

Feb. 3, 1953

C. D. PURSER
VAGINAL SYRINGE

2,627,271

Filed Sept. 21, 1951

2 SHEETS—SHEET 1

Fig. 1.

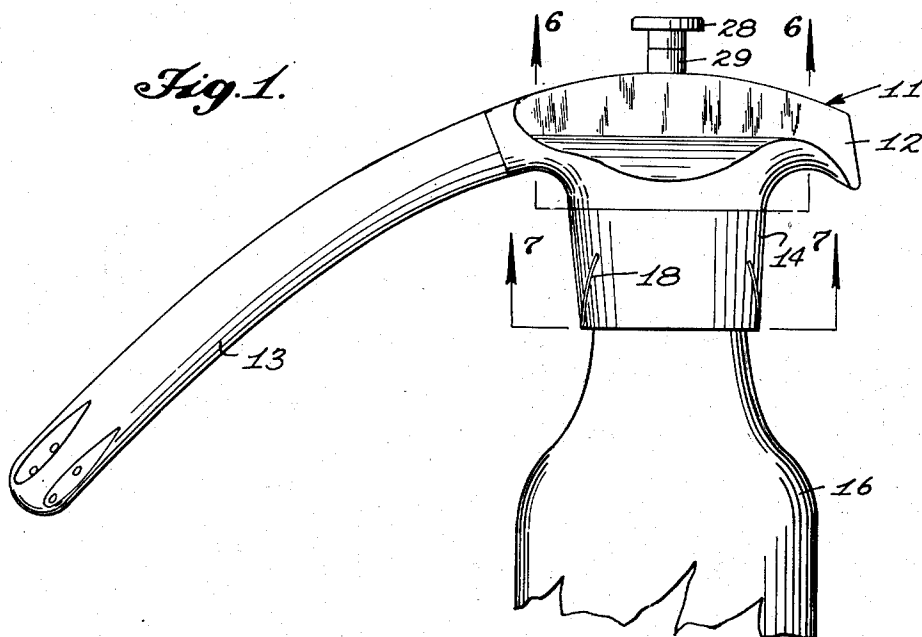


Fig. 2.

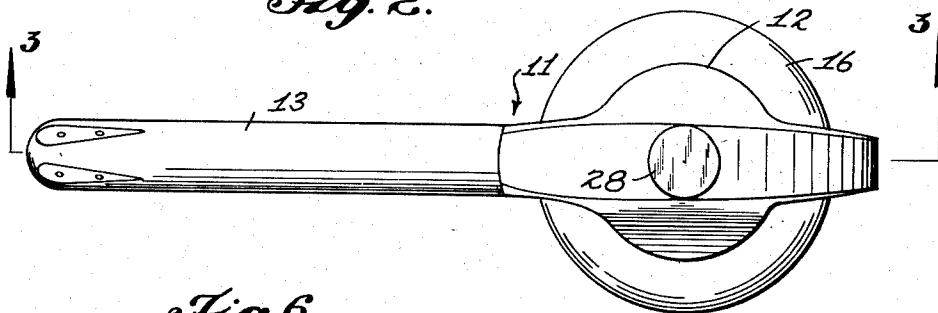


Fig. 6.

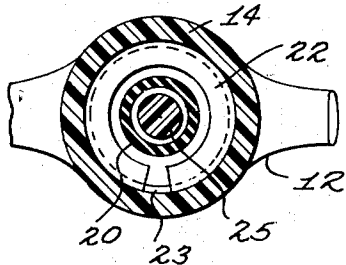
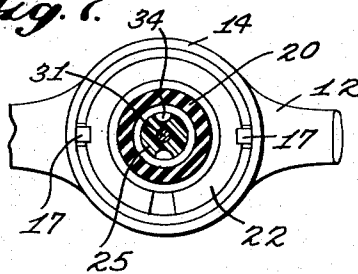


Fig. 7.



