

of flow to the jet of the nebulizer by the inspiratory parallel air flow line (no. 9). For cases requiring more oxygen, the booster mixer is the answer. It is mounted to the side of the inspiratory flow booster and releases the oxygen during inspiratory phase into the system through one of the inlets on top of the in-line nebulizer.

Adaptation to an infant is very simple. Before the nasotracheal tube is inserted, it is attached to the entire set-up and with the respirator in the "off" position. The fine expiratory valve control is adjusted to 0.5 cm. of water, which is read off the respirator aneroid dial. The tube is then inserted, taped securely, and attached to the "U" configuration with a small plastic connector. Inspiratory pressure is regulated according to the ventilation required. Inspiratory flow rate is adjusted to the requirements of the inspiratory cycle and is balanced against the additional flow through the nebulizer jet. The sensitivity is adjusted to avoid pressure cycling and to follow the

inspiratory efforts without delay from initiation to triggering of the respirator.

General management of the respirator is relatively easy with minimal adjustment required after initial adjustment. Additionally, the automatic timer for controlled respiration can be adjusted to take over when the respiratory rate of the patient falls below any predetermined level.

This respirator has been used at Duke University Medical Center for ventilation of infants with congenital heart disease postoperatively, and in prematures with hyaline membrane disease. Early results have been encouraging and it is believed that this modified ventilator supports the respiratory exchange of the premature, newborn, and older infant in a satisfactory and physiologic manner. Clinical impressions have been substantiated by blood gas measurements, as will be reported in a future publication.

Infant respirator kit to modify standard Mark 8 Bird respirator available from Bird Corporation, Palm Springs, California.

Aid During Tonsillectomy

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The Davis-Crowe mouth gag is commonly employed to good advantage during tonsillectomy. Its use, however, requires that some individual (surgical assistant, anesthesiologist) or some mechanical device maintain the tip of the handle in an elevated position; a circumstance which often proves distressing to both the anesthesiologist and the surgeon.

For several years I have employed a gadget in the solution of this problem which relieves an assistant of this chore. It further provides stable fixation for the mouth gag and yet allows for changing position or height of the table at any time without disturbing the position of the mouth gag. The pertinent piece of apparatus is an ordinary, inexpensive clothes line tightener which can be purchased in any hard-

ware store. This is assembled, using clothes line for the attachments (fig. 1), with appropriate rope loops superiorly and inferiorly and a single strand of rope for the tightening adjustment. Raising the tightener, and therefore anything that is attached to it, is easily accomplished by grasping it with thumb and fingers of the right hand, while the left hand makes taut the strand of rope which passes through it. The device will then maintain itself at any level by the unidirectional gripping action of the housing through which the rope passes. Any downward force on the lower loop serves only to make the device more secure at that level. Release of this locking action is easily affected by the maneuver shown in figure 2. With the right thumb placed on the metal loop from which the lower rope loop

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FIG. 1. The apparatus ready for use.

is attached, the bell portion of the tightener is pulled down between the index and middle fingers against the resistance of the spring which normally holds the bell retracted. This releases all grip on the vertical strand of rope and allows the apparatus and anything attached to it to descend.

The practical application of this device is seen in figure 3. After the patient has been anesthetized and the mouth gag inserted and opened, the anesthesia bar is adjusted so that its vertical portion lies in an axis essentially perpendicular to the handle of the mouth gag. The upper rope loop is then passed over the knob at the end of the horizontal portion of the anesthesia bar to a point over the patient. Tension on the single strand of rope is released and the lower loop drops to the level of the end of the mouth gag. The latter is engaged in the lower loop following which the tightener is elevated until the mouth gag is held up to its desired position. The position is then maintained continuously; and the table may be raised, lowered or tilted in any desired direction without disturbing the overall relation. The mouth gag itself may be easily adjusted for size of opening, even while its tip is held taut by the device. When the mouth gag is to be switched or adjusted, depression of the bell with the index and middle fingers allows for the instantaneous release of this tightening



FIG. 2. Releasing and lowering the holding loop.



FIG. 3. Mouth gag and holder in use.

device and the slipping off of the lower loop so that the mouth gag is again free. The adjustment of this device can be carried out by the surgeon himself or by other operating room personnel if the field is to be draped in a completely sterile manner. In the latter instance the tip of the mouth gag handle is easily kept accessible outside the drapes.