

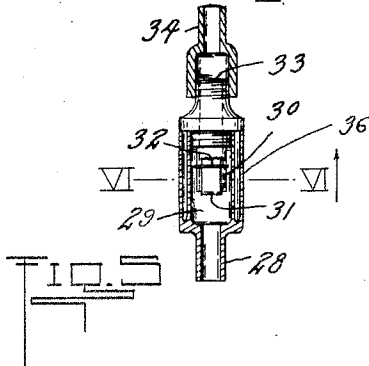
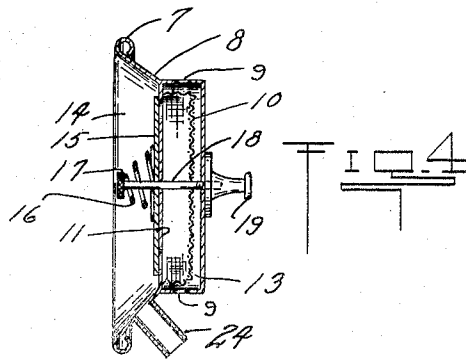
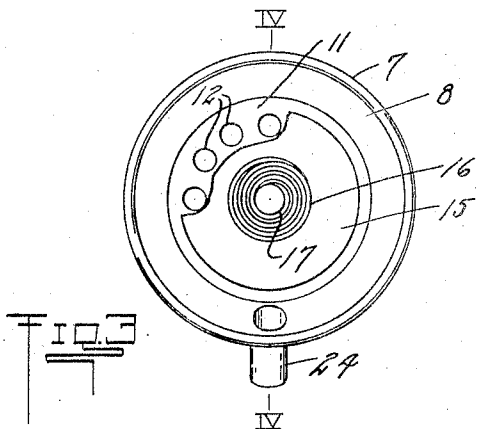
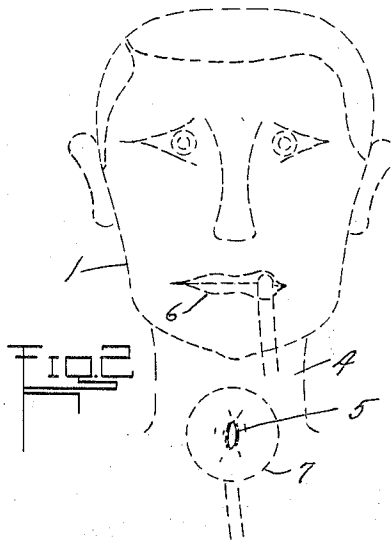
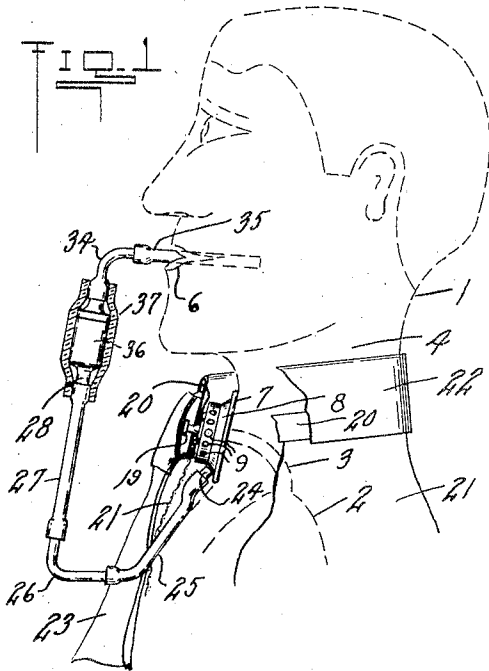
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E. I. McKESSON

BREATHING AND VOCAL ATTACHMENT

Filed June 22 1925



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UNITED STATES PATENT OFFICE.

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BREATHING AND VOCAL ATTACHMENT.

Application filed June 22, 1925. Serial No. 38,680.

This invention relates to windpipe connections especially for breathing and talking control independently of the larynx.

This invention has utility when incorporated in valve and duct mechanisms for individuals having diseased voice boxes or those who have had the voice box removed.

Referring to the drawings:

Fig. 1 is a side view of an embodiment of the invention as assembled in use;

Fig. 2 is a view showing an orifice location or windpipe outlet as by-passing the mouth with which this device may co-operate;

Fig. 3 is a view from the seat side in elevation, with parts broken away, of an embodiment of the fitting of a lung duct connection of this disclosure;

Fig. 4 is a section on the line IV—IV, Fig. 3;

Fig. 5 is a sectional view of a sound wave vibrator; and

Fig. 6 is a section on the line VI—VI, Fig. 5.

Individual 1 is shown as having lungs 2 from which extends windpipe 3 having, from neck 4, opening 5 for breathing connection with the lungs as by-passing mouth 6 of the individual.