INVENTOR

CARL D. PURSER

BY

McMorrow, Permar & Davidson
ATTORNEYS

Feb. 3, 1953

C. D. PURSER
VAGINAL SYRINGE

2,627,271

Filed Sept. 21, 1951

2 SHEETS—SHEET 2

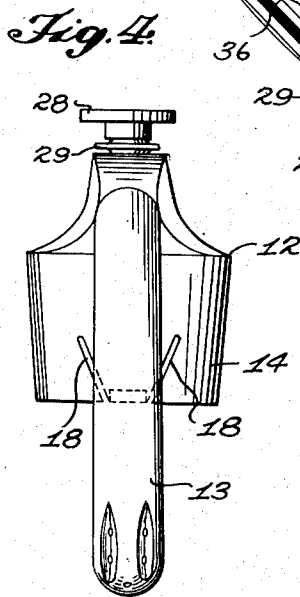
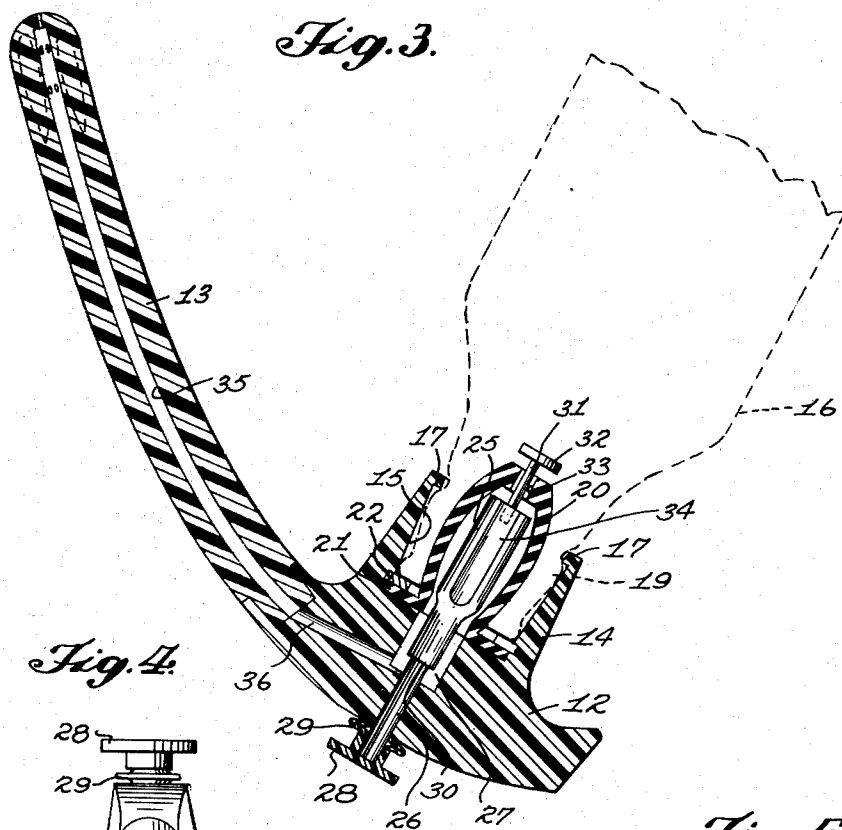


Fig. 5.

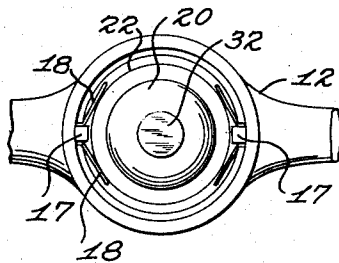
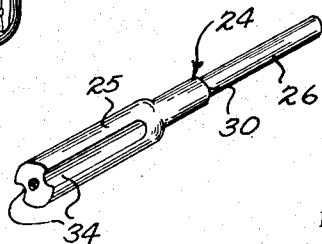


Fig. 8.



INVENTOR

CARL D. PURSER

BY

McMorrow, Perman + Davidson
ATTORNEYS

Patented Feb. 3, 1953

2,627,271

UNITED STATES PATENT OFFICE

2,627,271

VAGINAL SYRINGE

Carl D. Purser, Daytona Beach, Fla.

Application September 21, 1951, Serial No. 247,667

4 Claims. (Cl. 128—224)

1

This invention relates to surgical spray devices, and more particularly to a portable mechanism adapted to be employed as a vaginal douche in conjunction with bottled carbonated water.

A main object of the invention is to provide a novel and improved surgical spray mechanism which is simple in construction, which is adapted to be employed with conventional carbonated water bottles, and which is designed for direct application and use with bottles in which carbonated water is widely sold.

A further object of the invention is to provide an improved vaginal douche mechanism which is inexpensive to manufacture, which is reliable in operation, which automatically regulates the pressure of the carbonated water employed with the device, and which is very easy to manipulate.

Further objects and advantages of the invention will become apparent from the following description and claims, and from the accompanying drawings, wherein:

Figure 1 is a side elevational view showing an improved vaginal douche device according to the present invention mounted on the mouth portion of a carbonated water bottle;

Figure 2 is a top plan view of the structure of Figure 1;

Figure 3 is a cross-sectional view taken on the line 3—3 of Figure 2;

Figure 4 is a front end elevational view of the device shown in Figures 1 to 3;

Figure 5 is a bottom plan view of the bottle-engaging portion of the surgical spray attachment of Figures 1 to 4;

Figure 6 is a cross-sectional detail view taken on the line 6—6 of Figure 1;

Figure 7 is a cross-sectional detail view taken on the line 7—7 of Figure 1;

Figure 8 is an enlarged perspective view of the valve plunger employed in the surgical spray device of Figures 1 to 7.

