







MINING, MANUFACTURING AND AGRICULTURE

Prepared for the MINING JOURNAL.

Another Frenchman—what follows these French are for scientific achievement—has invented a fire arm which contributes to the effective five times the power heretofore obtained from the use of a ball and cartridge of the same weight and caliber. The arrangement is purely mechanical, but is not fully described.

Dr. Kane made the discovery in the Arctic region that it was used to draw a sled upon snow when the thermometer was thirty to sixty degrees below zero as upon sand. The same thing was long before known to the men in the Northern States, who often remark that their loads draw hard when the weather is so cold that the runners "crack" or "grow" in passing over the snow.

A new lamp has been invented by a French chemist which is intended to be used in sea and is peculiarly adapted to the purpose because it cannot be extinguished by wind or water. It consists of a cylindrical vessel of tin, with a conical point, provided below with a tube six inches in length. The vessel is filled entirely with fragments of phosphoric calcium, and the tube is addressed so tight, so that the preparation can be kept many years without change. When the lamp is to be used the tip of the cone is drawn up slightly, thus opening wide at the end of the narrow tube referred to, and the lamp inserted in a wooden flask and thrown into the water. The water penetrates through the lower end of the tube, and comes into contact with the phosphoric calcium, and is decomposed with the formation of phosphoric hydrogen gas, which is developed in great quantity, and which, escaping through the open tube of the cone, becomes ignited and burns in contact with the atmosphere.

Everybody knows that leather is made by steeping hides in an infusion of certain vegetable substances which contain a compound called tannin. The cheapest source of this tanning principle is oak bark, but it is found in greater or less quantity in many other plants, as in the grape, the log, coffee, etc., and from these it can be dissolved out with water. The process lately adopted for obtaining this tannic extract from the bark and log, which is well the bark of oak and hemlock forests, which has been attracting much attention in Michigan lately, will doubtless revolutionize the entire tanning business throughout the world. But like most new processes it will be some years before it becomes thoroughly introduced. The prejudices of those who have practiced the old plan, and the unwillingness to discard old machinery and substitute new, even though the new is comparatively inexpensive, will militate against the speedy introduction of the tannic extract. The skins of animals contain mainly albumen and gelatin; in fact these substances are abundant in almost all matter. In the blood and milk the albumen is merely suspended, it were in the water which constitutes by far the larger portion of these fluids. Tannin and albumen have a remarkable affinity for each other, and unite as they are brought in contact. The result of their union is the insoluble, tough material which gives leather its distinctive character. When the hide is steeped in the tannic extract, the albumen of the former thus combines with the tannin of the latter, and the loose, soft tissue of the skin is converted into hard, tough leather.

THE EXTENT OF PEAT FIRES. Mr. W. S. Tidale contributes to the *Canadian Record* the following regarding the extent of the peat fire in this country: "When the writer gives data relating to peat in Ireland, it may be taken as a relative to the condition of peat-beds in this country when multiplied by 150. As starting as this assertion may appear to those who have most strongly overestimated one of the greatest future sources of our national wealth, it is in Orange and Backland counties, N. Y., where there are 250,000 acres of peat. A commission has reported that in all Ireland there are four thousand two hundred and forty-two acres of peat-beds, and that the extent of the peat fire in this country is 1,500 acres, or one hundred and thirty-fourth of the total amount of peat-beds in the State of Massachusetts alone. The first annual report of the State of New York, from seven to twenty miles in length, containing a list of peat-beds, independently of those in Orange and Backland, mentioned above. There are four thousand acres of peat in New Jersey, and logs are scattered broadcast over that State. Indeed, it may be safely asserted that there is more peat in the country than there is coal, and it will be some time before it would have as much capital invested in its preparation for the market as deep-water and sub-marine cables have. Along both sides of the Kanawha River, and extending from South Bend to the Illinois river, is a peat bed of more than sixty miles in length, with an average width of three miles. In some places it is known to be over forty feet deep; but even though it averages only one half or even one quarter of this depth, the aggregate amount of fuel it contains is not admitted to be beyond comprehension.

There is a peat bed of about thirty acres in Westchester county, N. Y., which contains 90,000 tons. Long Island can boast of several millions of tons. To enumerate one fifth part of the peat-beds of this country, and give calculations as to their comparative value, would require the entire space of several numbers of the *Canadian Record*.

BRIDGING THE NIAGARA. THE GREAT INTERNATIONAL BRIDGE AT BUFFALO. From the Engineering and Mining Journal. The project of bridging the Niagara River near Buffalo has been for years past a matter of interest to both American and Canadian engineers. Forming a part of the charter of the Buffalo and Lake Huron Railway (now incorporated with the Grand Trunk Railway of Canada), since the year 1858 successive parties of engineers, under different auspices and at several points, have sounded the river with a view to the construction of a bridge. Failures of these various enterprises have prevented the accomplishment of the object until it was taken in hand by the Grand Trunk Railway, some four years ago. Recognizing the immense advantage to the communications between East and West that such a bridge would afford, and that the growing traffic had rendered it a necessity, a committee consisting of English and American capitalists, styled the International Bridge Company, with C. A. Blyden, Eng. of Montreal, as President. After five steps towards securing the necessary charters from the United States and Canadian governments were at once taken, the location of the bridge track, and right-of-way secured, and in May, 1870, the works were begun under the auspices of G. W. Mather, the contractor.

