

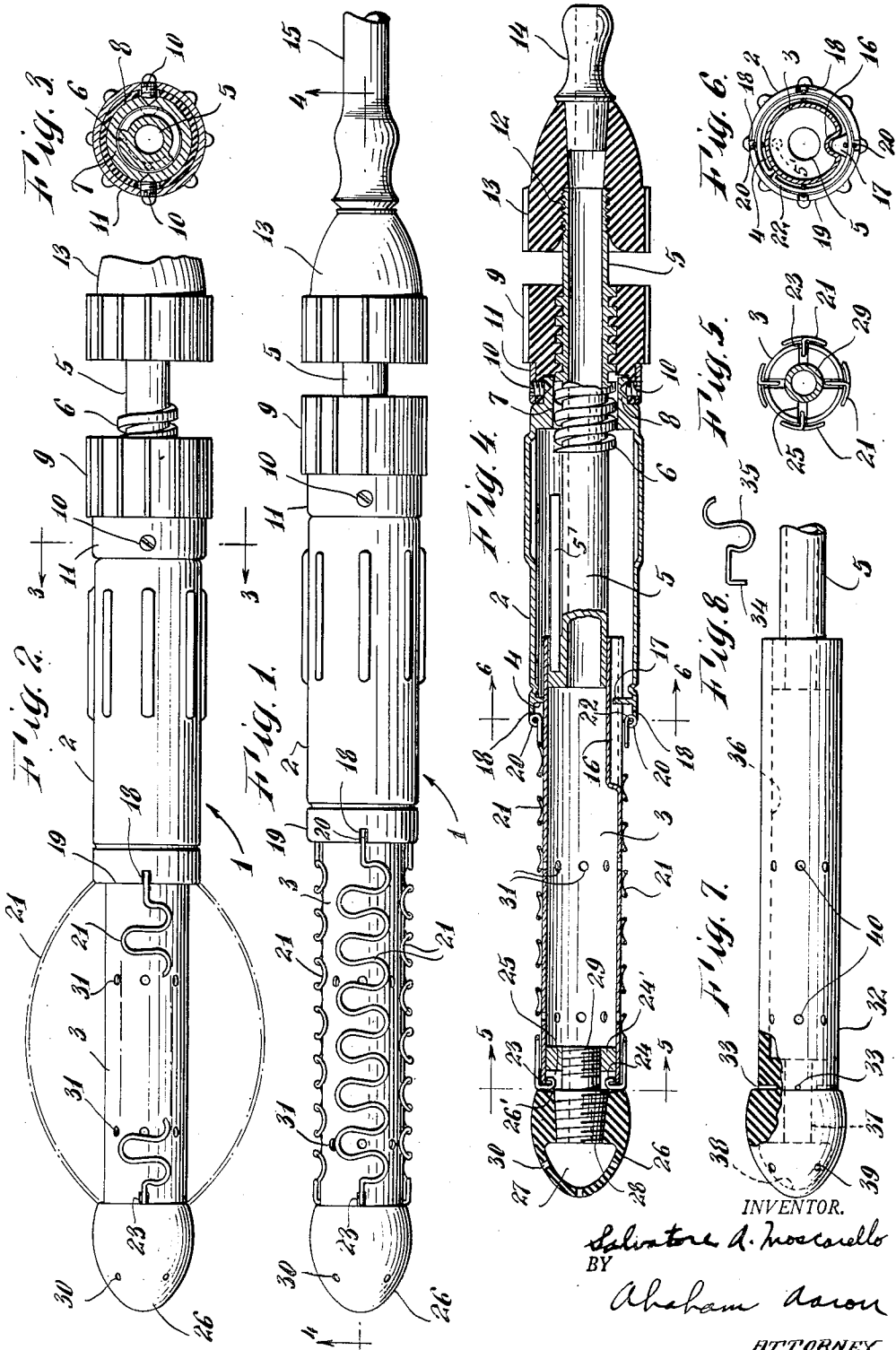
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SPRAYING DEVICE WITH DILATOR

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SPRAYING DEVICE WITH DILATOR

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4 Claims. (Cl. 128—243)

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The purpose of my invention is to provide a spraying device with a dilator which may be inserted into the body of a human being at various openings for purposes of flushing the various parts, for cleansing or medical reasons.

Referring to the drawings which illustrate the invention, in which

Figure 1 is a plan view of the device in normal position.

Figure 2 is a similar view to Fig. 1, but shows the device in a partly expanded position.

Figure 3 shows a section taken on the line 3—3 of Fig. 2.

Figure 4 shows a section taken on the line 4—4 of Fig. 1, with the rubber hose removed.

Figure 5 shows a section taken on the line 5—5 of Fig. 4.

Figure 6 shows a section taken on the line 6—6 of Fig. 4.

Figure 7 is a modified form of a tip member of the device made in one piece.

Figure 8 shows the end of the corrugated wire which fits into the modified form, Fig. 7.

Referring specifically to the drawing, the spraying device 1 is made up of a hollow handle 2 of suitable inside diameter so as to permit clearance to a cylinder 3 of smaller diameter.

