

WHAT CELLULOID IS.

Celluloid is a substance consisting chiefly of a dried solution of gun cotton (pyroxylin). A variety of it can be made with pyroxylin and camphor. The pyroxylin is prepared by treating cellulose from such substances as cotton, rags, paper maker's half stuff, or paper itself with a mixture of one part of strong nitric acid and four parts of strong sulphuric acid. The distillate obtained by distilling wood naphtha with chloride of lime is used as a solvent for the pyroxylin. When the excess of solvent is removed from the pyroxylin, it is mixed with a considerable quantity of castor oil or cotton seed oil and made into a paste between heated rollers. For a hard compound the quantity of oil should be less than the pyroxylin. In a plastic condition celluloid can be spread on textile fabrics, or may be made as hard as ivory, for which it is largely used as a substitute. Billiard balls, piano keys and combs are made of it. It can be colored to represent amber, tortoise shell or malachite. It is also used in jewelry.

PAPER-COVERED PULLEYS.

A recent patent describes a method for enabling paper or cardboard to be used for covering driving pulleys or drums, such covering being especially suitable for textile machinery. The drum or pulley is coated with a special cement, as is also one side of the strips of paper, using any ordinary brush for performing these operations. The strips are then laid or rolled upon the drum one after another, a layer of cement interposing between every two layers of paper. The strips are then smoothed tight with a smoothing iron or scraper, the whole of the work being done by hand. The cement is made somewhat as follows: About 8 litres of water being heated lukewarm, 500 grms. of wheaten starch are added and mixed in; 15 grms. of powdered alum, 20 grms. of sal-ammoniac, 15 grms. of borax, and 40 grms. of carbonate of soda are then mixed together and added to the fluid. Lastly, 100 grms. of gelatine are added, and the cement is then ready to be smeared on the paper for use. By this method the paper is said to be so firmly secured to the drum as to adhere to it as if it were a part of the drum itself; paper is more economical than leather, lasts longer, and by giving a better grip to the driving band or belt enables it to be left slacker than has hitherto been practicable.

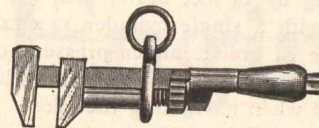
POLONIUM.

Just a smudge of dark powder on a piece of paper was all it seemed, but the eminent scientists assembled at the International Chemical Congress at Berlin looked at it with intense amazement. It was the first time they had ever seen the metal polonium, discovered by Professor and Mme. Curie of Paris, a metal that is said to be worth \$2,000,000 a pound. The bit of polonium was exhibited by Professor Markwald of Berlin. Mme. Curie doubted whether polonium was a primary element or related to bismuth, but Professor Markwald demonstrated that it was indeed a primary element. The metal weighed 5-100ths of a grain and was produced from two tons of uranium at a cost of \$75. It is more sparsely distributed in uranium than xenon, the most rarefied gas, is in the atmosphere. Professor Markwald proceeded to give a marvellous exhibition of the powers of this speck of polonium. It intercepted a strong current of electricity passing through the air from the generator to the receiver, the air ceasing to be a conductor for the flashes. The room was then darkened and pieces of barium, platinum and zinc blende placed near the polonium glowed with a bright, greenish light. The assemblage of chemists were thrilled with astonishment. It appeared to be a miracle.

H. L. Rice and James Chambers, of Woodstock, Ont., are promoting an electric railway to run from Embro to Stratford.

The annual convention of the Canadian Association of Stationary Engineers will be held at Berlin, Ont., on the 25th and 26th of August.

—The Mechanics' Supply Co., Quebec, are introducing a novelty in the form of a nickel plated watch charm, designed as a perfect working model of a machinist wrench. A sample,



as shown in the cut, will be sent to any address on receipt of 30 cents in Canadian or United States stamps.

The B.C. sugar refinery at Vancouver is to build a \$40,000 addition to its works.

A bridge across the harbor is planned by the Council of St. John, N.B.

The Montreal & Southern Counties Electric Ry. proposes to bridge the Richelieu between St. John's and Iberville. A. J. DeB. Corriveau, Montreal, is Vice-President and General Manager.

Surveys are being made by the Metropolitan Ry. of Toronto, for an extension of the road north from Newmarket in the direction of Barrie or Sutton. The Schomberg branch of this road is now nearly finished.

The withdrawal of the application for the charter for the Montreal Bridge Co., which was to build a bridge across the St. Lawrence at St. Helen's Island, is understood to mean the abandonment of the enterprise.

A new metal is said to have been discovered, which will be put on the market under the name of meteorite. It is a compound of aluminum, is just as light as that metal, and is proof against chemical influences. It is extremely pliable, so that it can be used for pipes, wiring, horseshoes, and in all cases where brass is now used. Its weight is one-third that of brass, and its price the same.

The Joseph Dixon Crucible Co., Jersey City, has issued a folder entitled "Colors and Specifications," giving paint specifications for the construction and maintenance of steel and iron work, and showing the olive green, natural, dark red and black tints made by the company. The black is specially prepared for steel smoke-stacks, boiler fronts, ornamental iron work, and surfaces subjected to sulphurous fumes.

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