

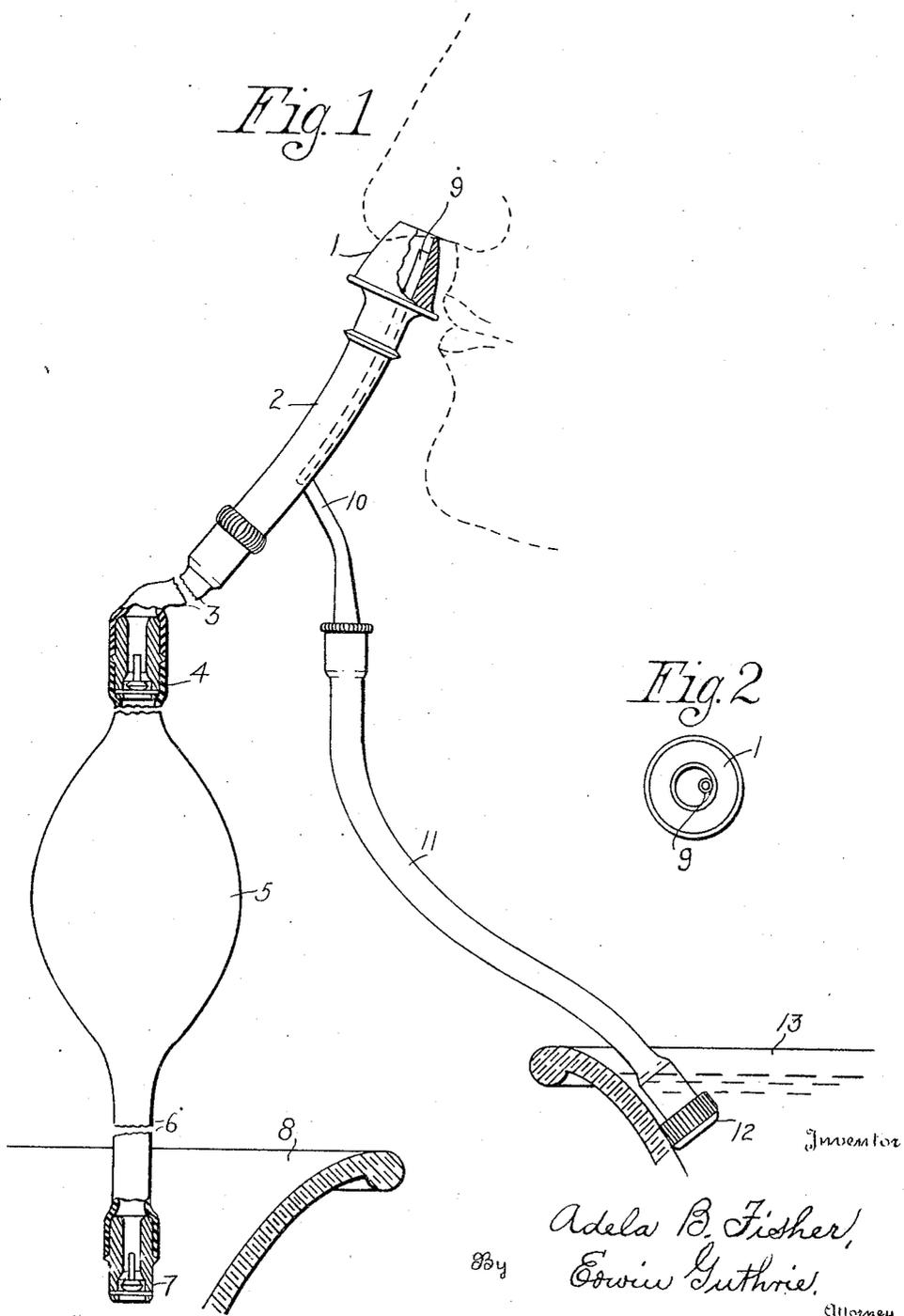
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NASAL SUCTION IRRIGATOR

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UNITED STATES PATENT OFFICE.

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NASAL SUCTION IRRIGATOR.

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This invention relates to nasal suction irrigators, and is intended for the use of patients personally, and is believed to be very simple in its make-up and inexpensive to manufacture. While it is intended primarily for home use by the patient, it is advantageously employed in conjunction with the regular office treatment by the specialist. It is believed to be an improvement upon the various nasal irrigators now on the market and with which this applicant is acquainted, in that it does not depend upon any overhead water bag or electric pump for its operation. It is compact, and is made just large enough to take the rubber bulb of the size of an ordinary atomizer, and is especially effective in creating a partial vacuum or negative pressure in the nasal passages. All parts are preferably made of such metal or other material which will not corrode or break in ordinary use, and which may be readily sterilized by boiling, without injury to the parts. The valves are intentionally large and so constructed as to prevent clogging by the matter discharged in operation. It is intermittent in its action, and does not over congest the parts, a condition which so frequently arises with the average patient personally operating a device for the purpose and using water with a hand pump or electric pump to produce the suction.

