Oct. 25, 1960 S. FREEMAN 2,957,476

MOUTH WASHING DEVICE

Filed Sept. 9, 1959 2 Sheets-Sheet 1

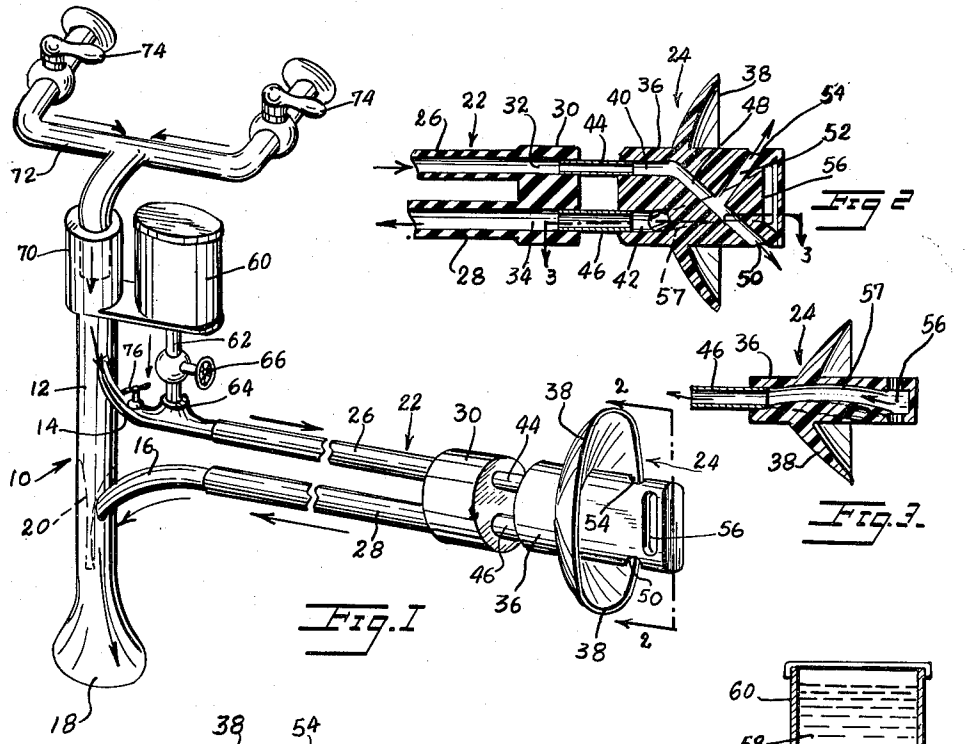


Fig. 1

Fig. 2

Fig. 3

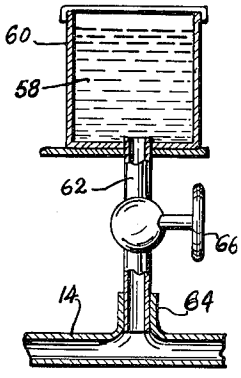


Fig. 4

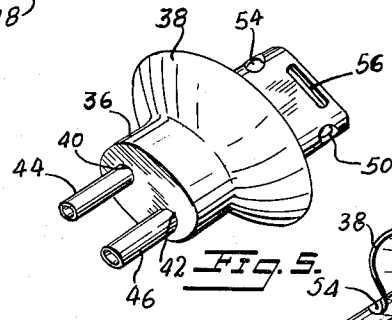


Fig. 5

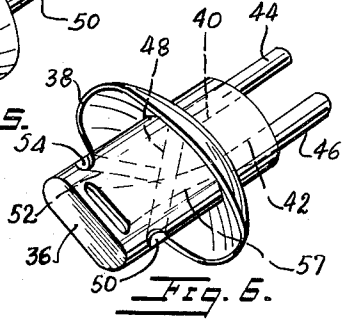


Fig. 6

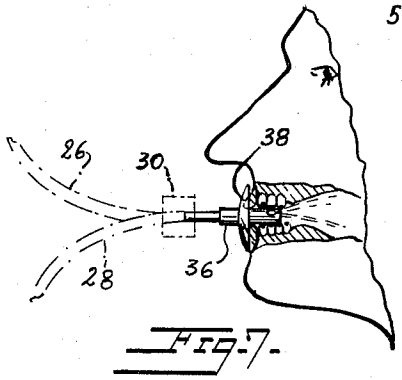


Fig. 7

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MOUTH WASHING DEVICE

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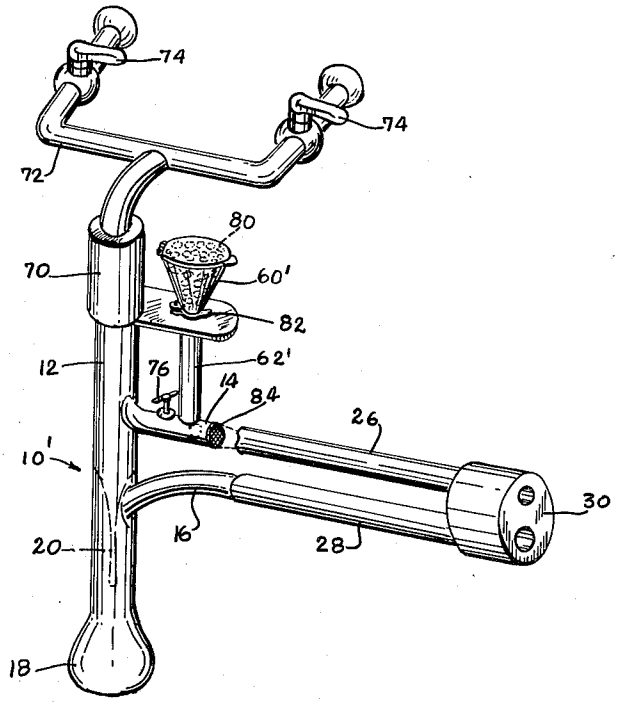


Fig. 8.

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MOUTH WASHING DEVICE

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This invention relates generally to spraying devices and more particularly to a spraying device adapted for use inside the human mouth for cleaning the mouth and treating the teeth and gums.

A primary object of the present invention is to provide a spraying device which can be used for directing a spray of liquid under pressure to the inside of the mouth.

Another object is to provide means for introducing an antiseptic or other medicament into the liquid spray.

A further object is to provide a spraying device of this kind with suction means for facilitating discharge of the cleaning liquid.

It is also proposed to localize the spray to the mouth and to prevent liquid from reaching other places on the body.

It is also an object to provide a spraying device of this kind that is sanitary, simple in construction and that can be manufactured and sold at a reasonable cost.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

Fig. 1 is a perspective view of a spraying device embodying the invention, showing one way the spraying device may be supplied with liquid.

