

bag pressures at other times. When a non-rebreathing valve with an automatic expiratory valve closure mechanism (such as the Fink, Frumin, Lewis-Leigh, Ruben valves) is used, there is always a danger of undesired expiratory obstruction or possibly of a complete sealing of the system if the pressure in the bag builds up. By using a valve such as valve L-V, the pressure in the bag can be kept low and this danger avoided. A special pop-off valve can also be used for the same purpose. It must be placed between the patient and the inhalation valve (I) as indicated on the diagram (fig. 1) in order to serve the non-rebreathing as well as the circle system. As an extra safety factor, this arrangement provides an inhalation vent in case of increased

gas flow or an empty reservoir bag. The patient can inhale air through the open end of the absorber and not inspire against the closed system as would occur with the conventional nonrebreathing system.

On the jumbo absorber of the Foregger machine, the T-piece can be simply removed and placed between the inhalation dome valve and the corrugated inhalation tube, which are on the side of the absorber nearest to the anesthetist (fig. 2). An automatic expiratory valve (L-V) can be inserted into the tail of the reservoir bag to ensure efficient ventilation. As an inspiratory safety vent, air can be sucked in through the open end of the expiratory tube or the expiratory dome valve.

## Aerosolization of Drugs During Inhalation Anesthesia

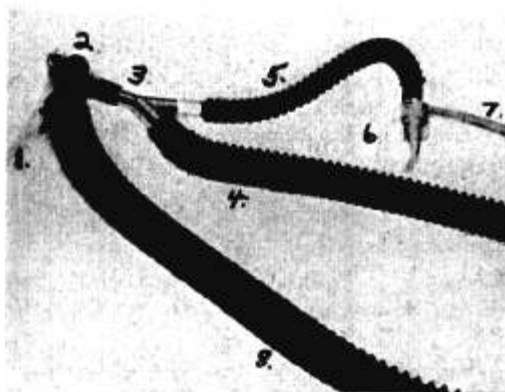
GEORGE A. SMALL, M.D.\*

It is frequently advisable to administer an inhalation anesthetic to a patient who has some pulmonary disorder complicating the surgical lesion. At such times I have found this simple adaptation of readily available equipment very effective for the application of inhalation therapy during the course of surgery and anesthesia.

In the accompanying picture: (1) is an endotracheal tube in the patient; (2) is a swivel Y-inhaler valve or any other chimney Y; (3) is a Y-connector; (4) is the inspiratory tube from the anesthesia machine connected to one of the Y-connector limbs; (5) is a 12 inch length of corrugated conductive tubing; (6) is a Bennett twin or a Vaponephrin nebulizer which is taped to the head of the operating table to maintain it in an upright position; (7) is the tubing from a "G" size oxygen tank or from a metered source of compressed air; a flow rate of 2 liters of oxygen or air per minute is utilized; (8) is the expiratory tube to the anesthesia machine. During the period of nebulization

of medications the flow of anesthetic gases to the patient is adjusted to take into account the 2 liters of oxygen or air added to the circuit.

I have aerosolized pancreatic dornase (Dornovac), isoproterenol hydrochloride 1:200 solution (Isuprel), sodium 2-ethylhexylsulfate with potassium iodide (Tergemist), and penicillin singly and in combinations that seemed indicated by the nature of the disorder present.



\* Miami, Florida