

ped out and were talked of in several localities received no further attention. I was told of one discovery made a long distance from the scene of present operations, by gentlemen from the neighborhood of Duncan's, who, after locating a claim, allowed their title to lapse, simply because everybody, knowing nothing about the value of the ore, said that there would be no money in quartz mining. These gentlemen have recently come to a different conclusion, and will again stake their claim, which, fortunately for them, has not been taken up.

"The country is a difficult one to prospect in, but once a vein is struck it can be followed without difficulty, and the general situation is such that tramways can be constructed without abnormal expense, to take the ore down to the sea coast for transhipment to the smelters. The proximity to the coast is one great advantage that this country has."

## CANADIAN COMPANIES.

**Bootanie Creek Gold Mining Co.**—Applicant for charter under British Columbia Companies' Act. Capital \$150,000, in shares of \$100 each. Head office: Vancouver, B.C. Trustees: Walter H. Kendall and Samuel Knox Twigge, Vancouver, and Duncan H. MacPherson, High River, Alberta, N.W.T. The new company is being formed to acquire and work mineral claims at or near Bootanie Creek B.C.

**Hamilton Iron & Steel Co. Ltd.**—Applicant for charter under Ontario Statutes. Capital, \$1,000,000, in shares of \$100. Head office: Hamilton, Ont. Directors: J. Jennings Moorehouse, New York; Wm. Van Veghten Reynolds, Reynoldsville; Wm. Foster, Jr., New York; Ed. Harris Thompson, Millerton; Herbert Nelson Curtis, New York; J. Henry Tilden, Hamilton; John Milne, Hamilton, and Robert Jaffray, Toronto. Formed to mine lands and operate mines in the Province of Ontario. Operations are in the County of Wentworth.

**East Kootenay Exploration Syndicate** was registered under the Foreign Companies' Act, (B.C.) at Victoria, on 5th October. Capital, £80,000, in shares of £1 each. The places of business of the Syndicate in Canada, is at their mines, Wild Horse Creek, East Kootenay District, B.C.

**Wycott Hydraulic Mining Company** has been formed to take over, purchase and acquire a certain mining lease or leases, dated the 4th July, 1892, granted to James M. Harvey and Thos. J. Trapp, of New Westminster, B.C., and the water privileges in connection therewith; and to carry on the business of hydraulic or other process or processes of mining. Capital \$500,000, in 50,000 shares of \$10 each. The five Trustees are: S. K. Twigge, John Twigge, J. M. Spinks, M. M. Hirschberg, of Vancouver, and Thos. J. Trapp, of New Westminster, B.C. Head office is to be at Vancouver.

**Tobique Valley Gypsum Mining & Manufacturing Co. Ltd.** has been formed under Dominion charter with a Capital of \$50,000, in shares of \$100, to acquire and work Gypsum lands, in the Province of New Brunswick, and elsewhere in the Dominion of Canada, and to manufacture land plaster and other fertilizers. Head office, at Ottawa. The incorporators include the Hon. John Costigan, Secretary of State; G. P. Brophy, Ottawa; John Heney, Ottawa; Hon. H. G. Connell, Woodstock, N.B., and Henry A. Costigan, Winnipeg.

## MANUFACTURING NOTE.

### New Works of the Robb Engineering Co.

The works of the Robb Engineering Co., Ltd., which were swept by fire August 28th, 1890, have risen Phoenix like, till now this enterprising company is employing as many hands as before the fire, and when it is remembered that they have given up the manufacture of stoves altogether, only making the repair pieces, it will be evident that they are now pushing their engine and boiler business, machine work and hot air furnaces more extensively than before the fire. They employ 100 hands to whom they pay out a weekly sum amounting to \$2,500 to \$3,000 per month. They have lately moved into a large and well equipped brick moulding shop, which is 100 feet square and is fitted with two large swinging cranes for heavy work, patent Colliu cupola, large brick core oven, etc. Their boiler shop is 100 x 50 ft. and is fitted with overhead travelling cranes, besides a good outfit of boiler shop machinery. Their machine shops are 100 x 40 ft. (two flats) and are fitted with the best and latest machine tools for building high speed engines, heaters and power pumps, which they supply with their steam plants, and for doing general machine jobbing of all kinds. In addition to these shops, they have a large salesroom in which they carry a heavy stock of supplies, such as beltings, hose, packings, oils, iron pipe and fittings of brass and iron, etc., also engineers and sawyer's tools of every description, and in their commodious

offices and drawing office are to be found every modern convenience. Their specialties are the Robb Armstrong engine, which is considered by competent judges to be the best engine yet introduced into Canada, and fully equal to the best produced in the United States, having all the parts interchangeable and embracing the best points in the leading American engines, also the Monarch Economic boiler, which not only gives very high economy, as its name suggests, but it is portable and has many other good points. These steam plants outfitted with heaters, and steam or power pumps of the latest design, they are sending to Ontario, Quebec and the North-West.

