

(No Model.)

F. P. WILCOX.

INSTRUMENT FOR FORCING AIR INTO THE LUNGS.

No. 459,898.

Patented Sept. 22, 1891.

Fig. 1.

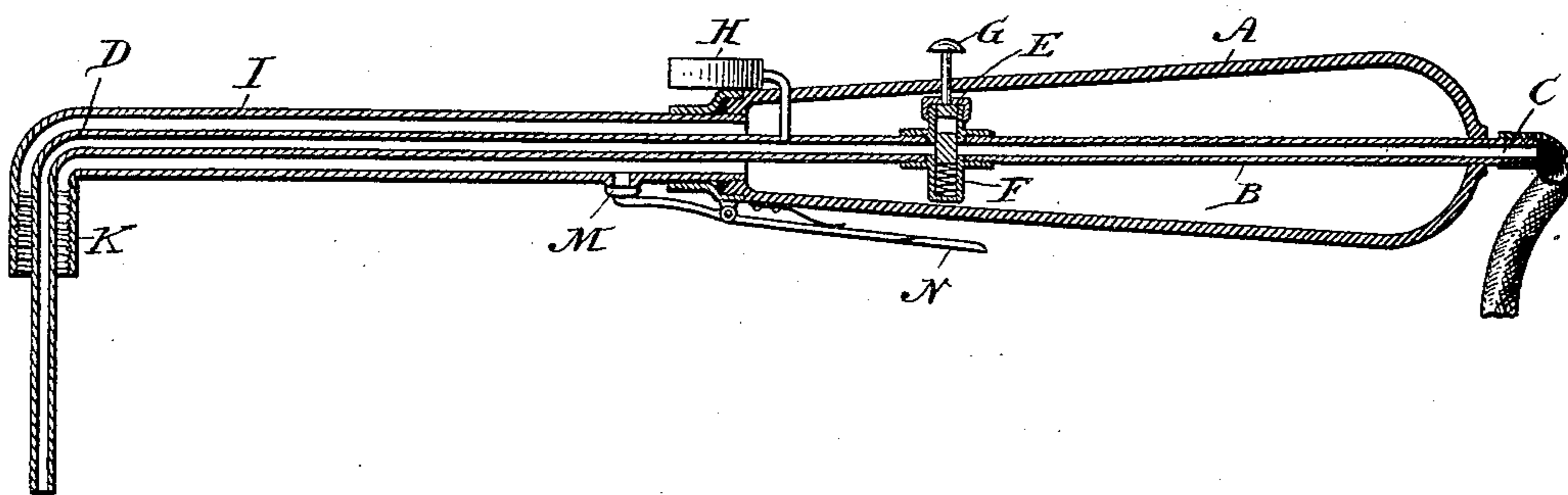


Fig. 3.



Fig. 2.

