The English Patent Laws.

The engineering journals and nearly all classes of industrial newspapers of London are seriously advocating a change in the English patent laws whereby the cost of patents shall be so reduced as to enable British workmen to secure to themselves their inventions. Under the present law, which seems to have been enacted for the sole benefit of the capitalist and manufacturer, the rights of the inventor are disregarded. The employer patents for his own benefit his workman's invention, and some of the newspapers find fault with Her Majesty's Parliament for the lack of interest which the members manifest on the subject in not bringing up the new patent bill for discussion.

The *Chemical Review*, lamenting over the inertness of Parliament on the proposed amendment bill, says the subject is attracting no attention within that body, and adds:

"As a nation we forget the old proverb: 'For want of a nail the shoe was lost, for want of a shoe the horse was lost, for want of a horse the rider was lost, and overtaken by the enemy.' A good patent law, which shall enable even the poor man to protect his right to his own ideas, is the nail. May we not then say, 'For want of a good patent law invention was lost, for want of invention our industrial pre-eminence was lost, and for want of industrial pre-eminence the nation was lost, being overtaken by its enemies, or, as they are called in the dialect of the day, its competitors'?

"It is sad, and at the same time almost farcical, to see what 'trifles light as air' engross public attention in preference to what is, in fact, the very key not merely to our prosperity, but to our very existence. The interests of invention ignored, and crowded meetings assembled to protest against the monument to the late so-called Prince Imperial! Surely John Bull must for ever abandon his old claim to practical common sense, and be content to rank for the rest of his days as a maudlin, moon-struck, hysterical sentimentalist!"

ENGINEERING INVENTIONS.

Mr. Marshall Wood, of Alderson, W. Va., has patented an improved railway switch which is adapted to be opened and closed by the passing engine, and it dispenses with the frog usually placed at the crossing of the rails of the switch and main track.

Mr. Eugene H. Angamar, of New Orleans, La., has patented improved apparatus for removing snow and ice from railroads and streets by heat; and the invention consists in a double furnace mounted on wheels, the wheels being incased within the fire boxes of the furnace, so that when used the whole apparatus will become highly heated, and the snow and ice melted by radiation of heat and contact with the heated surfaces.

Mr. John G. Curtis, of Ludlow, Pa., has patented a sectional boiler. The object of this invention is to provide a simple and inexpensive boiler, designed especially for burning wet tan, sawdust, etc. It is so constructed that the tubes may contract and expand without straining the joints, and so that any of the tubes may be removed for repairs and replaced without disturbing the others.

Mr. Junius Poitevent, of Ocean Springs, Miss., has patented an improved traction engine, so constructed that it may be used at will with full power for traction purposes, or as a stationary engine. The engine is especially adapted for plowing.

The Mexican Calendar Stone.

A Mexican archæologist, Señor Alfredo Chavero, has written a book to prove that the famous Aztec "calendar stone" was never intended or used as a calendar. His study of Aztec hieroglyphs leads him to the conclusion that the stone was an altar of the Mexican sun god, and the characters, hitherto supposed to be signs of the zodiac, are records of Aztec cosmogony and theogony. When they are fully interpreted, he says, we shall know positively what progress the Aztecs had made in science and religion.

Platinum and Iridium in Maine.

The list of metals now found in native condition in Maine comprises copper, silver, gold, antimony, bismuth, platinum, and iridium. The last two have recently been found in the Rangeley Lake region, associated with gold, by Mr. R. B. King, of Portland. In reporting upon some of the specimens furnished by Mr. King, the State Chemist, Mr. F. L. Bartlett, says:

"My analysis proved the compound to be gold, platinum, and iridium, and possibly osmium and some others of the rarer metals, although no tests were made for anything but gold, platinum, and iridium, the quantity not being large enough to operate on in testing for other metals, which at best occur only in minute quantities, yet usually associated with the platinum ores."

Mr. King also submitted for analysis some peculiar black sand, suspected to contain tin. It proved to be menaccanite or titaniferous iron, containing over twenty-five per cent of titanium. The finding of so many rare elements together, adds Mr. Bartlett, is interesting, and calls for further exploration. Platinum is a rare and valuable metal, and it appears to be quite abundant in the sands from Rangeley; it is not at all improbable that it may yet be worked to advantage in this region.

