Nov. 12, 1929. A. T. VANCE 1,735,519

PHYSICIAN'S DILATOR

Original Filed July 17, 1926

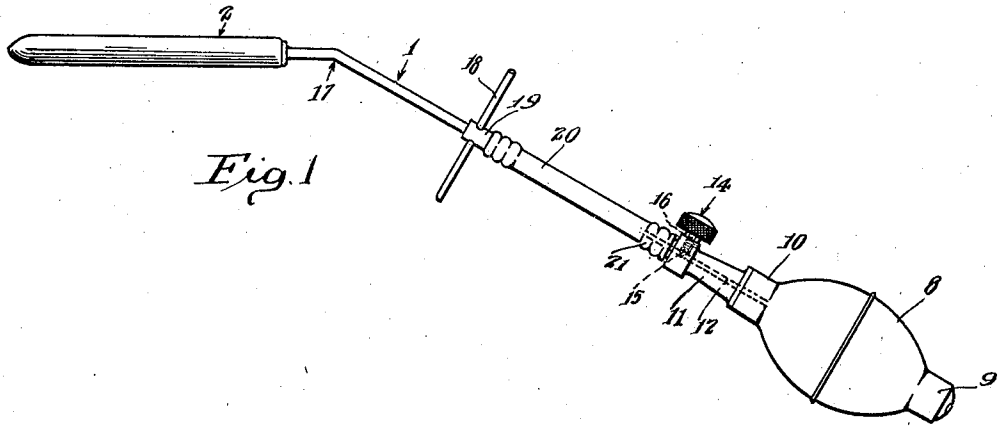


Fig. 1

Fig. 2

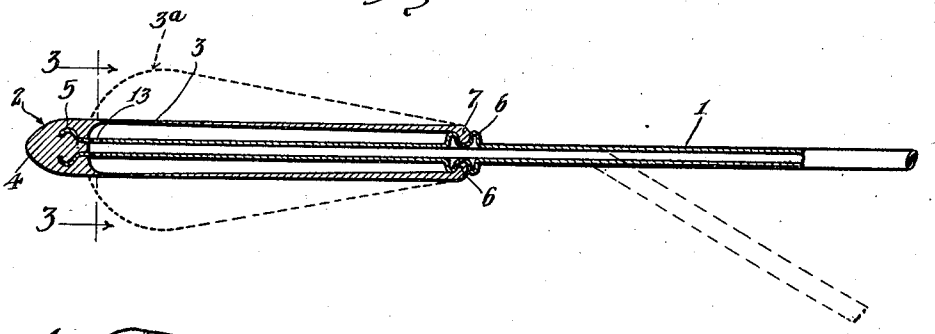
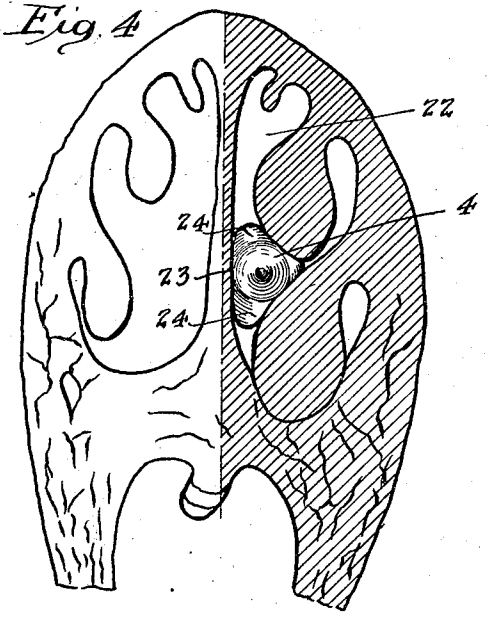


Fig. 4



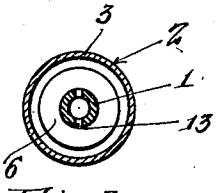


Fig. 3

Inventor

Arlyn S. Vance

By Lyon & Lyon

Attorneys

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UNITED STATES PATENT OFFICE

ARLYN T. VANCE, OF LOS ANGELES, CALIFORNIA

PHYSICIAN'S DILATOR

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This invention relates to a physician's dilator to be used in dilating parts of the human body.

