G. ANSTON.

RESPIRATORY APPARATUS.

APPLICATION FILED MAR. 5, 1921.

1,406,141.

Patented Feb. 7, 1922.

3 SHEETS—SHEET 1.

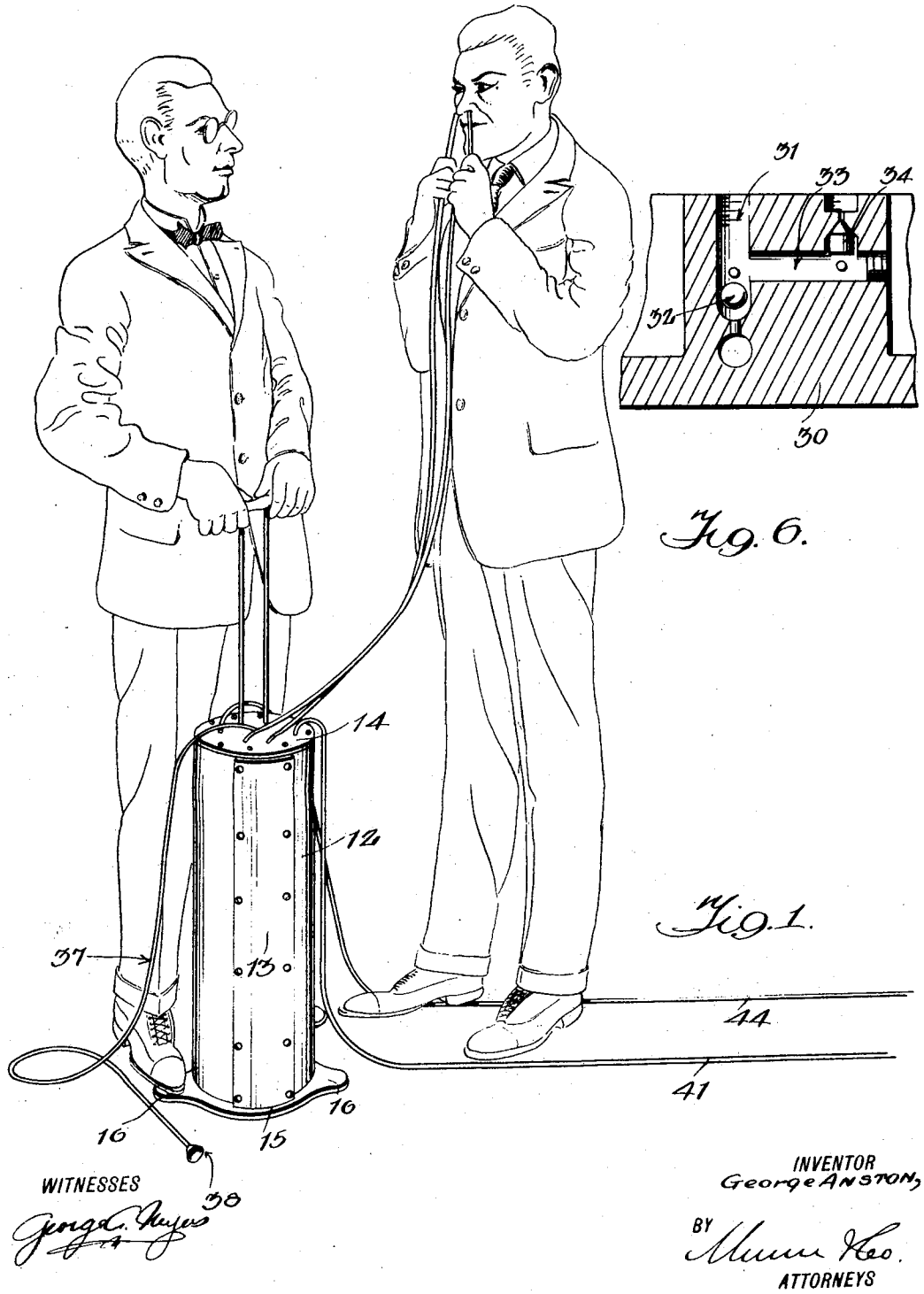


Fig. 6.

Fig. 1.

WITNESSES

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3 SHEETS—SHEET 2.