In the accompanying drawings is illustrated the preferred form of this invention, and Fig. 1 represents a side view of all parts assembled and in operative position. Fig. 2 is a plan view looking into the mouth of the head of the curved tube.

Throughout the description and drawings the same number is employed to refer to the same part, and the terms used to designate those parts are selected only for the purposes of this description.

Considering the drawings, Fig. 1, a conical head 1 is formed for introduction into the nostril of the patient in order that the nostril may be expanded and grasp the head somewhat closely to exclude external air during the working period. The head terminates a curved, tubular, rigid handpiece usually made of metal. The curved form is an advantageous feature of this invention, inasmuch as when taken into the hand the head may be fully inserted into the nostril without bringing the fingers necessarily into contact with the face. The handpiece is marked 2, and it will be understood that its

length, curvature or precise size may be varied within the scope of this invention.

To the lower end of the handpiece is connected the tube 3, customarily of rubber. It includes the valve 4 and extends to and is connected with the operating bulb 5. It is intended to make the valves rather large without being cumbersome, as it is desired that the partly fluidized nasal secretions may be freely discharged by way of the bulb and its connections. It will be understood that in practice the tubular connections leading to and from the bulb may be of any chosen length. The valve 4 opens towards the bulb and its operation is explained hereinbelow.

From the bulb leads the discharge tube 6, which at any point may include the discharge valve 7, and leads to any receptacle 8.

In the drawings is shown the inner tube 9 arranged within the curved handpiece against one interior wall thereof as shown in Fig. 2, and the inner tube at a distance below the head passes outwardly through the wall of the handpiece. The portion of the inner tube lying on the outside of the handpiece is usually rigid metal and relatively strong so that it may not be easily broken off or distorted. This external portion of the inner tube is marked 10. From it extends the suction tube 11, and to keep the mouth of the suction tube always properly open, there is provided a mouthpiece 12, which as illustrated is placed below the fluid line in the receptacle 13.

In the operation of this invention, let it be assumed that the bulb 5 is compressed. All matter in discharge tube 6 will be forced into the receptacle 8 through the valve 7 which opens from the bulb. As the bulb expands, valve 7 closes, and valve 4, closed by the compression now opens, and a partial vacuum is created in the handpiece and consequently in the nasal cavities. The open nostril is kept closed by pressure of the finger, and the patient is instructed to repeat the letter "K" more or less positively. A sufficient negative pressure is produced in the nasal chambers and sinuses to cause an adequate evacuation, which in turn is quickly washed away and carried into the receptacle 8. As the bulb expands and the partial vacuum increases the irrigating fluid is drawn up through the suction tube and inner tube into the nose of the patient, and

the mucous accumulations are softened and rendered capable of being drawn into the bulb for discharge by way of the tube 6 as stated. The compression and expansion of the bulb is repeated as long as desired. The amount of negative pressure in the nose can be controlled by the frequency and force exerted on the hubber bulb, and since the force of irrigation is never greater than the amount of the negative pressure, there can be no danger of forcing the infected solution into the middle ear.

Having now described this invention, and explained the manner of its use, what I claim is:—

1. In a nasal suction irrigator, the combination with a hollow head adapted to be inserted into the nostril, of a hollow hand piece connected with the said head, the said hand piece having a tube arranged therein longitudinally and extending into the said head, the said tube being constructed with thin walls and of small diameter whereby the cross-section of the interior of the hand piece is reduced by a portion only of its area, the said tube having an opening out-

wardly through the wall of the handpiece between the said head and the lower end of the hand piece, a suction tube connected externally with the said tube in the hand piece, and a suction bulb connected with the lower end of the said hand piece.

2. In a nasal suction irrigator, the combination with a hollow head adapted to be inserted into the nostril, of a hollow curving hand piece connected with the said head, the said hand piece having a tube arranged therein longitudinally and extending into the head, the said tube being constructed with thin walls and of small diameter whereby the cross-section of the interior of the hand piece is reduced by a portion only of its area, the lower end of the said inner tube opening outwardly through the wall of the hand piece between the said head and the lower end of the hand piece, a suction tube connected externally with the said inner tube, and a suction bulb connected with the lower end of the hand piece.

In testimony whereof I affix my signature.

ADELA B. FISHER.