Referring to the drawings, the surgical spray device is designated generally at 11 and comprises a head member 12 of suitable rigid material, such as plastic material, having secured thereto the elongated, curved, spray tip 13 of similar rigid material. The head 12 is provided with a sleeve portion 14 defining a cavity 15 adapted to receive the mouth portion of a conventional carbonated water bottle 16 in the manner shown in Figures 1 and 3, the sleeve member 14 being formed at its rim with diametrically opposed, inwardly extending gripping lugs 17, 17, and being divergently slotted at 18, 18 adjacent each inturned lug 17 to provide a degree of resiliency for the gripping lugs 17 and to enable said lugs to snap over the usual curved mouth portion 19 of a bottle to secure the mouth of the bottle in the sleeve portion 14.

Designated at 20 in an annular bulb of elastic deformable material, such as rubber or the like, said bulb being formed with the annular base flange 21 which is received in the bottom of the sleeve portion 14 and which is clampingly engaged

2

by a flat, C-shaped, resilient ring 22 seated in an annular groove 23 formed in the lower portion of the interior wall surface of sleeve member 14, said ring 22 exerting clamping pressure on the annular flange 21 and tightly securing the bulb 20 in axial position in the cavity 15. Designated at 24 is a plunger having an enlarged body portion 25 and a stem portion 26. The plunger 24 is arranged coaxially inside bulb 20 with the stem portion 26 extending slidably through head 12, as shown in Figure 3. Said head is formed adjacent the enlarged body portion 25 of the plunger with a cylindrical cavity 27 allowing plunger 24 to reciprocate along its axis. Secured to the end of the stem 26 is a button element 28, and surrounding the stem 26 and bearing between button element 28 and head 12 is a rubber spring washer 29 biasing the plunger 24 downwardly, as viewed in Figure 3. Downward movement of the plunger 24 is limited by the shoulder 30 defined at the end of enlarged portion 25. Axially secured to the top end of the enlarged portion 25 is a rod 31 having secured to its end the valve element 32 adapted to seat on the end of the annular bulb 20, the rod 31 extending through an opening 33 formed in the tip of the bulb. As shown in Figures 3 and 8, the main body portion 25 of the valve plunger is formed with the longitudinal flutes 34, 34.

The spray tip 13 is formed with the passage 35 which communicates with a passage 36 formed in the head 12 and which connects passage 35 to the cavity 27 of said head.

In using the device, the head 12 is first engaged over the mouth of a bottle 16 of carbonated water, the bottle mouth being received in the cavity 15 and being lockingly engaged by the gripping lugs 17, 17 in the manner above described, the bulb 20 being received inside the bottle mouth. The pressure of the carbonated water acts on the valve element 32, and said pressure combines with the biasing force of spring 29 to cause the valve element 32 to seat on the bulb tip and exert substantial compressive force on the bulb. The compressive force of the valve element 32, acting axially on the bulb 20, causes said bulb to expand laterally against the inner surface of the bottle mouth and to sealingly engage said inner surface, as well as exerting clamping force thereon relative to the adjacent external portions of the sleeve 14. It will be noted that the pressure of the carbonated water acts on the side surfaces of the bulb 20 as well as on the valve element 32, and tends, to some degree, to oppose the lateral expansion of said bulb produced by the compressive axial force imposed on the bulb by valve element 32. Said axial force is provided by the combined effects of the spring 29 and the pressure inside the bottle. If, however, the pressure inside the bottle is excessive, it will be sufficient to prevent the valve element 32 from sealingly engaging the tip of the bulb, and hence, will allow the gas under high pressure to escape from the bottle through opening 33, cavity 27, passage 36, and passage 35, until

3

the pressure has diminished sufficiently to allow valve element 32 to seat on the tip of the bulb.

In using the device, the button element 28 is pushed inwardly, causing the valve element 32 to be elevated with respect to the tip 20 and to allow the carbonated water to pass through opening 33, cavity 27, passage 36, and passage 35, and to issue from the tip of the nozzle 13 in the form of a spray.