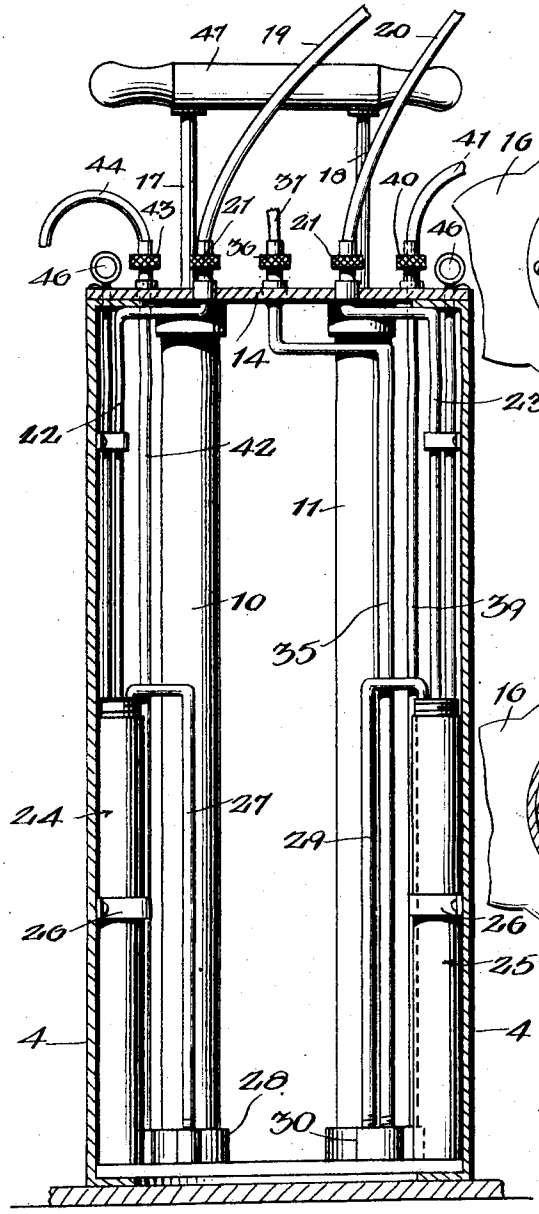


Fig. 2.

Fig. 3.

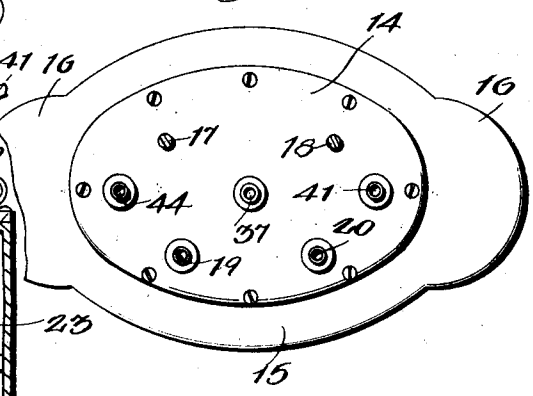
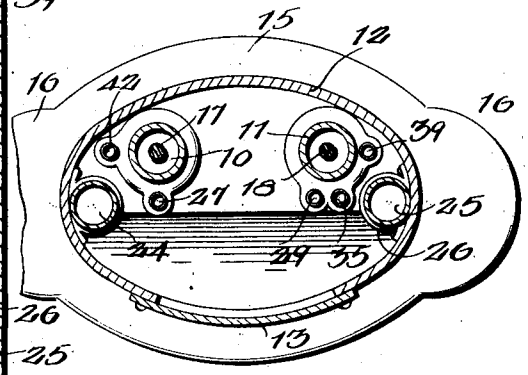


Fig. 4.



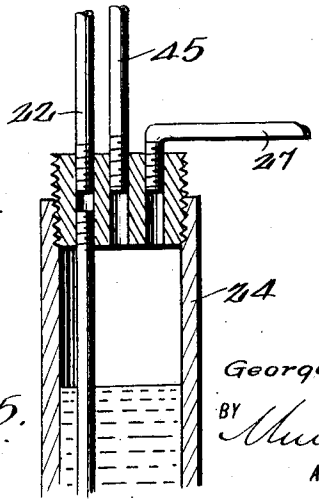


Fig. 5.

