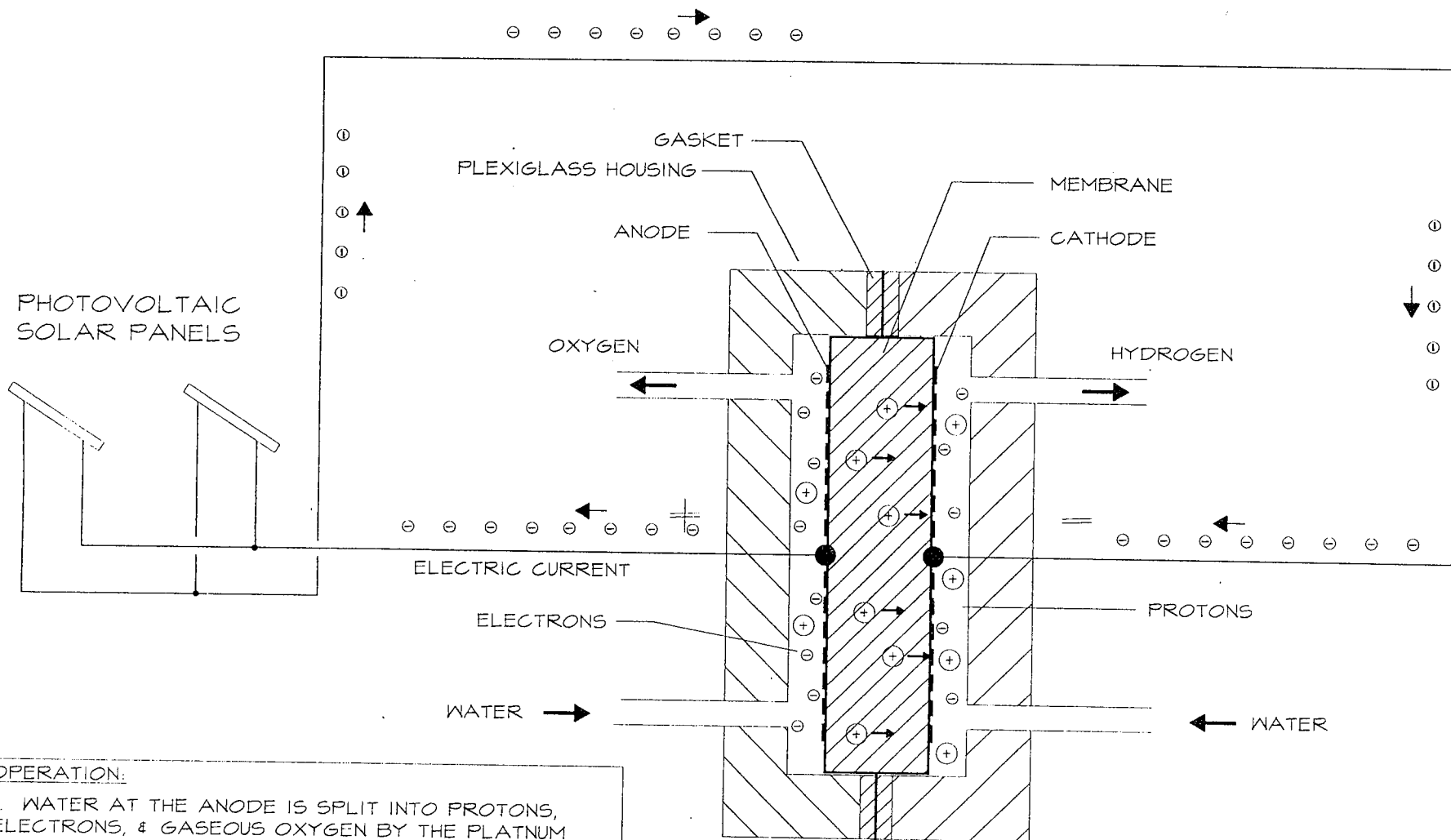


THE HYDROGEN CYCLE

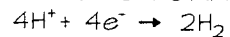


OPERATION:

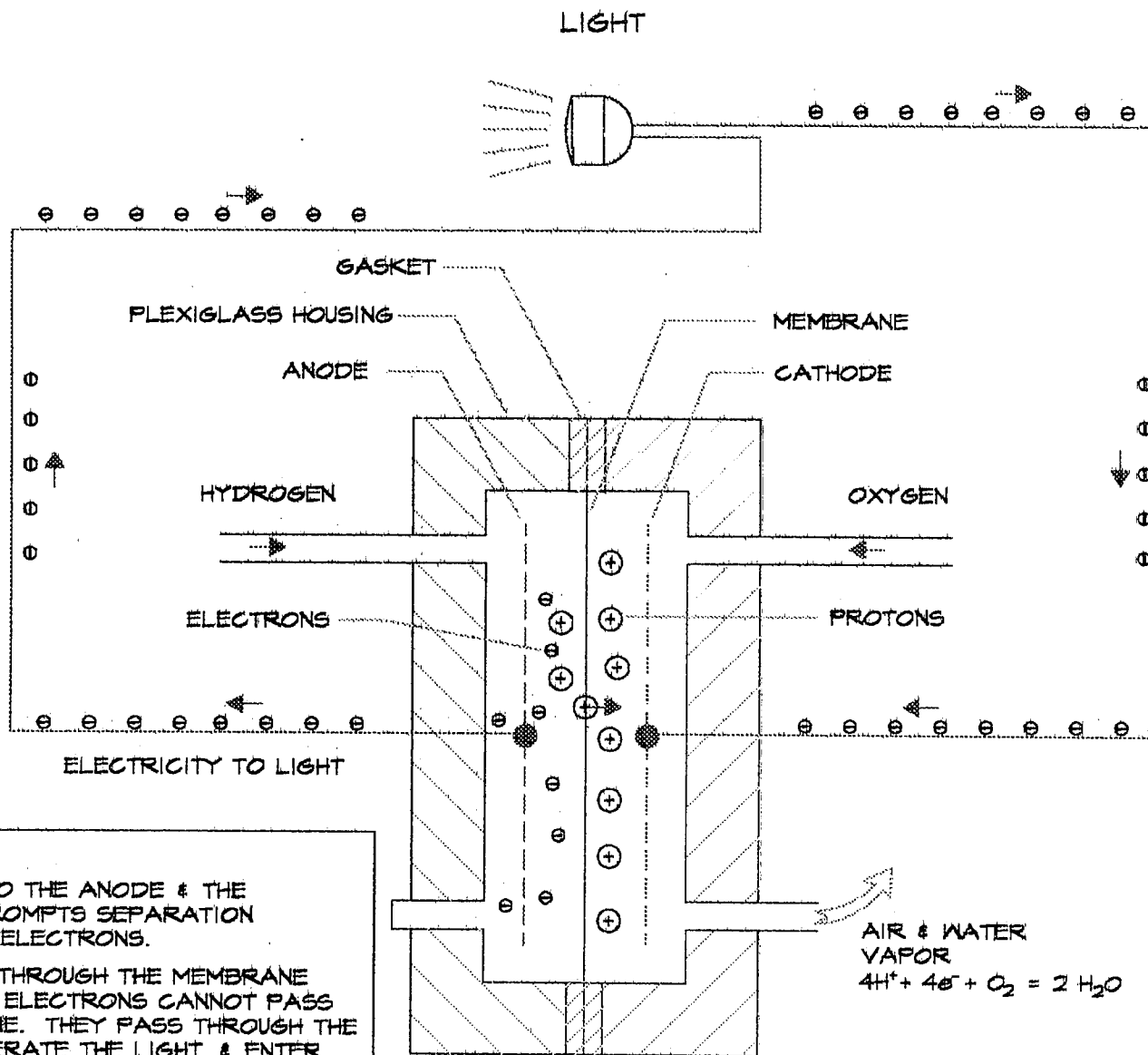
1. WATER AT THE ANODE IS SPLIT INTO PROTONS, ELECTRONS, & GASEOUS OXYGEN BY THE PLATINUM CATALYST IN THE PRESENCE OF THE ELECTRIC FIELD. $H_2O \rightarrow 2H^+ + 2e^- + 1/2 O_2$

2. PROTONS MIGRATE THROUGH THE MEMBRANE TO THE CATHODE. THE ELECTRONS CANNOT PASS THROUGH THE MEMBRANE. THEY PASS THROUGH THE EXTERNAL CIRCUIT & THE POWER SUPPLY, AND ENTER THE CATHODE AREA.

3. AT THE CATHODE, THE PLATINUM CATALYST AND ELECTRIC FIELD PROMOTE COMBINATION OF PROTONS AND ELECTRONS TO FORM GASEOUS HYDROGEN.



ELECTROLYZER



OPERATION:

1. HYDROGEN IS FED TO THE ANODE & THE PLATINUM CATALYST PROMPTS SEPARATION INTO PROTONS & FREE ELECTRONS.
2. PROTONS MIGRATE THROUGH THE MEMBRANE TO THE CATHODE. THE ELECTRONS CANNOT PASS THROUGH THE MEMBRANE. THEY PASS THROUGH THE EXTERNAL CIRCUIT, OPERATE THE LIGHT, & ENTER THE CATHODE AREA.
3. THE PLATINUM CATALYST PROMOTES A REACTION WITH OXYGEN FROM THE AIR TO PRODUCE WATER VAPOR USING THE FREE ELECTRONS.

FUEL CELL