

261. Field-Magnets. In small generators, used to develop high tension currents, permanent magnets are sometimes used to supply the fields. The machine is then called a *magneto*. In all ordinary dynamos the field is furnished by electromagnets known technically as *field-magnets*. These magnets are either bipolar (Fig. 266) or multipolar (Fig. 267). In the multipolar type two or more pairs of poles are arranged in a ring about a circular yoke *A*.

262. Production of a Direct Current—The Commutator. When an electric current flows continuously in one direction it is said to be a *direct current*. The current in an armature coil changes direction, as we have seen, at regular periods. To produce a direct current with a dynamo it is necessary to provide a device for commuting the alternating into a direct current. This is done by means of a *commutator*. It consists of a collecting ring made of segments called *commutator plates*, or *bars*, insulated from one another. The terminals of the coils are connected in order with the successive plates of the ring. Take, for example, the case of a single coil revolved in a bipolar field, as considered in § 257. The commutator consists of two semi-circular plates, (Figs. 268 and 269), and the brushes are so placed that they rest upon the insulating material between the plates at the instant the current is changing direction in the coil. Then since the commutator plates change position every time the current changes direction in the coil, the current always flows in the same direction from brush to brush in the external circuit.

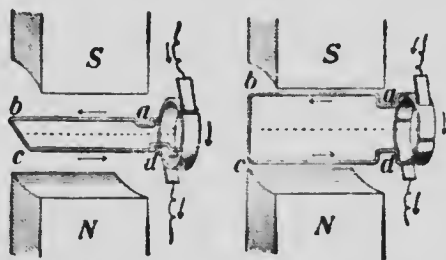


FIG. 268.

FIG. 269.

Arrangements for transforming the alternating current in the armature into a direct-current in the external circuit.