Fig. 2 is a sectional view taken on the plane of the line 2—2 of Fig. 1.

Fig. 3 is a sectional view taken on the plane of the line 3—3 of Fig. 2.

Fig. 4 is a sectional view taken through the center of the apparatus for supplying antiseptic.

Fig. 5 is a perspective view of the mouthpiece assembly.

Fig. 6 is a similar view showing the mouthpiece assembly in reversed position.

Fig. 7 is a side elevational view showing the mouthpiece assembly of Fig. 5 in position on the mouth of a user, parts being broken away.

Fig. 8 is a fragmentary view similar to Fig. 1 showing a modification of the invention.

Referring in detail to the drawings, a spraying device made in accordance with the invention is shown in Fig. 1 and is designated generally by the reference numeral 10. This spraying device 10 consists of a length of pipe 12 having an outlet branch 14 adjacent one end and an inlet branch 16 adjacent the other end. One end of the pipe is preferably externally screw threaded and its other end is preferably flared as indicated at 18. The passage through the pipe is restricted immediately above the connection between the pipe and inlet branch 16 in order to form a Venturi-shaped passage as indicated at 20.

A combined connector and adapter assembly indicated generally at 22 preferably formed of flexible plastic material is interposed between the pipe 12 and a mouthpiece assembly 24. The combined connector and adapter consists of a pair of tubes 26 and 28 formed integrally

at one end with an annular adapter member 30. The adapter member 30 is formed with passages 32 and 34 communicating and registering with the passages in the tubes 26 and 28, respectively.

