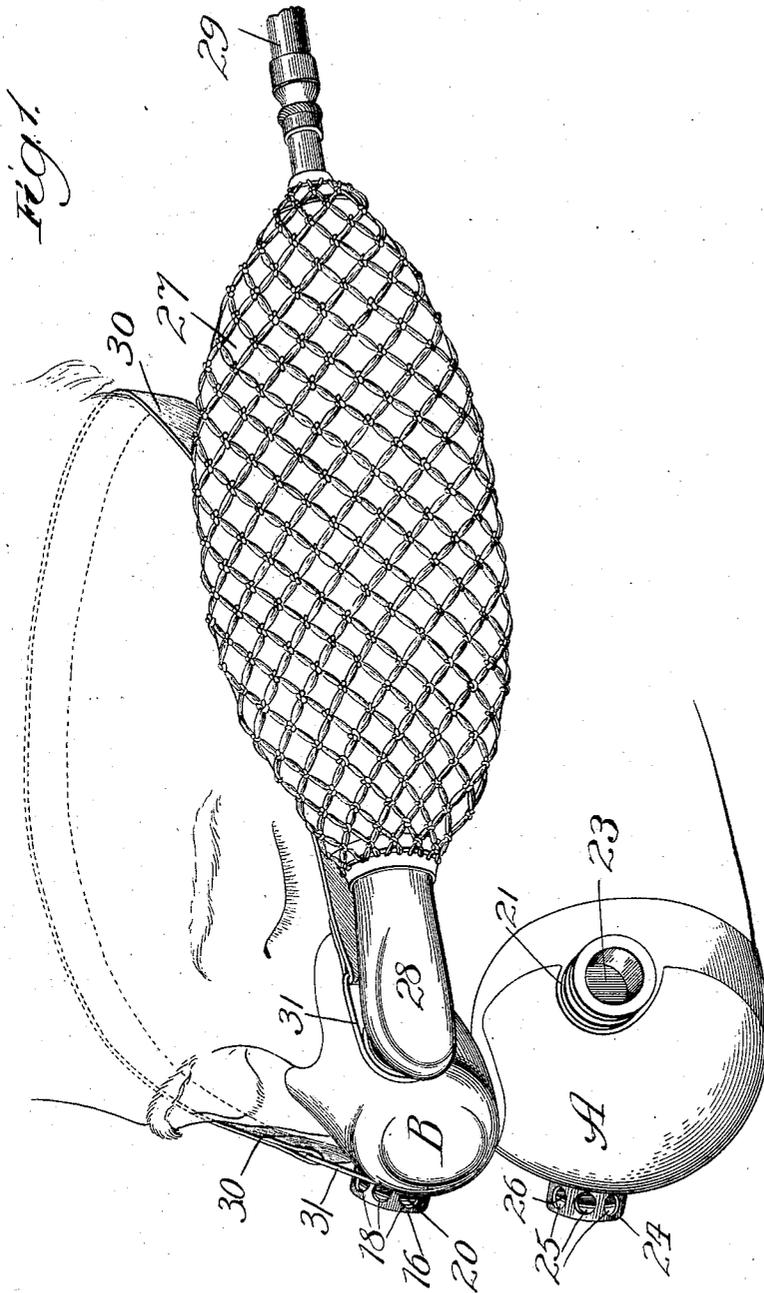


F. M. RICHARDSON & J. F. FIELD.
APPARATUS FOR ADMINISTERING ANESTHETICS.

APPLICATION FILED AUG. 17, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:
L. B. Coupland
Geo. C. Dawson

