(No Model.) 2 Sheets—Sheet 1.

C. W. MUNSON.

INHALER AND RESPIRATOR.

No. 345,718. Patented July 20, 1886.

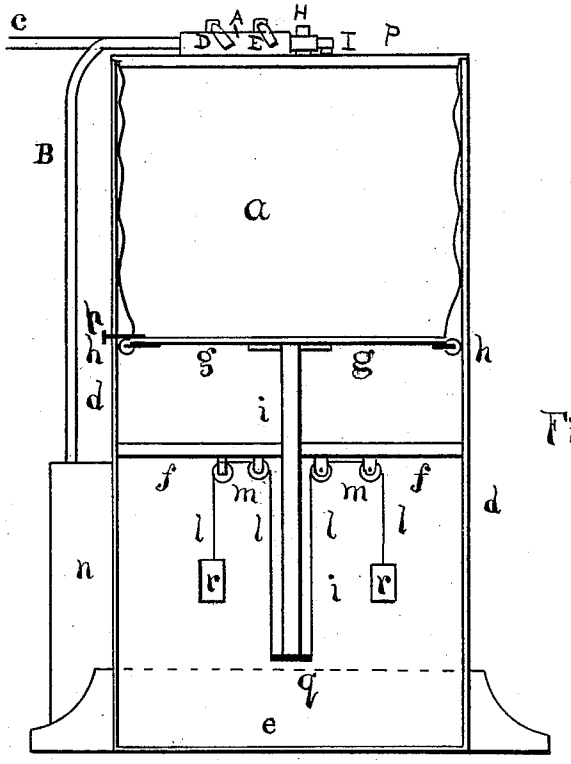


Fig. 1.

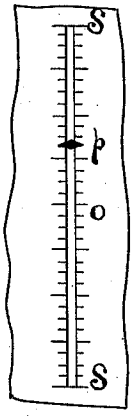


Fig. 2.

WITNESSES

C. F. France.

Charles Burnett

INVENTOR

Corydon W. Munson.

By Stoddard & Co his attorneys

N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.) 2 Sheets—Sheet 2.

C. W. MUNSON.

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Fig. 3.

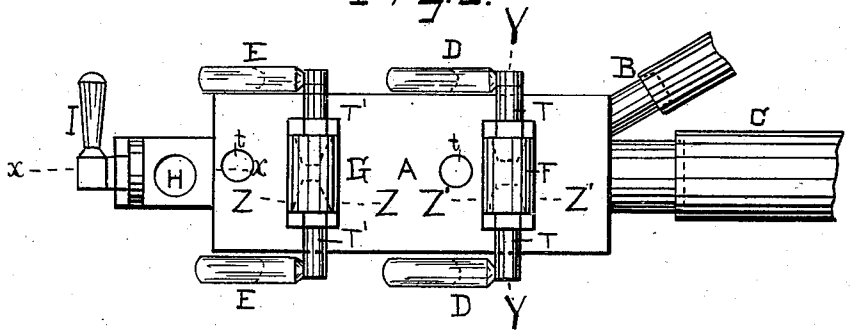


Fig. 4.

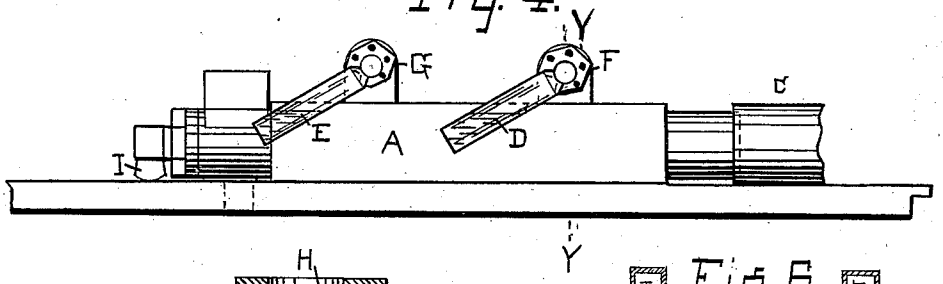


Fig. 5.

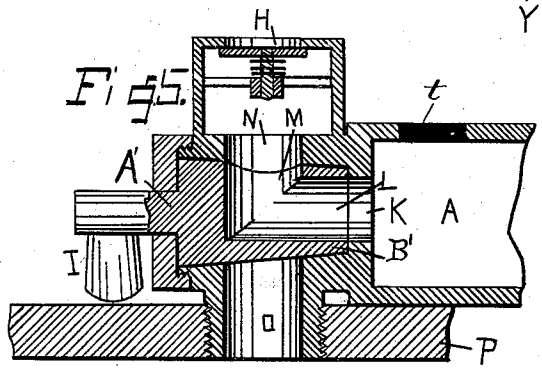


Fig. 6.

