

March 19, 1940.

J. B. DAHL  
WATER SILENCER  
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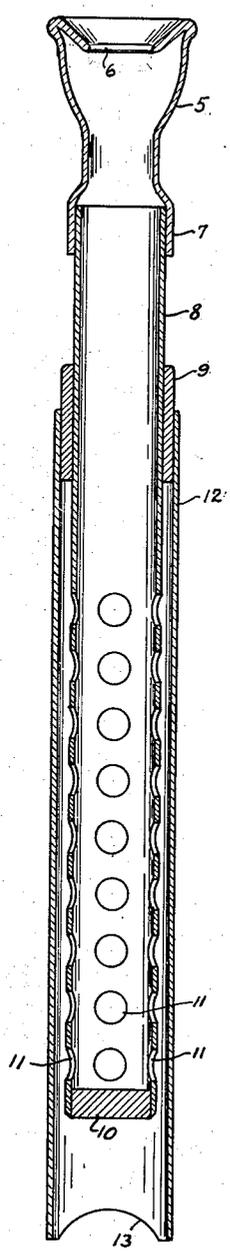


Fig. 1

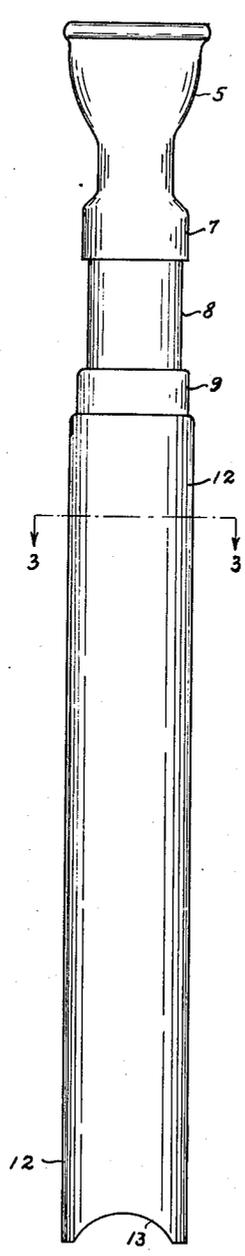


Fig. 2

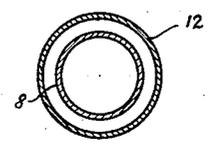


Fig. 3

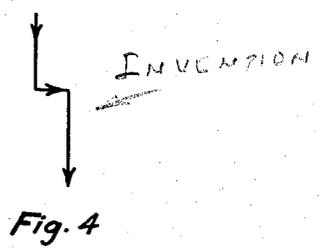


Fig. 4

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## UNITED STATES PATENT OFFICE

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## WATER SILENCER

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Application February 28, 1939, Serial No. 258,934

2 Claims. (Cl. 181-49)

My invention relates to improvements in water silencers of the type where the static head of the water is eliminated by a change in the direction of the flow.

5 When a liquid under high pressure flows out of a pipe, faucet or other vessel the liquid particles are flung out with a large speed and will set the surrounding air in vibration. A considerable amount of the energy inherent in the pressure head under which the liquid is flowing will be transferred into noise. This is particularly objectionable in many instances such as when drawing water for baths in multi-family dwellings, etc., where silence would be desirable.

15 An important object of my invention is, therefore, to provide a device which will silence the water flowing into an open vessel, such as a bath tub.

20 Another object of my invention is to provide a device of such simple construction that it can be manufactured at a low cost and installed without difficulty.

Further objects and advantages of my invention will be apparent during the course of the following description.

25 In the accompanying drawing, forming a part of this specification, and in which like numerals are employed to designate like parts throughout the same:

30 Figure 1 is a central section through a device embodying my invention,

Figure 2 is a side elevation of same,

Figure 3 is a section along line 3-3 in Fig. 2, and,

35 Figure 4 is a diagrammatical sketch illustrating the direction of flow.

In the drawing, wherein for the purpose of illustration, is shown a preferred embodiment of my invention, the numeral 5 designates a tubular body, preferably of flexible material such as rubber, with the entrance opening 6 adapted to slip over a faucet. One end 7 of the flexible tubular body is attached to the tube 8 which is slidably inserted in bushing 9. The other end of tube 8 is permanently closed with plug 10. The end of tube 8 which is near plug 10 has a number of holes or perforations 11. Bushing 9 is fastened in the outer tubing 12 which is open at one end carries suitable notches 13 to permit the liquid to escape.

50 The operation of my invention is as follows: The opening 6 is placed over the outlet opening, such as the faucet, and the liquid flows through the inner tube 8 and through the openings 11 and down through the tube 12 and out through the open end of same. The tube 8 is slidably in bushing 9 so as to permit the longitudinal exten-

sion of the device to the bottom of the vessel to be filled.

5 The silencing action of my invention depends on a scientific principle well known in physics and hydraulics. According to this principle any change in direction of a jet of liquid is accompanied by a loss in hydro-static pressure, or simply a loss of energy. In my invention the problem of removing the hydro-static pressure head of the liquid is accomplished by changing the direction of flow first at right angles outward, and then again at right angles downward, as indicated by arrows in Fig. 4. According to the above mentioned scientific principle a change of direction of 180 degrees removes the hydro-static pressure head completely, and that is what is accomplished in my invention by changing direction of 90 degrees twice. It must be understood, however, that a smaller change than 180 degrees might in many cases remove sufficient pressure head to make the flow silent, and I will therefore not be limited to the degrees of change in the direction of the flow, as it would take only mechanical skill to change my device to have a total change in direction of, say, 150 degrees.

25 It is to be understood that the form of my invention, herewith shown and described, is to be taken as a preferred example of the same, and that various changes of materials, in the shape, size, form and arrangement of parts may be resorted to, without departing from the spirit of my invention, or the scope of the subjoined claims.

Having thus described my invention, I claim:

35 1. A water silencer of the character described comprising a tubular inner body, closed at its lower end and having numerous transverse perforations near its closed end; an outer tubular member placed concentric over said inner tubular body, said outer tubular member being open at the lower end and extending over the closed end of the inner tubular body, and a bushing slidably on said inner tubular body and fastened to the upper end of the outer tubular member.

40 2. A water silencer of the character described comprising a tubular inner body, closed at its lower end and having a plurality of transverse holes near its closed end; an outer tubular member placed concentric over said inner tubular body, the outer tubular member being narrower at the upper end which forms a water-tight slidable bearing around the inner tubular body, this bearing being normally located above the transverse holes in said inner tubular body, the lower end of the outer tubular member being open, and flexible coupling means for connecting the open upper end of the inner tubular body to a faucet.

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