It will be noted that when the spray device is attached to a bottle, the bulb 20 is narrowed and elongated by depressing the button element 28, the end of the enlarged body portion 25 of the valve plunger engaging the tip of the bulb and causing said bulb to be stretched and narrowed. This allows the clamping lugs 17, 17 to snap past the curved portion 19 of the bottle neck as the sleeve 14 is engaged over the neck of the bottle. Releasing the button element then allows the bulb 20 to assume its normal shape, thereby sealing the bottle opening and at the same time allowing the valve element 32 to sealingly engage the tip of the bulb 20 and close the opening thereof. As above explained, whenever the pressure in the bottle exceeds a predetermined value, said pressure acts on the bulb 20 until the bulb is distorted to such a degree that the valve element 32 no longer seals the opening 33, allowing the gas under high pressure to escape through the device until the pressure drops sufficiently to allow the tip of the bulb to be engaged by the valve element 32. The limiting value of pressure may be readily adjusted by employing a suitable length of the valve plunger, and more particularly, by adjusting the length between shoulder 30 and valve element 32.

After the mechanism has been attached to the carbonated water bottle, as above described, and after the excess pressure has been released automatically, as above explained, the spray nozzle tip 13 is inserted into the vagina and the release button 28 depressed, allowing the contents of the bottle to be discharged.

The action of the gas escaping from the bottle 16 may be made more rapid and may be made more active by agitating the bottle 16 after the spray attachment has been secured thereon.

While a specific embodiment of an improved surgical spray device has been disclosed in the foregoing description, it will be understood that various modifications within the spirit of the invention may occur to those skilled in the art. Therefore, it is intended that no limitations be placed on the invention except as defined by the scope of the appended claims.

What is claimed is:

1. In a surgical spray device, a substantially rigid head member formed with a cavity shaped to receive the mouth of a bottle, an annular bulb of elastic deformable material secured axially in said cavity and arranged to enter the mouth of the bottle, a plunger slidably mounted in said head member coaxially with said bulb, one end of said plunger extending outside said head member, said bulb being formed at its tip with an aperture, the other end of said plunger extending through said aperture, a valve element secured to said other end of the plunger and arranged for sealing cooperation with the bulb tip, means biasing said valve element against said tip and exerting compressive force on the bulb, whereby the bulb is expanded against the inner surface of the bottle mouth, and an elongated spray tip connected to said head member, said head mem-

4

ber being formed with a passage connecting the interior of the bulb to said spray tip.

2. In a surgical spray device, a substantially rigid head member formed with a cavity shaped to receive the mouth of a bottle, an annular bulb of elastic deformable material secured axially in said cavity and arranged to enter the mouth of the bottle, a plunger slidably mounted in said head member coaxially with said bulb, one end of said plunger extending outside said head member, a button element on said one end, said bulb being formed at its tip with an aperture, the other end of said plunger extending through said aperture, a valve element secured to said other end of the plunger and arranged for sealing cooperation with the bulb tip, spring means disposed between said button element and said head member and biasing said valve element against said tip, said spring means exerting compressive force on the bulb, whereby the bulb is expanded against the inner surface of the bottle mouth, and an elongated spray tip connected to said head member, said head member being formed with a passage connecting the interior of the bulb to said spray tip.

3. In a surgical spray device, a substantially rigid head member formed with a cavity shaped to receive the mouth of a bottle, an annular bulb of elastic deformable material secured axially in said cavity and arranged to enter the mouth of the bottle, a plunger slidably mounted in said head member coaxially with said bulb, one end of said plunger extending outside said head member, a button element on said one end, said bulb being formed at its tip with an aperture, the other end of said plunger extending through said aperture, a valve element secured to said other end of the plunger and arranged for sealing cooperation with the bulb tip, spring means disposed between said button element and said head member and biasing said valve element against said tip, said valve element exerting compressive force on the bulb, whereby the bulb is expanded against the inner surface of the bottle mouth, said plunger including a body portion intermediate its ends which is enlarged relative to said ends and is formed with a plurality of longitudinal grooves, and an elongated spray tip connected to said head member, said head member being formed with a passage connecting the interior of the bulb to said spray tip.

4. In a surgical spray device, a rigid head member adapted to engage the mouth of a bottle, an annular bulb of elastic deformable material secured to said head member and arranged to enter the mouth of the bottle, a plunger slidably mounted in said head member coaxially with said bulb, one end of said plunger extending outside said head member, said bulb being formed at its tip with an aperture, the other end of said plunger extending through said aperture, a valve element secured to said other end of the plunger and arranged for sealing cooperation with the bulb tip, means biasing said valve element against said tip and exerting compressive force on the bulb, whereby the bulb is expanded against the inner surface of the bottle mouth, and an elongated spray tip connected to said head member, said head member being formed with a passage connecting the interior of the bulb to said spray tip.

CARL D. PURSER.

No references cited.