

## AN EFFICIENT HYDROGEN SULFIDE GENERATOR

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The construction and functioning of the hydrogen sulfide generator are nearly or quite self-evident from the accompanying sectional view which shows the parts and connections (fig. 1). Experience has shown that a two-gallon aspirator bottle filled with iron sulfide moulded sticks will furnish hydrogen sulfide to a class of thirty-five to forty students for a college year. Full concentrated hydrochloric acid, or somewhat diluted and cooled sulfuric acid may be used, and because it remains in contact with the iron sulfide for a considerable time, the solution becomes practically exhausted of the acid, resulting in the highest possible efficiency for both the acid and sulfide.

The pressure of the gas may be regulated by mounting the acid reservoir on the ring of a heavily constructed, long upright ring-stand, as shown at the right of the figure. The flow of gas may also be regulated by placing in the rubber tube near the service pipe a short piece of thermometer tubing of the proper size to fit snugly and flattening one side with a file to let the gas pass at the desired rate. This is much more satisfactory than the use of a screw clamp on the rubber tubing where the students may manipulate it at will and always with a too rapid flow of gas. The student may not even know that there is a regulator in the system.

The service tube is made from one-half inch bore galvanized iron nipples about ten inches long, connected by T joints into which are screwed pet cocks or faucets for the delivery of the gas. The number of nipples and openings may be regulated depending upon the number of students to be served. We have found that ten or twelve openings are sufficient for a class of thirty-five. To each faucet is attached a short piece of rubber tubing to which is connected a two-inch piece of glass-tubing carrying a one-hole stopper of the size to fit a half liter pyrex Erlenmeyer flask. We have found it convenient to have a couple of the stoppers of a size to fit an ordinary test tube so that students may test samples of their solutions with the gas.

The service tube may be mounted on a table or vacant laboratory desk with weighted ring-stands, and to the proper height so that when

the stopper is in place in the flask the latter will just reach to the top of the table. During the passage of the gas the flask should be vigorously shaken, and occasionally opened for a second to allow the escape of air or other inert gas. As the gas is under pressure, the reaction is quite rapid and complete. The whole apparatus should be mounted

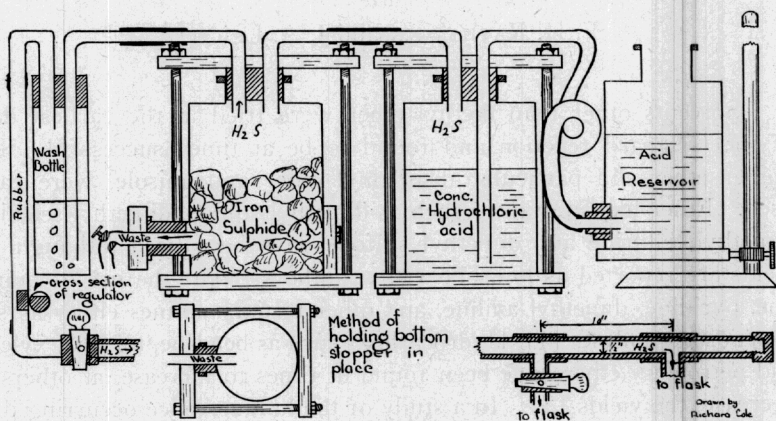


FIG. 1.

to such a height that the spent liquid may be drawn from the generator, as indicated, and conveyed to the drain pipes through rubber or glass tubes.

The unique feature of the generator lies in the method by which all the stoppers are forced solidly into place and kept there indefinitely. No leakage through the stoppers can occur even after long use, and consequently there are no troublesome breakdowns or faulty functioning for months at a time.