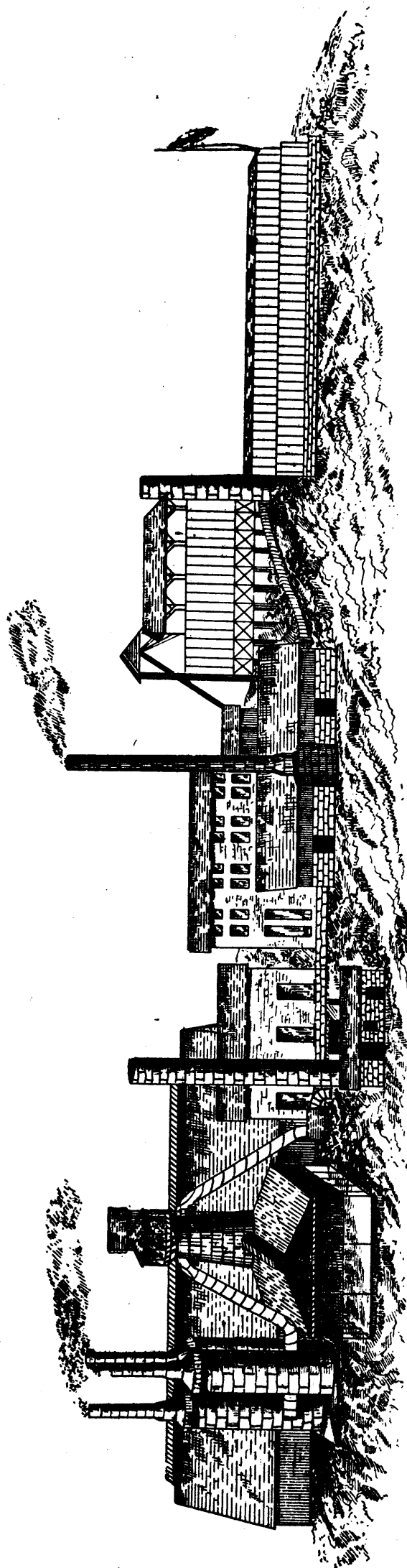


New Glasgow Iron, Coal & Railway Company, Ltd.

Exterior View of Furnace Plant at Ferrona, N. S.



13. Retort Coke Ovens.
14. Pig Iron Track.
15. Cinder Track.
16. Slack House Track.

9. Boiler Chimney.
10. Coal Washing Building.
11. Coal Storage Tower.
12. Boiler House.

5. Cast House.
6. Engine House.
7. Stand-Pipe.
8. Blacksmith's Shop.

1. Blast Furnace.
2. Blast Tower.
3. Hot-Blast Stoves.
4. Slack House.

New Fire-Damp Indicators.

A new form of alcohol lamp for the determination of fire-damp has been devised by G. Chesneau, in the (Annales des Mines, 9th series, vol. 11, pp. 203-223), with the object of overcoming some of the difficulties incident to the use of the Pieler lamp. Experiments were first made with lamps of the Marsaut and Wolff types, and these led to the adoption of a modification of the Fumat lamp. The air-supply enters at the base through a double gauze, which can be closed by a shield. A sheet-metal cylinder surrounds the wick tube and serves as a shade. The gauze is somewhat conical, and is surrounded by a shield pierced by a window for observation. It is found that the height of the cap and the flame depends considerably on the nature of the spirit used, so that alcohol of the same density should always be employed. The use of metallic salts to render the flames more distinct was experimented with, and it was found that the addition of cupric chloride was advantageous, giving a uniform green tint. This salt is soluble in alcohol, and is used to the extent of thirty drops of a concentrated solution in strong hydrochloric acid per litre. The height of the wick is adjusted by a regulating screw, and to insure, as far as possible, the same temperature, the lamp is allowed to burn about a quarter of an hour with the wick high. The tests should be made as quickly as possible, or else the lamp gets hot from the combustion of the gas, and the flame suffers an excess elongation. The author has found that variations of the carbonic anhydride and temperature of the air do not much affect the height of the cone when gas is present up to 2½ per cent., although the luminosity is affected. Results of a number of experiments are given, with tabulated results of the height of the cone and of the luminosity for varying percentages of gas.

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