

**Canadian Patent Laws.**

We regret to state that the bill introduced during the present session of the Canadian Parliament for amending the patent laws of that province, has been defeated by a considerable majority. It provided that a citizen of the United States, or any other country, could obtain a patent in Canada for an invention patented in the United States, if applied for within twelve months from the date of the patent. The vote was taken upon this bill on the 30th ult., and was 43 to 24 against its immediate adoption. It seems to have been defeated by the opposition of the Attorney-General (Mr. Cartier), although it was ably advocated by Messrs. Lemieux and McDougall. The arguments which Mr. Cartier advanced against the bill were not, in our opinion, well weighed before they were uttered. He said: "The bill is an insidious attempt to give undue advantages to patentees of the United States. It was absurd to propose to place them on the same level with Canadian patentees. He would not object to the proposition if Canada had some twenty or thirty millions of a population, but under the present circumstances its injustice to Canada was obvious to every one."

We believe we can make it very plain that the very arguments which the Attorney-General advanced against the bill were such as should have induced him and his adherents to vote for it.

First, The equality of the bill which he objected to is the very principle, recognized in the British Patent Law, which permits the citizens of all nations to take out patents on equal terms.

Second, It is more advantageous to a country containing a small population to grant patents to the citizens of large and populous commonwealths, than for the latter to grant patents to the former. It is a far greater benefit to the citizens of Canada to obtain patents in the United States than it would be for our citizens to secure patents in Canada. The reason of this is obvious. A patent granted to one of our citizens for Canada would only admit him to the exclusive making, selling, and using of his machine among a population of two millions, whereas a citizen of Canada who obtains a United States patent has an exclusive privilege among a population of no less than thirty millions. As a question of justice and of sound policy for Canada, it appears palpable to us that Mr. Cartier was entirely mistaken in his conclusions. If there is any injustice in this case, it is on the part of the people of Canada against the people of the United States. If the people of Canada were wise for themselves they would afford every facility and provide every encouragement for the inventors of the United States securing patents and introducing improvements among them. We hope Mr. Cartier, and those who voted with him to defeat this bill, will investigate the subject again without prejudice and partiality. If they do so, we are confident they will change their opinions and become convinced that their late action has not been for the good of Canada, because every new improvement introduced into it, no matter where it comes from, is a general benefit to the people.

**The Golden Humbug.**

One of the greatest deceptions ever practiced upon our people has just been exploded. Land speculators and other characters had propagated the most alluring reports regarding a new El Dorado, called "Pike's Peak," in Western Kansas, where gold was to be found in quantities far exceeding the celebrated placers of California. Not only hundreds but thousands of poor infatuated mortals were attracted from all parts of our country to try the new diggings, and scraping all the ready cash they could muster, proceeded by all kinds of vehicles to the promised land. Deceived mortals! instead of gold they found the sulphuret of iron, starvation and land sharks, and have now returned, to use a vulgar expression, "completely thinned out."

**Phosphorescence.**

It is related of Christiana, the daughter of Linnæus, that while she was walking in her father's garden in the evening of a hot and brilliant summer's day, now and then watering some favorite plants with her *arrosair*, her attention was arrested by flashes of light which were emitted by some flowers of nasturtium. Coleridge the poet thus alludes to it:—

"'Tis said, on summer's evening hour  
Flashes the golden-colored flower  
A fair electric flame."

Strolling at twilight or in the evening by the hedge-row or along the field-path at this season of the year, especially over the sandy soil of the Surrey hills (England), you will see little sparkling gems illuminating the banks which divide the fields. Should you be fortunate enough to entrap one of these living jewels it will be found on examination by daylight to have legs and wings if it be a male, but no wings if it be a female; it is, in fact, an insect which naturalists have named the *Cicindela*, or "Sparkler;" you doubtless have heard of it by the familiar name of the glow-worm, more correctly glow-beetle.

Should you be sailing down the Mersey, or merely crossing that stream in the ferry-boat from Liverpool to Birkenhead in the autumn (particularly if the evening be such as to overshadow the harvest moon), you will be delighted and surprised to notice that as the vessel cleaves the water it will appear to be floating "on the realms of light." A closer examination of the water shows it to be charged with minute infusorial animalcules (*Pyrosoma Atlantica*), only to be discovered by a microscope; every one of them however glows with light.

Down some of the lead mines in Derbyshire the miners throw out with the ore a pretty greenish-blue crystal stone, like bits of broken glass; this is called "Fluor Spar." There is such an abundance of it that some of the operative chemists sell it at a few pence per pound. If you make this spar warm over a flame (holding it with a piece of wire), and then take it into a dark room, it will shine with a beautiful blue, light. While in the dark room be provided with a few lumps of sugar, of such shape as you can divide between your hands. Now break them and a flash of light will be visible; rub the lumps of sugar together and there will be more light; or if you are provided with two rounded whitish flint pebbles, such as boys call milk-stones, you will by grating them strongly together see a brilliant reddish light.

