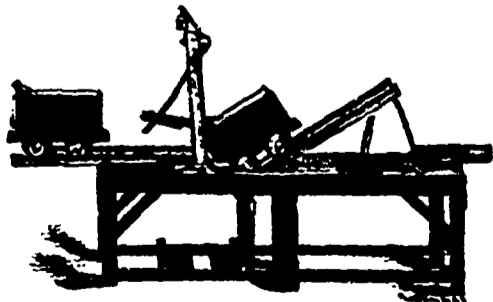


steadily improving as the workings get further in under the "bench" land. The covering of the coal at present is about 150 feet, but in a few months, when the entries are advanced 1000 feet further, the covering will be 350 feet, when a still better quality of coal may be looked for.

To facilitate mining the coal and to render unnecessary the employment of a large body of skilled miners, who have to be brought from the Eastern Provinces at great expense, the company have introduced an American mining machine, which undercuts the coal and thus does the work which heretofore has required the employment of skilled labor. Two men run each machine, and after the cut has been made ordinary labor can shoot the coal down with powder and load it into the pit cars. The machines, which have proved very successful, are run by compressed air, which is conveyed in wrought-iron pipes to the various workings in the colliery, a distance of upwards of 3,000 feet from the compressor.

Besides the machines, an air-drill has also been introduced to bore holes for the slots. The compressed air is also conveyed in pipes to the blacksmith's shops for the forge for driving the emery wheel, which is used for sharpening tools, etc., and this year the company propose to use the same power to drive the machinery in the railway repair shop and hoisting engine. In compressing, the air becomes heated up to 350 degrees and is cooled by passing over tubes of cold water. The coal after being brought out of the mine is hauled up an inclined plane, 2,100 feet long, to the bank head, whence it is discharged into chutes leading into the company's railway cars. There are screen bars in these chutes as well as in those at Dunmore in order to insure the coal being sent to market in good condition. The company have now in their employ about 350 men, of whom 50 men have their families resident in Lethbridge.

The mining staff consists of one superintendent, three engineers, two firemen, four bankmen, three screeners, one weigher, five general laborers, two carpenters, two bottomers, two blacksmiths with two helpers, one emery wheel grinder, seven teamsters, four timberers, four general purpose men in mine, eight mining machine tenders, and 80 miners blasting and filling, there being in 1886, 125 men on the colliery pay roll. The daily output per man is about five tons in a working "shift" of nine hours, from 7 until 17 o'clock, with an hour for dinner, the largest daily output reaching 300 tons. The cutting machines or "iron-men" are very compact, powerful, and rapid-acting, working on the floor level and biting into the coal a strip three feet wide at the rate of a foot deep per minute. The pit cars hold one ton each and are hauled to the pit mouth, two or more at a time by mules, where horses replace the mules and draw five cars to foot of inclined plane. As the five full cars are raised to the schutes, five empties return on the opposite track, both being worked by a wire cable from a drum above. It only occupies five minutes to raise, dump, screen, weigh and tally (record) five tons of coal. The coal is screened into three classes, the finest and next being used for ballasting the railway, and the clean lumps only going to market. The cars are emptied, two at a time, the tipper by a dial indicating to the weigher below the number of the mine who filled it, and the weigher crediting each with his work. As the cars are filled trains are made up and despatched.



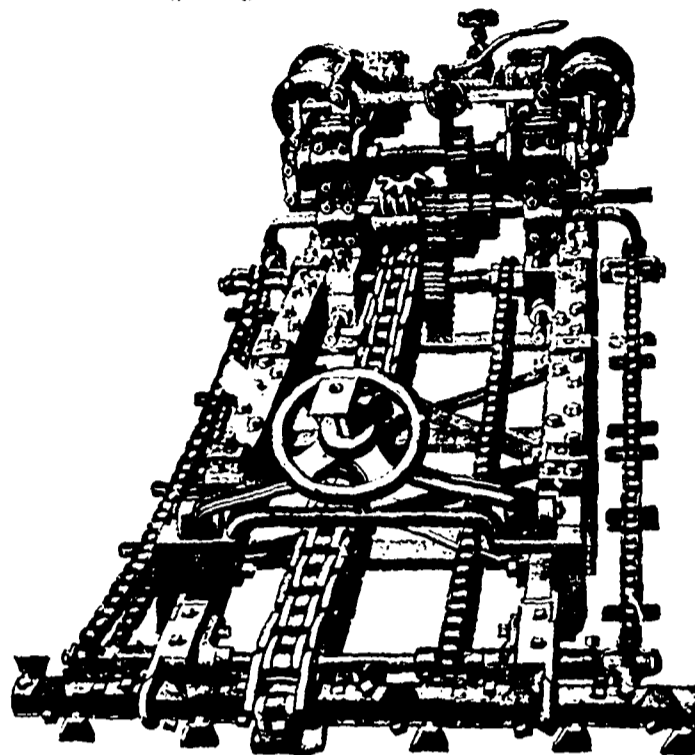
LOADING PIT CARS.

