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2,890,699

NASAL SUCTION DEVICE

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Fig. 1

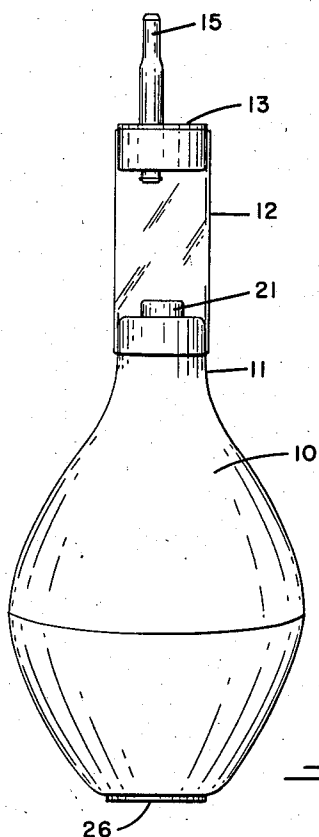


Fig. 2

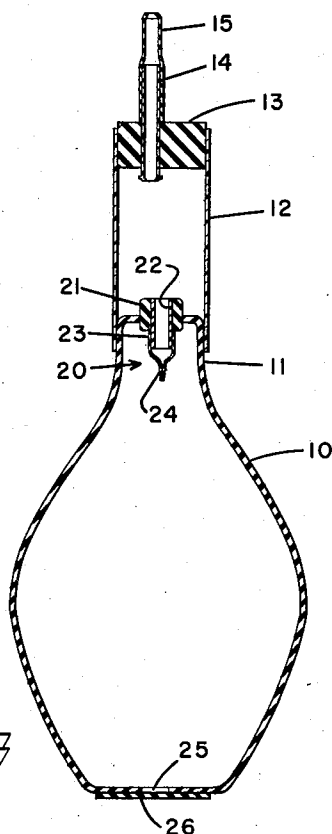
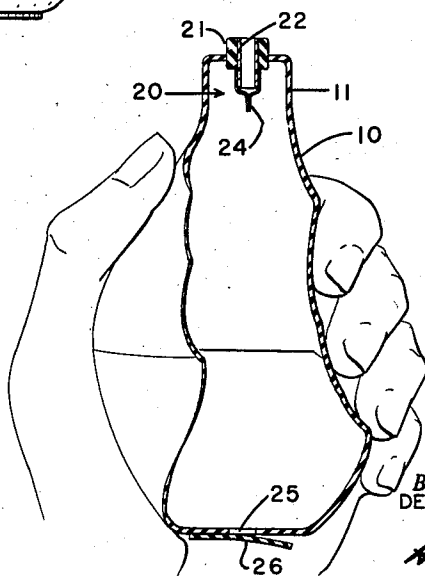


Fig. 3



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NASAL SUCTION DEVICE

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8 Claims. (Cl. 128—278)

This invention relates to a suction apparatus having a nasal tip thereon for withdrawing mucus and secretions from the nostrils of a human patient suffering from cold, catarrh, or other similar afflictions and, more particularly, to a nasal suction bulb device in which means is provided for positively preventing any forward or positive pressure from being applied to the nasal tip as the bulb is compressed preparatory to release of the bulb to apply suction to the nasal tip.

In the medical profession, it is customary to utilize an ordinary syringe for unstopping babies' noses when they become filled with mucus due to cold, catarrh, or other causes. In so doing, care must be exercised on the part of the physician to be sure that no forward pressure is created by accidental compression of the syringe bulb after the tube is inserted in the nostril which would tend to force the mucus further into the nasal passages or into the baby's throat. Also, it is difficult to cleanse a syringe bulb after the secretions are drawn thereinto from the nostril since only a very narrow opening exists in the bulb through which access may be had into the interior thereof.

Accordingly, it is an object of the present invention to provide a device for removing mucus and secretions from the nostrils of a patient which device incorporates means for positively preventing any forward pressure from being applied to the nasal tip adapted for insertion in the nostril.

Another object of the invention is to provide a nasal suction bulb with a one-way valve at each end thereof, one of said valves being adapted to emit air from the bulb into the atmosphere when the bulb is compressed, and the other being adapted to permit air to be drawn into the bulb through the nasal tip when the bulb is released.

Another object of the invention is to provide a collecting chamber between the bulb and the nasal tip for receiving the secretions drawn from the nose of the patient.

Another object of the invention is to form the collecting chamber of transparent material so as to permit inspection of the contents thereof by the user of the device.

With these and other objects in view, which will become apparent from the following description, the invention includes certain novel features of construction and combinations of parts, the essential elements of which are set forth in the appended claims, and a preferred form or embodiment of which will hereinafter be described with reference to the drawings which accompany and form a part of this specification.

In the drawings: Fig. 1 is a side elevation of a nasal suction device incorporating my invention.

Fig. 2 is a cross-sectional view showing the internal construction of the device shown in Fig. 1.

Fig. 3 is a perspective view of the suction bulb with parts broken away to show the action of the valves as the bulb is compressed.

Similar reference characters designate similar or identi-

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cal elements and portions throughout the specification and throughout the different views of the drawings.