On many of the commons in England, and by the sides of numerous streams, willow-trees are allowed to grow here and there. One more venerable than the rest has, perhaps begun to decay, and you may help yourself to pieces of its trunk without the saw or axe. Country boys call it "touch-wood," for, if a spark fall on it, it will burn like tinder. When the day has been unusually bright and warm, this touch-wood, if taken into a dark place, will shine like a glow-worm.

In that warm region of the earth where Cayenne pepper grows, where the coffee-plant flourishes, and the sugar-cane is an immense grassy weed, innumerable insects may be seen at sunset skitting and dancing in the air, as we see gnats do in this country. Every one of these little creatures, called in that country "fire-flies," teems with light, and so brilliant are they that three of them placed under a glass on a dark night would give light enough to enable you to read the SCIENTIFIC AMERICAN.

The *Ignis-fatuus* or "Will-o'-the-wisp," has afforded the poets and romance-writers many a mythical theme, such as the following:—

"On distant swampy heath I see  
A Will-o'-the-wisp!—ah! luckless he,  
Who to next village bends his way!  
That glimpse will lead him far astray."

This luminous vapor is frequently seen during the summer months hovering over marshes, low meadows, in the vicinity of stagnant ponds; the slightest breath of air causes it to flit and move as if it had life.

The luminous willow-trees, together with Will-o'-the-wisp, have been the foundation of many a ghost-story as told by some luckless wight, who, after seeing a sweetheart home, has had to return through the meadows to his native hamlet.

Now all these curious lights are attributable to one uniform cause, namely, phosphorescence. The light thus visible differs from the sun's light, and from the light emanating from combustion, in this one particular, that there is no heat with it. Hence phosphoric light or phosphorescence is *pure light*, as pure as the light of the moon and stars; while ordinary light may be considered to be adulterated with heat and chemical rays, which produce effects independent of the pure principle of phosphorescence. S. PIESSE.

[The author of the above is like Handel's harmonious blacksmith who brought music out of an anvil; for he puts an article dry as dust into his poetic crucible, and it sublimes in rainbow colors.—EDS.]

**Inflammable Iron.**

MESSRS EDITORS:—On page 308 of the present volume of the SCIENTIFIC AMERICAN appeared an article on "Iron Gunpowder," with comments editorial. As pertinent to the inquiry let me add that the iron turnings which remained in the casks from which my balloon had been inflated, took fire spontaneously 36 hours after the fluid had been decanted from them. Afterwards I rinsed them well with several waters, but nevertheless spontaneous combustion would ensue unless I kept them covered with water. On examining these partly dissolved turnings I found them very granular, very porous, and of course partly, *i. e.*, superficially oxidized. After all the precaution taken and the disposition still remaining to combustion, I was irresistibly led to the conclusion that a chemical action took place not fully explained in the manuals of chemistry. Your correspondent's term of "iron powder" occurred to me at the time. The iron turnings in this condition always proved more efficacious in the decomposition of water than an equal weight of new and unused iron. This would be an anomaly of the rule laid down in the oxydation of iron and its due development of hydrogen from the water thus decomposed. It is well known that equal weights of iron-filings and flowers of sulphur buried several feet deep in the ground will in a few days spontaneously ignite and produce what is termed "an artificial earthquake." JOHN WISE, Lancaster, Pa., May, 1859.

**Wonderful Lighthouse Improvement.**

Our respected contemporary, the Philadelphia *North American Gazette*, in describing the effects of dioptric lens in lighthouses, and how the rays are thrown out only in one direction, says:—"The expedient has been devised, in order to direct the light upon every point of the horizon successively, of making the lighthouse revolve on its center in a given time, which, varying for each lighthouse, serves to distinguish each of them from the others." Just think of that valuable improvement—revolving the entire lighthouse instead of stupidly revolving the light!

At a late meeting of the Liverpool Docks and Harbor Board, it was resolved to erect a telegraph on the docks (which extend for nine miles along the coast), to be employed in the same manner as the police telegraph is used in some of our cities. Eight sets of Morse's instruments, eight tons of iron wire, conductors and 5,000 glass insulators have already been ordered by the engineer of the company. It therefore appears that the American recording telegraph has been adopted in preference to all others for the purpose stated.

**ELECTRIC GUN.**—An English inventor claims to have produced a gun discharging sixty shots per minute, with precision, with but little report, and without smoke, by *electric decomposition of water*.



\* PERSONS who write to us, expecting replies through this column, and those who may desire to make contributions to it of brief interesting facts, must always observe the strict rule, *viz.*, to furnish their names, otherwise we cannot place confidence in their communications.