Seat 7, as of beaded ring form of sheet metal, has housing 8 extending away from the neck of the wearer as this seat 7 surrounds the opening 5. This housing 8 has annular series of openings 9 to loose screen or filter 10 resting upon diaphragm 11 having annular series of openings 12 therethrough from chamber 13 in which the screen or filter 10 is disposed. Supplemental chamber 14 is thus provided toward the annular seat 7.

Mica disk 15 is engaged by fine spiral spring 16 effective between head 17 and the disk 15 for just normally holding this mica disk 15 in seated position for closing the orifices 12 during exhalation operations of the breathing cycle of the individual. This head 17 is on stem 18 protruding through the chamber 13 there having threaded engagement with collar button 19. This collar button 19 may have normal button engagement with neck band 20 of shirt or garment 21 of the individual 1 thereby serving to properly position this lung duct connection at the orifice 5. With this normal shirt and neck band 20, the individual 1 may as usual wear a collar 22 with a tie 23. The garments of the

wearer, accordingly, serve for positioning this lung duct connection properly for use.

From the chamber 14 of the housing 8 is tubular boss 24 for flexible duct extension 25 which may rest close to the body of the individual 1 and thereby through heat conduction tend to warm air as drawn in by the tubular opening 24 to the chamber 14, which air as diluted by the supplemental supply as drawn in through the filter 10 and unseating of the mica disk valve 15, is so tempered as not to cause coughing or chilling of the bronchial tubes.

This structure may serve as a normally comfortable breathing connection for different conditions of temperature and altitude. The exhalation is through the extension 25. The inhalation is by way of this extension 25 and supplemented by the large capacity check valve of the diaphragm 11 having the openings 12 normally closed by the mica disk 15. This means there is at all times comfort for the individual under an adequate intake supply of air which may not be irritable to the lungs besides. The supplemental supply, as at heavy draft, may have any foreign matter entrained by the filter 10 to thus avoid lung irritation from such source.

An individual as handicapped of this by-pass of the larynx and mouth has not only the matter of caring for the breathing, but has, with the voice box removed, lost the faculty of speech. With the device of this disclosure, such hardship is alleviated, for herein the extension duct 25 is connected by elbow 26 with flexible duct 27 mounted on tubular extension 28 from chamber 29 having from the opposite end extension 30 thereinto. This tubular extension 30 has at its open end snugly drawn thereacross, vibratory diaphragm 31 which, in practice, may be rubber held taut by thong 32. Remote from the extension 28, this duct 30 has extension 33 with which engages L-fitting 34 having terminally thereon mouth tube or rubber duct 35. In practice, the temperatures and humidities effect a condensation condition which, as to collection of moisture in the chamber 29, involves difficulty and which is minimized by providing double wall 36 for the chamber 28 and further over such chamber 28 disposing insulation housing or envelope 37. The individual as thus equipped, when desiring to answer vocal questions or to carry

on a conversation, may grasp the envelope 37 as a further temperature control for the holding against condensation in the vibratory housing 29. This vibrator or artificial voice box or larynx may be so disposed as to place the mouth tube into the mouth 6 of the individual 1. By locating the point of discharge for the air, into the mouth of the duct 35, as well as the point of intake, articulation may be effected with formation of words and the carrying on of a conversation with a vocabulary as complete and distinctly enunciated as in the normal capabilities of the individual before the handicapped condition arose.

There is a measure of skill in disposing the mouth piece in the mouth and the control of the vibrations from the voice box or vibrator as entering the mouth in producing the tones in word formations. It is accomplished in the regular breathing of the individual with exhalation and inhalation modulations. The check valve 15 is a comfort provision for the individual as a safeguard for adequate intake air supply to the individual. In the event there be exhalation excess, seepage about the seat 7 is adequate to care for such.

What is claimed and it is desired to secure by United States Letters Patent is:

1. The combination with a lung duct connection of an air column vibrator, a duct connection thereto, of a check valve for permitting intake air to said connection to bypass said vibrator.

2. An air column vibrating sound device, a supply duct therefor, and a windpipe connection for the duct including a one-way intake valve.

3. An air column vibrating sound device, a supply duct therefor, including a discharge duct and an intake check valve adjacent the supply end of said discharge duct and of larger capacity than the discharge duct.

4. An air column vibrating sound device, a supply duct therefor, comprising a fitting having a seat, a button oppositely extending from said seat for garment coaction in positioning said fitting.

5. An air column vibrating sound device, a tubular intake for extending along the body in taking up bodily warmth for pre-warming a supply of air and connectible to the device, and a windpipe connection for the intake whether or not such be connected to the device.

6. An air column vibrating sound device, a tubular intake for pre-warming a supply of air and connectible to the device, a windpipe connection for the intake whether or not such be connected to the device, and an additional intake valve in addition to said tubular intake.

7. An air column vibrating sound device, a supply duct therefor, a fitting comprising a seat, a direct duct extension therefrom, and a check valve for intake to said fitting in addition to said extension.

In witness whereof I affix my signature.
ELMER I. McKESSON.