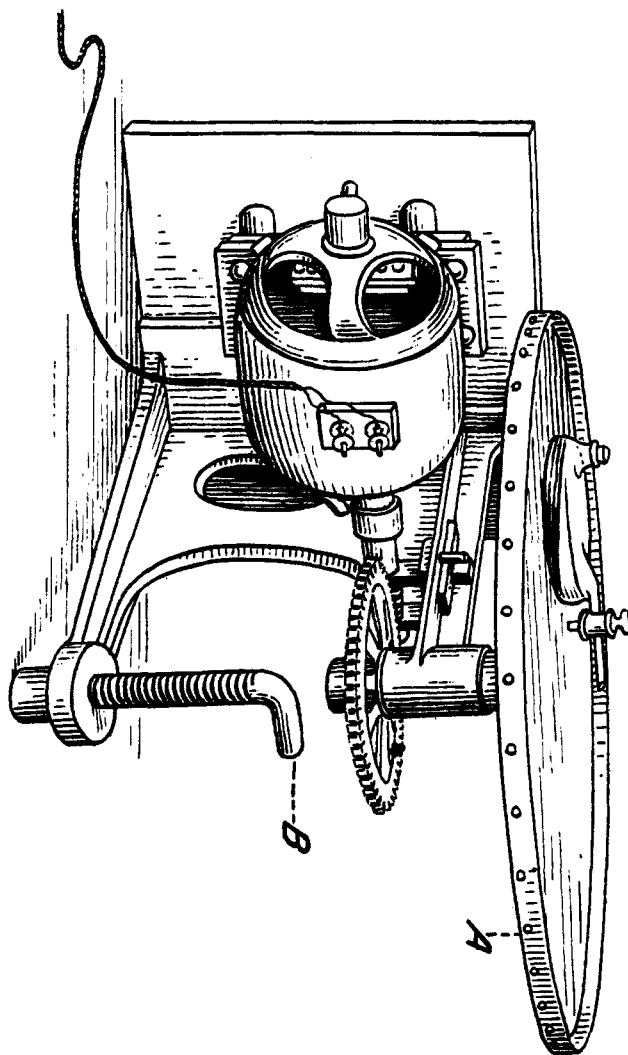


NOTE.

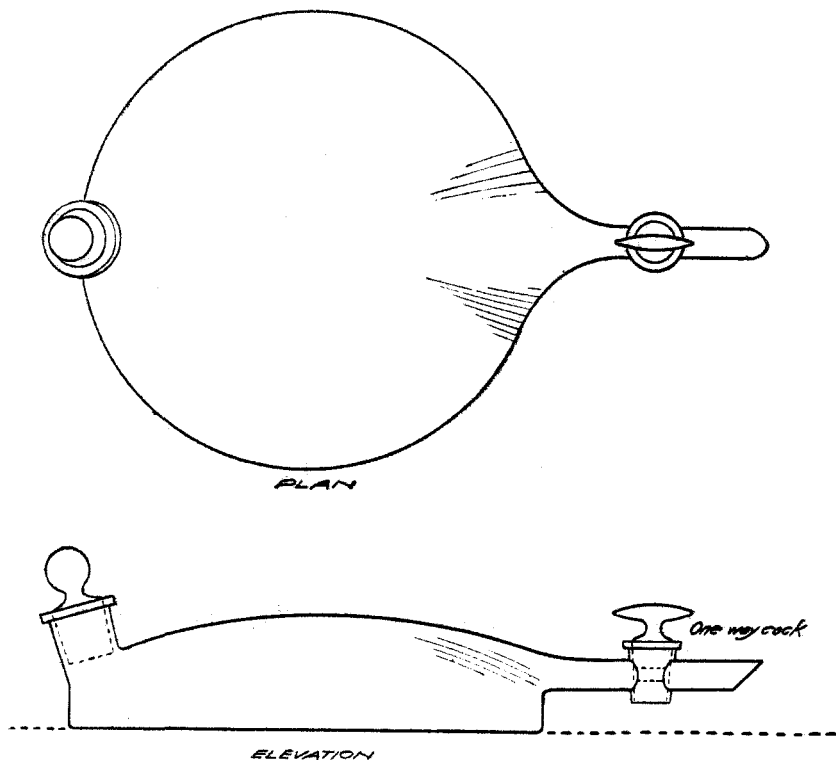
*A New Separatory Funnel.*¹—The method of shaking out with immiscible solvents is sometimes tedious or quite impracticable on account of a tendency to form persistent emulsions, even on cautious agitation. This is especially true of the separation of organic acids, bases, etc., from animal and plant



extracts, which often contain mucilaginous or albuminous constituents. A consideration of the theory of the distribution of substances between two immiscible solvents in contact with each other led to the devising

