

claim. Over this shaft, is erected the shaft house. The hoisting engines are contained in a room on the hanging wall side of this building, while the back part of the shaft is occupied with ore bins.

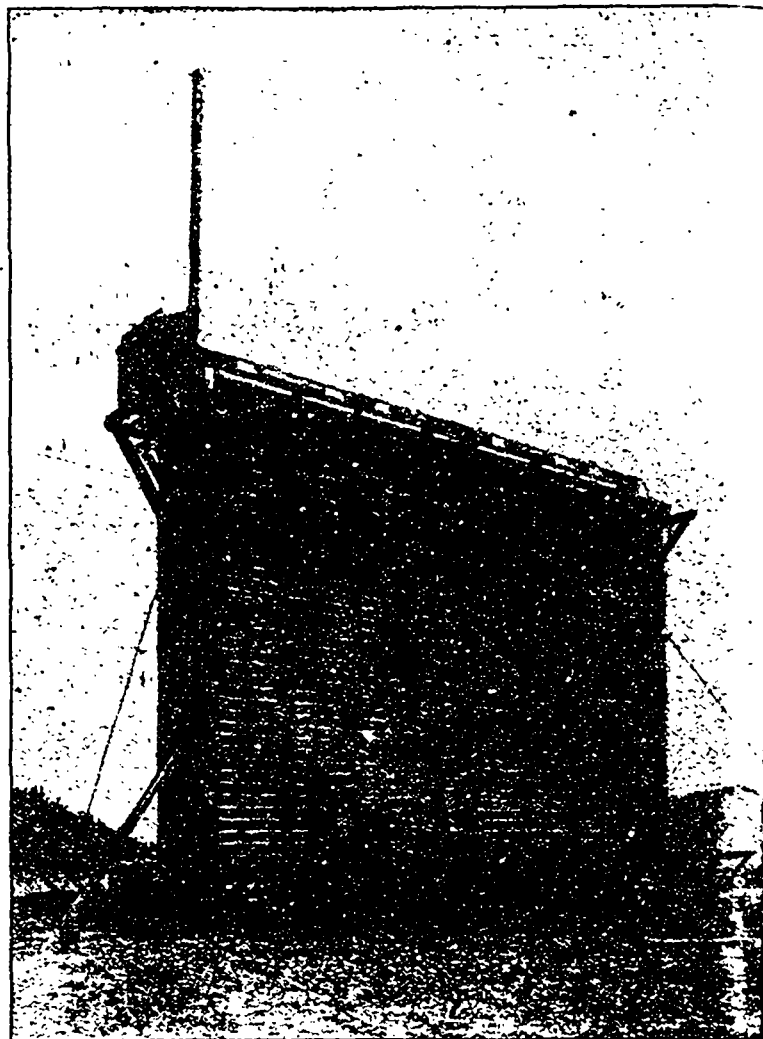
The machinery for the machine and timber framing shops, is driven by a 100 H.P. cross compound automatic cut-off Ball engine. The line shaft is fitted with friction clutches so that each shop can be operated independently. The equipment of the machine shop consists of one 28 inch swing and one 16 inch American Tool Company's lathes; one 26 by 36 inch American Tool Company's planer; one 36 inch Barnes upright drill and one post radial drill. There are also two pipe machines with a capacity to cut from $\frac{1}{4}$ to 8 inch pipe, and a bolt cutter to cut from $\frac{1}{4}$ to 2 inch bolts. The whole is served with a three ton travelling crane. About one-third of the shop is devoted to the repairing of rock drills. The machine shop is fitted with steam, water, compressed air and electricity for testing and repairing. Beyond the machine shop is the blacksmith shop. Here the sharpening of the machine drill steel is accomplished by a machine drill-sharpener. There are three men operating this machine; besides these, two blacksmiths and their helpers are kept employed on general construction and repair work for both mines. The drill steel for both the War Eagle and Centre Star Mines is sharpened by the one machine.

Adjoining the shaft house and connected with it by two tram-car tracks is a 40 by 70 foot mill devoted exclusively to the framing of mine timbers, having the latest appliances for framing square sets and shaft timbers by power. This timber framing machinery was built by the Denver Engineering Works. A 48 inch swinging crosscut and a rip saw complete the equipment, which gives ample facilities for supplying the mine with correctly framed timbers in the least time and most economical manner.

The War Eagle and Centre Star hoists and Centre Star compressor are all supplied with steam from the Centre Star boilerhouse, which contains four horizontal tubular boilers (5 ft. by 15 ft.) of 100 H.P. each, carrying a steam pressure of 100 pounds, and three (88 in. by 16 ft.) Scotch marine high pressure boilers carrying a steam pressure of 130 pounds and having a capacity of 175 H.P. each. The fuel used is Crow's Nest Pass coal.

Compressed air is supplied to the mine by a Canadian Rand Drill Company's cross compound, condensing, two stage, air compressor of 40 drill capacity. When running at its maximum speed of 70 revolutions per minute, it consumes 625 H.P. and delivers 3,960 cubic feet of free air per minute. The steam cylinders are 22 in. by 48 in. and 40 in. by 48 in., and the air cylinders are 22 in. by 48 in. and 30 in. by 48 in. The circulating water for the condenser is cooled after leaving the condenser, by means of a cooling tower, located 100 feet away. This tower is 25 ft. high and 40 ft. long. The circulating water is forced to the top by means of a single acting Worthington, triplex, power pump belted direct from the main shaft of the compressor. The water flows in thin layers over the shutters of the tower, and in so doing, presents a very large superficial area to the direct cooling contact of the air. From the cooling tower, the water returns by gravity to a settling tank, from which it is again handled through the condenser and around the same cycle by means of the pump. The condenser is of the Wheeler Admiralty surface type. All Centre Star and War Eagle compressors discharge into a common system so that any or all compressors can be used in the running of either mine.

PROSPECTING.—Prospecting and development were started in the usual manner on the Centre Star Claim. The veins were exposed by surface stripping in several places and prospecting shafts were sunk on the veins. Two tunnels were run in on the ore, and from these tunnels, prospecting proceeded by



COOLING TOWER.

means of crosscuts, drifts, winzes and raises; when it was considered that the mine was sufficiently proven, the main shaft was sunk. Work on this shaft proceeded at three different points simultaneously, viz.: sinking from the surface, raising from the second level, and sinking from the second level; the mine is now worked entirely through this main shaft. The collar of the shaft is 3,688 feet above sea level. The shaft has a dip of 70 deg. and its direction is N. 38 deg. 49 min. W. There are three compartments, two of which are used for skips, while the third is used for a man-way and for the ventilation and compressed air pipes. Each compartment is five feet square, inside measurement. From this shaft eight levels are worked, varying from 125 feet to 175 feet apart on the slope.

At each level a large station is blasted out so as to handle the ore into the skips through large pockets. These are made so that by opening a gate at the bottom, the ore is allowed to shoot straight into the skips by gravity. From the station, crosscuts and drifts have been run in different directions to locate and work the ore bodies.

DRIFTING.—Where possible, the drifts are driven along the foot wall. Since the rock is extremely hard no timbering is required.