April 10, 1928. 1,665,790

W. NOVACK

SANITARY DOUCHE NOZZLE

Filed Sept. 7, 1925

Fig. 1.

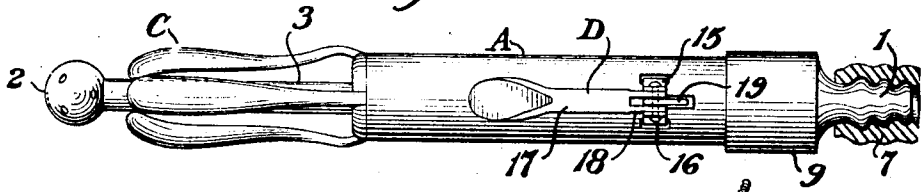


Fig. 2.

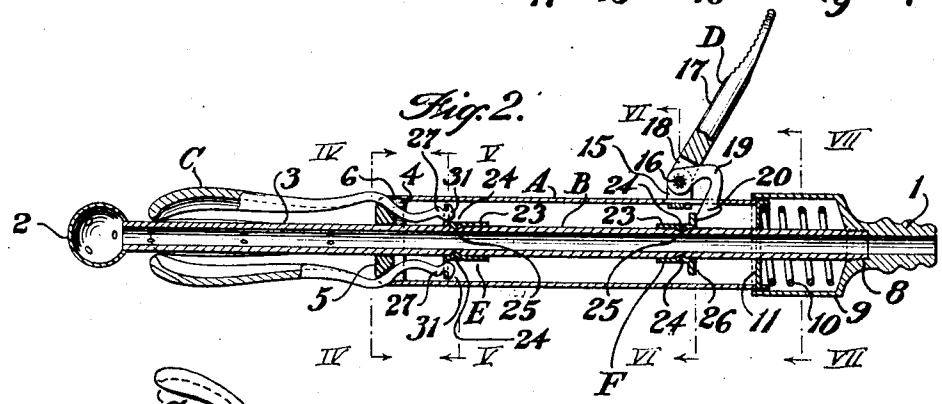


Fig. 3.

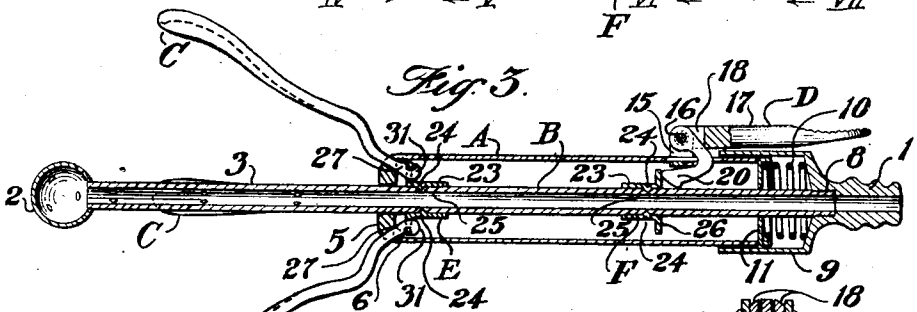
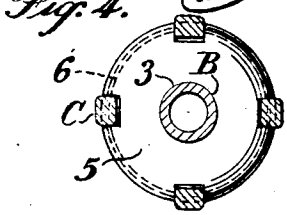


Fig. 4.



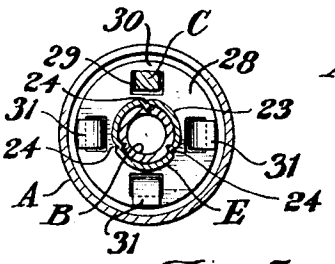


Fig. 5.

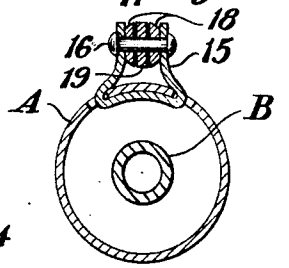
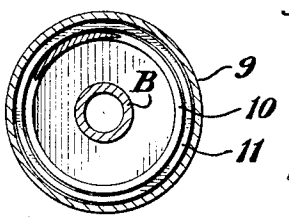


Fig. 6.

Fig. 7.



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SANITARY DOUCHE NOZZLE.

Application filed September 7, 1925. Serial No. 54,851.

This invention relates to improvements in dilating douche nozzles. The object of the invention is to cheapen the manufacture of such an article, render possible the efficient double functioning of some of the parts, and particularly, cheaply and efficiently effect the assembling of various parts after their surfaces have been finished without injuring the non-corrodible quality of such surfaces. The above and further objects will be pointed out more particularly in the following claims which are directed to an illustrative embodiment of the invention, solely for purposes of illustration and not limitation. The following specification describes such an illustrative embodiment in connection with the accompanying drawings which form a part hereof.