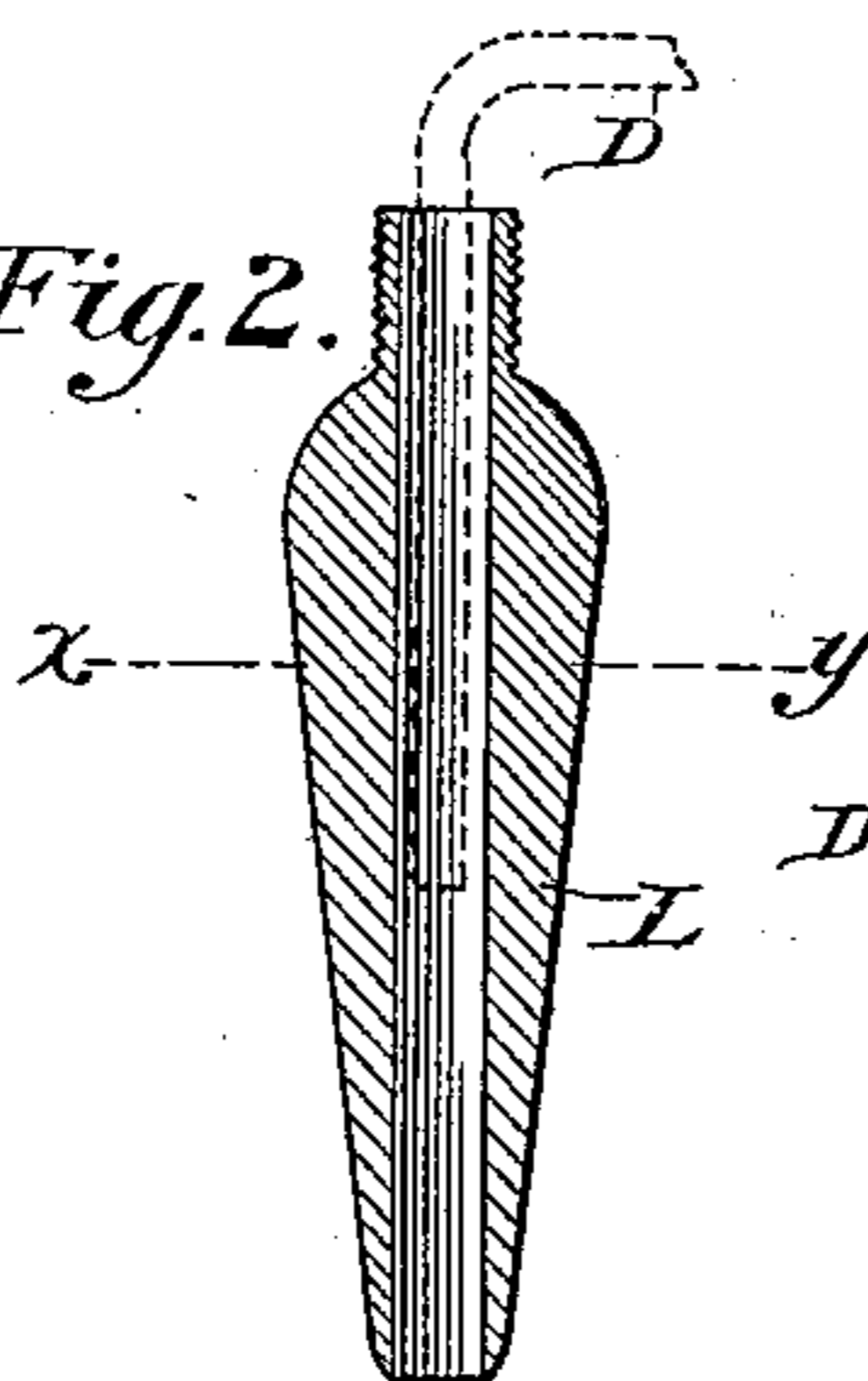
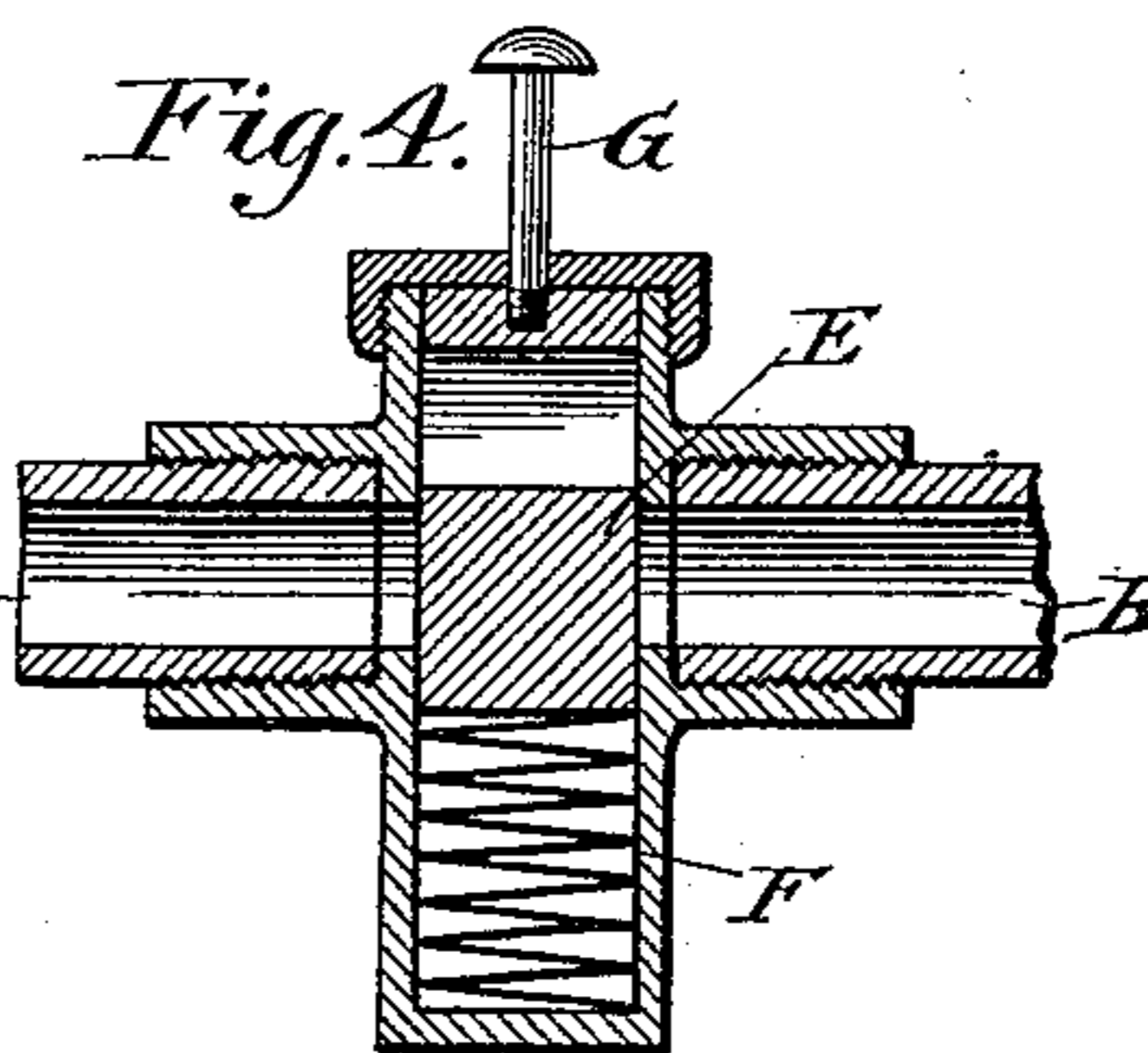


