this use of piping arrangements. Floor outlets are continually in the way of other equipment and pressure hoses lying on the floor are subject to undue wear and tear. Outlets mounted either low or high on the wall contribute a hazard comparable to an obstacle course from the pressure tubes which are draped across the floor in a manner well calculated to trip the unwary. Pressure tubes dropped from the ceiling tend closely to limit the anesthesia equipment to the single area of its usual use.

In an effort to obtain the advantages of piped-in-gases with a minimum of inherent disadvantages an overhead boom was devised * to carry the pressure hoses and thus provide a wide, unencumbered aisle behind the anesthesia table. In the installation of this device at Oakdale Sanatorium, three separate pressure tubings carry oxygen, nitrous oxide and air to the anesthesia table (fig. 1). The suction tubing could also be mounted on the boom if so desired. Quick connectors of noninterchangeable variety are provided for connection with gas hoses from the anesthesia apparatus. This allows the apparatus to be used at other locations if necessary. The jointed boom, which folds back against the wall when not in use, is freely movable in an arc of a 6 foot radius so that if properly placed it permits the operating table to be used in either of two directions in the room.

* This assembly was made by the McKesson Appliance Company, Toledo, Ohio, through the cooperation of Dr. J. L. Bloomheart.

The area in which the boom is mounted depends upon the design of the operating room and the directions in which the head of the operating table is most frequently placed. Obviously too, the boom must not pass over layouts of sterile equipment. It should be placed at a height of slightly more than 7 feet on the wall either to the right side or directly behind the usual position of the anesthetist. Thus, if it is anticipated that the head of the operating table will in most instances be to the north or to the east, the boom will be mounted on the north wall; if the most usual directions of the operating table place the head at either the east or south, then the mounting will be on the east wall. In the event that some bizarre placement of the operating table becomes necessary, the pressure tubing can be temporarily and easily unhooked from the boom, and when laid upon the floor will provide sufficient additional length to permit moving the anesthesia machine to the far side of the room. This latter is best facilitated by placing the turn-off valves for the piped gas room outlets low on the wall below the boom mounting.

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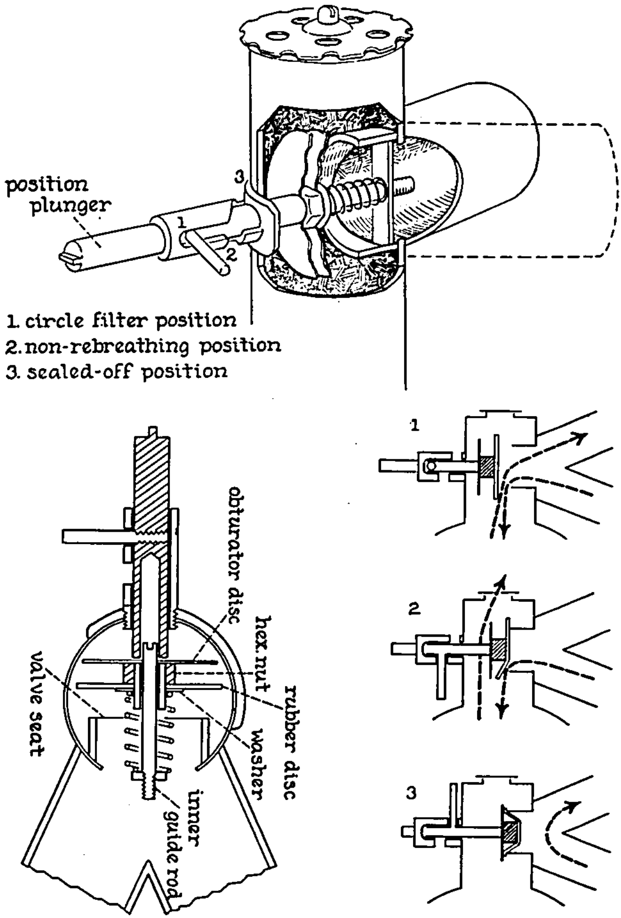
A DEVICE WHEREBY A CIRCLE REBREATHING SYSTEM MAY BE INSTANTANEOUSLY INTERCHANGED WITH A NON-REBREATHING SYSTEM

A non-rebreathing technic is useful for a number of anesthetic procedures. Some of these may be: (1) removal of nitrogen from the lung, facilitating rapid induction with nitrous oxide; (2) rapid oxygenation and elimination of anesthetic gases for resuscitative purposes during the course of inhalation anesthesia; (3) elimination of combustible agents from the lungs and replacement with nitrous oxide in the presence of explosive hazards; (4) employment of trichloroethylene when rebreathing with carbon dioxide absorption cannot be used, and (5) in pediatric anesthesia when carbon dioxide accumulation and heat retention must be avoided.

