The young man's book of amusement

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Plate Electrical Machine

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an inch of a row of points attached to the side of the opposite conductor. The conductor to which the cushion is attached, is called the negative conductor; the other collects the electricity of the glass, and is called the positive conductor. H is an adjusting screw to regulate the pressure of the cushion upon the cylinder. The motion of the cylinder is in the direction of the silk flap, and may be communicated by a handle attached at I. To put this electrical machine into good action, every part should be made perfectly clean and dry. The cushion is then anointed with amalgam, and applied by a gentle pressure to the cylinder. If positive electricity is required, it may be received from the conductor bearing the points, that supporting the cushion being uninsulated by a wire passing from it to the stand; if, on the contrary, negative electricity is required, it may be obtained from the insulated cushion cylinder, the other being uninsulated.

Plate Electrical Machine.

The plate electrical machine consists of a circular plate of glass revolving on an axis which passes through its centre, the excitation is effected by two pairs of cushions placed at opposite parts of the circumference of the plate. The cushions are loosely attached to thin pieces of mahogany, and the pressure upon the plate is adjusted by screws which pass through the opposite pieces. A brass conductor, supported by a glass arm, is fixed to one pillar, or in

large ones to the bottom of the frame of the machine, carrying two branches expanding beyond the periphery of the plate. The extremities of the conductors are furnished with points in order to collect the electricity from the excited surface.

The Leyden Phial.

The Leyden phial (see Fig. 8.) consists of a thin glass jar, coated internally and externally with tinfoil, to within a short distance of its mouth. When the inner surface is rendered positive by union with the conductor of the electrical machine, the exterior, being connected with the ground, becomes negative by induction. When the inner and outer surfaces are united by a conductor, all electrical accumulation is annihilated by a powerful spark, and the two opposite states are found to have been precisely equivalent. If the communication between the opposite surfaces of the Leyden phial be made by the hands, a painful jarring sensation is felt at the joints of the fingers, the elbows, shoulders, and chest, commonly called the electrical shock. Metallic wires, with balls at their ends, bent or jointed and fixed to a glass handle, are generally used to transfer the electric charge, and these instruments are called dischargers.