

and for charging accumulators. Alternating current is necessary for diathermy, and can be used in some types of X-ray apparatus. Either variety can be employed to drive the small earth-free generators embodied in such appliances as the pantostat and multistat, for the production of galvanic and sinusoidal currents. In this example the mains are simply utilized to provide the motor power for driving the generator and are not electrically connected with the windings of the generator. The full voltage produced by the latter is not sufficient to give a dangerous shock, though it may give an



FIG. 2.—ALTERNATING CURRENTS.

unpleasant one, and in this way the patient is protected from any possibility of a serious accident.

2. If the electric light mains are not available, a generator driven by a small petrol engine may be installed. The generator should produce a current of not less than 50 volts, preferably 100.

3. In default of either of these sources of supply, the operator must rely on batteries of primary or secondary cells. The primary cell is one in which electrical current is generated by the action of a liquid on two dissimilar metals; a convenient modification is the "dry cell," in which the amount of liquid is small and is absorbed by some material such as sawdust, thus preventing spilling. The potential of a single dry cell varies with its type, but ranges somewhere about 1 volt. These cells require practi-