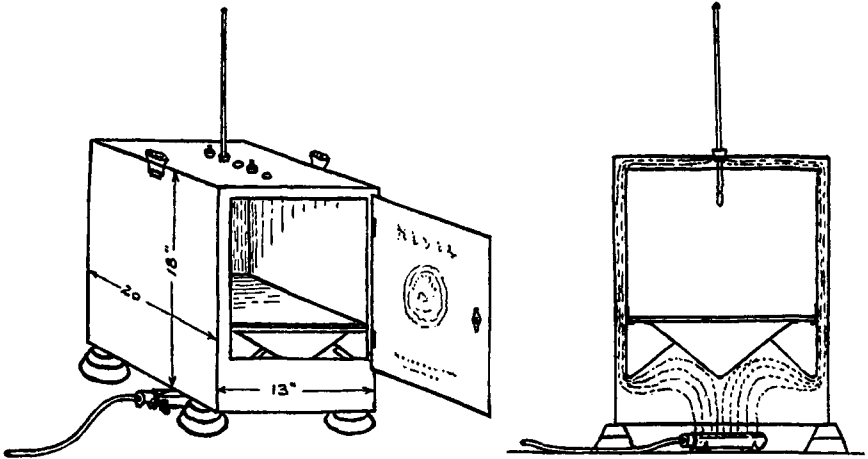


## A HOME-MADE DRYING OVEN.

BY OSCAR S. WATKINS.

Received June 1, 1908.

Desiring immediately a large drying oven or air-bath, it was decided to make use of such material as could be procured near at hand. A number of the local hardware stores were visited and from among the gasoline ovens offered for sale, a two-hole Crown, 13 x 20 x 18 inches, was purchased. The oven is manufactured by The Wonder Manufacturing Co., Washington C. H., Ohio, and sells for about three dollars.



This type of oven is made of sheet iron, and has a detachable lining and two removable shelves. The door is at one end. This arrangement is desirable since it permits of the introduction of apparatus without danger of a considerable reduction in the temperature of the bath, which is unavoidable in ovens that have the door on the side. The door at the end is of sufficient size to admit quite large receptacles.

In the top are five holes, extending in a line through the center and parallel to the sides. These openings are three-fourths of an inch in diameter and two inches apart.

Three holes were cut in the lining to correspond to three of the openings in the top. Two of these were fitted with tubes connecting the inner chamber of the oven with the outside air so as to afford ventilation. The third opening was arranged to hold the thermometer.

Attached to the bottom shelf is a patented, asbestos-lined heat spreader and equalizer which is a V-shaped arrangement made of sheet iron. As this bottom shelf is about three inches narrower than the inner chamber, the side linings were bent in such a way as to fit up tightly to the V-shaped spreader. This prevents any flame from reaching the interior, as it forces the heat up through the outer chamber, which had been designed to pre-

vent radiation. Such an arrangement brings the heat in contact with all sides of the inner chamber, which is necessary to secure a constant temperature. A piece of asbestos board one-fourth inch in thickness and the exact size of the oven was placed on the bottom shelf and served not only as an excellent support for the receptacles, but prevented any flame from reaching the inside. Strips of sheet iron 1 x 1/16 inch were used to support the bottom shelf firmly and keep the inside lining in place.

This air-bath has proven invaluable for moisture determinations, as a constant temperature is easily maintained. For temperatures up to 110° a Fletcher's evaporating burner is used, and for higher temperatures a Fletcher's solid flame boiling burner.

The above described air-bath has been in use in the laboratory for some time and has given perfect satisfaction. It can be recommended not only on account of its efficiency, but also because of its low cost.

Numerous tests were made with thermometers placed at different points to determine the distribution of heat in various parts of the oven. Very little variation occurs, the difference being only about one degree between the hottest and coolest parts of the oven. The field registering the greatest heat is about 1 inch above the lower shelf, and that giving the lowest heat is about 2 inches below the center of the top of the oven, opposite the ventilators.

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[CONTRIBUTION FROM THE CHEMICAL LABORATORY OF HARVARD COLLEGE.]

## ON ETHYL PYROMUCYLACETATE. (SECOND PAPER). 3-FURYL-5-PYRAZOLONE.

BY HENRY A. TORREY AND J. E. ZANETTI.

Received June 19, 1908.

1-Phenyl-3-furyl-5-pyrazolone, formed by the action of phenyl hydrazine on ethyl pyromucylacetate, and several of its derivatives, were described in a previous paper<sup>1</sup>. 3-Furyl-5-pyrazolone, obtained by the action of hydrazine itself on the same ester, forms the subject of the present paper.

It is possible that this reaction takes place in two stages, as in the case of phenylhydrazine and acetacetic ester<sup>2</sup> but neither in the action of hydrazine hydrochloride and sodium acetate nor in the more direct action of hydrazine hydrate was an intermediate product isolated.

The constitution of the pyrazolone as a 3-furyl-5-pyrazolone follows from its method of formation

<sup>1</sup> *Am. Chem. J.*, **36**, 539.

<sup>2</sup> *Nef, Ann.*, **266**, 70.