¹ From the Drug Division, Bureau of Chemistry, U. S. Dept. of Agriculture.

of a new form of separator to overcome this difficulty. Assuming that the rate of transfer of the dissolved substance depends upon the difference between the condition of equilibrium and the existing ratio of distribution, and also upon the area of the surfaces in contact, the transfer will be promoted by the continual presentation of fresh portions of the respective liquids into contact with each other and also by an increase of the contiguous surface. This is usually effected by shaking the two liquids together, but when shaking causes emulsification other expedients must



SEPARATOR

BUREAU OF CHEMISTRY, U. S. DEPT. OF AGRY.

be resorted to. The writer has accordingly had made separators of flat form, which during the extraction process are used in a nearly horizontal position, but are placed erect when the contents are to be drawn off. These separators are made in two sizes, namely, 12.5 and 17.5 cm. in diameter, and in use the liquids are spread out in thin layers so that the contiguous surfaces are 8-10 times as large as with the same amounts of liquid in separators of the usual form. To produce a gentle movement of the liquids upon each other an apparatus is useful. This consists of a

nearly horizontal rotating (20 revolutions per minute) disk A which is slowly turned through a worm gear by means of an electromotor. The inclination of the whole apparatus may be adjusted by a hand-screw, B, in the base. The separators lying on the rotating disk are gently tilted about so that no mixing of the two liquids takes place. To support the separator vertically while drawing off the contents, two right-angle screw hooks are inserted horizontally in the edge of the laboratory desk shelving with a space between them somewhat less than the diameter of the separator. The apparatus¹ has proven satisfactory in practice.

C. E. PARKER.

NEW BOOKS.

Methods in Chemical Analysis, originated or developed in the Kent Chemical Laboratory of Yale University. Compiled by FRANK AUSTIN GOOCH, Professor of Chemistry and Director of the Kent Chemical Laboratory in Yale University. New York: John Wiley & Sons. 1912. 8vo., 23 × 15 cm., xii + 536 pp. Cloth, \$4.00 net.

All chemists, analytical and otherwise, will welcome the appearance of this volume, which collects and presents concisely "the principal results reached by workers in the Kent Chemical Laboratory of Yale University in the investigation and development of methods in chemical analysis." Although the book runs to 536 pages, the "compiler" regards it as a summary, and has, therefore, given rather complete references to the original sources.

After 70 pages, containing some admirable illustrations, devoted to appliances and general procedure, the succeeding chapters run the gamut of some 46 elements, with special discussion of the Yale analytical methods. Conditions of experiment and results obtained are given in tabular form, and in such a way as to make apparent the degree of accuracy reached in each case. The index of authors is limited to workers in the Yale Laboratory, and includes about 80 names. The perusal of these, by the way, leads one to look for "Drexel," which occurs frequently throughout the text in association with "washing bottle." No one of this name, however, appears to have worked at Yale. Doubtless E. Drechsel is referred to.

The book is excellently produced, and will, of course, form a necessary addition to our libraries.

ALAN W. C. MENZIES.

¹ NOTE.—This paper was prepared in May, 1909, but withheld from publication for various reasons. The original form of separator (1908) had the stopcock attached midway of the side instead of at the top. This irregularity in the cylindrical wall of the separator produced in operation a slight regurgitation and emulsification, which are avoided in the improved form shown here.

Just before transmitting this paper for publication the writer's attention was called to a similar apparatus of prismatic instead of cylindrical form described by Schütte, *Chem. Ztg.*, 35, 332 (1911); *C. A.*, 5, 2203.