it may serve as a liner for the projection or sleeve portion 23, and the ferrule may have a flange 33 at its upper part overlying the floor of the retarding passage 21.

The sleeve portion 23 is inserted in the rubber hose 16, and the hose is fixed on the sleeve portion in a suitable manner as by cementing.

In the modified form shown in Fig. 11, the downwardly projecting sleeve portion and the ferrule are omitted, and the hose is extended into the body of the part 15' and secured therein. In the form of Fig. 11, the part 15' is provided at the lower end with an opening 34 into which the upper end of the hose 16' is extended. In this case there is a small chamber 35 below the retarding passage 21' and the hose 16' has an integral elastic end flange 36 disposed in this chamber in a manner to attach the hose to the casing part. Usually the hose of the type shown in Fig. 11, if used, is cemented in place in the apertured flexible lower end portion of the casing.

Referring now to the form of the upper or auxiliary part 17, it will be noted that this part is in general of conical formation, although in this embodiment there is an upper end portion 37 having a cylindrical outer surface, said portion when the two parts of the casing are assembled extending upwardly from the lower part, as shown in Fig. 3. Below the portion 37 the outer surface of part 17 in a location above the flange 18 is conical, as indicated at 38, and the external surface below the flange is conical, as indicated at 39, this surface 39 being formed upon the sleeve portion 19 previously mentioned. The inner surface of the sleeve portion 19 is cylindrical, as indicated at 40, and this cylindrical surface 40 preferably extends approximately to the level of the upper surface of the flange 18. Above the sleeve portion 19 the inner surface of this casing part is conical, as indicated at 41, and within the upward extension of this casing part the inner surface is conical, as indicated at 42, although here the inclination of the surface 42 to the vertical is less than the inclination of surface 41. At the upper or rim portion of the extension above mentioned, the casing is provided with an inwardly extending flange 43 which is preferably rounded over at its inner surface. By providing this flange 43, a good grip on the upward extension of part 17 can be obtained in order to facilitate the removal of this part from the main casing part.

It will be understood that the main casing part and the auxiliary part are resilient and flexible, and that the main casing part can be opened up or stretched to receive the auxiliary part and to disengage the auxiliary part when the latter is pulled out of the main part. When the members are in the relation shown in Fig. 3 the auxiliary part is under some compression by reason of the surrounding elastic part, and the auxiliary part is effectively held against accidental dislocation. In this position, the surface 33 of the auxiliary part substantially conforms to the surface 27 of the main part.

With reference to the wall of the auxiliary part 17, it is noted that in the sleeve portion 19 the thickness decreases progressively in a downward direction, as shown in Fig. 5. Above the sleeve portion there is, in this particular form, no great variation in the thickness of the wall up to the upper extremity. The flange 18 is substantially at the upper end of the sleeve portion, and above this is the substantially conical body, and above the conical body the substantially cylindrical upward extension.

The appliance described can be used with a large number of faucets differing in shape or size, or in both shape and size. It is impossible to illustrate all of the various faucets, but some examples are shown in the drawings.

In Figs. 6 and 7 there is illustrated, by way of example, a faucet 44 having a downturned free end portion 45 of round cross section. In using the appliance with such a faucet, the two parts of the adapter assembly are used, the adapter being placed over the faucet end in a relation such as shown in Fig. 6, with the extremity of the faucet engaged in the sleeve portion 19. This expands the sleeve portion and causes its inner surface to be tightly engaged with the side surface of the faucet. The end of the faucet may project downwardly to the extent shown in Fig. 6, but this is by way of example only. The curved portion of the faucet between the lateral portion and the extremity is, as shown, received in part within the cylindrical extension of the auxiliary member. When the faucet is turned on, water passes downwardly to chamber 20 and then to the retarding passage 21 or 21'. A back pressure is thus built up in chamber 20, as shown by the arrows in Fig. 7, with the result that the sleeve portion is tightly forced against the faucet so as to provide a leak-proof joint around the faucet end. There is no leakage of water out of the upper end of chamber 20 because the water pressure holds the flange 18 in tight contact with the overlying portion of part 15 or 15'.

In Fig. 8, I have shown the use of the adapter with a faucet 46 having a body of elliptical cross section and provided with a relatively short extremity 47 set at an angle so as to have a certain inclination. It will be seen from Fig. 8 how the upper cuplike part of the assembly accommodates itself to the faucet, and this is true also of the lower cuplike part which, in this instance, is somewhat deformed. Fig. 9 illustrates how the adapter conforms to the elliptical extremity of the faucet. The sleeve portion 19 conforms to the outer surface of the faucet extremity, and the action in excluding water from the upper part of the adapter is substantially the same as in the case previously described.

