

current. The resultant field is made up of three components—that due to the shunt winding, that due to armature reaction, and that due to the auxiliary windings. The field distortion usually produced by armature reaction is therefore overcome and the shape of the magnetic field at the point of commutation is maintained as formed by the main poles, and good commutation is made possible over a wide range of speed.

Type SA motors are shunt wound, which gives a definite speed for each point of the controller, which is nearly constant for all loads. Heavy overloads may be momentarily developed without injurious sparking. The motors are reversible without danger and without readjustment of the brushes, and, as the armature and auxiliary windings are connected permanently in series, it is only necessary to change the external armature connections to reverse the direction of rotation.

These motors develop their full rated output throughout their entire range of speed. They will carry full rated load at any speed within their range for six hours with a temperature rise not exceeding 40 degrees Cent. in armature and field, and not exceeding 45 degrees Cent. on commutator, as measured by thermometer. At all loads and all speeds commutation is excellent, and an overload of 25 per cent may be carried for one hour without injurious sparking. All motors are thoroughly ventilated, running cool and at a uniform temperature. Their efficiency is high and their speed regulation practically exact. With the exceptions noted, type SA motors are mechanically identical with the type S, and corresponding parts are interchangeable.

#### TRADE NOTES AND PUBLICATIONS.

Fairbanks, Morse & Co. has issued its Catalogue No. 101A, Sheffield Gasoline Motor Cars, which gives illustrated particulars of a variety of these cars.

The Pinder Ore Concentrator is the subject of a descriptive publication which also contains an article on the Theory of Concentration.

Gas Power for High-Pressure City Fire Service, showing the equipment and experience of the Philadelphia high-pressure fire system, is fully dealt with in a 43-page pamphlet issued by the Westinghouse Companies' Publishing Department, which has also sent out a 53-page pamphlet on Gas Power in Electrical Railway Work. Both publications are illustrated and contain much valuable information, which all interested can obtain without charge upon application at any of the company's agencies.

The following illustrated circulars have been received from the Canadian Westinghouse Co., Ltd., of Hamilton, Ontario: No. 1107, Westinghouse Automatic Circuit-Breakers Carbon Break.

No. 1119, Motor Generators.

No. 1126, Type C Transformers.

No. 1127, Control Apparatus and Trolleys for Single-Phase Railway Systems.

The Jeffrey Manufacturing Co., of Columbus, Ohio, U. S. A., has published its Bulletin No. 11, which is on the subject of The Application of Electricity to Mining. It is freely illustrated with half-tone representations of numerous machines and appliances and is of particular interest to both electricians and mining men.

#### PATENT OFFICE REPORT.

The following patents have been granted to British Columbia inventors during the past month through the agency of Mr. Rowland Brittain, patent attorney, Vancouver, B. C.:

A Mexican patent to the Braim Patent Switch Co. on an improved device by which a street railway switch may be operated from the platform of the car while the car is in motion. This invention of one of their own motorneers has been adopted by the B. C. Electric Railway Co., both in Victoria and Vancouver, and is giving general satisfaction.

To Hugh Condren a United States patent was issued on a bevel attachment for a hand saw. This invention is de-

signed to enable the back edge of a saw blade to be either used as a square or for marking off any angle of bevel. It consists of light bars pivotally mounted on one or both sides of the blade adjacent to the handle, the upper ends of which bars may be set to and secured at any desired angle in relation to the back of the saw blade.

To J. M. Tuller of Seattle, Washington, a Canadian patent on an axle cutting and threading machine designed to cut off and rescrew the ends of road vehicle axles when such have become worn through use.

To Phillip Magnus, of Victoria, Australia, and assigned to the Rubberized Leather Co. of the same State, a Canadian patent on an improved method of treating leather whereby the structure of the leather is thoroughly permeated with pure rubber so as to impart to it the waterproof and elastic properties of that material without impairing the strength and wear-resisting qualities of the leather.

To R. Truswell of Trail, B.C., a Canadian patent on an improved mould for the casting of anode plates such as are used in the electrolytic refining of metals. This invention is designed to provide a plate of more uniform thickness and of greater soundness than are made under the existing practice. Truswell's mould is a closed one and the plate is cast on end with the head down, so that any impurities rising to the top of the mould will be in the lower end of the plate when in place in the trough, and the metal forming the body of the plate is correspondingly sound and free from flaw. Being cast in a closed mould, and on end, the plate when withdrawn from the mould does not require straightening before being ready for use. The mould is also mounted on trunnions in a wheeled frame so that it may be run from the room in which it has been poured and readily inverted for removal of the plate direct to the refining trough.

#### BOOKS, ETC., RECEIVED.

*Institution of Mining Engineers*, London, England—

Paper No. 1142, *Cinnabar-Bearing Rocks of British Columbia*. By G. F. Mouckton; with discussion. Pages, 9; illustrated.

Paper No. 1,216, *The Mickley Conveyor*. By J. W. Batey; with discussion. Pages, 7; illustrated.

Paper No. 1,234, *The Conveyor-System for Filling at the Coal-Face, as practised in Great Britain and America*. By W. C. Blackett and R. G. Ware; with discussion. Pages, 7; illustrated.

*North of England Institute of Mining and Mechanical Engineers.—Report of the Committee upon Mechanical Coal-Cutting*. Part II.—Heading Machines. Pages, 169; illustrated.

*Department of the Interior, Canada.—*

*Standard Topographical Map*. Windsor Sheet, Ontario.

*Relief Map of Canada*, tinted to show Elevations.

*Resource Map of Canada*, with Statistical Tables.

*Geological Survey of Canada.—*

*Report of the Klondike Goldfields*. By R. G. McConnell. B.A. Pages, 71; illustrated by half-tones, diagrams and maps.

*Recent Mineral Discoveries on Windy Arm, Tagish Lake, Yukon*. By R. G. McConnell. B. A. Pages, 12.

*Bureau of Mines, Ontario.—Report of the Bureau of Mines, 1905*, giving voluminous information relative to the mineral industry in Ontario. By Thos. W. Gibson, Director of the Bureau. Pages, 355; illustrated by numerous half-tones, diagrams and maps.

*Economic Geology Publishing Co., U.S.A.—Economic Geology*, Vol. I., No. 3—for December—January.

*United States Geological Survey.—*

*Weir Experiments, Co-efficients, and Formulas*. By Robert E. Horton. Pages, 186; illustrated by half-tones and diagrams.

*Twenty-Sixth Annual Report of Director of U. S. Geological Survey, 1904-5*. By Charles D. Walcott, Director. Pages, 303; with maps and a comprehensive index.