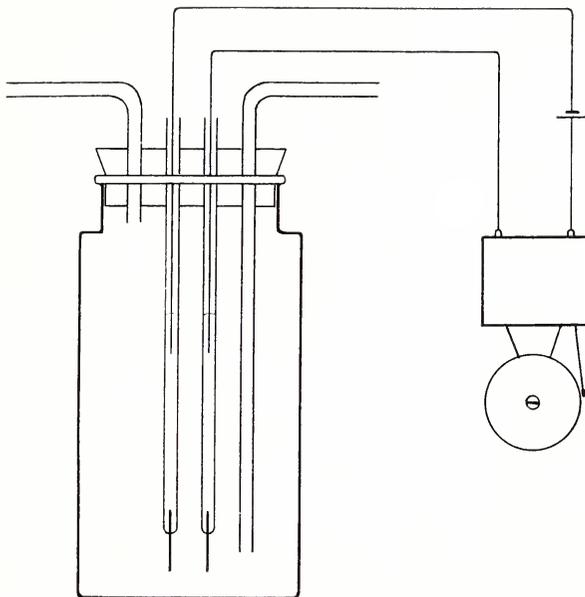


A TRAP BOTTLE WITH AUTOMATIC ALARM

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Experiments with liquid ammonia at its boiling point are ordinarily performed under a good hood. In many cases, however, the small table space available in the usual hood offers serious difficulties in the setting up of large pieces of apparatus. In such cases it is common practice to set up the apparatus on the ordinary laboratory desk and to pass



any evolved gaseous ammonia into running water. This arrangement is satisfactory in most instances. At times, however, water is sucked back into the ammonia. An ordinary trap bottle is of little value here, for when placed in the gas line it merely catches water until full, and then ceases to operate. For this reason the bottle must be constantly watched in order to detect any flow of water into the system.

After the loss of several experiments in which liquid ammonia was used as a solvent, the trap bottle was modified in such a manner as to give an audible alarm in the event that water was drawn into the apparatus.

The design of the device is apparent from the cut. It consists of an ordinary trap bottle modified by the insertion through the stopper of two glass tubes into the bottom of which platinum wires are sealed.

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The tubes are partly filled with mercury, and connection to a source of current and a door bell is made as shown.

The operation of the bottle is very simple. After placing 10-15 grams of sodium chloride or other ionizable salt in the bottle, it is placed in the exit line in the usual manner. Should water be drawn into the apparatus the salt dissolves and the resulting solution closes the bell circuit, sounding an alarm.

By choosing a large bottle and by making the lumen of the exit tube small, a large time interval between the sounding of the bell and the filling of the bottle can be obtained. This allows sufficient time for the disconnection of the apparatus.

This apparatus has been successfully used in the absorption of both hydrogen chloride and ammonia.