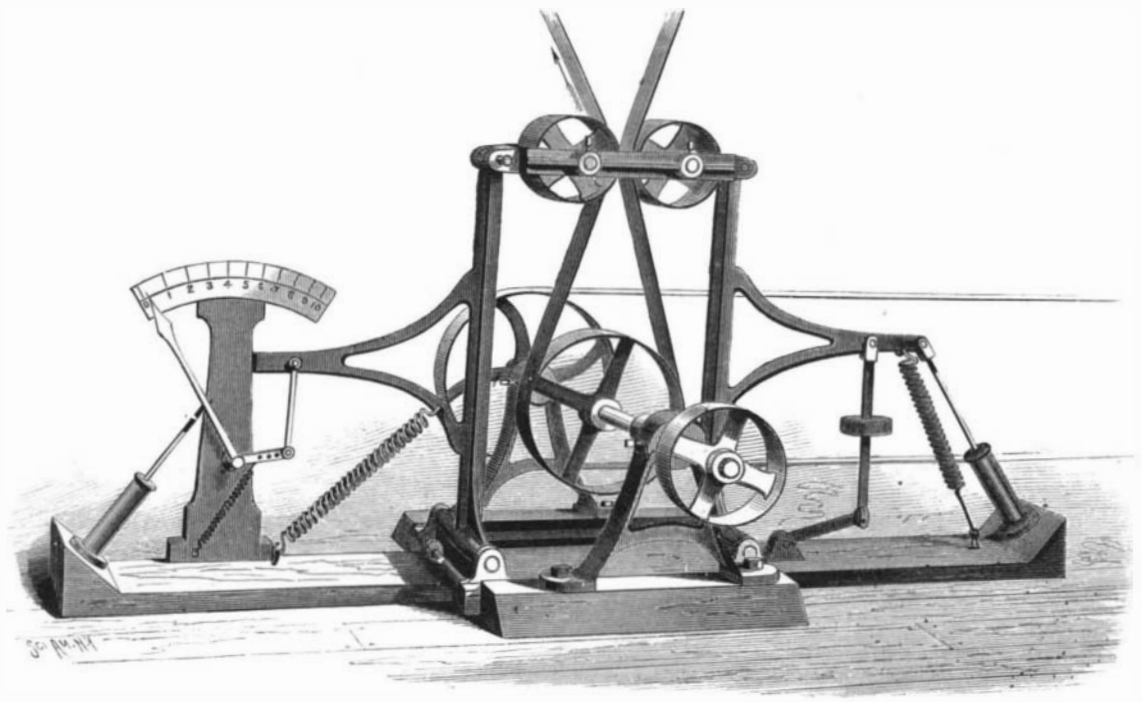

Fig. 1.—MAXIM'S DYNAMOMETER.

