itself is shown in Fig. 8, the method of generating the rays being the same as in the smaller type, namely, by means of the mercury-vapor arc, which is carried the length of the "U" tube. The sterilizer apparatus consisted of a metal tank arranged as shown. The water is brought into close contact with the rays on two occasions.

Both these types are for gravity installations, that is, they discharge the water by an overflow and not under pressure. The use of the pistol lamp (Fig. 8), however, makes it possible to construct pressure apparatus very easily. This apparatus may be placed either on the suction or discharge side of pump or in a water supply pipe line, and it does not necessitate a repumping or the provision of an extra pump well in a municipal plant. Two of these types of pressure apparatus are shown, one being a unit which is adapted for municipal use (Fig. 10), while the other, E. type (Fig. 9) is used extensively for boat supplies, public buildings, swimming pools, etc.

The gravity apparatus offers certain disadvantages for industrial or domestic purposes which are overcome to a great extent in the pressure type. That is to say, with the former type a storage tank must be used and the discharge from the apparatus must be at a sufficient height to deliver by gravity to the taps, otherwise repumping is necessary.

A particularly objectionable feature in the B2 apparatus exists in the case of water having small amounts of oil and other substances of low specific gravity in suspension. These substances come out of suspension and float on the surface of the water in the apparatus, and are held there by the baffle arrangement. The action of the rays is considerably interfered with by this screen.

In the type in which the lamp is suspended above the water there is a lack of economy. This form of apparatus is used where the supply of water required is small and a cost of 6 to 10 cents per day is negligible. (The apparatus is equivalent to a ¾ h.p. dynamo) and should be operated only off a power line.

In the case of the 500-volt apparatus the baffles were all movable and some work was done to determine the functions of the various parts, for instance, the opening between the baffles and lamp was changed or the horizontal baffles were removed entirely. These results may be of interest and are here given. Ten samples of the inflowing and outflowing water were taken under each separate set of conditions and the averages of the results are given in Table II.

The method employed was to take samples first with the baffles all in place, and at a rate of 3,000 gals. per hour; that is, the horizontal baffles were untouched, while the upper inclined opening (the bottom one was not capable of adjustment) between the baffles and the lamp was varied from ¼ inch to the maximum of 2½ inches, ten samples being taken under each set of conditions. The contacts were two in number, one between the riser pipe and the lamp of ½ inch, and the other ¼ to 2½ inches, as stated. The horizontal baffles were then entirely removed and the water run through at the same rate, and with similar changes in the inclined baffle opening.

The results obtained did not show the variation expected. It was supposed that the baffles were essential in the ordinary work of sterilization; that is to say, that by means of them the water was held in contact with the rays for a time in order that the action might be prolonged. However, the results given, together with the

ULTRA VIOLET RAY STERILIZATION

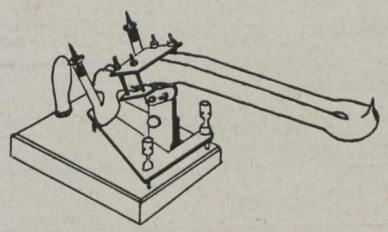

FIG. 8

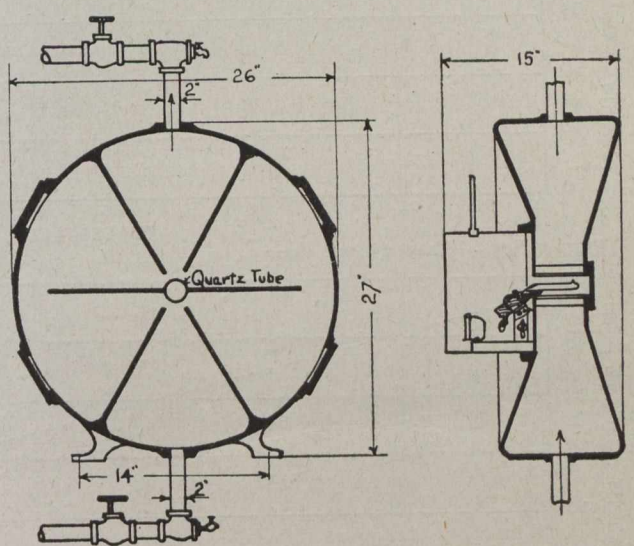

FIG. 9

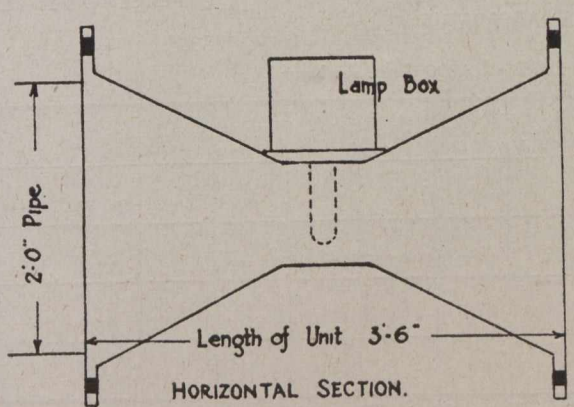

FIG. 10