To accomplish the first three aforementioned procedures a non-rebreathing technic is required for only a few minutes, and can readily be employed if a device is used allowing instantaneous and easy changeover from the common circle absorption system to a non-rebreathing system. Such a device can be created by the addition of an inlet valve to a conventional "chimney Y" with a "pop-off" valve. This inlet valve may be set in one of three positions as shown in the illustration.

As shown in position (1) the valve is held permanently open for circle absorption technic. Gases may flow from the reservoir bag through the chimney Y to the patient,



Cut away and section drawing of chimney Y with pop-off valve, modified by addition of an inlet valve and 3 position control.

and back to the bag through the expirator tubing and soda lime. The pop-off valve then allows only excess gas to escape.

In position (2) for non-rebreathing operation, gases may flow from the reservoir bag past the valve into the patient on inspiration; during expiration the valve closes and gases must flow out the pop-off. In position (3) the rubber flap valve is held securely closed by a metal disc; in this position the system may be filled and tested for leaks. In all three positions the gas may flow from the machine out the inspiratory tubing, through the gap between the arms of the Y and back to the bag, as it does in the usual circle filter. The position of the valve is controlled by a plunger traveling in a notched barrel.

Trichloroethylene may be vaporized in an ether or vinethene vaporizer on the inspiratory side of the circle. The carbon dioxide absorber must be turned off because of the toxic decomposition of trichloroethylene by soda lime. Non-rebreathing technic may then be used to prevent carbon dioxide accumulation.

It should be remembered that this non-rebreathing valve is in series with the valves in the circle filter; the added resistance, therefore, contraindicates its use in pediatric anesthesia.

The modified valve is constructed as follows:

The inner sliding obturator of a conventional (Foregger) chimney Y is removed. The slot in the chimney is then covered by soldering over it a strap of brass 1/8 inch thick. This strap has a hole tapped for 3/8 inch pipe thread to mount the plunger barrel. The barrel is a 1 inch section of 3/8 inch brass tubing with a 1/4 inch inner diameter. The notches in its longitudinal slot determine the position of the plunger, and hence the valve. The plunger is a 1/4 inch brass rod which has a 5/32 inch hole 1 inch deep drilled in the inner end to slide over the inner guide rod. The plunger has a 4-40 tapped hole in the side to hold the indicator lever. The boss on the outer end may be used as a screw driver to remove the inner guide rod. The inner guide rod is a 1/8 inch rod, 1 5/8 inches long with 4-40 thread on one end and a notch on the other to accept the screw driver.

The 0.010 inch beryllium copper obturator disc is soldered to a brass hex nut 5/32 inch thick and a brass sleeve 5/16 inch long, 3/16 inch outer diameter, 1/8 inch inner diameter. The hex nut is drilled out to slip over this sleeve before soldering. The rubber valve disc is held between the hex nut and a washer by the spring. The position plunger is also held against the valve and obturator assembly by this spring.

The valve seat is 1 inch brass tubing cut off cylindrically to fit inside the chimney, over the hole out to the Y. It is soldered in place with a small bar tapped to mount the inner guide rod.

The pop-off valve is an aluminum disc depending on gravity to close it. It has proven more satisfactory to place a fine coil hair spring above this disc to assure its closure.

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MODIFICATION OF DOUBLE CANISTER CIRCLE FILTER

In the scientific exhibit at the recent convention of the American Medical Association, the Division of Anesthesiology of the Washington University School of Medicine reported marked increases in carbon dioxide passing through soda lime filters when the tidal volume exceeded the air space of the existing canisters.

With existing circle filters the gas flow through the canister cannot be reversed, and the usual practice is to discard the entire charge of lime when the upper portion is exhausted.

An improved canister has been designed which can be fitted into the space provided in existing machines in our department.

The present model contains 780 Gm. of lime and provides an intergranular space of 525 cc., which is within the range of tidal volumes usually encountered in anesthesia. The flow of gas through the lime can be modified by the use of appropriate baffles. A large screen is fixed in the center of the canister, with removable screens on either end. By reversing the canister in its mount, the direction of gas flow through the lime