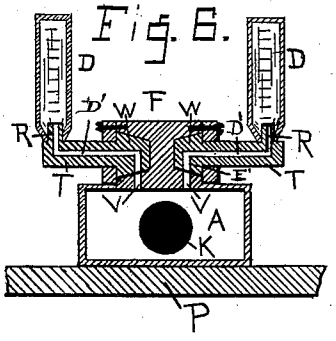


Fig. 7.

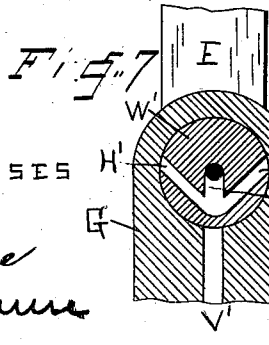
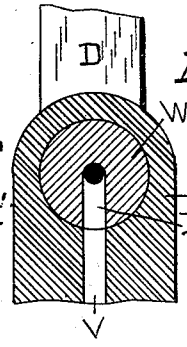


Fig. 8.



WITNESSES

C. F. France

Chas Burns

INVENTOR

Corydon W. Munson,

per Stoddard & Co

his attorneys

N. PETERS. Photo-Lithographer, Washington, D. C

UNITED STATES PATENT OFFICE.

CORYDON W. MUNSON, OF TOLEDO, OHIO.

INHALER AND RESPIRATOR.

SPECIFICATION forming part of Letters Patent No. 345,718, dated July 20, 1886.

Application filed August 28, 1885. Serial No. 175,599. (No model.)

To all whom it may concern:

Be it known that I, CORYDON W. MUNSON, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Apparatus for Administering Anæsthetic Agents; 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 and figures of reference marked thereon, which form a part of this specification.

My invention relates to apparatus for containing and combining anæsthetic agents.

The objects of my invention are, first, to provide an apparatus for holding different anæsthetic agents in a position for administering one or more of such agents to a patient, so that use can be made of the agent or agents best adapted to the physical constitution of the patient or to the extent or kind of operation to be performed; second, to provide an apparatus for containing liquid anæsthetic agents, which shall hold them in convenient position for being administered to a patient, and which shall avoid the possibility of leakage; third, to provide an apparatus for containing and combining anæsthetic agents which shall permit the operator to know and to regulate the amount of such agents administered; fourth, to provide an apparatus for containing and combining liquid anæsthetic agents, and for administering the vapor thereof, either alone or in any desired combination with gas, and which can be used either by itself or in connection with any apparatus for containing anæsthetic gas. I attain these objects by the means illustrated in the accompanying drawings, in which—

Figure 1 is a sectional view of the combining apparatus. Fig. 2 shows the graduated scale for measurement. Fig. 3 is a section on an enlarged scale of a small portion of the combining-chamber. Fig. 4 is a section through the line *y y*, Fig. 3, the handles, however, being in a different position. Figs. 5 and 6 are sections on the line *z z*, Fig. 3; Figs. 7 and 8, sectional detail views of the two-way cock.

Similar letters refer to similar parts throughout the several views.

B is a pipe through which gas is supplied to fill the receiver.

C is a pipe through which anæsthetic agents are inhaled by the patient.

B and C unite in the chamber A.

A′ is a two-way cock.

t t are openings in the wall of the chamber A, into which are fitted plates of glass. The object of these openings is to permit the operator to see into the combining-chamber.

The passage L in the plug B′ communicates continuously with the interior of the chamber A by the passage K.

The passage M can be made to communicate, by revolving the plug B′ by means of the handle I, with the air by the passage N, and with the interior of the gas-receiver through the passage O.

F and G are pairs of cocks on the upper surface of the chamber A.

D D and E E are handles, by which the cocks F and G are operated. These handles are made of glass or other transparent material, and are hollow, to allow them to be filled with anæsthetic liquid. The interior or exterior walls of the handles D D and E E are graduated in a convenient scale to measure their contents. The interior of said handles may be connected with the interior of the chamber A by the passages D′ E′ V and D′ E′ V through the stem T and plugs W W. The interior of the handles D D and E E are connected with and disconnected from the interior of the chamber A by turning the plugs W W by means of the handles D D and E E.

