April 4, 1967 J. K. LYON 3,312,402

TUB FILLER

Filed Nov. 9, 1964

FIG. 1.

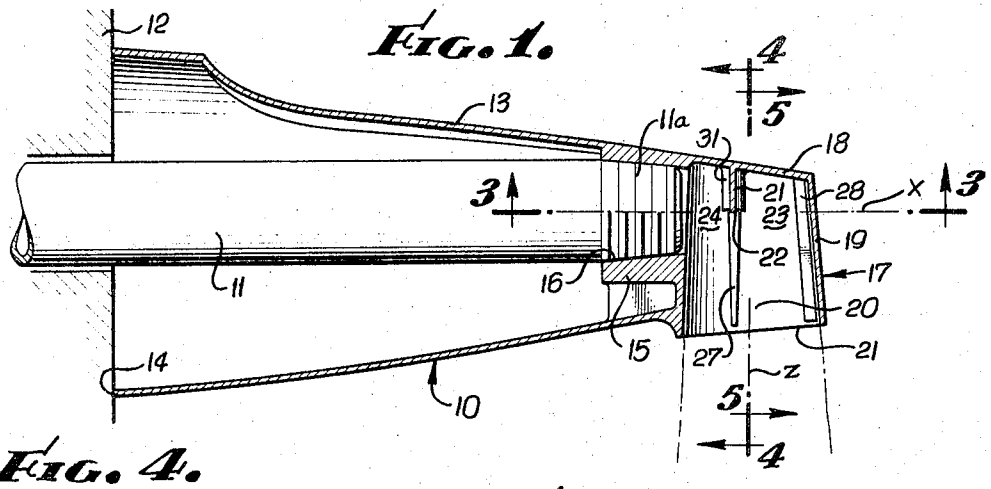


FIG. 4.

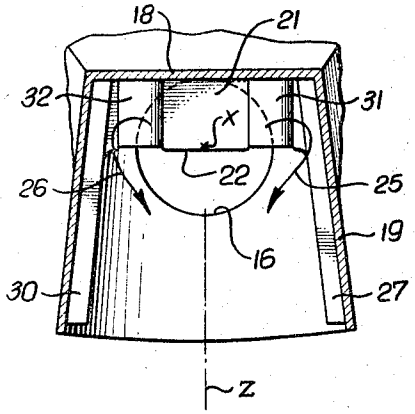


FIG. 2.

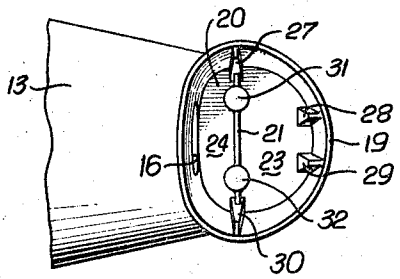


FIG. 3.

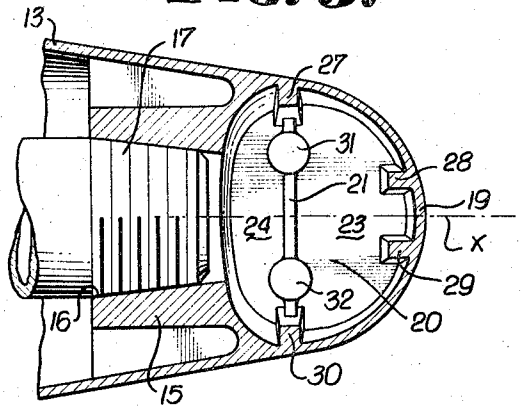
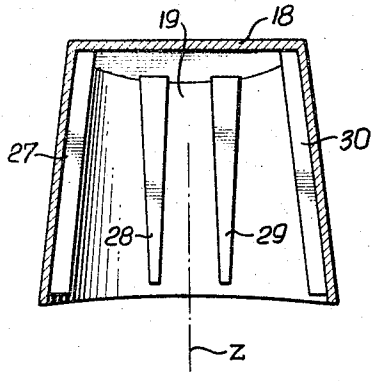


FIG. 5.



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TUB FILLER

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7 Claims. (Cl. 239—552)

This invention relates to plumbing fixtures and particularly to a tub filler.

A typical tub filler has a right-angled spout at its end that presumably defines the boundary of the emergent stream. However, small sections of the stream tend to angle sharply from the end of the spout, causing the deposit of water on the ledge of the tub, the floor, and elsewhere but in the tub. This is a source of constant annoyance. The problem increases materially under high flow conditions.

Some possible solutions are unacceptable. For example, a large radius spout is inconsistent with current esthetic design trends. Extended spouts are hazardous.

The primary object of this invention is to provide a tub filler having a sharp relatively truncated right-angled spout that nevertheless effectively confines the entire emergent stream to the space defined by the downward projection of the spout. I have discovered that this result may be accomplished by judicious location of a wall in the spout chamber that divides the incoming water into two sections. The interaction of the two stream sections results in an unexpected total compliance with the path defined by the spout itself.

Another object of this invention is to provide a tub filler of this character that can be easily made by conventional die casting methods.