Fig. 4.



Witnesses:

H. W. Emerson.

Percy B. Hills.

Inventor:

FREDERICK P. WILCOX.

By his Atty.

Geo. D. Mitchell.

UNITED STATES PATENT OFFICE.

FREDERIC P. WILCOX, OF CLIFTON SPRINGS, NEW YORK.

INSTRUMENT FOR FORCING AIR INTO THE LUNGS.

SPECIFICATION forming part of Letters Patent No. 459,898, dated September 22, 1891.

Application filed February 28, 1891. Serial No. 383,249. (No model.)

To all whom it may concern:

Be it known that I, FREDERIC P. WILCOX, a citizen of the United States, residing at Clifton Springs, in the county of Ontario and State of New York, have invented certain new and useful Improvements in Instruments for Artificially Forcing Air into the Lungs; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to certain new and useful improvements in instruments for artificially forcing compressed air into the lungs, and has for its object especially the treatment of chronic diseases of the lung tissue, such as phthisis or consumption and kindred affections, by forcibly distending the uttermost air-cells of the diseased organs, thereby increasing the lung capacity and exposing a greater extent of surface for oxygenizing the blood.

In the accompanying drawings, illustrative of my invention, Figure 1 represents a general view of my device, partly in section, the end of the instrument that enters the throat being detached and the reservoir or other source of compressed air, with which the instrument is in practice connected at its opposite end, being suppressed for simplification. Fig. 2 represents the detachable end portion of the instrument which is designed to pass into the larynx between the vocal chords when the instrument is in operation. Fig. 3 is a section on the line *xy* of Fig. 2. Fig. 4 is an enlarged sectional view of a convenient form of valve for controlling the admission of the compressed air to the lungs.

Similar letters of reference indicate similar parts in the several views.