In proof of the foregoing it may be stated that they have placed one of their compound engines in Windsor, Ontario, which is running splendidly, and they have lately shipped one to Lethbridge, N.W.T. Twelve of these engines have been placed in Montreal alone, besides other places in Ontario and Quebec. Three of the Monarch Economic boilers were shipped for one plant alone, viz.: that of Windsor, Ontario, and the last of three more for London, Ontario, was shipped last week besides those that have been placed in Montreal and other places. In addition to these steam outfits they of course still supply sawmill machinery of all kinds.

**Electrical Safety Apparatus for Cages**—A description of an electrical safety apparatus for mine cages is given by Mr. J. Yates (Transactions of the Federated Institution of Mining Engineers, vol. ii., pp. 362-68, three plates). The requirements of a safety apparatus for mine cages are that it should never fail to act when required, and that it should not act unless the rope breaks; it should allow of being tested; it should be simple, and should not interfere with ordinary work. The apparatus consists of weighted levers, which are normally held out of action by horseshoe magnets, but which grip the guides through the medium of cams when liberated. A continuous current is used to keep the magnets excited, and this current is led to the magnets by two copper wires laid in the hemp core of the winding rope. The connection between these conductors and the battery is made by two brushes working on two copper rings on the drum shaft. This method of conveying an electric current to the cage has been successfully in use for some years for signalling purposes in the Durham district.

An illustration is given (*Electrical Review*, vol. xxix, p. 609), of a winding indicator worked by worm gearing from the drum shaft. Electric contacts are arranged on the dial, so that the pointer completes an alarm circuit when the cage is near the end of its travel, and thereby sounds an alarm bell. As the cage descends, the pointer lifts a spring and avoids making contact. The contact pieces are clamped in position by set screws, so that their position can be adjusted to suit the winding.

**The Behaviour of Coal during Combustion**—Mr. B. Holgate (lecture delivered before the Yorkshire College Engineering Society, December 7, 1891, through the *Colliery Guardian*, vol. lxii., p. 1014), described the variations of the behaviour of coal during combustion. Cannel coal contains a considerable quantity of fish remains, and was deposited under water. When coked, the lumps retained their original shape. Most other coals are somewhat similar in composition to one another, so that analysis alone will not determine their burning qualities. The appearance of the coal is a much better guide. Some coals require a high temperature and a strong draught to burn properly, such as the Better Bed coal of Yorkshire. As a general rule, coal which breaks naturally into small pieces will not deliver its gas so freely and will not burn so rapidly, but it makes the best coking coal when it is soft and breaks up easily. When the coal breaks into large lumps the gas can get away more readily.

**The Manufacture of Nickel-Iron Alloys**—Dr. H. Wedding (*Verhandlungen des Vereins zur Beforderung des Gewerbfleisses*, 1892, pp. 52-65), refer to the results of Riley's examination of the nickel-iron alloys. With regard to their mode of preparation, they may be made in blast furnaces with a mixture of oxide ores of iron and of nickel. The metal produced in this way is high in carbon, and is not suitable for conversion into malleable nickel-iron poor in carbon. On puddling such a carbon nickel-iron, oxides of nickel are formed, which are dissolved by the metal, and render it brittle to a much greater degree than would dissolved oxide of iron. To make a malleable nickel-iron alloy, metallic nickel must be added to the molten malleable iron. Nickel and iron do not form true alloys by themselves, but only mixtures, and to render these mixtures homogeneous some third metal, such as aluminium, must be added. Such experiments as have been from time to time recorded, which relate to the alloys of nickel and iron having far from exhausted the subject, the German Society of Arts is about to undertake a further and more detailed examination of these alloys. Viewed from the results of Riley's experiments, it would appear that the alloys best fitted for general use are those with less than 0.3 per cent. of carbon, and the percentage of nickel should not exceed about 5. What percentages of these two elements in the alloys are actually the best in the whole series has not as yet been shown, and information is wanting as to the real mechanical properties of the best of the alloys, and how they should best be handled. This too will form the subject of the investigation referred to.

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