A circular wall 4 integral with the handle 2 permits a close but slidable fit for the cylinder 3. Mounted to the inside end of the cylinder 3 is a tube 5. A worm thread 6 is cut onto the tube 5 at approximately the center thereof. The pin 5' is driven into the expanded left hand side of the tube 5 and acts as a stop for the forward movement of the handle 2 which is turned down at 7 to clear the worm thread 6 and at a further turned part 8 is mounted a knurled plastic nut 9, screwed to the part 8 by the set screws 10 through the metal collar 11. The ends of set screws 10 fit into a circular groove formed in the rear portion of handle 2 so that although nut 9 and handle 2 are prevented from separation by means of set screws 10, it is nevertheless possible to rotate nut 9 about its longitudinal axis while handle 2 remains fixed. At the extreme end of the tube 5, a screw thread 12 is cut which accommodates a plastic holder 13 for nipple 14. Hose 15 is pressed on to nipple 14 to permit the flow of any suitable liquid. A groove 16 is formed in the inner end of cylinder 3 so as to accommodate lug 17 which projects from handle 2.

At the other end of handle 2, slots 18 are cut into headed formation 19 to accommodate a loop 20 of corrugated wire 21. As shown in the drawings said corrugated wire 21 comprises a wire

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having a series of bends of substantially sinusoidal wave form or a series of periodic furrows or undulations. A circular wire 22 is inserted through each loop 20 to hold all the wires 21 in place. At the forward end of cylinder 3, slots 23 are cut to accommodate the remaining end of wire 21 which is then bent over at 24 to hold the members secure. A plug 24 having slots 25 similar to slots 23 is previously inserted into cylinder 3.

A tip member 26 is hollowed out as at 27, and is screwed to a tapered end of the tube 28. The conical surface 26' of the tip bears snugly against the wire ends, closing off escape of any liquid through slots 23. The other end 29 is screw-threaded into the plug 24'. The holes 30, in the tip end, permit escape of liquid. The holes 31 in the cylinder also permit escape of liquid.

The corrugated wires 21 are so formed that they are concentric to the axis of the cylinder as clearly shown in Figure 5.

In Figure 7, I show a modified form of the tip member molded in combination with a cylinder member as shown at 32. Four small holes 33 are drilled into the tip to accommodate the bent over ends 34 of the corrugated wire 35. A central bore 36 connects with a small bore 37 to the hollow tip 38. The holes 39 and 40 again permit the flow of liquid.

In operation, a hose 15 is mounted to the nipple 14, thus permitting the flow of liquid into the device.

The operation of the dilator will now be explained. The dilator is inserted into the opening of the body which is to be irrigated. Holder 13 with nipple 14 and hose connection are held fixed with one hand while knurled nut 9 is rotated with the other hand. Since tube 5 and cylinder 3 are integral with holder 13 they remain fixed, and rotation of nut 9 causes it to move forward on threads 6 of tube 5. Nut 9 pushes handle 2 forward which then slides over cylinder 3 and presses the ends of corrugated wires 21 together. As the ends of corrugated wire 21 come together, the wire is bent into the arc shown by the dashed line in Figure 2. Groove 16 and lug 17 prevent handle 2 from rotating about cylinder 3 and pin 5 limits the extent to which handle 2 may be moved forward. Throughout the rotation of nut 9 set screws 10 move in the circular grooves of handle 2 into which they fit.

Although the drawings and specification disclose the best method in which I have contemplated embodying my invention, I desire in no

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way to be limited to the details of such disclosure, for in the further application of my invention, slight changes in form and proportions may be made without departing from the spirit of the invention within the broad scope of the appended claims.

What I claim as new and novel is:

1. A spraying device with a dilator comprising a cylindrical tube, a tip member at one end of said tube and a central holding member slidably carried by said tube and adapted to move toward said tip member, a number of corrugated wires connected to said tip member and to said holding member and positioned about the surface of said tube at spaced intervals so that when said holding member is moved towards said tip member said corrugated wires expand outward to form an oval shape.

2. A spraying device with a dilator comprising a tube, a tip member and a central holding member adapted to move along said tube toward said tip member, a number of wires bent in the form of a series of corrugations connected to said tip member and to said holding member positioned about said tube at spaced intervals so that when said holding member is moved towards said tip member said wires arch outwardly.

3. A spraying device with a dilator comprising a tube with an attached tip member at one end and a threaded portion adjacent the other, a holding member adapted to slide on said tube, a nut adapted to rotate about the axis of said tube in engagement with said threaded portion and push said holding member forward, a num-

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ber of wires bent in the form of a series of corrugations connected to said tip member and to said holding member so that when said holding member is moved towards said tip member said wires expand outward to form an oval shape.

4. A spraying device with a dilator comprising a tube with a tip member having openings attached to one end and a nipple adapted to receive a hose attached to the other end of said tube, a worm thread formed on said tube over a portion intermediate to its ends, a holding member adapted to slide over said tube, a nut having threads which are adapted to engage the worm thread portion of said tube; said nut and said holding member being arranged so that when said nut is rotated said holding member is pushed forward or backwards depending on the direction of rotation of said nut, a number of wires bent in the form of a series of corrugations connected to said tip member and to said holding member so that when said holding member is moved toward said tip member by rotating said nut said wires arch outwardly to form an oval shape.

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The following references are of record in the file of this patent:

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