



FIG. 1. Guards attached to the low flow controls for N₂O and O₂ to alert the user to the flowmeter being used.

guards do not prevent the use of these controls, but the user receives a tactile reminder each time the low flow control is adjusted (fig. 1). The hospital's Engineering Department made the guards from 1-mm thick stainless steel and pop rivetted them onto the frame of the plastic flowmeter shield. A similar pattern could be made for the Ohio® DM 5000 or other apparatus where it may be needed.

LESLIE RENDELL-BAKER, M.D.
ORVILLE L. KLEIN, A.R.T.
PREMILA CHARLES, M.D.

*Department of Anesthesiology
Loma Linda University
Medical Center
Loma Linda, California 92357*

REFERENCES

1. Rendell-Baker L: Update anesthesia equipment to reduce risks. *Hospitals* 54:49-52, 1980
2. Mazze RI: Therapeutic misadventures with oxygen delivery systems: the need for continuous in-line oxygen monitors. *Anesth Analg (Cleve)* 51:787-792, 1972

(Accepted for publication August 18, 1981.)

Anesthesiology
56:156, 1982

Cardiopulmonary Resuscitation of Late-Pregnant Women

To the Editor:—Cardiac arrest may result from the accidental intravascular injection of more than the test-dose of 0.75 per cent bupivacaine during attempted extradural block. I have detailed information on five such complications occurring in healthy gravidae scheduled for cesarean section. Characteristically, there was a short grand mal seizure followed by disappearance of pulse and blood pressure. All five women required external cardiac compression for more than 10 minutes. In three, the infant was delivered with dispatch, and the mothers survived, two with no after-effects but amnesia. In the other two gravidae, delivery of the fetus was delayed for several minutes; both mothers suffered irreversible brain damage.

Cardiac compression is accomplished most efficiently with the patient supine on a hard surface. In late-pregnant women, however, this position is associated with

aortocaval compression and resultant decrease in venous return to the heart. Therefore, delivery of the infant will improve maternal circulation promptly and significantly. If immediate delivery cannot be undertaken safely, expert uterine displacement must be undertaken without delay; manual displacement (to the left and slightly cephalad) is most rational in such a situation.

Prompt delivery of the infant should be considered part of cardiopulmonary resuscitation of late-pregnant women.

GERTIE F. MARX, M.D.
*Professor of Anesthesiology
Albert Einstein College of Medicine
Bronx, New York 10461*

(Accepted for publication on August 18, 1981.)