

CCXLV.—*A Simple Cell for Conductometric Titrations.*

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THE type of cell generally used (see, *e.g.*, Robbins, *J. Amer. Chem. Soc.*, 1917, **39**, 646; Kolthoff, "Konduktometrische Titrationen," 1923, p. 17; Treadwell, *J. Soc. Dyers Col.*, 1924, **40**, 399; Callan

FIG. 1.

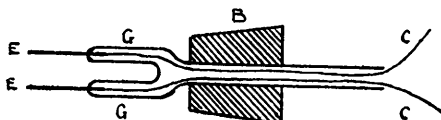
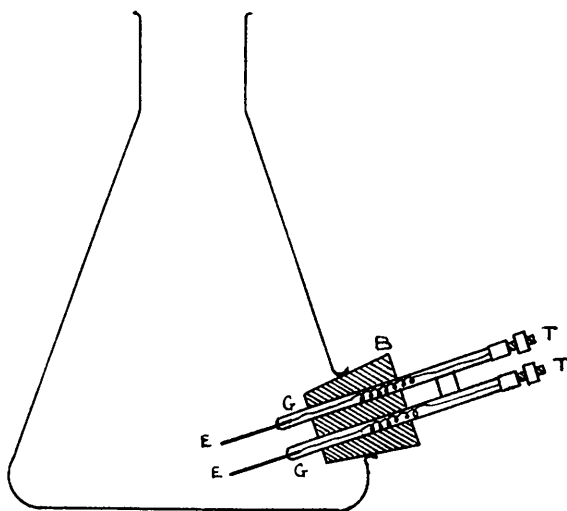


FIG. 2.

and Horrobin, *J. Soc. Chem. Ind.*, 1928, **47**, 339T) is a somewhat cumbersome and delicate piece of apparatus, which, owing to its form, requires mechanical stirring arrangements. An equally efficient cell of simpler construction, however, is described below, and it possesses the further advantage of being much easier to clean. Although arbitrarily chosen, the dimensions will probably be found suitable for most purposes.

The titration cell is made from a 250-c.c. Pyrex conical flask, into which the electrodes are introduced through a hole blown in the side near the base and formed into a tubulure to take a 15/16" rubber bung *B* (Fig. 1). The electrode system has been made in two forms—that shown in Fig. 1, and a modification of this suggested by H. Lempert as shown in Fig. 2. The latter type is easier to make and more robust, yet one of the former type has been in use for three years without breakage even though a flask in which it was mounted got broken. For convenience, the platinum electrodes *EE* are welded on to lengths of copper wire *CC* before the electrodes are fused in place in the glass tubes *GG*, and the copper wires are either arranged to dip in mercury cups or soldered to terminals *TT* as in Fig. 1. The latter method is justifiable since the absolute conductivity is of no consequence, and only the changes of conductivity on addition of reagent are important in analytical work. After the electrode system has been inserted in the rubber bung this is then pushed into the side tubulure of the flask. The cell is then ready for use, and when desired, the electrodes can be taken out for replacement, cleaning, or replatinising without any difficulty.

Sufficient liquid must be placed in the flask to cover the electrodes completely, and stirring is effected by shaking the flask in the same way as in an ordinary volumetric titration.

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