

spray of water inside the trommel, the oversize is discharged onto a short belt conveyor, "E", from which the waste is sorted out and dropped into further waste bins "C", the coarse ore going over the end of the conveyor into the shipping bin "S". The undersize from the two inch holes of the trommel is divided between two twenty-five foot patented Turbo Log Wash-

the Chip Screens, a 15 horsepower induction motor; and for the eight Frenier sand pumps, a 20 horsepower motor. The water supply is pumped through a 30 in. main from Trout Lake, 11.4 miles distant, into an elevated storage tank of 100,000 gallons capacity, from which each unit receives its supply at 70 pounds pressure through a 14 in. main. There is provided for

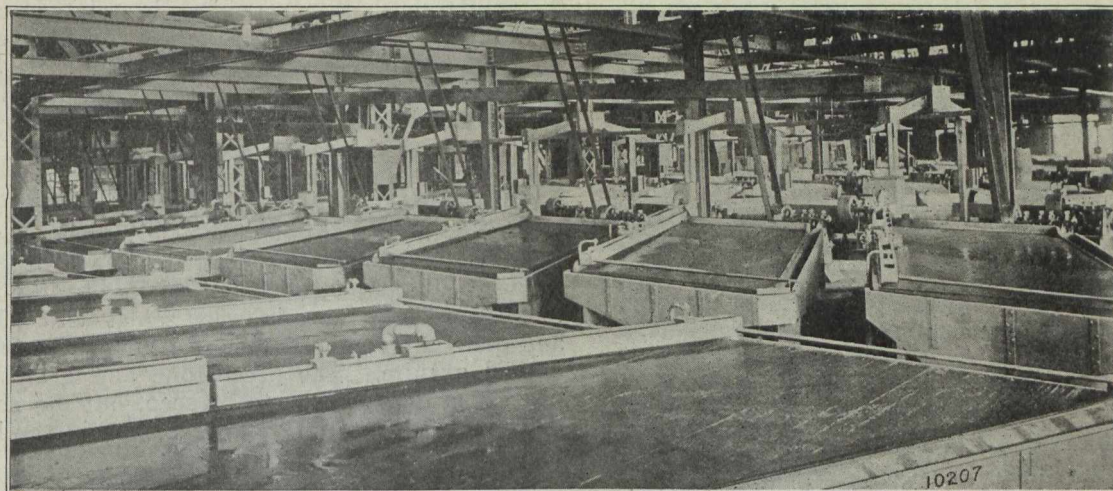


Fig. 3. Overstrom Tables, Oliver Plant.

ers, "F", the coarser and heavier particles which constitute the ore being pushed over the shallow end into the shipping bins, while the sand and clay together with the finer particles of ore are carried by the high velocity of the water over the overflow at the deep end and pass through a chip screen "G" and a settling or sloughing-tank "H", chips and water being eliminated. From the sloughing-off tank, the fine ore flows through the spigots to an eighteen foot Log Washer, "I", where the ore is again washed, concentrates being discharged over the shallow end into the shipping bin, and the overflow, which contains the finer sand and finer ore, goes to a settling tank. The overflow from the sloughing-off tank goes to a similar settling tank, the overflow from both settling tanks "J" and "K" going to waste. The slowly settled slimes in these tanks is discharged through bottom spigots and fed onto Overstrom Tables Fig F, of which there are twenty per unit, on which the final concentration is done, the tailings going to waste. The fine concentrates from these tables are elevated by Frenier sand pumps "M" to settling tanks "N", from which the concentrates as settled are drawn off into the shipping bins without excess water. The overflow from this tank is led to the tank "O" supplying the wash water for the dressing on the tables and thus is prevented from leaving the mill carrying any mineral of value. This small wash water supply tank has its level maintained automatically, fresh water from the supply lines being introduced for this purpose, constant head being thus maintained at the tables.

The ore coming from the mines runs from 35 per cent. to 50 per cent. iron, and is raised to an iron content of from 58 per cent. to 62 per cent. by the treatment in this mill, the final grade depending partly on the furnace requirements. For each unit there is installed a motor equipment totaling 135 horsepower, as follows: For the revolving trommel "D", the two 25 ft. Log Washers "F", the two 18 ft. Log Washers "I", and the Picking Belt "E", there is provided a 100 horsepower induction motor; for the twenty tables and

each unit a pumping capacity of 1700 gal. per minute when the complete plant is in operation.

This mill was built from plans of the Oliver Iron Milling Company and put into operation early in 1910 and is the result of experimenting dating from 1907 under the direction of John Uno Sebenius, chief mining engineer.

The success of this plant pointed the way for other mining companies having similar problems, and during the winter of 1911-12 there was constructed the plant of the Wisconsin Steel Company, built along the lines of the former plant, but with features of its own. It is built at an elevation of some 112 feet above O'Brien Lake, which will allow of a settling basin for the sands rejected by the plant and prevent them flowing into the lake.

Plant of the Wisconsin Steel Co.

This plant consists of a single unit at the present time, but provision is made for increasing the number of units when it becomes desirable. The ore coming from the company's open pit mines, where it is loaded by the steam shovels, is discharged from the cars into a steel bin of some 250 tons capacity. From this bin the ore is fed onto a long inclined conveyor, on which it is carried into the building and discharged onto a short grizzly, the grizzly openings being 9.3-4 in. centers. The oversize from the grizzly is rejected into the rock chute if waste, or broken to pass the grizzly if ore. All material passing the grizzly falls along a chute to the small end of a revolving conical trommel where it undergoes washing as well as screening. The oversize from the trommel falls onto a picking belt, from which the waste rock is sorted out, the ore being discharged by the conveyor into ore bin. The undersize from the trommels is divided between two 25 ft. Log Washers.

The mill machinery is driven by a 100 horsepower motor, this including one screen, two 25 foot washers and two 18-foot washers, and the picking belt. A 30-horsepower motor is used to drive the main conveyor,