An attempt was also made to prepare *iso*humulone by treating humulone with boiling alcoholic alkali [3]. However, a rather complex reaction mixture resulted, as was also found by Carson [5] and by Howard [6] (Fig. 2). Moreover, none of the main compounds could be identical with the *iso*humulone of beer, though they had ressembling ultraviolet absorption curves, as they were eluted already at pH 4.5 and 4.7, respectively. Some minor components only appeared at pH ~ 6 where the *iso*-humulones of beer are normally found. The last peak in the chromatogram was formed by unreacted humulone.

1. Rigby, F. L. and Bethune, J. L. *Am. Soc. Brewing Chemists, Proc.* **1952** 98.
2. Windisch, W., Kolbach, P. and Schleicher, R. *Wochschr. Brauerei* **44** (1927) 453, 473, 485, 497.
3. Verzele, M. and Govaert, F. *Intern. Congr. Fermentation Inds. Lectures and Communs. Ghent 1947*, p. 297.
4. Spetsig, L. O., Steninger, M. and Brohult, S. *European Brewery Conv. Proc. Congr. Copenhagen 1957*, p. 22.
5. Carsson, J. F. *J. Am. Chem. Soc.* **74** (1952) 4615.
6. Howard, G. A., Slater, C. A. and Tatchell, A. R. *J. Inst. Brewing* **63** (1957) 237.

Received April 10, 1958.

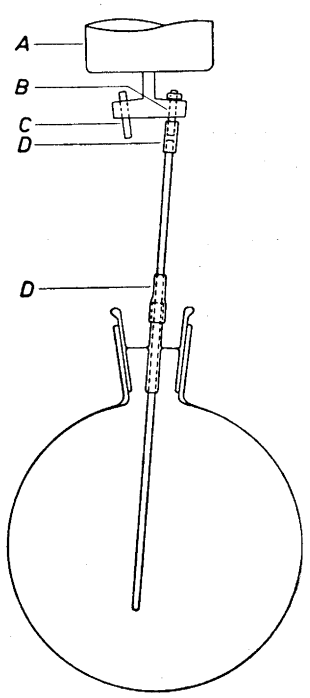

Fig. 1. Stirrer for flasks totally enclosed. A motor, B bearing eccentric to the motor axle, C counter weight, D rubber bushings.

A Stirrer for Flasks Totally Enclosed

OLOV E. ÖHRN

Institute of Physical Chemistry, University of Uppsala, Uppsala, Sweden

In connection with some fractionation work[1] a stirrer for flasks totally enclosed has been constructed. The design is based on the principle that if one end of a rod, the middle of which is connected to a ball joint, is driven in a circle the other end will also describe a circle, whereas the middle remains fixed. The middle can of course be connected to a flexible membrane instead of a ball joint. In this way it is possible to get a perfect seal. The stirrer is shown in Fig. 1.

It is designed to be used in flasks with joints of Standard Taper 29. The stopper, made of teflon, has been machined so that we have a relatively thin-walled cylinder, closed in the center with a plate only 0.5 mm thick, through the middle of which runs a tube that fits tightly around the stirring rod. To obtain a better seal the teflon tube may be pressed against the rod with a thick rubber bushing and in this way we also avoid a slow rotation of the stirrer in the direction opposite to that of the motor. The connection of the motor to the rod, *via* a bearing eccentric to the motor axle, will be clear from the figure. A length of 30 cm for the rod with a maximum amplitude of 2 cm is adequate.

The simple shape of the rod has proved most satisfactory for fractionate work since very little precipitate becomes attached to the stirrer.

1. Öhrn, O. E. *Arkiv Kemi* **12** (1958) 397.

Received April 3, 1958.