

doing which the 30 horse power induction motor delivers from 120 to 130 horse power, and, incidentally, has its temperature raised to a point somewhere above that conducive to a ripe old age. Although the small motor was still in service at the time of the writer's visit to the mine, it was shortly to be replaced by one having more than double its capacity. It should be stated in justice to the engineer of the Kootenay company that the starting device here discussed was not of his design or sanction. With the exception of the time consumed in starting, the equipment gives the best of satisfaction. A number of small motors ranging up to 20 horse power in capacity are used in and about the War Eagle mine for ventilating purposes, driving conveyors, etc., and all these motors are of the induction type except that on the compressor.

At the Iron Mast mine is a 75-kilowatt "S.K.C." synchronous motor, made by the Royal Electric Com-

pany has one 50 horse power induction motor driving a rock breaker, and one 75-kilowatt synchronous motor operating all machinery about the mine, including generators for electrolytic work.

These motors, as well as all others referred to hereafter, are of Canadian General Electric manufacture. In the properties of the British-American corporation are four 150 horse power induction motors, each operating a double drum hoist through equipments which are in every way similar to those at the War Eagle mine. All underground work in and about Rossland is operated at 220 volts. Aside from mining work, the principal power installation is that of the general machine shop of Cunliffe & Ablett, where a 50 horse power induction motor is installed. There are many small motors ranging from one to five horse power in size for furnishing

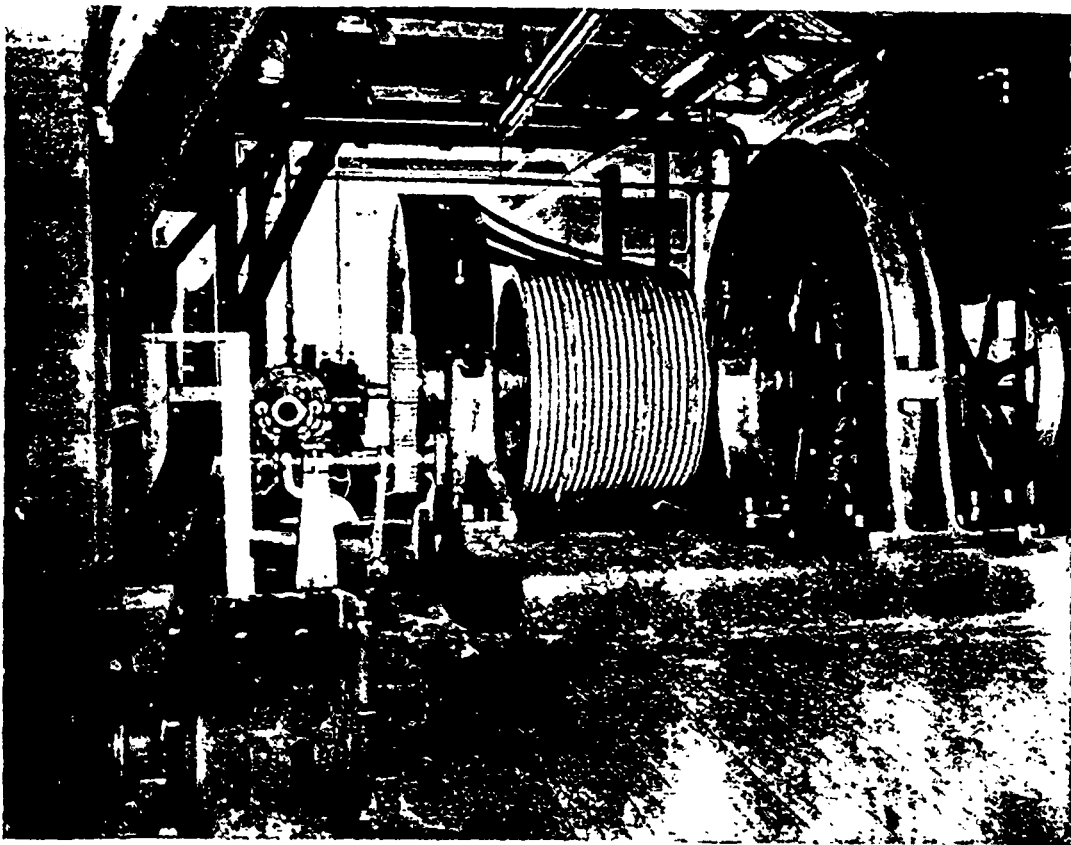


FIG. 15. VIEW OF 400-H.P. SYNCHRONOUS MOTOR, DRIVING 40-DRILL COMPRESSOR AT WAR EAGLE MINE.

pany, of Montreal. It is a two-phase motor, with connections altered for three-phase service, and is started through an "S.K.C." induction motor and water rheostat, both of which appear in the illustration shown in Fig. 16. The water rheostat consists of three fan-shaped blades plunged edgewise into a three-compartment tank of water, thus enabling the water resistance cut into each leg of the three-phase circuit to be varied according to the depth of immersion. The 75-kilowatt motor is belted to a jack shaft in the manner shown, which drives two double-acting compressors having a combined capacity of ten drills. This is the only Stanley equipment on the West Kootenay circuit, and its service is most reliable.

In the Big Three mine is a 75-kilowatt General Electric synchronous motor, driving a seven-drill compressor in the manner shown in Fig. 17, while at the Gertrude mine is a 50 horse power induction motor operating a hoist. The British Columbia Bullion

of light power in different industries in Rossland.

One of the most interesting points to be brought out by the Kootenay-Rossland transmission is the demonstration of the fact that the operation of synchronous and induction motors in large units for the driving of hoists and compressors will not necessarily create serious disturbance in the voltage of the distribution circuits, provided high voltage, ample fly-wheel effect and capacity prevails. During daylight the power and lighting circuits are operated in parallel, although they are separated and operated independently from the power house by night. The War Eagle hoist, however, is operated on an independent circuit by day, but at night it is cut into the power circuit at the Rossland sub-station. The result of this arrangement is shown in the reproduction of the recording voltmeter chart shown in Fig. 6, which is that of the lighting circuit. From 6:45 p.m. to 5:00 a.m. the chart shows the regulation of the lighting circuit when