dressings. These patients are clinically improved, but final evaluation will await a subsequent report.

Our laboratory observations and limited clinical experience indicate that this method of treating acute and chronic pyogenic surface infections may hold promise of a possible addition to our therapeutic armamentarium.

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SCIENTIFIC APPARATUS AND LABORATORY METHODS

AN AUTOMATIC FLOW SWITCH FOR WATER-COOLED APPARATUS

IT is often desirable in the continuous operation of a water-cooled apparatus, such as a diffusion pump, to have an automatic device to stop the heating should the flow of cooling water drop appreciably or even stop. A simple and easily constructed device for the protection of such apparatus is described.

The switch was made from 8 mm pyrex tubing as shown in Fig. 1. Two sealed-in leads of tungsten

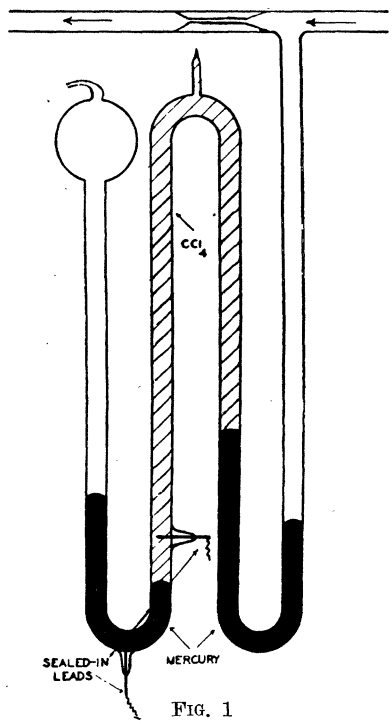

FIG. 1

wire were used for contacts. The two U-tubes are approximately twenty cm in height, but the dimensions are, of course, not critical. Two U-tubes in series are necessary to prevent ordinary chlorinated tap-water from coming in contact with the leads. The size of the orifice is 2 to 3 mm and must be varied with the flow rate desired. The two U-tubes are partially filled with mercury, with the intervening space filled with either an inert liquid or air. The use of a column of air to connect the two mercury columns renders the switch extremely sensitive to slight pressure changes.

The switch is inserted in the cold water inlet of the condenser or other water-cooled apparatus, and as long as sufficient cooling water is flowing the mercury in each U-tube stands at different heights. Should the flow of water cease, however, the mercury is restored to the normal level and electrical contact is made between the two sealed-in wires. The switch is connected in series with a normally closed relay to break the heater circuit when the flow of water ceases.

If the uppermost sealed-in lead is built into the opposite arm of the U-tube, the mercury is in contact with the two leads as long as the water is flowing, and in this case the circuit is broken rather than closed by a drop in flow rate of cooling water. Thus, the switch can be constructed so that failure of cooling water supply will either complete or break an electrical circuit, and hence the switch can be used with either a normally closed or normally open relay depending upon which side of the U-tube the contact wire is inserted. If the heater current is reasonably low the switch itself can be used directly in the heater circuit without the use of a relay.

This safety device was developed during an investigation which was supported by a grant from the Abbott Fund of Northwestern University.

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