A SYSTEM FOR AUTOMATIC REPERCOLATION AND DRUG EXHAUSTION.

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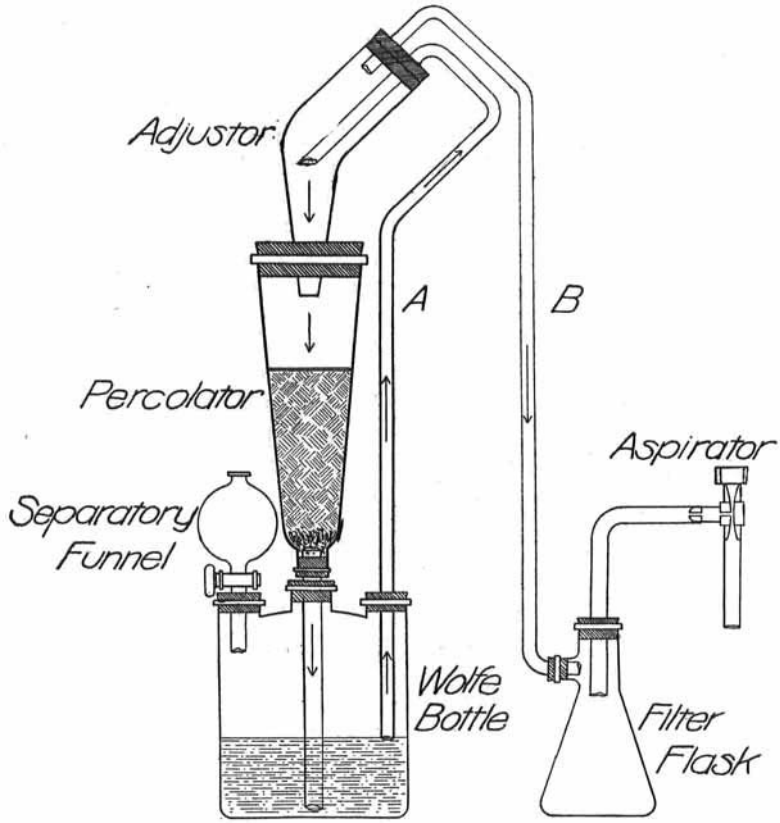
There are various well-known methods by which drugs may be extracted with use of minimum amount of menstruum—the Soxhlet, for example, and its modifications. These methods involve the use of heat, volatilization of drug solvent and condensation. Means, other than these, working automatically, are unknown.

In percolating a drug with combustible volatile liquids by the familiar methods, there is always a possibility of breakage and the contingent loss and danger.

In analytical work, the Soxhlet modifications are often prohibited, due to destruction of certain constituents by prolonged heating. Digestion is resorted to, in such cases, at ordinary temperatures with frequent agitation for long periods of time. In certain work, weeks are not infrequently required.

To obviate these inconveniences and difficulties, the author has devised a system, the operation of which is made clear by the accompanying drawing. Tube A



is adjusted to such a height in the menstruum in the Wolfe bottle that, when emptied by suction, it will transfer a convenient amount of the liquid to the drug in the percolator. The arrows point the direction of flow. When A is emptied, there is a difference of pressure in the system equal approximately to the weight of the liquid transferred to the percolator. This liquid then percolates through drug to

Wolfe bottle and will rise to level of A and be retransferred to percolator. This operation will be repeated indefinitely, automatically and without attention. Drug, or other material, should be, of course, moistened and loosely packed before energy is supplied to the system by flow of water through aspirator. The separatory funnel serves to introduce menstruum to make up for that which may be lost by evaporation, and, too, if opened at the close of operation, before shutting off the flow of water through aspirator, will prevent back-flow of water into the filter flask. The filter flask is designed to act as a safety catch for any fluid which might be drawn from the adjustor through mal-adjustment of tube A. When the operation is finished, or the drug completely exhausted, the adjustor and tubes A and B are removed and fresh menstruum is added to percolator to displace the fluid containing soluble constituents. Elongation of the tube from percolator to bottom of Wolfe bottle adds, also, when filled, weight in fluid to increase flow by gravity.

In analytical work, where ethereal and fatty oils, etc., are to be extracted with petroleum spirit, an inverted condenser may be placed advantageously between the adjustor and filter flask to minimize evaporation. The condenser can also be used when resins and their allies are extracted with ether. For extraction of substances, such as resins, tannins, bitter principles, alkaloids, glucoses, etc., with absolute alcohol, a tube of calcium chloride may be placed intermediate with filter flask and adjustor. Extraction of mucilage, acids, glucoses, saccharoses, etc., with water is remarkably easy to perform, obviating the necessity of frequent agitation during long periods—filtering and washing are also more easily accomplished. The system is obviously advantageous for removal of meta-arabic acid, phlobophenes, etc., with dilute sodium hydroxide solution; and para-arabin, oxalate of calcium, etc., with dilute hydrochloric acid.

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DETECTION OF SACCHARIN IN FOOD.

The sample is extracted with a mixture of ether and petroleum spirit, the extract evaporated, the residue boiled for a few minutes with 10 percent hydrochloride acid, and the solution evaporated to dryness. If the presence of vanillin in the residue is indicated by the odor, it is removed by extraction with a mixture of ether and chloroform. A portion of the residue is treated with Nessler's reagent; if no reaction is obtained, saccharin is absent. If a positive result is obtained, the remainder of the residue is dissolved in phenol and the solution dropped on to phosphorus pentoxide in a porcelain crucible. If saccharin is present a red coloring matter is formed; this dissolves in the water to a yellow solution, which becomes blue on addition of alkali.—M. Klostermann and K. Scholta, *Z. Unters. Nahr. Gennusm. Z. angew. Chem.* Abstract from *Journal of the Soc. of Chem. Ind.*