In Fig. 10, there is shown a faucet 48 having a downturned spout which, as customary in many faucets, is provided with a flange and below the flange with external screw threads. In using the adapter with such a faucet, the auxiliary part is removed and the main casing part 15 or 15' forced over the spout. This operation is facilitated by the form of the mouth portion of the casing having its flaring inner recess and having a rim which can be stretched to a considerable degree. When the adapter is in place, the threaded extremity of the faucet is received in the chamber 20 with the flange of the faucet engaged with the overhanging shoulder portion of the casing, in the manner shown in Fig. 10. It will also be noted that the faucet extremity is in substantial contact with the floor of the

chamber 20 so that water issuing from the faucet is discharged directly into the passage 21 or 21'.

As indicated above, the adapter is applicable to various other faucets. In some cases it may be expedient to force the faucet extremity downwardly into snug engagement with the passage 21 or 21'. This may be done when the auxiliary part is used in the assembly or it may be done when the auxiliary part is omitted. Such faucet naturally will be of a diameter such that it will enter the passage, and the beads or ribs on the surface of the passage will aid in gripping the faucet.

It will be seen that the invention provides a simple, inexpensive and serviceable faucet adapter that meets many different conditions, and, therefore, has a large scope and application, and that the article is effective in providing against leakage of water from the spout. The adapter is, moreover, very readily applicable to the faucet and removable therefrom. The adapter can be used with faucet ends that are beaded and also with faucets having smooth plain ends.

Various modifications and changes in the details may be made without departing from the principles of the invention or the scope of the claims.

What I claim is:

1. In a device such as described, the combination of a flexible resilient casing made up of two principal members, of which one is a main chambered member and the other a detachable auxiliary member located in the upper part of the first member and engageable with a spout of a faucet, said first member being a generally conical member attached at the smaller end to a hose, said first member having a generally conical chamber intermediate of its ends surrounded by an upper overhanging wall portion and having a retarding passage between said chamber and the hose connection, and said member also having an upper flaring mouth or recess the wall of which decreases in thickness toward the rim, the second member having a lateral shoulder between the ends of said member adapted to be engaged and held in the upper part of said chamber and also having a sleeve portion of decreasing wall thickness in a downward direction disposed in said chamber, said second member also having a funnel-shaped mouth portion within the first-mentioned flaring mouth or recess extending above the upper end of the first member.

2. An adapter such as described, comprising a generally cup-shaped elastic distensible main casing part having an upper flaring mouth portion and immediately below the mouth portion a chamber of generally conical shape with the larger diameter at the top, said chamber forming with the mouth portion a shoulder having a sloping inner surface and a flat lower surface, and an auxiliary generally cup-like elastic distensible casing part having an outstanding annular flange intermediate its ends, said flange being engaged under said shoulder and the said auxiliary part having a sleeve diminishing in wall thickness in a downward direction disposed within said chamber, said auxiliary part being

held under compression within the distended main casing part.

3. An adapter such as described, comprising a generally cup-shaped elastic distensible main casing part having an upper flaring mouth portion and immediately below the mouth portion a chamber of generally conical shape with the larger diameter at the top, said chamber forming with the mouth portion a shoulder having a sloping inner surface and a flat lower surface, and an auxiliary generally cup-like elastic distensible casing part having an outstanding annular flange intermediate its ends, said flange being engaged under said shoulder and the said auxiliary part having a sleeve diminishing in wall thickness in a downward direction disposed within said chamber, said auxiliary part being held under compression within the distended main casing part, said main casing part having at the lower end a discharge passage and between the discharge passage and said chamber a generally cylindrical passage of intermediate diameter into which a faucet end can be inserted, said last-named passage having on its surface a plurality of annular ribs projecting in an inward direction.

4. In a faucet adapter, a generally cup-shaped elastic distensible casing part having a flaring mouth portion at the top and a discharge passage at the lower end, the mouth portion having an upwardly and outwardly sloped inner surface, the wall surrounding said flaring mouth portion decreasing in thickness toward the rim, said casing part being provided immediately below the mouth portion with a communicating chamber of greater diameter than the lower end of the mouth portion whose side wall slopes upwardly and outwardly to a point where it terminates in substantial horizontal alignment with the extreme lower end of the flaring mouth portion, whereby said chamber forms with the mouth portion a shoulder having an inclined upper surface and a flat lower surface, said part having between and in communication with said chamber and said discharge passage a passage of intermediate diameter provided with a cylindrical inner surface on which are inwardly extended transverse ribs, said passage of intermediate diameter being adapted to receive the end of a faucet.

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