are elected, who shall thereupon inscribe their names upon the Roll of the Members of the said Board, for the year then about to commence; with the names of the Delegates when transmitted by the Secretary of a Mechanics' Institute, Society, or Association, there shall be transmitted a statement verified by the oath of the Secretary transmitting the same, to be taken before a Justice of the Peace, of the names of all the members on the roll of such Mechanics' Institute, &c., &c.

ANNUAL EXAMINATIONS.

The Board will hold the usual Examination of Members of Mechanics' Institutes, in the month of May next—the exact time of which will be stated in the January number of the Journal. We have not space in the present number for the full programme, but in the meantime we give the list of subjects of study:

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1.	I III. III. IV. V.	Arithmetic. Book-keeping. Euglish Grammar and Analysis. Geography. Penmanship.
2.	VI. VII. VIII. IX. X.	Algebra. Geometry. Principles of Mechanics. Geometrical and Decorative Drawing and Modelling. History.
3	XII. XIII. XIII. XIV. XV. XVI.	Trigonometry. Mensuration. Practical Mechanics. Conic Sections. Chemistry & Experimental Philosophy. Geology and Mineralogy.
4	XVII. XVIII. XIX. XX.	Animal Physiology and Zoology. Botany. Agriculture and Horticulture. Political and Social Economy.
5	XXI. XXII. XXIII. XXIV. XXV.	English Literature. French. German. Music Ornamental and Landscape Drawing.

TRADE MARKS.

Trade marks registered in the office of the Board of Registration and Statistics, and open for inspection at the Library of this Board.

(Continued from page 290.)

- T. W. Georgen, Barrie. "Georgen's G. G. G. Real Reliever." Vol. A, folio 144, No. 539. Dated October 18th, 1866.
- F. Marais Ottawa. "English Cleansing Fluid of F. Marais." Vol. A, folio 147, No. 555. Dated Octuber 22nd, 1866.
- Wimming, Hill & Harrison Ware, Montreal. "John Bull Bitters." Vol. A, folio 145, No. 561. Dated October 26th, 1866.
- W. Thos. Atkinson, Oshawa. "Atkinson's Aromatic Fluid Magnesia." Vol. A, folio 146, No. —. Dated October 30th, 1866.
- Meesra. Gates & Co., Toronto. "Victoria Sewing Machine." Vol. A, folio 147, No. 595. Dated November 12th, 1866.

Selected Articles.

THE USE OF FUEL-BITUMINOUS COAL.

In our last issue^{*} we published a few practical suggestions in relation to the management of fires of anthracite coal. We made the general statement that mineral coal was a condensed form of carbon requiring a large amount of axygen to produce perfect combustion.

Bituminous coal contains more of the resinous qualities of the vegetable matter from which all coal is derived, than anthracite. It is largely used for the production of illuminating gas, and, where it is employed for heating purposes, supersedes in some measure, the use of other artificial lights in dwellings. In our own experience we have read, many an evening, by the light of a generously large grate filled with glowing coal. When a lump was placed upon the fire, for a time a volume of dense black smoke would rush up the chimney, until the heart of the block was warmed by the persistency of the fiery mass below, when it would crack open, sometimes with a report, and send up blue and then bright yellow flames, illuminating the whole room. One thing was noticeable, and that was, that when such a fire was first kindled it would give out no appreciable heat. The energy of the fire seemed to be directed to overcoming the resistance of the fuel. The blue, gaseous flame was somewhat like the popular idea of the moon's light, without heat, yet this blue flame was a highly combustible gas, if it could have been retained long enough in contact with the heat to have mixed with sufficient oxygen. Its value as a fuel was lost by being forced up the chimney to the outer atmosphere.

In the burning of bituminous coal in open fires there should be first a proper grate. Almost all the grates used for this purpose, in dwellings and other buildings, for warming purposes, are too coarse. They allow the finer particles of coal to pass through and get lost in the ashes; or, these particles induce another fire below the grate and tend to melt it down rapidly. When bituminous coal is used in large lumps. much of its valuable carbon is wasted in the form of gas or black smoke, before it can be ignited and give out any heat. The coal should be fine enough to be easily heated and ignited. The sooner this is done the quicker is the fire, and the more the carbon of the coal is utilized. For this reason a finer grate than is generally used, and smaller coal than that commonly placed upon the fire, is an economical method of utilizing the greater portion of the carbon. The grates now in use can be readily changed to effect this saving by placing a sheet of iron, closely perforated with small holes, upon the inside of the grate bars. We have tried this plan with excellent results.

These remarks are not of universal application; for there are several varieties of bituminous coal, some so nearly approaching pure bitumen as to melt in mass and cake, refusing to be separated permanently until well coked. This sort would require a more open grate or an admixture of coke to make it burn freely. Coke is the residue of bi-

* See this Journal page 298.

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