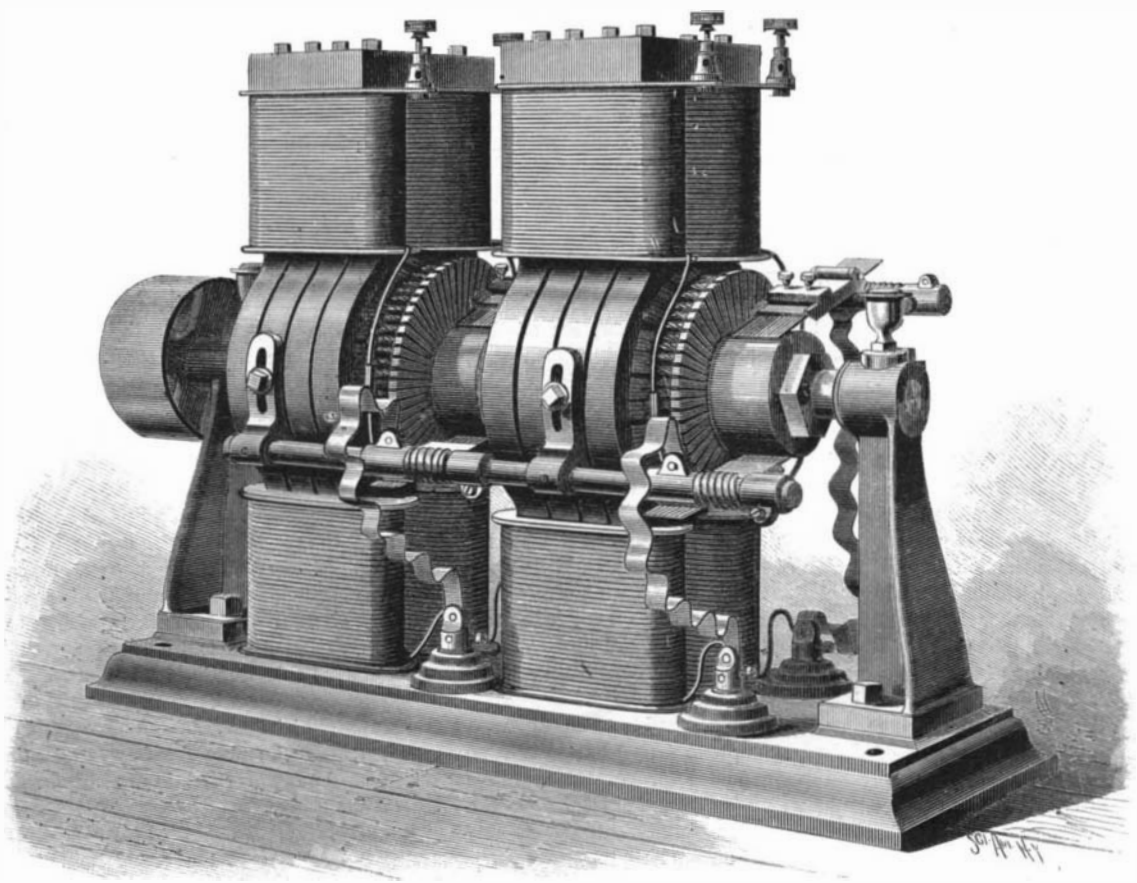

Fig. 2.—MAXIM'S DYNAMO-ELECTRIC MACHINE.

SOME NEW ELECTRICAL MACHINERY.

We give engravings of electric light machinery lately perfected by H. S. Maxim, M.E, of this city.

Fig. 1 represents a double current machine, so constructed that it furnishes two separate currents entirely independent of each other, that may be used to produce two large electric lights, or may be coupled for quantity in one very large light, or may be coupled for tension in one strong current of great electromotive force. It is, therefore, not only well calculated for the electric light, but makes an admirable machine for scientific and experimental purposes. The Maxim machines of this kind are called dynamo-magneto-electrical, as they convert dynamic energy through the agency of magnets into electrical energy. In the construction of these machines great care is required to so arrange and proportion the parts that the greatest possible amount of the energy consumed appears in the electrical current. Not only must the current be accurately measured, but the power employed to produce it must also be measured.

Mr. Maxim has constructed a peculiar dynamometer, shown in Fig. 2, to measure the power consumed in these machines. It is driven from above by a large pulley, not shown. The two small pulleys that hold the belt together are mounted on a vibrating frame, pivoted at the bottom and operating freely. The belt for driving the machine is run from either pulley of the countershaft. When no load is on, the pull on both sides of the belt is the same, and there is no tendency to move the framework in either direction; but whenever anything offers resistance to the rotation of the countershaft, one side of the belt is pulled, while the other is correspondingly slackened. This, of course, draws the pulleys in the direction of the taut side, and just in proportion to the difference in the stress between the taut and slack sides of the belt. The greater the resistance to the rotation of the countershaft, the greater will be the deflection of the framework carrying the small pulleys. A weight and spring are provided for pulling against the belt. Dash pots at each end prevent a too rapid motion of the parts. The pointer is so connected with the frame that it moves through a considerable distance, so that a small fraction of a horse power may be noted.

In experimenting with the electric light in connection with this delicate dynamometer the following phenomena have been noticed: When two carbons, carefully filed to the shape ordinarily assumed in the process of consumption, were placed in a lamp and the machine started, the recorded power would go up to four (horse power). If they were drawn apart in the attempt to diminish this power, the light would go out; but when they became considerably heated, the power required would drop down in some cases to 1·75, only to remain for a few moments, when a slight evolution of gases would diminish the resistance in the voltaic arc, and the pointer would go up to 2·50, while a hissing sound would be produced and a considerable augmentation of the flame of the arc.

At times, when the light was perfectly steady and the play of the voltaic arc was confined to the points of the carbons, with no hissing and very little flame, the power required was the lowest. An iron wire touched to the positive carbon for only a moment would keep the pointer up to 4 for fully half a minute. It was found that pure carbons caused but little variation, while metallic vapors in the flame required the most power. Every fluctuation of the flame or change in the pitch of the note emitted was accompanied by a corresponding fluctuation in the power required to operate the