The mouthpiece assembly 24 comprises a mouthpiece having a cylindrical solid body 36 of plastic material or other suitable material. A dish-shaped skirt constituting a shield 38 is integrally formed on the body intermediate its ends. At one end, the body is formed with spaced passages 40 and 42 intersecting the end surface of the body and extending inwardly to a point inwardly of the connection between the body and shield. A short tube 44 is fitted in passage 40 and serves as an inlet for the mouthpiece, and a similar short tube 46 is fitted in passage 42 serving as an outlet for the mouthpiece. The inner end of passage 40 communicates with an inlet passage 48 leading to an inlet hole 50 on one side of the body, and with a branch inlet passage 52 leading from passage 48 to an inlet hole 54 on the opposite side of the body. The holes are positioned inwardly of the adjacent end of the body 36 and offset laterally from the longitudinal center of the body 36. The body is also formed with a transverse opening 56 through the body outwardly of the holes 50 and 54. Opening 56 communicates with an outlet passage 57, behind the inlet passage 48 as viewed in Fig. 2, and communicates with outlet passage 42 and tube 46.

In assembling the apparatus, the free ends of the tubes 26 and 28 of the combined connector and adapter assembly are slipped over and detachably connected to the outer ends of outlet branch 14 and inlet branch 16, respectively. The mouthpiece assembly 24 is connected to the connector and adapter assembly by inserting the tubes 44 and 46 into the passages 32 and 34 of the annular adapter 30 as seen in Fig. 2.

The outlet branch 14 of pipe 12 serves as a support for a supply of antiseptic or other medicament 58 contained in a vessel 60. An outlet pipe 62 leads from the vessel to and through an opening 64 in the outlet branch 14 whereby the antiseptic or medicament is introduced into the liquid. A valve 66 is interposed in the outlet pipe 62 of the vessel to control the supply of antiseptic.

In operation, liquid may be supplied to the spraying device in any suitable manner. One example is shown in Fig. 1 wherein the threaded end of the pipe 12 is shown connected by a coupling 70 to a water supply faucet 72, which may be of the mixing type whereby the pressure and temperature of the water may be controlled as described by adjustment of the valves 74. Another valve 76 in branch 14 also enables the pressure of the liquid to be varied to control the sprays from the holes 50 and 54 in the mouthpiece body 36. The end of the mouthpiece body 36 formed with the holes 50 and 54 and slot 56 is placed in the mouth between the teeth with the shield 38 spanning the lips thereby providing a seal thereat as shown in Fig. 7. When the water is turned on, it passes inwardly through the inlet tube 44 of the mouthpiece and through passages 48 and 52 and out through the holes 50 and 54, thereby spraying and cleaning the mouth and teeth. The sprayed water will find its way out through the slot 56 into outlet passage 57, tubes 46 and 28 and inlet branch 16 to pipe 12.

A lotion or supply of antiseptic or medicament 58 may be introduced into the stream of liquid by opening the valve 66. The sprays produce a cleansing and a certain stimulating and massaging effect on the skin of the mouth and on the teeth.

The location of the Venturi-shaped passage 20 at the connection between the pipe 12 and inlet branch 16 provides a suction thereat whereby the liquid is sucked through the mouthpiece outlet tube 57, and tubes 46 and 28 to branch 16, into the pipe 12 and drain.

The modified form of the spraying device **10'** shown in Fig. 8 differs from the form of Figs. 1 to 7, inclusive, in that antiseptic tablets are used as a medicament instead of liquid. A supply of tablets **80** is held in a funnel shaped hopper **60'**. The tablets fall by gravity through an opening in the bottom wall of the hopper which opening is controlled by a manually actuated valve **82**. The tablet falls downwardly through outlet pipe **62'** into the liquid in branch **14**. A strainer **84** is positioned in the branch **14** downstream to prevent tablets from flowing through the system.

While I have illustrated and described the preferred embodiment of my invention, it is to be understood that I do not limit myself to the precise construction herein disclosed and that various changes and modifications may be made within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:

1. A spraying device comprising a mouthpiece having a solid cylindrical body with an inlet and an outlet at one end, said body having a passage at its other end communicating with said inlet, said passage leading to a hole serving as an outlet for the mouthpiece, said body having a branch passage leading from said first-named passage and communicating with a hole serving as an outlet for the mouthpiece, said body at said other end having an opening through the body from side to side thereof, said body having another passage connecting said opening with said first-named outlet, tubing connected to said inlet and outlet, and a pipe connected across said tubing, said pipe adapted at one end for connection to a supply of water under pressure whereby water is supplied to the cylindrical body under pressure.

2. A spraying device as defined in claim 1, characterized by a dish-shaped skirt integral with the body and intermediate its ends for sealing the device around the lips of the user.

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