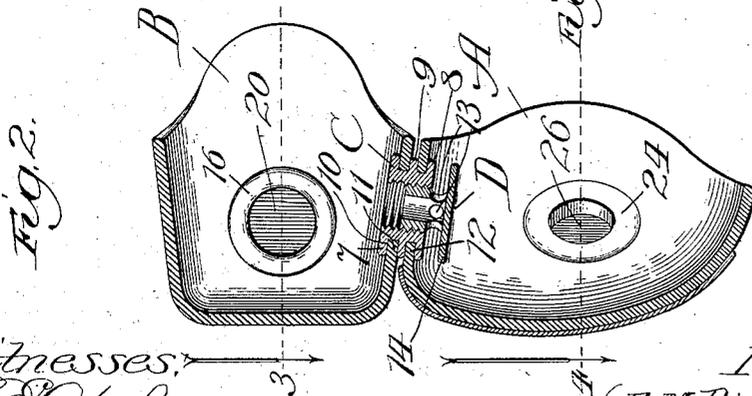
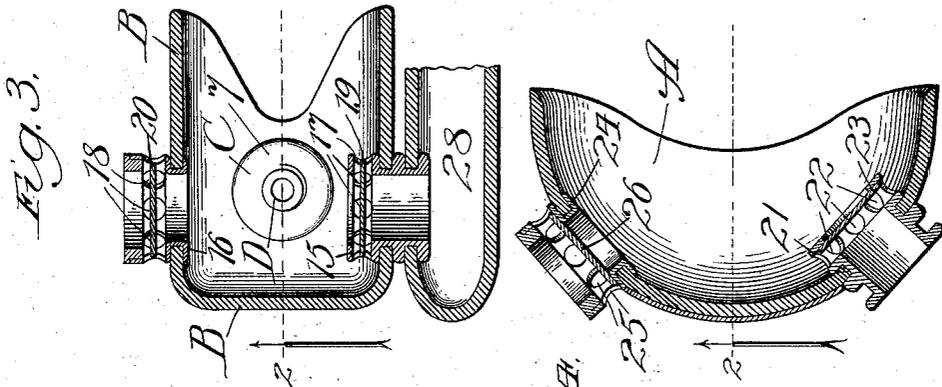
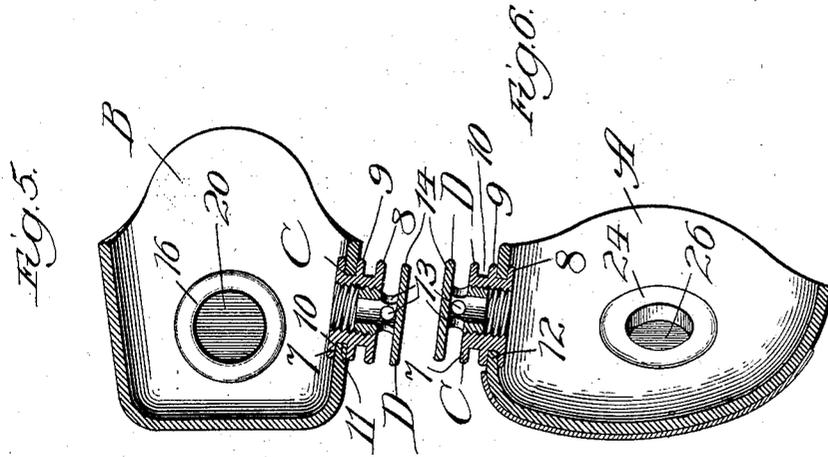
Inventors:
 { *F. M. Richardson* }
 { *J. F. Field* }
 By *L. B. Coupland*
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[Signature]
[Signature]

Inventors:
 { F. M. Richardson, ^{and}
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UNITED STATES PATENT OFFICE.

FRANK MARTIN RICHARDSON AND JOHN FRANKLIN FIELD, OF
CHICAGO, ILLINOIS.

APPARATUS FOR ADMINISTERING ANESTHETICS.

SPECIFICATION forming part of Letters Patent No. 746,380, dated December 8, 1903.

Application filed August 17, 1903. Serial No. 169,742. (No model.)

To all whom it may concern:

Be it known that we, FRANK MARTIN RICHARDSON and JOHN FRANKLIN FIELD, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Apparatus for Administering Anesthetics, of which the following is a specification.

This invention relates to an apparatus for administering anesthetics in surgical operations, and is intended to be an improvement on a similar device set forth in a pending application, Serial No. 125,665, the entire interest in which has been acquired by the present applicants.

One of the objects of this invention is to so control the admixture of the anesthetic vapor and atmospheric air as to insure the complete safety of the patient and avoid all danger of suffocation or strangulation.

Another object is to provide an inhaler of this character in which a mouth and nose part are separably connected together, so that an anesthetic may be administered through either the mouth or nose-passages, or both, simultaneously without interfering in the least with the natural respiration.

Another object is to provide a dual structure joined together in such a manner that one part or the other may be conveniently removed from the face of the patient in accordance with which organ is to be operated upon and respiration carried on through the other part, the administration of the anesthetic being continued through the same part while the operation is being performed, so that the patient may be kept in the anesthesia state as long as may be necessary with the one application.

In the drawings, Figure 1 is a view in perspective of an apparatus embodying the improved features. Fig. 2 is a vertical section of the mouth and nose parts in their joint relations, taken on line 2, Figs. 3 and 4, and looking in the direction indicated by the arrows. Fig. 3 is a horizontal section of the nose part on line 3, Fig. 2. Fig. 4 is a horizontal section of the mouth part on line 4, Fig. 2; and Figs. 5 and 6 are views similar to that of Fig. 2, with the difference that the

two parts are disconnected and the valve controlling the passage between shown in each part.

A represents a hood or mouth part, and B a hood or nose part. These hoods will preferably be composed of sheet-rubber or other material suitable for the purpose. The contacting edges of the flexible hood parts will be so designed as to closely conform to the contour of the face around the mouth and nose of the patient.