A is the hollow handle of my device, which may be made of vulcanite or other appropriate material, and through which leads a small tube B, which is provided at C with means for connecting it with a reservoir or other source of compressed air, and which is bent at right angles toward its other end at D in order to enable the extremity of the instrument to be placed more readily in the throat. The

supply of compressed air is controlled by the piston-valve E, whose construction will be readily understood by reference to Fig. 3, and which is connected through an aperture in the casing A of the handle with the small air-tube B. This valve is held normally closed by the spiral spring F, and is opened to allow the passage of the compressed air by depressing the button G.

H is a small gage showing the pressure of the air upon the lungs.

I is an auxiliary tube surrounding the inner air-tube B, in communication, also, with the hollow space inside the handle, and screw-threaded at K for connection with the terminal attachment L, of which there may be several sizes to suit different purposes. This terminal attachment is conoidal in general form, as shown, and flattened or elliptical toward its lower end, as shown in Fig. 3, in order to adapt it more readily to the shape of the aperture in the throat, which it is designed to penetrate, and it is preferably made of gold, silver, vulcanite, or similar uncorrodible material.

N is a lever operating the valve M for permitting the escape of the air from the lungs through the auxiliary exterior tube I whenever upon reference to the gage it is deemed advisable to relax the air-pressure.

The parts of my invention being constructed and arranged as described, its method of operation is as follows: My device is not intended to be used for the purpose of the resuscitation of drowned persons or in other cases where the subject is unconscious and artificial respiration becomes necessary; but it is intended to furnish a means of systematic treatment of patients afflicted with chronic diseases of the lung tissue without resorting to tracheotomy or other heroic process, or inducing any condition of partial or complete unconsciousness or anæsthesia. To this end the conoidal terminal attachment L is screwed into place upon the instrument at K and gently inserted in the larynx, between the vocal chords, until the aperture is entirely filled, which the peculiar shape of my attachment will greatly facilitate. The compressed air from the reservoir or other source is then admitted to the lungs through the small interior tube B by depressing the button G with

the thumb. This operates to artificially distend the morbid and inactive cells and tissues of the lungs, thus exposing the blood to the contact of a larger air-surface. The air in addition follows up the outer tube I, and also fills the hollow interior of the handle A, and this serves the useful purpose of a sort of air-cushion to relieve to some degree the shocks that the lungs might be subject to were the pressure upon them absolute. I watch carefully the face of the indicator H in order that the pressure of air may not become too great; and this limit varies according to the condition of the subject, requiring experience to determine it. I then relieve the button G, and the valve E shuts off the supply of air. When the air has remained in the lungs a suitable length of time, I depress the lever N and the valve M in the outer tube-opening. The air is permitted to escape until the normal pressure is restored, whereupon the operation is repeated as often as required. After a series of treatments the lung capacity becomes augmented and the organs themselves become stronger and healthier, so that the patient can comfortably and safely endure a much higher pressure than at the outset, and by consulting the gage I am thus enabled to note from time to time the measure of this improvement.

Having thus described my invention, what I claim is—

1. An instrument for artificially expanding the cells of the lungs, consisting of a source of supply of compressed air, a valve for control-

ling the passage of the same to the lungs, a gage showing its pressure upon the lungs when so administered, and a second valve for controlling its exit, substantially as described.

2. In an instrument for artificially expanding the cells of the lungs, the combination of a source of supply of compressed air, an inner tube leading from such source to the lungs, a valve in said inner tube for controlling the passage of the air therethrough, an auxiliary tube surrounding the first and also in communication with the lungs, and a valve in said exterior tube for controlling the escape of the air therefrom, substantially as described.

3. An instrument for artificially expanding the cells of the lungs, consisting of a source of supply of compressed air, an inner tube leading from such source to the lungs, a valve in said inner tube for controlling the passage of the air therethrough, an auxiliary tube surrounding the first and also in communication with the lungs, a valve in said exterior tube for controlling the escape of the air therefrom, and a gage for showing the pressure of the air upon the lungs, said instrument being provided with a bulbous terminal attachment conoidal in general form and flattened or elliptical in cross-section, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

FREDERIC P. WILCOX.

Witnesses:

J. C. SMITH,

EDGAR O. CROSSMAN.