In the drawings,

Fig. 1 is a plan view of the complete nozzle in normal condition;

Fig. 2 is a vertical axial section through the same with the dilator moved into operating position;

Fig. 3 is a view similar to Fig. 2 with the structure shown in dilated position;

Fig. 4 is a cross-section, partly an elevation taken through the plane of line IV—IV of Fig. 2, looking in the direction of the arrows drawn to an enlarged scale;

Fig. 5 is a cross-section through the plane of line V—V of Fig. 2, looking in the direction of the arrows and drawn to an enlarged scale;

Fig. 6 is a similar view taken through the staggered plane of line VI—VI; and

Fig. 7 is a similar section taken through the plane of line VII—VII.

The nozzle comprises a relatively stationary sheath or tubular shell A adapted to protect the mouth of the organ to be irrigated from any moving parts. A tubular stem B extends from the entrance nipple 1 to the bulbous tip 2 axially through the shell A and provides a tubular spring reacting extension 3, extending out of the distal end of the shell A, within the locality embraced by a set of dilating arms C formed towards their inner ends with cam portions 4, and extending through the cam nipple 5, secured by screw threads 6, into the distal end of the shell A.

The nipple 1 adapted to form a convenient coupling with a hose 7, in addition to the completed socket 8 securing it to the proximal end of the stem B, is provided with a spring sheath 9 of a size to telescope about the distal end of the shell A. The spiral compression spring 10 reacts between the nipple end of the sheath 9 and a cap 11 which butts against the rim of the proximal end of the shell A, so that the compression spring 10 normally exerts a force tending to produce a relative axial movement between the stem B and the shell A, in other words, an outward movement or a movement towards the proximal end of the shell A for the stem B.

It is the function of this spring to hold the dilator arms C in contracted position, shown in Figs. 1 and 2. The dilation and contraction of the dilating arm C is effected through the medium of a longitudinal translation of the entire arms while the inner ends of the arms are held pivoted. An objective of the invention is to utilize the tubular stem B for its mechanical function in addition to its functioning as an induction duct for an irrigating fluid.

Functioning to overcome the contracting force of the spring 10 is an operator D, localized sufficiently near to the proximal end of the shell A as to be located always outside of the cavity to be irrigated. In its movement, this operator D comprises a trunnion clip 15 fixed to the shell A mounting the pivot pin 16, upon which is pivoted the operating lever 17 having a bifurcated end 18 straddling the pusher lever 19, adapted to swing inside of the shell A and held against undesired outward movement by a heel 20. The lever 17 engages the pusher lever 19 when moved in one direction but moves free of lever 19 in the other direction to fold down along the shell A. Fig. 1 shows the lever 17 in folded-down position for packing, while Fig. 2 shows the lever in operative position for manipulation.

An important part in the present invention is the means associated with the tubular stem B for imparting operative force from a manipulation of the operator D to the dilator arms through the means of the tubular stem B. It is to be understood that the entire nozzle structure is preferably fabricated from metal with all the parts having a smooth non-corrodible finish to permit of sterilizing and to prevent corrosion. In its manufacture, it is preferable that the entire stem B with its bulbous end 2 be finished as a complete article of manufacture before assembling and that the assembling act not

destroy the non-corrodible finished character of this element. To this end, a pair of flanged sleeves E and F are employed. The sleeve portions 23 of these parts fit slidably but snugly over the stem B. They are moved and held in proper position relatively to the end of the stem B preferably in a jig and then a blunt-ended pricking tool of relatively small cross-section is employed to form indentations 24 involving the metal of the sleeve 23 which is forced down and into the metal of the stem B, forming therein nesting pockets 25. It is preferred that the sleeves 23 be formed of nickel silver and the stem B of brass, softer than the nickel silver, so that a localized flowing of the parts takes place without constricting the duct within the stem B. This method of anchorage also precludes the mutilation of the surface of any of the parts to destroy its non-corrodible character.

The flange 26 of the part F directly cooperates with the pusher 19 to overcome the action of the spring 10 and to carry through a thrust against the heels 27 of the dilator arms C.

The part E is completed not by a flange 26 but by a spider 28 provided with circumferentially spaced lock sockets 29 which terminate outwardly in pivoting bars 30. The heels 27 of the dilator arms terminate in hooks 31 which readily fit into the lock sockets 29 to pivot upon the pivot bars 30, the same being held in place against the removal of the dilating arms when the entire nozzle is assembled. Thus, it is to be noted that the central tubular stem B performs various functions.

