

## A SIMPLE DEVICE FOR ADJUSTING THE SIPHONING COLUMN OF THE SOXHLET EXTRACTION APPARATUS.\*

BY SAMUEL PALKIN.

In view of the numerous changes and improvements that have been offered from time to time for the Soxhlet extraction apparatus, it is indeed surprising that the very simple means described below for making a Soxhlet apparatus of any given size adjustable for smaller quantities of material has, to the author's knowledge, never been suggested.

The device consists of a cylindrical plug with a funnel top and a conical bottom, and contains a hole in the center. After the thimble has been cut to the necessary size, the plug is placed in the upper (extracting) reservoir of the Soxhlet apparatus.

This plug is made preferably of glass, but could be made of metal (particularly aluminum) if no reagents which might attack the metal are used in the extraction. The form and dimensions of this adjusting plug are shown in the diagram.

The device affords the following advantages:

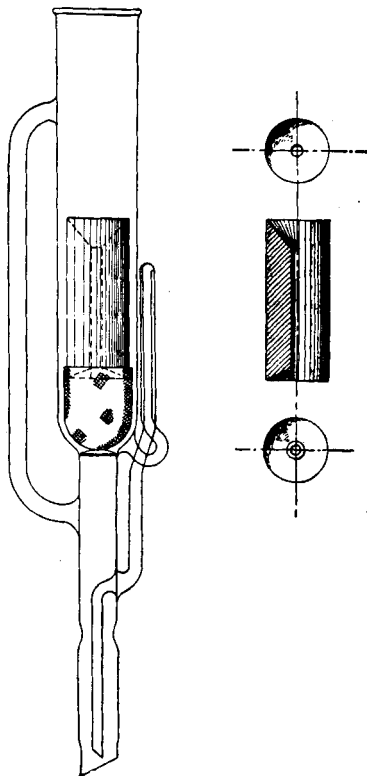
1. The volume of liquid in the siphoning reservoir is made variable and dependent upon the quantity of material to be extracted, rather than the total capacity of this reservoir (which is constant). This is done by simply cutting the thimble down to the size required (just above the overlying pledget of cotton). The shortened thimble is then made to support the plug, thus making the column of liquid in the upper reservoir but little more than the volume necessary to just cover the smaller thimble and its contents.

2. The frequency of siphoning is greatly increased.

3. The total volume of solvent may be considerably diminished if the quantity of material to be extracted is small, so that a smaller flask may be fitted to the apparatus and direct weighing (without transfer) of the extracted residue is made possible.

4. With some materials the speed of the extraction process may be increased materially.

5. This increase in efficiency is accomplished without abandoning the desirable siphoning principle<sup>1</sup> which differentiates the Soxhlet apparatus from various other types of extractors which employ the principle of percolation.



\* Read before the meeting of the American Pharmaceutical Association at Asheville, N. C., September 3-8, 1923.

<sup>1</sup> Periodic soaking of the material, followed by siphoning of the solvent.

TABLE OF RESULTS.

Substance	Mixture of sand, 90% caffeine, 10%		Mixture of sand, 90% theobromine, 10%		Mixture of corn starch, 90% theobromine, 10%		Mixture of corn starch, 90% morphine, 10%	
Amount used	2 grams		2 grams		2 grams		2 grams	
Extracting solvent	Ether (U. S. P.)		Chlorof. (U. S. P.)		Chlorof. (U. S. P.)		Chlorof. (U. S. P.)	
Indication as to use of device	Without device	With device	Without device	With device	Without device	With device	Without device	With device
Volume of siphoning reservoir	40 cc.	14 cc.	40 cc.	16 cc.	40 cc.	16 cc.	40 cc.	15 cc.
Frequency of siphoning (per hour)	28	80	14	38	24	96		86
Duration of experiment	1/4 hour	1/4 hour	1/2 hour	1/2 hour	1 hour	1 hour	1 hour	1 hour
Weight of substance extracted, in grams	0.0522	0.1152	0.0085	0.0125	0.0140	0.0880	0.0380	0.0420

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## THE PARAMECIAL METHOD FOR DETERMINING THE PHENOL COEFFICIENT OF DISINFECTANTS.\*

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1. *The Test Organism.*—The test organism used is an approximately pure culture of *Paramecium caudatum*. The most suitable culture medium<sup>1</sup> for this organism is filtered horse manure extract in water to which dried bread crumbs, crackers, or fish meal is added.

2. *The Mixing Loop.*—Use 1 mm. wire, platinum or alloy. Bend one end into a loop the internal diameter of which is exactly 3 mm. and fasten the other end into a glass rod or other convenient holder. The wire should be about 6 cm. long. The loop must be closed or quite nearly so in order that it will hold the liquids readily.

3. *Making the Loop Mixtures.*—Take up one loopful of the solution to be tested and deposit it upon the middle of a carefully cleaned dry slide. Rinse the loop in running water and dry in a Bunsen flame and allow to cool. Take up one loopful of the paramecial culture and add it to and mix with the drop of the disinfectant upon the slide.

4. *Examining the Loop Mixture.*—At once place the slide with the loop mixture upon the stage of a compound microscope and examine under the low power

\* Contribution for the "Stunt Show" of the Scientific Section, A. Ph. A., Asheville meeting, 1923.

<sup>1</sup> We shall try the thyroid extract culture medium this year.