About ten per cent. of the coal is lost in screening, as the fine will not repay carriage.

The colliery buildings are one engine-house 26x36 feet, 1 storehouse 16x42, 1 blacksmith shop 15x20, stables for 15 horses and corrals. The inclined plane is double track, 2,300 feet long, at an angle of 8 degrees or nearly 300 feet vertical, the elevated trestle at its upper end being 22 feet high, 26 feet wide and 200 feet long,

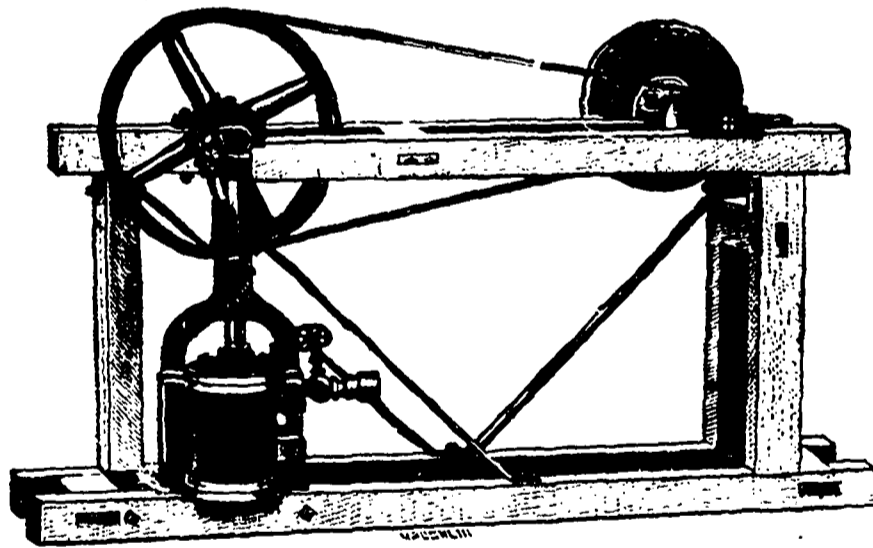
and at each end is an electric alarm to warn the engineer when to hoist or lower. The machinery consists of three 60 horse power boilers, with room for two more of 200 horse-power each, which are to be put in this year, three air compressing engines 20x24, 1 Liverwood engine, 60 horse-power, for hoisting the coal, one pumping engine 10 horse power for supply; the boilers, for which is used the river water direct, and that which is condensed from the air compressors.

The blacksmith's shops have three forges and an emery stone for grinding the bits of the coal-cutting machines.



MINING MACHINE, FRONT VIEW.

The four Legg coal mining machines have a capacity of fifty tons each daily, one machine and two men being equal to twelve men with picks, and the two rotary power drills are each equal to twelve men boring by hand, one of these drills boring a hole five feet deep in five minutes. In the mine is an automatic air pump with a capacity of 120 gallons per minute, but it is not so far required, as the workings are very free of water;



EMERY WHEEL AND AIR CYLINDER.

also 5,000 feet of five-inch air line pipe, 5,000 feet of 1 1/2 inch branch pipe, of which 8,000 feet are in use, 50 feet 1 1/2 inch rubber tubing for supplying the cutting machines. There are 100 mining cars holding one ton each, and running upon two miles of rail track, employing altogether fourteen mules and horses. As the coal is removed the roof has to be supported by timbers, and every day this requires sixty stout logs five feet long, thirty ties for track rails, thirty overhead beams, 3x6, 4x6 and 8x8, in ten feet lengths, and sixty post caps of 3x4 plank, 1 1/2 feet long. The main entries are five feet wide, 6 1/2 feet high, 15 feet apart and 200 feet between each pair. The details of the works are many and minute and very interesting, and even a novice can see that the superintendent, Mr. Stafford, is quite at home, having all the practical as well as the general principles at command, using them in the interests of master and man. He has had long mining experience, being 17 years in the noted Westville, Nova Scotia mines, and is quite familiar with most of the coal exposures of the west, having explored there from 1882 and tested several veins in the interests of the present company.