It was decided that the bridge should be an iron superstructure on stone piers, and after much deliberation the Pratt truss was adopted. This truss has been used in many bridges over the Ohio and Missouri Rivers, and notably at the Quincy bridge, over the Mississippi, where it has served most successfully. This was taken as the model upon which the International was to be constructed. The location having been fixed between Black Rock and Buffalo, the width of the river being broken at that point by Square Island, it was found that the main river measured 1,204 feet, and Black Rock harbor 445 feet, or a total of 2,389 feet to be bridged; while Square Island, which crosses the main river, measured 22 feet in height. The depth of water varies from 13 to 47 feet at the points for the piers, and the normal current at low water from 2.86 to 5.13 miles per hour.

The first intention to place the swing in the center of the river having been abandoned, at the suggestion of the Board of Engineer Officers appointed to examine the plans by the United States Government, and consisting of General Warren and Colonel Merrill and Harwood, United States Army, it was finally determined that the spans should be of equal length, and the piers placed in the center of the river. The dimensions of the first three piers are as follows: Length of coping, 23 ft; width, 7 feet six inches; batter of leg, 1 in 24; batter of front abutment, 1/2 in 24; batter of rear abutment, 1/2 in 24; height of coping, 10 ft 9 in; height of pier, 10 ft 9 in; height of pier, 10 ft 9 in; height of pier, 10 ft 9 in.

The piers will be 12 ft 6 in high timber culms, made water-tight and strongly trussed. The bottom, to a certain level, is filled with concrete, made of broken stone, fine gravel and sand and Akron hydraulic cement. On this footing course of heavy blocks of limestone is placed, and the pier built. The dimensions of the first three piers are as follows: Length of coping, 23 ft; width, 7 feet six inches; batter of leg, 1 in 24; batter of front abutment, 1/2 in 24; batter of rear abutment, 1/2 in 24; height of coping, 10 ft 9 in; height of pier, 10 ft 9 in; height of pier, 10 ft 9 in; height of pier, 10 ft 9 in.

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LOCKS AND SAFES. The shape of the pier is an oblong, with a rectangular nose-piece or catwalk. Although delayed by a series of adverse circumstances, and the fact that no previous work of the kind afforded a precedent for dealing with so rapid a current as that of Niagara, the contractors are pushing the work with the greatest energy, and hope to finish it early next year. Considering the difficulties they have had to contend with, and the fact that the speed of the current has been increased inside of eight hours, the work presents difficulties such as an engineer seldom has to face. Much has been done, but much still remains to be done before the iron horse can complete the international link between the two countries, and trust that continued success may attend their efforts.

Legal Notices. MARQUETTE COUNTY TREASURER'S OFFICE. NOTICE IS HEREBY GIVEN THAT the Auditor General and Auditor for the year 1871 and 1872, in the city of Marquette, the county seat of Marquette County, Michigan, on the 21st day of October last, at nine o'clock A. M., and continued from day to day, until the 25th day of the same month, has been appointed and sworn to by the State of Michigan, and the same shall have been deposited of recording on the 26th day of the same month, 1871.

STATE OF MICHIGAN—TWELFTH JUDICIAL CIRCUIT. In Chancery. Suit pending in the Circuit Court for the county of Marquette, in Chancery at Marquette, on the 20th day of September, 1871. Wm. H. Hyde, complainant, vs. Polly Haddock, defendant. On motion of the defendant, it is ordered that the plaintiff do and answer, plead, demur, or do all things which he may lawfully do, to and with respect to the complaint, within three months from the date of this order, and that in default thereof said bill of complaint be taken as confessed by said defendant. And it is further ordered that a copy of this order be published in a newspaper printed and circulating in said county, or personally served on said defendant, as herein provided, by the undersigned, JAMES E. DALLIA, Judge of the said Circuit Court, on the 21st day of September, 1871.

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LOCKS AND SAFES. VAULT WORK. BANK LOCKS. HALL'S SAFE & LOCK CO. JAMES PICKARDS & CO., AGENTS. MARQUETTE, MICH. 1871.

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General Merchandise. HEADQUARTERS FOR CHEAP GOODS! "BOYNTON'S LIGHTNING SAWS." NEW FALL & WINTER GOODS. JUST RECEIVED AT C. H. WINGATE'S, ISHPEMING. AT PRICES TO SUIT THE TIMES.

Dry Goods of every description. A fine assortment of Boots and Shoes, Furnishing Goods, Hats, Caps, Hosiery, Suspenders, Notions, Glassware, Queensware, Mirrors, Housekeeping Goods, etc., in endless variety. Our Grocery and Provision Stock always complete.

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Lumber, Sash, Doors, &c. EXCELSIOR Manufacturing Co. Manufacturers and wholesale and retail Dealers in SASH, DOORS, BLINDS, MOULDINGS, &c.

Manufacturing Co. To be found in the country, our selling is based and full assortment of building material generally, such as lumber, sash, doors, blinds, moulings, &c., of which will be sold at lowest market prices. Window frames, door frames, store fronts, brackets, sash and finishing work a specialty.

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NEWS DEPOT AT MEADS! MISCELLANEOUS. MISCELLANEOUS. MISCELLANEOUS. MISCELLANEOUS.

HEAVENRICH BROS. Manufacture and Jobbers of MEN'S AND BOYS' CLOTHING! 134 and 136 Jefferson Avenue, Detroit.

T. B. CORRIGAN & Co., LIQUOR DEALERS! 94 Washington Street, Green Bay, Wis.

THE CAMBRIA IRON WORKS. GEORGE R. TUTTLE, Cleveland, Ohio.

IRON ORE & COAL. UNION IRON WORKS! Pittsburgh, Pa.

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