What I claim and desire to secure by United States Letters Patent is:

1. In a dilating douche nozzle an inner tubular metal stem; an outer tubular shell; a compression spring; means for reactively connecting said spring to exert a moving force relatively between said tubular stem and said tubular shell tending to effect an axial movement of one within the other; dilator arms projecting out from the distal end of said tubular shell; an operator associated with the proximal end of said tubular shell; means for utilizing said tubular stem as a mechanical element responsive to said operator for effecting a positive movement of said dilators relatively to said tubular shell without impairing the functioning of said tubular stem as a fluid-conducting non-corrodible duct, comprising a pair of flanged metal sleeves axially spaced along said tubular stem, one directly engageable by said operator and the other engaging the ends of said dilator arms, which said sleeves have inwardly projecting localized indentations nesting with complementary surface indentations on said tubular stem.

2. The structure as described in claim 1 and further characterized by the fact that the material of which the sleeves of said flanged sleeves are fabricated is substantially harder than that of which said tubular stem is constituted.

3. The structure described in connection with claim 1 and further characterized by the fact that the sleeves of said flanged sleeves are fabricated from nickel silver and said tubular stem is fabricated from brass.

4. In a dilating douche nozzle a tubular shell; dilator arms projecting from the distal end of said shell; a spider fixed to said stem and providing lock-pockets circumferentially spaced and terminating outwardly in pivot bars; and pivoting hooks integrally formed on the ends of said dilator arms, said hooks being capable of assemblage in pivotal relation with said bars to be locked in said lock-pockets to effect the operation of said dilator arms.

5. In a dilating douche nozzle, in combination, an inner tubular stem, an outer tubular shell, a spring disposed in operative relation between the stem and shell, dilator arms adapted to be operated by relative movement between the stem and shell projecting out from one end of said shell, a flange fixed to said stem within the shell, and an operator pivoted upon said shell having one end in direct engagement with said flange to cause relative movement of said stem and shell against the action of said spring to operate said dilator arms.

6. In a dilating douche nozzle, in combination, an inner tubular stem, an outer tubular shell, a spring disposed in operative relation between the stem and shell, dilator arms adapted to be operated by relative movement between the stem and shell projecting out from one end of said shell, a flange fixed to said stem within the shell, said shell having an aperture adjacent said flange and other apertures at either side of the first-mentioned aperture, a strap passing through said second apertures having its free ends upstanding from said shell at either side of said first aperture, and an operator pivoted to said strap ends and having one end extending through the first aperture into direct engagement with said flange to cause relative movement of said stem and shell against the action of said spring to operate said dilator arms.

7. In a dilating douche nozzle, in combination, an inner tubular stem, an outer tubular shell, a spring disposed in operative relation between the stem and shell, dilator arms adapted to be operated by relative movement between the stem and shell projecting out from one end of said shell, a flange fixed to said stem within the shell, said shell having an aperture adjacent said flange and an operator pivoted on said shell and having one end extending through the aperture into

direct engagement with said flange to cause relative movement of said stem and shell against the action of said spring to operate said dilator arms, said operator comprising a pusher lever and a bifurcated operating lever straddling said pusher lever and operating the same in one direction but folding down against the side of the shell in the other direction.

8. In a dilating douche nozzle, in combination, an inner tubular stem, an outer tubular shell, a spring disposed in operative relation between the stem and shell, dilator arms adapted to be operated by relative movement between the stem and shell projecting out from one end of said shell, a flange fixed to said stem within the shell, said shell having an aperture adjacent said flange and other apertures at either side of the first-mentioned aperture, a strap passing through said second apertures having its free ends upstanding from said shell at either side of said first aperture, and an operator pivoted to said strap ends and having one end extending through the first aperture into direct engagement with said flange to cause relative movement of said stem and shell against the action of said spring to operate said dilator arms, said operator comprising a pusher lever and a bifurcated operating lever straddling said pusher lever and operating the same in one direction but folding down against the side of the shell in the other direction.

9. In a dilating douche nozzle, in combination, an inner tubular stem, an outer tubular shell, a cap on the proximal end of said shell through which said stem extends, a sheath secured to said stem beyond the end of said shell and telescopically embracing said shell, dilator arms adapted to be operated by relative movement between said stem and shell projecting out from one end of said shell, a spring disposed between said cap and shield tending to cause relative movement between said stem and shell in one direction and an operator acting upon said stem and shell to cause relative movement therebetween in the opposite direction against the action of said spring.

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