When the coal is mined from the "chambers," the coal pillars are taken out, the pipes, rails, etc., removed, and the roof allowed to fall in, and so on each in turn.

In filling the pit cars, any stony or refuse matter that may be found is thrown aside, and should any escape it is picked out at the bank head and checked against the miner, who is fined therefor, as he is paid by weight and the stone is much heavier than coal.

The coal has high steam properties, and the C. P. R., which was contracted for 100 tons daily, finds that locomotives consume about one ton of it for each 50 miles haulage loaded. The City Council of Winnipeg also had it tested for heating properties during the winter of 1886-7, and it satisfied their engineer. It finds a market in all the towns of Manitoba and the Territories, retailing in Winnipeg at \$7.25 a ton, is clear, bright, free from clinker, yields great heat, a cheerful fire, and lasts well.

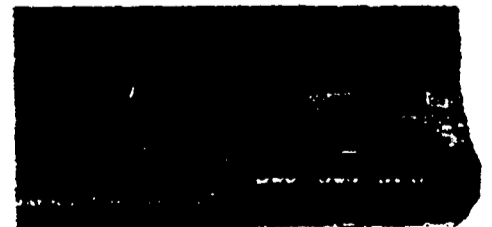
The company owns 10,000 acres of coal lands and will bore with diamond drill this year to test the eastern extent of the measures at present unknown.

Mr. Elliott T. Galt is general manager of the whole company and attends closely in person to its affairs. He has had the wisdom to select as aids efficient heads of departments, and through all a high standard of duty is apparent and acted up to. The company has spent upwards of \$1,500,000 in development, and has a very important part in saving our national wealth in that way and also by displacing imports, and it is pleasant to know that the success met with has encouraged the promoters to more extensive work when conditions allow.—*The Emigrant.*

**MR. WIMAN PROVES TOO MUCH AND FRIGHTENS THE YANKEES.**

Ordinarily high latitude, short summers, long winters and frost and cold are supposed to be somewhat unfavorable to the successful culture of wheat. This belief, according to the latest returns, must go to the limbo of exploded beliefs, and all these supposed disadvantages must be transferred to the other side. Mr. Erastus Wiman, the wide-awake, progressive Star-Spangled-Canuck-Yankee, who has moved over from Canada and joined the large army of Yankee millionaires, in his recent speech in Buffalo advocating "commercial union," in reference to the immense resources of Canada, stated that northwestern Canada possesses 466,900 square miles of wheat-bearing land, and that the wheat area of the Dominion exceeds that of the United States. He also made the following statement: "Owing to the nearness of this wheat-bearing area to the North Pole, the sun during the summer months affords two hours longer of forcing power than elsewhere on the continent where wheat can be grown. Two hours a day of additional sunlight during a wheat-growing season is of enormous importance and gives to these regions an advantage which the frost and cold of the balance of the year in no way lessen. But even the frost and cold, strange to say, afford an advantage in the production of the delicate wheat plant. This advantage is found in the fact that owing to the depth in the ground which the frost penetrates, the earth is never entirely free from its influence, and deep down in the rich alluvial soil there remains a well spring of moisture which under the long and strong sun's rays

constantly exudes and keeps moist the tender roots of the plant. Hence droughts and absence of rain have no terror to the wheat producer of the great Northwest." Of course, as Mr. Wiman has large tracts of iron land in Canada, which he would like to have developed by American assistance, he is to be pardoned for his



MINING MACHINE AT WORK.

warmth of advocacy of the claims of Canada, and as he has not made an exhaustive study of mathematical geography, he is not to be judged too harshly for his utterances on wheat culture as affected by latitude and its concomitants. But he proves too much. If Canada possesses so much wheat land, the Yankees will not desire "commercial union," which would imply competition with all this Canadian potentiality. And if, "strange to say," Manitoba's extreme frost and cold re-