In the cock F the passage through the stem and plug passes from the interior of the handles to the center of the stem, then turns at right angles and passes along the center of the stem and plug till near the interior end of the latter, when it turns at right angles again and passes to the outside of the plug. When the handles D D are turned so as to stand vertically over the stem T T, the mouth of E′ is brought to the mouth of V, and the passage from the interior of the handles thus communicates with the interior of the combining-chamber A by the passage V, and allows the liquid to flow from the handles into the chamber, while the operator can observe the position of the surface of the liquid on the scale along the wall of the handles, and thus judge

of the amount of such liquid that has passed into the combining-chamber A. When the handles are turned down, the mouth of the passage E′ comes opposite the walls of the cock, and the passage from the interior of the handles is closed, while the liquid contents of the handles will rest upon the walls of the handles, and not on the joints of the cocks, thus preventing leakage.

The passages in the cocks G are similar to those in F, except that instead of passing directly to the outside of the plug they pass to near the surface, then pass by two branches, H′ H′, to the outside of the plug. The purpose of this arrangement of the passages is to allow the operator to admit a definite small quantity of the liquid to the combining-chamber at each forward and backward movement of the handles E E.

The operation of the valve G is as follows: The handles E E are turned to a perpendicular position, a small quantity of their liquid contents runs down into the passage S H H, the handle is then turned back till the mouth of one of the passages H′ H′ comes to the mouth of the passage V, when the contents of the passages H′ H′ will run through V to the combining-chamber A. The contents of the handles D D are poured directly into the combining-chamber by raising said handles to a perpendicular position.

The method of using my apparatus is as follows: If it is wished to use nitrous-oxide gas alone, the cock A′ in the influent pipe is turned down so as to bring the passage M opposite O, thus connecting the chamber A with the interior of the receiver, the top of which latter is shown at P. Gas is then allowed to flow from a convenient source in through the pipe B and chamber A to the receiver until the receiver is full. The pipe is then closed and the patient allowed to inhale the gas from the receiver through the pipe C. If it is wished to combine one or more of the anaesthetic liquids with the gas, the handle containing the required liquid is raised, pouring a part of its contents into the combining-chamber A, in one of the ways before described. The gas passing through the combining-chambers from the receiver takes up the vapor of the liquid or liquids contained therein, and passing along to be inhaled by the patient in combination therewith. If it is wished to have a larger portion of the vapor of the anæsthetic liquid than is secured by this latter method, the liquids are poured into the combining-chamber before filling the receiver. Thus the gas is passed over the liquids in entering the receiver, and may be still further saturated with the vapor thereof, if it is desirable, by pouring a further quantity of the liquid into the combining-chamber, and allowing the gas to pass over it while passing from the receiver to the patient. If it is required to administer the vapor of one or more of the liquids without the gas, the cock B′ is turned, bringing the mouth of the passage M to the mouth of the passage N, thus closing the connection between the combining-chamber A and the gas-holder, and putting the chamber A in connection with the outer air. The patient is then allowed to inhale the air passing through the pipe C. The air passes past the puppet-valve H through the combining-chambers A, where it takes up the vapor of the liquids contained therein, and carries it along with it through the pipe C to the patient. The combining apparatus may be removed from the receiver and used by itself to administer the vapor of the liquid anæsthetic when the combining-chamber is connected with the air in the method just described.

The method of using the combining apparatus by itself, to administer the vapor of the liquid anaesthetics without nitrous-oxide gas, does not differ from the method of using it when attached to the receiver.

Having fully described my invention, what I wish to claim and secure by Letters Patent is—

1. The combination of the diffusion-chamber A, the receptacle for anæsthetic liquids, the passage O, and the pipes B C, said pipes communicating immediately with the combination-chamber, and the receptacle for anæsthetic liquids being so situated on the combination-chamber that the liquids from said receptacle will fall between the mouth of the passage O and the mouths of the pipes B C, substantially as and for the purpose described.

2. In a combining and diffusion chamber for anæsthetic substances, a two-way cock by means of which the interior of such chamber can be put into connection with a passage leading to the interior of a gas-receiver or with a passage leading to the outer air, at the option of the operator, substantially as shown and described.

3. The cock F, having a transparent handle, E, graduated longitudinally in a convenient scale, the passages in the stem and plug, and the passage V, through the walls of the cock, substantially as shown and described.

4. The cock G, having a transparent handle graduated longitudinally in a convenient scale, the passages H′ and H′ in the stem and plug, and the passage V through the walls of the cock, substantially as shown and described.

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

CORYDON W. MUNSON.

Witnesses:
C. F. FRANCE,
CHAS. BUNN.