

July 24, 1951

R. AITKEN
FILLING INLET FOR CONTAINERS ESPECIALLY FOR
HOT WATER BOTTLES AND THE LIKE

2,562,010

Filed May 25, 1949

2 Sheets-Sheet 1

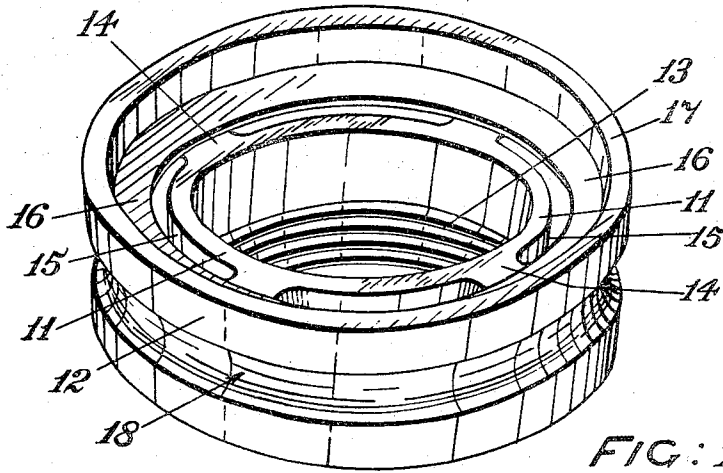


FIG: 1.

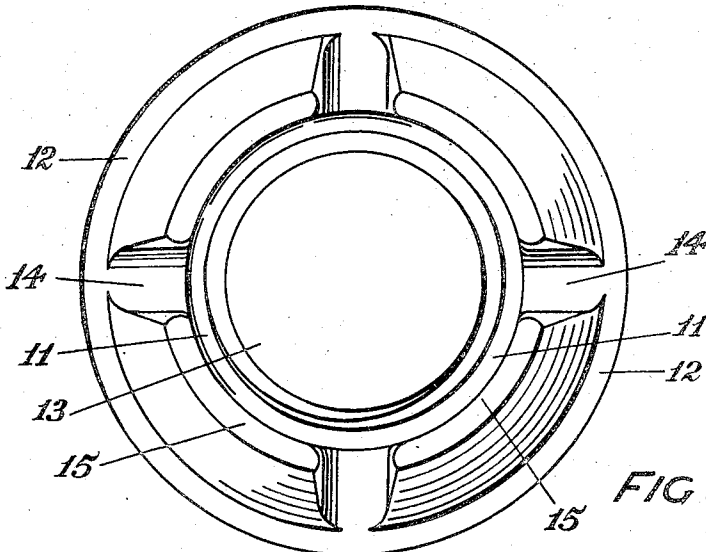


FIG: 3.

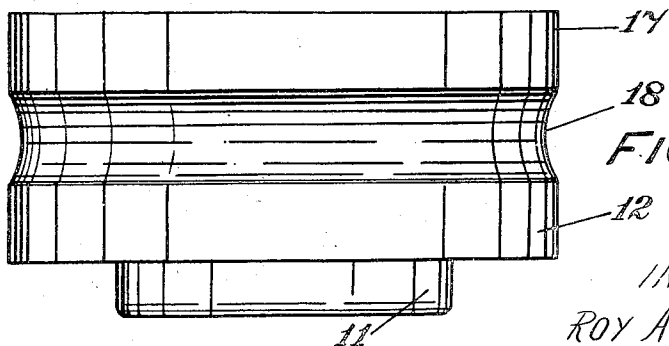


FIG: 2.

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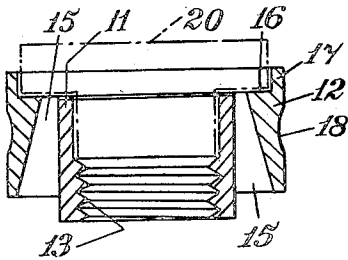


FIG: 4.