This invention possesses many other advantages, and has other objects which may be made more clearly apparent from a consideration of one embodiment of the invention. For this purpose, there is shown a form in the drawings accompanying and forming a part of the present specification, and which drawings, unless as otherwise indicated, are true scale. This form will now be described in detail, illustrating the general principles of the invention; but it is to be understood that this detailed description is not to be taken in a limiting sense, since the scope of this invention is best defined by the appended claims.

Referring to the drawings:

FIGURE 1 is an axial sectional view of a tub filler incorporating the present invention and shown installed;

FIG. 2 is a fragmentary bottom plan view, showing the spout of the tub filler;

FIG. 3 is an enlarged fragmentary sectional view taken along a plane indicated by line 3—3 of FIG. 1; and

FIGS. 4 and 5 are enlarged fragmentary transverse sectional views taken as indicated by the lines 4—4 and 5—5 of FIG. 1.

In FIG. 1 there is illustrated a tub filler **10** incorporating my invention. The tub filler may be made, by way of example, by die casting. The tub filler **10** cooperates with a pipe **11** that projects from the wall **12** above the bath tub (not shown). Flow in the pipe **11** is controlled by valve structures (not shown). The tub filler body **13** is hollow and telescopes over the pipe **11** to provide a suitable finished appearance. The base of the body has a circular edge **14** contacting the wall **12**. Adjacent the other end of the body **13** is an interior wall **15** that has a threaded opening **16** cooperating with the threaded end **11***a* of the pipe **11**. At the end of the tub filler **10** is a spout structure **17**. The spout structure **17** has an end wall **18** and peripheral wall **19** forming with the interior wall **15**, a spout chamber **20**. Opposite the end wall

18 is the spout opening **21**. The spout chamber **20** is generally cylindrical, but diverges sightly in a downward direction. The chamber **20** defines the vertical axis *z* of the stream that emerges from the spout opening **21**.

The threaded opening **16** forms an inlet to the spout chamber **20** adjacent the end wall **18**, with the end of the opening forming an orifice at the side of the spout chamber **20**. Extending downward from the end wall **18** is a projection **21** that extends entirely across the spout in partially opposed relationship to the opening **16**. This wall is spaced from the end of the opening **16** and has an edge **22** that extends at right angles to the axis *x* of the inlet opening **16**. As shown in FIG. 4, the projecting wall **21** substantially bisects the incoming stream so that the upper part of the stream remains behind the wall or projection **21** and the lower portion of the stream passes beyond the projection **21**. The projection **21** thus divides the spout into frontal and rearward sections **23** and **24**. The water in the section **24** (FIG. 4) divides as indicated by the arrows **25** and **26** and moves downwardly along the sides of that part of the stream that continues to the frontal section **23**. The flow is highly turbulent. By the time the water in the rearward section **24** reaches the lower spout opening **21** it has a defined path substantially parallel to the vertical axis *z*. The water in section **23** is believed to have some effect upon the stream as it enters the frontal section **23**. The stream in the frontal section **23** also has a defined course as it leaves the opening **21**. I have found that the projection **21** must be spaced sufficiently far from the inlet **16** in order to produce the desired result.

Stream dividers **27, 28, 29, 30** extend as ribs or vanes along the inside of the peripheral wall **19**. The divider vanes **27** and **30** extend downwardly from the opposite ends of the partition wall **21** and the divider vanes **28** and **29** extend downwardly at the front portion of the peripheral wall **19**.

The wall or partition **21** has two enlarged portions **31** and **32** that reinforce the wall **21** and provide surfaces for cooperation with mold ejection pins.

The inventor claims:

1. A tub filler or the like comprising a spout containing a chamber having a closed upper wall, an open lower end providing an outlet, and side wall means containing a lateral inlet orifice substantially above said lower end, baffle means carried by said upper wall extending downwardly into said chamber a distance below a projection of the upper edge of said orifice and terminating above a projection of the lower edge of said orifice dividing said chamber into rearward and forward zones receiving upper and lower portions respectively of a stream emerging from said orifice, said chamber having a transverse dimension greater than that of said orifice at the elevation of the lower edge of said baffle means, the ratio of said transverse dimensions being such that the projected stream impinging on said baffle means will be deflected downwardly and transversely with respect to said orifice to entrain air and intermingle with the remaining stream to produce an aerated stream at said lower end.

2. A tub filler or the like according to claim **1** wherein said side wall means carries additional baffle means extending into said chamber.

3. A tub filler or the like according to claim **1** wherein said side wall means carries a plurality of ribs projecting downwardly in said chamber to an elevation below said baffle means.

4. A tub filler or the like according to claim **1** wherein said side wall means carries a plurality of ribs projecting downwardly from said baffle means towards said lower end.

5. A tub filler or the like according to claim **1** wherein said side wall means carries a plurality of ribs disposed

in said forward zone and extending downwardly towards said lower end.

6. A tub filler or the like according to claim 1 wherein said side wall means is downwardly divergent.

7. A tub filler or the like according to claim 1 wherein said baffle means terminates at an elevation substantially equidistant from the upper and lower edges of said orifice.

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EVERETT W. KIRBY, *Primary Examiner.*