In the treatment of many diseases it is the practice with physicians, and particularly osteopaths, to manipulate parts or exert slight pressure upon them. For example, in the treatment of deafness arising from nasal catarrh, it is an approved practice among physicians to insert the little finger into the nostril and exert slight pressure upon the turbinates to effect the draining of lymph. It is also the practice to treat patients for colds in the head in a similar manner.

The general object of this invention is to provide a simple device which can be used for such a purpose and which will operate to exert gentle pressure against the walls or membranes of the part into which the dilator is inserted.

In the use of such a dilator, it frequently happens that the part treated is at a considerable distance from the opening into it. In order to meet this difficulty, one of the objects of the invention is to provide a construction for the dilator which will enable the principal dilating effect to be located near the inner end or extremity of the inserted dilator.

A further object of the invention is to provide simple means for controlling the dilation and for releasing the pressure within the dilator at will.

Further objects of the invention will appear hereinafter.

The invention consists in the novel parts and combination of parts to be described hereinafter, all of which contribute to produce an efficient physician's dilator.

A preferred embodiment of the invention is described in the following specification, while the broad scope of the invention is pointed out in the appended claims.

In the drawing:

Figure 1 is a side elevation of a dilating device embodying my invention.

Figure 2 is a longitudinal section through the inner end of the dilator and showing a portion of the stem or tube in elevation and broken away. This view indicates in dotted lines the manner in which the principal dilation is effected near the inner end of the instrument.

Figure 3 is a cross section upon an enlarged scale, taken at the point 3—3 of Fig. 2.

Figure 4 is a horizontal section upon an enlarged scale taken through a patient's nose, and illustrating the use of the instrument in dilating the naris and exerting pressure upon the edemic turbinates.

In practicing the invention, I provide an elongated stem which is capable of being introduced into the opening or part which is to be dilated. On the inner end of this stem I provide an expansible dilator body having a flexible wall; I also provide means for forcing a fluid into the interior of the dilator body after it has been introduced, so as to expand the body and dilate the same to exert pressure upon the surrounding members.

In order to accomplish this, I provide a stem 1 which is preferably of tubular form, and near the outer end of this stem I attach a dilator body or bag 2 which is also preferably of tubular form and provided with a flexible wall 3 of rubber or similar material. If desired, the wall 3 may be made integral with a head 4 of soft rubber in which is embedded anchors or hooks 5 formed on the ends of the tubular stem. This head 4 should be of soft rubber so that it cannot injure parts against which it is pushed. The other end of the dilator body is secured on the stem by an airtight connection which in the present instance includes two collars 6, between which the end wall of head 7 of the dilator body is held. The elasticity of the rubber will be sufficient to make this an airtight connection.

In order to cause the principal dilation to occur near the head or nose 4 of the instrument, I prefer to make the wall 3 of graduated thickness, its thinnest portion being disposed near the head 4. With this arrangement, when a fluid such as air is forced into the interior of the body 2, the wall 3 will tend to assume approximately the position indicated by the dotted line 3^a.

In order to supply fluid, such as air under pressure, to the interior of the body, I pro-

vide an air bulb 8, such as employed on atomizers. This bulb is of a common type with a check valve, not illustrated, located at the point 9, and the neck 10 of this bulb is secured to a metal sleeve 11. In Fig. 1, 12 indicates a bore through this sleeve. When the bulb 8 is collapsed by pressure in one's hand, the check valve at 9 prevents the escape of air and this air then passes under pressure up through the stem 1 to a point near the head 4, at which point it passes through orifices 13 which open communication between the bore of the stem and the interior of the dilator body 2.