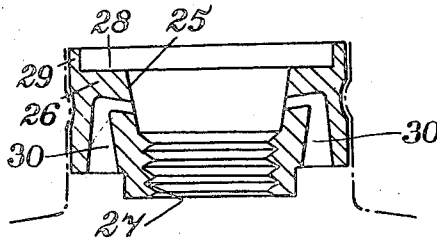


FIG: 6.

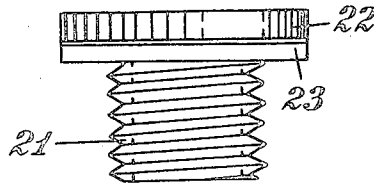


FIG: 5.

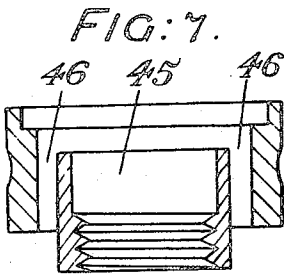


FIG: 7.

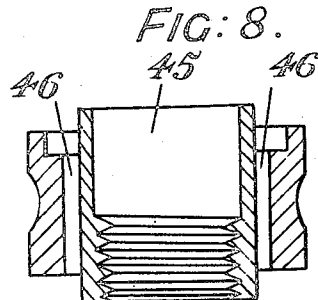


FIG: 8.

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UNITED STATES PATENT OFFICE

2,562,010

FILLING INLET FOR CONTAINERS, ESPECIALLY FOR HOT-WATER BOTTLES AND THE LIKE

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Application May 25, 1949, Serial No. 95,178
In Great Britain June 21, 1948

9 Claims. (Cl. 150—8)

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This invention relates to filling conduits for incorporation in hot-water bottles or bags (hereinafter and in the claims referred to simply as "bottle").

In accordance with the present invention a conduit for incorporation in a hot-water bottle has an inlet opening and at least one separate outlet opening (hereinafter called the "blow-off opening"), whereby air and/or steam displaced from within the bottle during filling thereof can escape without interfering with the flow of filling water, said openings being arranged and adapted for sealing by a common closure plug when desired.

Preferably the closure plug is a screw-closure and is provided with a seat which positively closes the bottle against leakage through either opening.

As a result of the invention, the bottle may be filled quickly, for example with boiling water, and bubbling or spluttering owing to air and/or steam trying to escape through the inflow of boiling water is eliminated or mitigated.

In order that the invention may be more clearly understood, the following more specific embodiments will now be described, by way of example, with reference to the accompanying drawings, in which—

Fig. 1 is a perspective view from above and to one side of a filling conduit according to the invention; Fig. 2 is a side elevation, and Fig. 3 an inverted plan view of the conduit; Fig. 4 is a vertical transverse sectional elevation to a smaller scale of the conduit, the location of a closure plug fitted thereto being indicated in dot-dash lines; Fig. 5 is a view in elevation of a closure plug suitable for fitment to the conduit shown in Figs. 1 to 4; and Figs. 6 to 8 are vertical transverse sectional elevations of modified forms of conduit, part of a bottle being indicated in dot-dash lines in Fig. 6.

Referring to Figs. 1 to 4 of the drawings, the filling conduit comprises an inner tubular inlet 11 and an outer substantially tubular member 12. The inlet 11 is screw-threaded internally at its lower end as indicated at 13, and projects below the outer member 12 to which it is united by four radially spaced-apart ties 14. The four arcuate or blow-off openings 15 defined by said ties between the inlet 11 and outer member 12 diverge downwardly. The outer member 12 has a horizontal annular seat 16 in alignment with the top of the inlet 11 and an upstanding peripheral flange 17 is provided around said seat. The outer member has a peripheral groove 18 to facilitate securing of the conduit in the mouth of a bottle, for example a rubber hot-water bottle.

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The position occupied by a closure plug 20 when screwed into sealing position in the conduit is indicated in Fig. 4. Such a closure plug is shown in Fig. 5 and comprises a central screw-threaded part 21 adapted to engage the screw-threaded part 13 of the inlet, and a peripheral seat part 22 provided with a washer 23 of rubber or other packing material and adapted to seat on the annular seat 16 of the conduit and positively close the openings 15.