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3 SHEETS—SHEET 3.

Fig. 7.

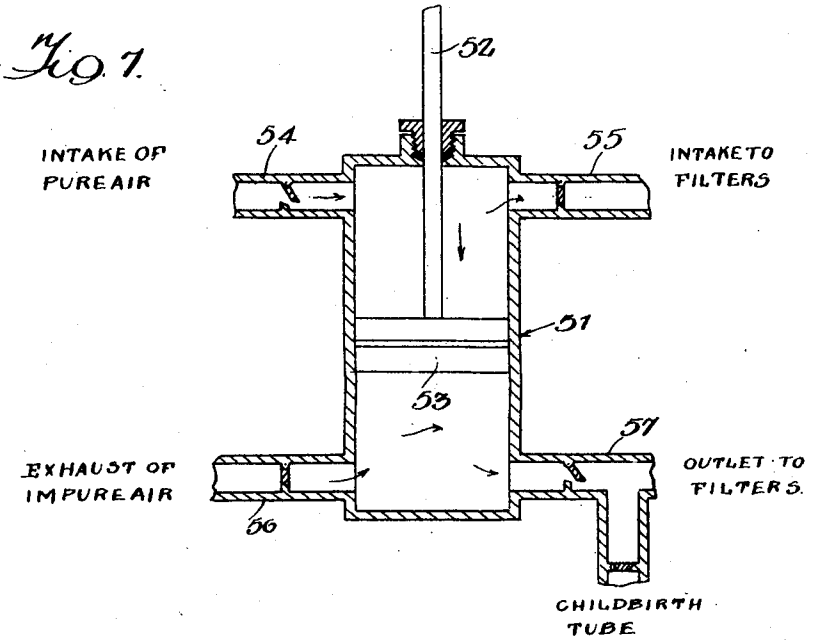
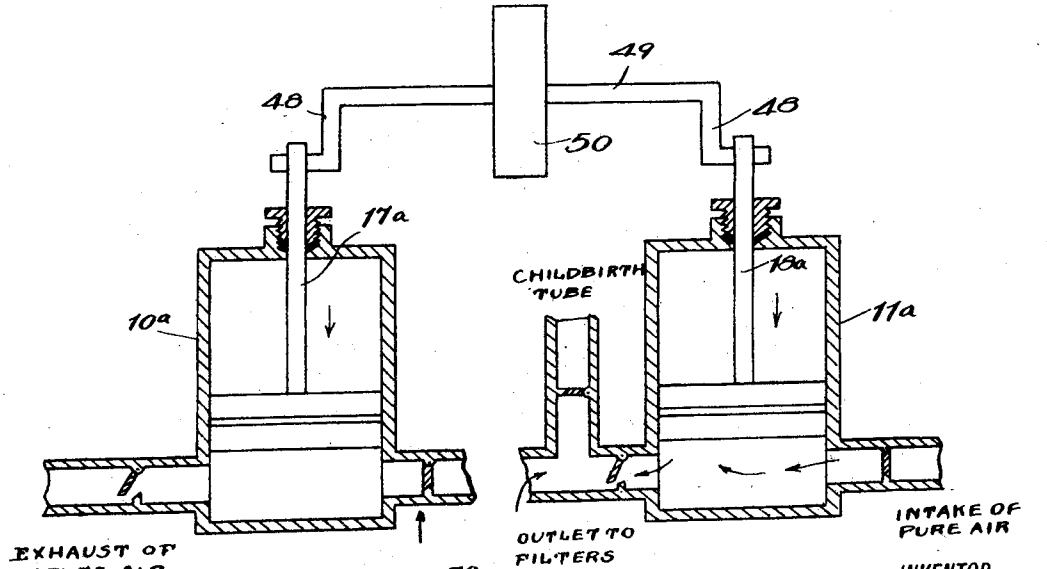


Fig. 8.



WITNESSES

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UNITED STATES PATENT OFFICE.

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RESPIRATORY APPARATUS.

1,406,141. Specification of Letters Patent. Patented Feb. 7, 1922.

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To all whom it may concern:

Be it known that I, GEORGE ANSTON, a Greek subject, and a resident of Shreveport, in the parish of Caddo and State of Louisiana, have invented certain new and useful Improvements in Respiratory Apparatus, of which the following is a specification.