In Figs. 1 to 3, inclusive, of the drawings, I have shown one form or embodiment of my invention in which an ordinary syringe bulb is modified to incorporate the teachings of my invention. As herein shown, the bulb 10 is formed in the customary manner of compressible, elastic material so that it will tend to return to its original shape and produce suction after it has been collapsed. The bulb 10 is provided at its upper end with a neck 11 which is inserted in the lower end of a glass or plastic tube 12 which affords a collecting chamber for material withdrawn from the nose of the patient and which is transparent so as to permit clear vision of any material contained therein. At its upper end, the tube 12 is fitted with a resilient stopper 13 which is apertured to receive a short piece of glass tubing 14. A piece of rubber tubing 15, forming the nasal tip of the device, is fitted over the upper end of the tubing 14 as shown in Fig. 2. The stopper 13 and the neck 11 both provide an air-tight connection with the tube 12 so that the vacuum created therein by the suction bulb 10 will be transmitted to the hollow tip 15 and produce the desired suction in the tip.

To prevent any positive or forward pressure being created in the tip 15, the bulb 10 is fitted at its upper end with a flutter valve 20 which permits air to pass from the tube 12 into the bulb 10, but positively prevents any reverse flow from the bulb into the tube. This valve unit includes a hollow grommet or plug 21 which seats snugly in the aperture provided in the neck 11 of the bulb 10. A short tube 22 is pressed into the grommet and projects downwardly a short distance into the bulb 10. A piece of thin-walled rubber tubing 23 is slipped over the lower end of the tube 22, the lower end of the tubing 23 being flattened as indicated by reference numeral 24. The flattened portion of the tube provides opposing lips which normally lie in contact with one another, and prevent air from passing outwardly through the tube 22. However, when suction is produced within the bulb 10, the lips will part slightly and permit air to be drawn into the bulb through the tube 22.

On the bottom of the suction bulb 10 is provided a one-way valve for permitting air to escape from the bulb when the same is collapsed. This valve includes an aperture 25 in the bottom of the bulb which is covered by a thin rubber flap 26. The flap 26 is attached at one side to bottom of the bulb by cementing the same thereto while the other side of the flap is left free so as to permit a flap valve action to obtain.

In Fig. 2, the valves 20 and 26 are shown in their normal positions while in Fig. 3, they are shown in the positions they assume when the bulb 10 is compressed by pressure applied by the fingers. As there shown, the valve 20 is tightly closed to prevent positive pressure from being built up within the collecting chamber 12 while the aperture 25 is uncovered by the flap 26 to permit the air in the bulb to be expelled therefrom as the bulb is compressed. When the pressure of the fingers on the bulb is relaxed, the flap 26 will tightly close the aperture 25 and air will be drawn into the bulb 10 through the flutter valve 20, thereby creating a suction in the collecting chamber 12. This suction will be transmitted to the hollow tip 15 of the device and cause any mucus or other secretions in the nostril to be drawn into the collecting chamber 12 where it may be seen by the physician.

It will be appreciated that by reason of this construction, it is unnecessary to remove the tip 15 from the nostril for a second suction stroke since the bulb 10 may be collapsed with the tip remaining in the nostril without any danger of creating a positive or forward pressure therein. After the nostril has been unblocked, the device

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is easily cleaned by removing the tube 12, constituting the collecting chamber, from the neck 11 of the suction bulb so that it may be emptied and washed out. The secretions received within the chamber 12 will be prevented from entering the bulb 10 by reason of the elevation of the upper end of tube 22 above the top of the bulb 10 which prevents material entering the chamber 12 from flowing into the flutter valve 20.

While I have shown and described one embodiment of my invention herein, it is to be understood that it is capable of being carried out in a variety of ways. Changes, therefore, may be made in the construction and arrangement of my nasal suction device without departing from the spirit and scope of the invention as expressed in the appended claims which are intended to encompass the patentable novelty inherent in my invention as broadly as is possible in view of the prior art.

I claim:

1. A nasal suction apparatus consisting of a suction bulb formed of compressible, elastic material, a tube removably connected in air-tight relation to one end of said bulb for receiving the secretions withdrawn from the nostril of the patient, a hollow tip removably connected in air-tight relation to the other end of said tube, a valved passage connecting said one end of said bulb with said tube for permitting air to be withdrawn from end of said tube as the bulb is expanded and for preventing air from being forced into the tube when the bulb is compressed, means within the tube for preventing secretions being drawn therefrom.

2. The apparatus of claim 1 wherein said valved passage includes a flutter valve formed of a tube of resilient material having a flattened end thereon so as to permit ready flow of air into the bulb while quickly and posi-

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tively preventing any reverse flow of air out of the bulb.

3. The apparatus of claim 2 including a one-way escape valve on the other end of said bulb for permitting air within the bulb to be expelled therefrom when the bulb is compressed while preventing air from entering the bulb while it is being expanded.

4. The apparatus of claim 1 wherein said tube is formed of transparent material to permit the material withdrawn from the nostril of the patient to be seen through the tube.

5. A nasal suction apparatus comprising a suction bulb provided with a neck portion, a rigid tube having one end fitted to the neck portion and its opposite distal end provided with a hollow flexible tip adapted to be inserted in the nostril, said tube providing a collecting chamber for secretions drawn from the nostril, a one-way flutter valve mounted in the neck of the bulb for permitting suction to be applied to the tip while preventing positive pressure from being delivered thereto, and means projecting from the neck portion into the tube to prevent secretions from the tube being drawn into the bulb.

6. The nasal suction apparatus of claim 5 in which the projecting means and the valve in the neck portion are a unit.

7. The nasal apparatus of claim 5 in which the tube is readily detachably connected to the bulb.

8. The nasal apparatus of claim 5 in which the tube is transparent to permit viewing the interior thereof.

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