In filling a hot-water bottle fitted with a filling conduit as described, hot or boiling water is poured through the inlet 11 and the air displaced from within the bottle, together with the steam entrained therewith, escape through the arcuate or blow-off openings 15 and do not therefore interfere with the flow of filling water. Bubbling or spluttering is thus largely eliminated or mitigated.

In the modification shown in Fig. 6, the inner face 25 of the inlet wall 26 tapers inwardly and downwardly to form a conical seat. The inlet is screw-threaded internally at its lower part at 27, and is provided at its upper end with a horizontal annular seat 28 around which is an upstanding peripheral flange 29. Blow off openings 30 are provided in the inlet wall 26 and extend upwardly from the base thereof to about two-thirds of the height of the wall. Thereafter they are angled inwardly towards the inner face 25 and pass therethrough at an angle depressed from the horizontal, so as to tend to prevent water entering the bottle through them, and so as also to direct any jets of blowing-off air or steam in a direction other than vertically upwards.

In Figs. 7 and 8 respectively the upper periphery of the inlet 45 is on a level below and above that of the blow-off openings 46.

The conduits shown in Figs. 6 to 8 inclusive are adapted for closure by closure plugs having a central screw-threaded part and an annular seat part, the particular design of the closure plug being modified to suit requirements.

I claim:

1. For incorporation in a hot-water bottle, a filling conduit comprising an inner wall member of closed formation provided with internal screw-threads at least at its lower part and defining an opening, an outer wall member of closed formation surrounding said inner wall member and spaced therefrom, a plurality of connecting elements spaced around the outer perimeter of said inner wall member and bridging the space between said members, and an annular seat

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around the upper periphery of said outer wall member, the space between said members being adapted to allow escape of air and steam displaced from within a bottle in which the filling conduit is incorporated when hot water is poured into the bottle through said opening, and said screw-threads and annular seat being adapted to permit sealing of said space and said opening by a single closure plug when desired.

2. For incorporation in a hot-water bottle, a filling conduit comprising an inner wall member of closed formation provided with internal screw-threads at least at its lower part and defining an opening, an outer wall member of closed formation surrounding said inner wall member and spaced therefrom, a plurality of connecting elements spaced around the outer perimeter of said inner wall member and bridging the space between said members, an annular seat around the upper periphery of said outer wall member, and an upstanding peripheral flange around the outer perimeter of said annular seat, the space between said members being adapted to allow escape of air and steam displaced from within a bottle in which the filling conduit is incorporated when hot water is poured into the bottle through said opening, and said screw-threads and annular seat being adapted to permit sealing of said space and said opening by a single closure plug when desired.

3. For incorporation in a hot-water bottle, a filling conduit comprising a central inner member of closed circular formation provided with internal screw-threads at least at its lower part and defining an opening, an outer wall member of closed circular formation surrounding said inner wall member in spaced relationship relative thereto and presenting an upwardly-convergent inner wall surface towards the outer wall surface of said inner wall member, a plurality of circumferentially-spaced connecting elements bridging the space between the adjacent wall surfaces of said wall members to define a plurality of upwardly-convergent arcuate slots between said adjacent wall surfaces, an annular seat around the upper periphery of said outer wall member, and an upstanding flange around the outer perimeter of said annular seat, said slots being adapted to allow escape of steam and air displaced from within a bottle when hot water is poured into the bottle through said opening, and said screw-threads, annular seat and flange being adapted to permit sealing of said opening and slots by a single closure plug when desired.

