

generated by steam-power in large units, and the margin between the actual charge of power at Niagara and the estimated cost of steam power in large generating stations in South Lancashire was only 12s. 1d. per e.h.p. year.

Turning to the relative position of gas power, Mr. Kershaw hinted that large gas engines, in conjunction with coke ovens and blast furnaces, might entirely alter the present position of affairs. It had been calculated that two million h.p. was annually wasted in the gases issuing from blast furnaces of the United Kingdom. If these waste gases could be industrially utilized we should be to a large extent compensated for our lack of natural water power. But blast furnaces demanded coke, and coal beds were exhaustible, so that even if this source of mechanical and electrical energy were warned it could only postpone, and not avert, the final triumph of the waterfall and of the turbine.

THE STURTEVANT ENCLOSED ELECTRIC MOTOR.

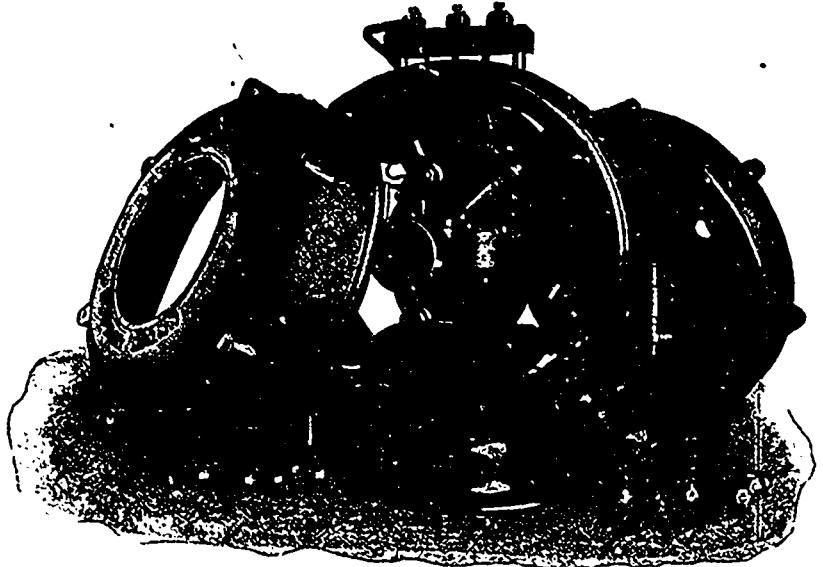
The bi-polar type of enclosed motor the internal construction of which is illustrated in the accompanying engraving, is manufactured both as a motor directly connected to a propeller fan and as an independent machine. For the former purpose it is used on all sizes of fans up to and including the 54-inch. For larger sizes the four and eight-pole types are employed.

The motor is entirely enclosed, and thereby protected from dust, a most important element in a machine used under these conditions. In order to avoid the excessive temperature which is incident to the operation of most enclosed motors, this type has

been very carefully designed, so that a low temperature rise can be maintained without greatly increasing the size and weight above that of the ordinary open type. This machine is capable of continuous operation for ten hours, with a maximum

can be reached by simply removing the caps in the centre of the casings.

The brushes are of hard carbon, in holders of a modified reaction type, which allows of easy adjustment when it becomes necessary to reverse the direction of rotation of the



temperature rise not exceeding 60 deg. F. Yokes extending out from the field ring support the armature shaft. The end casings are entirely independent and can be instantly removed to give access to the entire interior. The bearings and brushes

motor. The bearings are self-oiling and self-aligning, and fitted with composition sleeves, which are removable from the outer ends of the boxes. These motors, in sizes from 1-6 to 5 h.p., are built by the B. F. Sturtevant Co., Boston, Mass.

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