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AIR COMPRESSOR AT LE ROI MINE.

WHAT is claimed to be the largest air compressor ever put in operation in Canada was recently installed at the Le Roi mine, Rossland, B. C., by the Rand Drill Company, of 100 Broadway, New York. It was built at their Canadian shops at Sherbrooke, Que., and is shown in the accompanying illustration.

The steam end is of the Corliss cross-compound condensing type, with high-pressure cylinder 22 inches in diameter by 48-inch stroke, taking steam through a pipe 6 inches in diameter. The low-pressure cylinder on the opposite side of the machine is 40 inches in diameter by 48-inch stroke. Both cylinders are fitted with the Corliss liberating valves, with vacuum dash pot, controlled by a sensitive governor operating on the releasing gear, the speed being automatically governed from six or eight revolutions to the maximum number of revolutions per minute, depending upon the air pressure. The main shaft is 14 inches in diameter by 13 feet

long, weighing about 5,500 pounds. The shaft is fitted with cranks pressed on under immense pressure. The connecting rod forgings and piston rod forgings are well and carefully finished. The air end of the machine is placed tandem with the steam cylinders, and is also of the compound type, the high-pressure air cylinder being 22 inches in diameter by 48-inch stroke. The valve motion supplying these cylinders is Rand's most economical type, being in the form of mechanical valves. The use of these valves insures the filling of the low-pressure cylinder with air at atmospheric pressure, which fact largely affects the efficiency of the machine, for were the cylinder either not completely filled, or were the air hot and expanded, in just such a ratio would, it is said, the efficiency be decreased. The inlet valves of the low-pressure or intake air cylinder are surrounded by a hood, which is connected to a flue for the introduction of the cold air from out of doors. Between the high and low-pressure cylinders is an intercooler of the latest

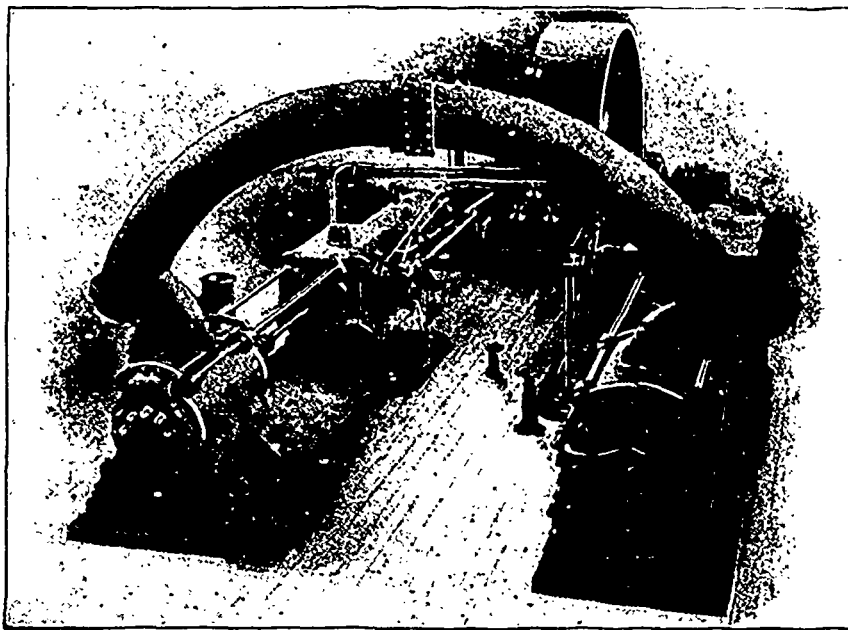
type, through which the air passes over a system of water circulating pipes and is cooled in the process. This giant compressor engine will be used for running all the pumps and hoists at the mine, in addition to operating 40 drills.

NOVEL METHOD OF UTILIZING WATER POWER.

PARTICULARS of a new method of utilizing the power of falling waters are given as follows in the *Mining and Scientific Press*:

The essential principal involved is the compression of

air by the force of the falling water, and the compressed air used to drive motors at the falls or be transmitted to a distance for the same purpose. From a tank or a stand-pipe, in which the water stands at the same level as above the dam, the water is permitted to pour down a pipe, around whose base are a number of holes, admitting air from tubes running up to the surface of



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the water. The air is sucked in and compressed by the water, and the two are automatically separated by gravitation, the air passing into a storage or supply chamber. The incredible statement is made that from 70 to 80 per cent. of the latent energy in the falling water can be rendered available in this manner. This is no more than a turbine yields, but the latter cannot transmit its energy to a distance within the interpolation of dynamos and motors in which some loss of power occurs. It is said a plant operating on this principle is to be installed at the Dominion Cotton Mills in Magog, near Montreal.

Kinetic energy is the energy of motion. Thus, if a fly-wheel is in rapid motion it possesses kinetic energy.

Potential energy is the possibility of doing work possessed by a body. If a heavy stone is placed at the top of a high building it possesses potential energy. If dislodged it will do work in falling. There is in the stone the possibility of work.