4. In combination, a filling conduit adapted for incorporation in a hot-water bottle and a closure plug therefor, said conduit comprising an inner wall member of closed formation provided with internal screw-threads at least at its lower part and defining an opening, an outer wall member of closed formation surrounding said inner wall member and spaced therefrom, a plurality of connecting elements spaced around the outer perimeter of said inner wall member and bridging the space between said members, and an annular seat around the upper periphery of said outer wall member, the space between said members being adapted to allow escape of air and steam displaced from within a bottle in which the filling conduit is incorporated when hot-water is poured into the bottle through said opening, and said closure plug comprising a central screw threaded part adapted to engage the screw threads of said inner wall member and

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close said opening and a peripheral seat part having a washer of resilient material on its underside and adapted to engage over said annular seat part and seal said space.

5. For incorporation in a hot-water bottle, a filling conduit comprising a central inner member of closed circular formation provided with internal screw-threads at least at its lower part and defining an opening, an outer wall member of closed circular formation surrounding and overtopping said inner wall member in spaced relationship relative thereto, a plurality of spaced connecting elements disposed radially with respect to said inner wall member and bridging the space between said members, an annular seat around the upper periphery of said outer wall member, and an upstanding flange around the outer perimeter of said annular seat, the space between said members being adapted to allow escape of steam and air from within a bottle, in which the filling conduit is incorporated, when hot water is poured into the bottle through the opening, and said internal screw threads, annular seat, and flange being adapted to permit sealing of said opening and said space by a single closure plug when desired.

6. A filling conduit as claimed in claim 5, in which the upper surface of said inner wall member and the adjacent surface of the overtopping part of said outer wall member slope downwardly and inwardly towards said opening whereby jets of air and steam issuing from the bottle through the space between said wall members do not flow counter to the direction of flow of the hot water being poured into the bottle through the opening.

7. For incorporation in a hot-water bottle, a filling conduit comprising a central inner member of closed circular formation provided with internal screw-threads at least at its lower part and defining an opening, an outer wall member of closed circular formation surrounding and overtopping said inner wall member in spaced relationship relative thereto, the upper part of the inner surface of said inner wall member and the inner wall surface of the overtopping part of said outer wall member being in alignment and tapering downwardly and inwardly to form a bearing surface of inverted frusto-conical shape, a plurality of spaced connecting elements disposed radially with respect to said inner wall member and bridging the space between said members, an annular seat around the upper periphery of said outer wall member, and an upstanding flange around the outer perimeter of said annular seat, the space between said members being adapted to allow escape of steam and air from within a bottle, in which the filling conduit is incorporated, when hot water is poured into the bottle through the opening, and said internal screw threads, annular seat, bearing surface and flange being adapted to permit sealing of said opening and said space by a single closure plug when desired.

8. For incorporation in a hot-water bottle, a filling conduit comprising a central inner member of closed circular formation provided with internal screw-threads at least at its lower part and defining an opening, an outer wall member of closed circular formation surrounding said inner wall member in spaced relationship relative thereto and projecting above the upper level thereof, a plurality of spaced connecting elements disposed radially with respect to said inner wall member and bridging the space between said members,

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an annular seat around the upper periphery of said outer wall member, and an upstanding flange around the outer perimeter of said annular seat, the space between said members being adapted to allow escape of steam and air from within a bottle, in which the filling conduit is incorporated, when hot water is poured into the bottle through the opening, and said internal screw-threads, annular seat and flange being adapted to permit sealing of said opening and said space by a single closure plug when desired.

9. For incorporation in a hot-water bottle, a filling conduit comprising a central inner member of closed circular formation provided with internal screw-threads at least at its lower part and defining an opening, an outer wall member of closed circular formation surrounding said inner wall member in spaced relationship relative thereto, the upper level of said outer wall member being lower than that of said inner wall member, a plurality of spaced connecting elements disposed radially with respect to said inner wall member and bridging the space between said members, an annular seat around the upper periphery of said outer wall member, and an upstanding flange around the outer perimeter of

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said annular seat, the space between said members being adapted to allow escape of steam and air from within a bottle, in which the filling conduit is incorporated, when hot water is poured into the bottle through the opening, and said internal screw-threads, annular seat and flange being adapted to permit sealing of said opening and said space by a single closure plug when desired.

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