F. R. R., of N. Y.—Common pitch is about as good a cement as you can use for the seams of an aquarium. It will not color the water, and contains no element injurious to "the monsters of the vasty deep."

A. J. S., of Minn.—Oil paint is the best for covering either brick or frame buildings. Chimneys are generally built of too great a diameter. They should be of the same width nearly from the base to the top, and made as smooth as possible inside.

A. B. S., of Ind.—A submarine cable covered with canvas and gutta-percha, and then enclosed in a lead tube, is not new. Such a cable was illustrated in Vol. III. of the SCIENTIFIC AMERICAN.

J. J. D., of N. Y.—We have frequently replied to correspondents in this column, referring them to J. Wiley, bookseller, for Smee's work on electro-metallurgy. We dislike to keep repeating the same thing over and over.

S. R. B., of N. Y.—If your fastener was not new at the time you applied for the patent, of course your patent would be invalid. The mere change in the use of an invention does not render it patentable.

J. L., of Ky.—Your letter does not present any proof for or against Professor Cleveland's opinions and experiments on the power exhibited by water-wheels when running by night or day. Your article relates to the capacity of the ear in being able to detect irregularities in the motion of machinery, by sound, when the eye cannot detect it. No person, we think, will dispute this; but it does not touch the question at issue. Experimentally can decide such a mooted point.

J. C. O., of Va.—If a large ball and a small one are set in motion in opposite directions and meet together, the small one will be broken or stopped and carried before the large one, which will have as much of its momentum destroyed as was in the small ball. We really wonder at your other question. As stated, it simply means that if you were to travel as fast as the earth rotates, starting at noon, would it be noon wherever you went. There could be but one answer to such a question.

H. W. B., of N. Y.—Brazing with hard solder is done with the blow-pipe. Glass is drilled by a very hard steel point, and some turpentine to give adhesion to the tool. There are two kinds of steam-gages besides the mercurial one. One is operated by the steam acting on a piston that moves an elastic diaphragm; the other by the steam pressing on a curved metallic spring.

J. R., of La.—A cast-iron cylinder head should always be made with an increased thickness of metal towards the circumference, because the strain evidently comes upon it in the same manner as upon a uniformly loaded beam secured in a buttress.

J. L. G. W., of Mich.—White wax gently heated, then mixed with warm alcohol and stirred for a long time, makes a very pale transparent varnish for paintings. Canada balsam, dissolved in turpentine, makes a colorless varnish, nearly transparent when dry.

H. M., of N. Y.—The experience of several persons who have used overshot and good turbine wheels is in favor of the latter, and especially for high falls such as yours.

E. R. C., of C. W.—By covering your white metal with a very thin pellicle of mercury, you can deposit pure silver upon it with a Smee's battery.

F. H., of N. H.—To make a nice table-sauce take an ounce of black pepper, half an ounce of allspice pounded fine, an ounce of salt, half an ounce of scraped horse-radish, and the same of eschalots, peeled and quartered; put these ingredients in a pint of walnut or mushroom catsup, let them steep for a fortnight, and then strain off. It is likewise a very pleasant flavoring for gravies.

Y. Y., of C. W.—It requires 155 cubic feet of atmospheric air to burn 1 lb. of coal, allowing every atom of the oxygen to enter into chemical union; but as this cannot be correctly effected in grates or furnaces, about 250 feet generally pass through the fire in burning one pound of coal. A cubic foot of air weighs .075 lbs., and it takes about two and two-third pounds of oxygen to one pound of carbon—pure anthracite coal. Wood requires much less oxygen from the atmosphere in burning, because it contains about 36 per cent. in its composition, while coal contains a very small amount.

W. T. C. D., of Md.—We do not know whether M. De Sora's egg-producing project has ever been satisfactorily tested in our country or not. It is our opinion that hens cannot be profitably fed on fresh flesh meat throughout the year, for the purpose of obtaining a continual supply of eggs. We are not in possession of any recorded experiments for testing this question, and merely express our opinion.

B. C. J., of Texas.—You labor under a delusion if you suppose that the product of a patent machine is also secured by the patent. This is impossible, as in such case boards planed by a patented machine or cloth made by a patent loom could not be sold without the consent of the patentee.

T. N. G., of Ohio.—You could not get a patent for the combination you set up, as it is not legitimate. The combination of a cutting apparatus and a raking attachment to a reaper could not be secured by patent, as one is not actually dependent upon the other for its perfect mechanical operation. It is true that they are mechanically combined in one machine for purposes of convenience, but they operate by an independent mechanism; therefore such a claim as you set up cannot be obtained. More than this, you cannot cover these two devices under the issue of one patent. You would need to make two distinct applications, and pay two patent fees.