My present invention relates generally to medical or curative apparatus, and more particularly to an apparatus for bringing about a thorough and effective circulation of blood and nerve fluid of the body and brain, my object being the provision of a simple effective apparatus of this nature which may be efficiently utilized in home or self treatment and whose beneficial results may be obtained with little if any trouble and loss of time.

The use of my improved apparatus for the purposes above mentioned is based on the theory that disease and ill health arise from stagnation of the blood and nerve fluids of the body and that this stagnation may be averted and its disastrous influences checked by complete circulation of fresh clean air through the lungs and brain cavity with the removal of all or practically all impure air.

By the use of my improved apparatus impure air may first be drawn out of the body and clean fresh air forced into the body and a constant circulation of air then enforced for a sufficient time to insure exercise and full expansion of the lungs and bronchial tubes as well as free circulation through the perforated bone of the cranium. In this way the blood may be forced to go through the blood passages of the body with greater force and effect and the brain may be caused to circulate the nerve fluid with greater force and effect through the spine and among the various nerves of the body.

In the accompanying drawings which illustrate my present invention and form a part of this specification,

Figure 1 is a perspective view illustrating the practical application of my invention in use,

Figure 2 is a vertical sectional view through the casing,

Figure 3 is a top plan view with the handle of the pump rods removed,

Figure 4 is a horizontal section taken substantially on line 4—4 of Figure 2,

Figure 5 is an enlarged vertical section through the upper portion of one of the filter tubes,

Figure 6 is an enlarged vertical section through the base of one of the pump barrels, and

Figures 7 and 8 are sectional side views illustrating slightly modified forms of the apparatus.

Referring now to these figures my invention proposes an apparatus including air pumping means preferably in the nature of a pair of pump barrels 10 and 11 mounted vertically within an upright hollow casing 12, a section 13 of the wall of which is detachably connected thereto as by means of screws and the like to form a removable door. The top 14 of the casing 12 is also removably attached to the upper portion or edge of its wall, and the base 15 thereof is preferably provided with diametrically outstanding extensions 16 forming foot rests.

Upstanding through the top 14 of the casing are the pump rods 17 and 18 operating plungers in the pump barrels 10 and 11, the former of which controls action in an exhausting line and the latter of which controls action in an air pumping line. Both of these lines are for their major portion in the nature of elongated flexible tubes externally of the casing 12, the exhaust line being indicated at 19 and the pumping or pressure supply line at 20, both detachably connected at 21 to pipes of which one pipe is indicated at 22 and the other at 23. These pipes extend from air filter tubes 24 and 25 within the casing 12, held in upright position against the inner surface of the wall of the casing as by means of clamps 26 and arranged to contain an air cleansing fluid as for instance clean pure water through which air is drawn in the case of the filter tube 24 through a suction pipe 27 leading from the base 28 of the pump barrel 10. In the case of the filter tube 25 air is forced into and through the water from an air feed pipe 29 leading from the base 30 of the pump barrel 11 and from the channel 31 of the base 30 as seen in Figure 6 having therein a valve 32 which closes toward the pump barrel, this channel 31 communicating with a second channel 33 between which and the pump barrel the valve 32 is located. Channel 33 has a valve 34 therein which opens toward the pump barrel and a pipe 35 is in communication with channel 33 under control of the valve 34, pipe 35 leading up-

wardly along the pump barrel 11 and extending outwardly through the casing top 14 for connection at 36 with a flexible tube 37 having at its outer end a mouth piece 38 as seen in Figure 1 for a purpose which will be presently described.

The pump barrel 11 takes in air through an air intake pipe 39 which leads upwardly through the casing top 14 and connects at 40 with a flexible air intake hose or tube 41 for extension out of a window and the like in case the apparatus is used in a room.

The pump barrel 10 discharges through a discharge pipe 42 which leads from the casing top 14 and may be connected at 43 to a flexible tube or hose 44 the latter of which like the intake hose 41 may be extended out of a window in case the apparatus is used within a room.