The mouth and nose parts are separably connected by means of a bushing or tubular fitting C, removably inserted in suitable apertures formed in the upper and under sides thereof. This bushing is screw-threaded interiorly and is provided exteriorly with the upper annular end flange 7, the lower end flange 8, and the middle flange 9. An annular recess 10 is provided between the upper and middle flanges for the engaging edge wall 11 around the aperture in the nose part in forming a tight-joint connection. A like recess is provided between the lower and middle flanges for the engaging edge wall 12 around the aperture in the mouth part, as shown jointly in Fig. 2 and separately in Figs. 5 and 6. By this form of connection the bushing is removably retained in place by the contraction of the elastic joining edges, so that the two parts may be joined together and separated with facility.

A tubular valve D has a threaded engagement with the bushing C and is provided with a number of apertures 13 and a disk 14, forming a finger-grasp in manipulating the valve. This valve is for the purpose of regulating the volume of vapor and atmospheric air admitted therethrough in accordance with the needs and conditions of the patient.

The nose part has an inlet-valve bushing or fitting 15 inserted in one side thereof and an outlet-valve bushing 16 inserted in the opposite side, as best shown in Fig. 3. The bushing 15 is provided with a number of apertures 17, opening on the interior of the nose part, and the bushing 16 with apertures 18 opening exterior thereto. The inhaling and exhaling passages through these bushings are controlled by companion disk valves 19 and

20, loosely inserted in place and automatically opened and closed by the action of respiration.

The mouth part is provided on one side 5 with the inlet-valve bushing 21, Fig. 4, having interior openings 22, controlled by a disk valve 23, and on the opposite side with an outlet-valve bushing 24, having exterior openings 25 controlled by disk valve 26, the general operation being the same as described in 10 connection with the nose part.

When the apparatus is placed in position for use, the inlet-valves will be located at the left-hand side of the patient, the anesthetic 15 being administered from that side.

The gas-receptacle 27 is provided at one end with a flexible tube 28 and apertured to be sprung over the outer ends of the inlet-bushings, as shown in Figs. 1 and 3. The 20 tube 29, inserted in the opposite end of the gas-receptacle and broken away, connects with the source of gas-supply and conducts the same into the receptacle.

The device is secured in place by an elastic 25 band or strap 30, provided at each end with clasps 31, which loosely engage the bushings of either the mouth or nose part.

Usually in practical use the two parts will be connected together, as shown in Fig. 2, before being secured to the head of the patient. 30 In this connection it will be noted that the valve D is temporarily located in the mouth end of the bushing C. This is the position for operating in the mouth, as in dental surgery, the gas-supply connection being made 35 with the nose part, as shown in Figs. 1 and 3. The patient is now breathing through the mouth, yet at the same time a greater or less volume of air may pass through valve D 40 and mingle with the anesthetic vapor in the nose part. When the patient is sufficiently under the influence of the anesthetic, the mouth part may be removed preparatory to proceeding with the operation. When the 45 mouth part is disconnected, the valve D is uncovered, as shown in Fig. 5, which position corresponds to the position of the valve in Fig. 2. If the operation is to be in the nose, then the valve will be inserted in the opposite 50 end of bushing C and leaves it uncovered in the mouth part when the nose part is removed, as shown in Fig. 5. In this relation the gas connection will be made with the mouth part.

By means of the valve D the volume of 55 atmospheric air admitted can be regulated as the varying conditions may require. When the two parts are used together, as will usually be the case when an operation is to be performed elsewhere than in the head, free respiration can be carried on through one part 60 or the other and the pressure of the anes-

thetic vapor and air equalized in the two hood parts, and especially so if the nasal passages are partially obstructed, as is frequently 65 the case. In fact, the arrangement is such that any person familiar with the practice of administering anesthetics can use the device with entire safety.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is— 70

1. A device of the class described, comprising a mouth and nose part separably connected together, whereby an anesthetic may be administered through either the mouth or 75 nose part and an admixture of atmospheric air admitted at the same time.

2. A device of the class described, comprising a mouth and nose part separably joined together and having a communicating passage 80 therebetween, and means for controlling the flow through said passage.

3. A device of the class described, comprising a mouth and nose part separably joined together and each part provided independently with inhaling and exhaling passages 85 and a communicating passage between the two parts, whereby an anesthetic vapor and air may be admitted to either part and respiration carried on at the same time. 90

4. A device of the class described, comprising a mouth and nose part having independent inhaling and exhaling openings, a bushing separably joining the two parts, said bushing being adapted to union in one part or the 95 other when the two parts are separated and provides for the admission of air when the proper inhalation-passage is being used for the admission of the anesthetic vapor.

5. A device of the class described comprising 100 a mouth and nose part separably joined together and each provided with independent inhaling and exhaling openings, and means for providing a communicating passage between the two parts when joined together and 105 forming an independent air-inlet for each part when being used separately.

6. In a device of the class described, a hood-covering comprising a mouth and a nose part separably joined together with a communicating passage between, means for regulating 110 the flow through said passage, the inhaling and exhaling passages in both the mouth and nose part, and means for opening and closing the latter passages at the proper time.

Chicago, Illinois, November 10, 1903.

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