In order to provide means for releasing the air at will, I provide a small needle valve 14 having a knurled head, and the point 15 of this needle valve seats in a small opening in the side of the stem. In other words, the valve has a threaded shank 16 like a screw, and in the side of this screw is a small groove which enables the bore 11 to communicate with the atmosphere when this needle valve is open.

The stem 1, if desired, may be slightly bent, as indicated at the bend 17 (see Fig. 1), and at the outer end of the stem a small cross bar or handle 18 may be provided to facilitate holding and operating the instrument. Adjacent this handle 18, a grooved neck 19 is provided, over which the end of a rubber tube 20 may be forced, and a similar grooved neck 21 may be provided on the end of the sleeve 11 to enable the other end of the tube to be secured to it. This flexible tube 20 greatly facilitates the use of the instrument.

In Fig. 4, I illustrate the manner in which the dilator is employed in a treatment for nasal catarrh or other condition which has affected the turbinates. In this figure, the head 4 of the instrument is indicated, located in the right naris 22, and in contact with the septum 23 and exerting pressure between the septum, the middle and the inferior turbinate bodies. The turbinate bodies at the left are represented of normal size as though the lymph in them had been drained by the use of this instrument.

It will be noted that on account of the flexible character of the wall of the dilator body, when the pressure of the air within it is exerted, the wall will project itself in the form of protuberances or lobes 24 which will extend themselves into the canals around the turbinates, and in this way pressure will be exerted by the instrument over a considerable area of the turbinate body. In using the instrument, the pressure can be exerted for any desired length of time and then relieved by unscrewing the needle valve 14.

While I consider that this instrument will have great utility for the purpose described above, I do not limit myself in any way to its use for this particular purpose, and I intend that it shall be used at any point on the body where a dilating effect is desired, for example, in dilating a sphincter, or in any other situation where a gentle expanding or dilating pressure is desired.

This dilator is useful in the cure or alleviation of acute "head colds," nasal catarrh, hay fever, asthma; insomnia and nervousness; its use will prevent snoring and catarrhal deafness. By reason of the fact that the dilation of the nasal passages will increase the supply of oxygen to the lungs, thus instrument is useful in the treatment of acid-osis and will relieve auto-intoxication due to acid-osis.

Physicians will find the use of the instrument effective as a sex stimulant by dilating the bladder sphincter and prostatic urethra. It is also beneficial for singers, by normalizing the nasal passages, to give better breath control and increase the ease of reaching high notes.

It can also be used effectively by Otologists in breaking up adhesions and in dilating the Eustachian tubes.

In the treatment of nasal catarrh, the instrument is as effective as the osteopath's finger and avoids any incidental pain.

What I claim is:—

1. A physician's dilator having in combination, a tubular stem, an expansible dilator body of tubular form, having its outer end secured to the end of the stem and having a flexible wall graduated in thickness, and having its thinnest portion toward the outer end of the stem, the inner end of said dilator body being secured to the said stem at an intermediate point on its length, and means for forcing a fluid into the interior of the said dilator body to dilate the same and exert pressure upon the membranes of one's body in contact therewith.

2. A physician's dilator having, in combination, a tubular stem, an expansible dilator body of tubular form composed of rubber having a head at its outer end, said tubular stem having an anchor at its outer end embedded in the head of said dilator body, said dilator body having a flexible wall varying in thickness and having its thinnest portion adjacent the said head, the inner end of said dilator body being secured to the said stem and means for forcing fluid into the interior of the said dilator body, operating to dilate the body a maximum amount adjacent the outer end of the dilator.

3. A physician's dilator having, in combination, a tubular stem, an expansible dilator body of tubular form composed of rubber having a head at its outer end, said tubular stem having hooks formed at its outer end embedded in the head of said dilator body, said dilator body having a flexible wall of graduated thickness with its thinnest portion adjacent the said head, the inner end of said dilator body being secured to the stem at an

intermediate point on its length, and means for forcing fluid into the interior of the said dilator body operating to dilate the body a maximum amount adjacent the outer end of the dilator.

Signed at Los Angeles, California, this 9 day of July, 1926.

ARLYN T. VANCE.