Each of the filter tubes 24 and 25 may have an upright pipe 45 extending upwardly through the top 14 of the casing and provided with a pressure gauge 46, one of these gauges indicating pressure below atmospheric and the other indicating pressure above atmospheric. The upper ends of the two pump rods 17 and 18 may be connected by a single handle 47 which upon being grasped and moved up and down sets both pumps in operation so that through the connections above stated, air will be drawn toward the apparatus through the flexible exhaust tube 19 which in practice becomes an exhaling tube, and air will be forced in the opposite direction through the pump or pressure tube 20 which in practice becomes an inhaling tube.

In the ordinary use of my improved apparatus for the purposes first above stated the exhaling or exhaust tube 19 is first connected at its outer end to one of the nostrils of the patient with the mouth and other nostril held closed, and the handle 47 is raised and lowered while the breath is held until the patient is forced to let go during the exhaust of the air from the body. When the tube 19 is released the patient then draws a deep natural breath, removes the exhaust tube 19 and places the pressure tube 20 in one nostril, closing the other nostril and the mouth. The handle 47 is again raised and lowered so as to pump clean purified air into the body until the patient is forced to release the tube 20. At this time all or practically all foul air has been eliminated from the body while during the initial or exhausting operation stagnated blood has been drawn into the lungs and stagnated nerve fluid into the brain. During the second or pressure supply operation the blood and nerve fluids have been forced out of the lungs and brain through the blood channels of the body and the nerves.

The above operation is preferably repeated several times, using the air lines or tubes 19 and 20 separately, that is first exhausting air from the body and then pumping air into the body, and thereafter for an appreciable time say from five to ten minutes the two air lines 19 and 20 are utilized in conjunction, with the line 19 in one nostril and the line 20 in the other nostril as shown in Figure 1. During this latter and continuous operation the patient inhales from the air pressure line 20 as the pump actuating handle 47 descends and exhales through the air line 19 as the pump handle 47 ascends. During this operation the mouth is of course kept closed and it becomes quite obvious the patient may in any and all of these operations freely manipulate the pump handle 47 or may secure the services of a second person to assist in the operation to the extent of actuating the pumps. On the other hand the pump barrels seen more or less diagrammatically in Figure 8 at 10^a and 11^a may have their pump rods 17^a and 18^a actuated by the cranks 48 of a shaft 49 suitably mounted in bearings and provided with a pulley 50 which may be belt connected to any suitable source of power preferably a readily controlled source for instance an electric motor, the starting and stopping of which can be easily accomplished by the patient.

On the other hand it is quite obvious that in either the hand or power actuated pumping arrangements described, there may be either two pump barrels, each of a single acting type, which I prefer or a single pump barrel 51 as indicated in Figure 7, of a double acting type whose rod 52 actuates a plunger 53 movable between the ends of the barrel to which are connected inlet and outlet pipes 54 and 55 of the exhaust line and the inlet and outlet pipes 56 and 57 of the air supply or pressure line.

The flexible tube 37 with its mouth piece 38 are utilized only in case of new born children apparently lifeless, the pressure supply tube 20 being in this case connected to one of the child's nostrils while the other nostril and mouth are held closed. The operator then blows gently through the mouth piece 38 and tube 37, the air passing through valve 34 of Figure 6 into the channel 33 and from there directly into the channel 31 for passage through the pipe 29, air filter 25 and pipe 23 to the pressure line 20. This is repeated at intervals until natural respiration is induced.

I claim:

1. An apparatus for the purposes described including a casing, air pumping means in the casing including pump barrels and exteriorly projecting pump rods, the said pump barrels each having an intake and an exhaust, air lines connected to the intake of one barrel and the exhaust of the other barrel and including flexible tubes externally of the casing, air filtering means located in

the casing within the air line leading from the exhaust of one of the pump barrels, other air lines, including external flexible tubes, leading from the intake of one of the pump barrels and the exhaust of the other barrel and separate from one another for independent application to the nostrils, and air filtering means located within the casing and in the air line of the last mentioned pair leading from the exhaust of one of the pump barrels, said exhaust of said last mentioned pump barrel having a branch channel, a valve in the said branch channel, and an air line leading from the said branch channel and including a flexible tube projecting exteriorly of the casing.

2. An apparatus of the character described including a pair of independent flexible inhaling and exhaling tubes adapted for connection separately and in conjunction with one another to the nostrils, and means for drawing air from the exhaling tube and forcing air through the inhaling tube, and means independent of said last named means whereby air may be blown through the inhaling tube.

GEORGE ANSTON.