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COMPLAINTS AGAINST THE PATENT OFFICE.

A series of articles was lately published in the New York World, containing a long string of complaints and charges against the employees of the Patent Office. They were accused by inference, if not directly, of carelessness, neglect of duty, favoritism, corruption, fraud, bribery, deceit, malice, injustice, systematic efforts to swindle, persecute, and defeat inventors in their endeavors to secure patents; together with other irregularities. But no individual names were mentioned. These revelations were backed up by a curious and interesting collection of letters, opinions, and criticisms given by inventors, patent solicitors, and patent lawyers; some of whom delivered bitter complaints, because the Patent Office had been stupid or failed to do or grant what they wanted; nearly all expressed a belief in the necessity for reform in the management of the bureau. The published matter formed a grand howl, or newspaper earthquake of the most sensational kind.

We are glad to be able to say, however, the Patent Office has survived the shock; the officials are still at their posts; they are not even begrimed with the smoke; and the grand old machine continues to grind out every week its immense quota of five or six hundred patents for new inventions; in reward for the genius of inventors, by which the industries of the country are so constantly diversified, increased, improved, and maintained.

But are there no difficulties at the Patent Office, no opportunities and no practice of knavery, as the World has described? Do the officials never act in bad faith toward inventors? Are they always pure and faithful? Do they never purposely delay business, abridge claims, or give real cause for complaint?

It would be strange if they did not. They have great power. They are, for the inventor, his judges and his jury. Moreover, they are mortals, made of clay like the rest of us. They are hunted, badgered, and tempted, from morning till night, by a crowd of anxious applicants or hungry agents, asking for decisions or complaining of those already made. Each wants his case taken up at once, ahead of all others. Many are suspicious persons, who imagine the examiner is trying to steal his invention or defraud him of his rights. There is no end to the mean and irritating things such individuals will say or do. Some agents are so self-sufficient they consider themselves insulted if an examiner calls attention to gross blunders in their papers. In short, the time, patience, and skill of examining officers are often subjected to the severest trials, under which, and the lack of proper facilities for making accurate searches, and the pressure of accumulated work, it is no wonder if many errors, wrong decisions, and irregularities should take place.

Yet, as a whole, it is doubtful if any branch of the public service is so well conducted or shows such splendid results as the Patent Office. The examining officers, as a general rule, are faithful and exemplary men, able, intelligent, and as careful as the circumstances in which they are placed will allow. They do the best they can. But the system under which they labor is defective and leads to endless troubles.

The present law, which aims to provide for a thorough scientific and legal examination of each application for a patent, was passed more than half a century ago, when the sciences and mechanic industries were in their infancy, when inventors were few, patents and new inventions scarce.

More patents are now solicited in a week than were then granted during a year. It was then possible for the government to examine and decide each case with care and deliberation. To do so now is almost out of the question. More than thirty-five thousand applications for patents were made last year. The number steadily increases with the growth of population. Already there are three thousand seven hundred classifications of inventions, sub and general, in the Patent Office.

The duty of examiners is first to see that the patent papers are correct in form, clearly illustrate, describe, and claim the invention; and, second, to make sure that the device claimed has not previously been patented here or abroad, nor described in any printed publication in any part of the world. If the invention has been previously patented or described, then the patent must be denied, for it would be invalid if granted. It is obviously impossible, with the meager force of examiners now employed, to make a legal and scientific examination of thirty-five thousand applications a year. Even the classification and printing of our home patents is so very defective, and the knowledge of them so incomplete, that the examiner cannot be certain of the correctness of his searches among them; while as to foreign patents and other publications, only a superficial glance is, in some cases, attempted. This poor, shadowy, imperfect, and almost useless business of official examination grows necessarily worse and worse every year, and tends toward self-destruction. Would it not be an improvement to sweep it away altogether? Would it not be a simpler and better method to let each inventor become his own examiner? If, after examination, he asks a patent, let it be forth-

with granted. Relieve the present examining force from the duty of determining whether it is best to grant a patent or not, and let the inventor examine and decide the matter for himself. It is just as practicable for him to do this as to search the records when buying a piece of real estate.

Let the cost of patent copies be greatly reduced. Let the present examining force be employed to see that the applicant's papers are in proper form, and the records of all previous patents and descriptions of inventions kept well classified and easily accessible. This will occupy their time to the best advantage; and enable them to perform their duties with satisfaction to themselves and all concerned. A modification of the law appears to be imperative, and if made in the direction we have indicated, the delays, litigations, and other hardships to which inventors are now subjected before the Patent Office probably could never occur.

AN IMPORTANT SUPREME COURT DECISION.

A decision of some importance, as affecting the bearing upon American patents of foreign patents for the same invention awarded to the American patentee, was rendered in the United States Supreme Court on January 21. It was in a somewhat celebrated suit, entitled the Bate Refrigerating Co. vs. George H. Hammond & Co. A United States patent had been awarded to John J. Bate for a process of preserving meat during transportation and storage. A Canadian patent for five years had been taken out by him previous to the issue of the United States patent. Before the expiration of the Canadian patent it had been extended on payment of the statutory fees for five years, and before the termination of the extension had in like manner been extended for five years more. The law of Canada authorizing these extensions as a matter of right was in force at the time the original patent was granted. The Circuit Court had held, notwithstanding this state of things, that the American patent was limited in term by the original Canadian patent of five years. The Supreme Court disposes of this view, and decides that the fifteen years, although composed in part of extensions, is for the purposes of statute 4,887 to be considered as the integral term of a foreign patent, and declares the Bate patent unaffected as yet by the Canadian term, which does not terminate until 1892. Much comment was made upon this decision by the press, but it will be seen that it is not so broad in its effects as stated by many of our contemporaries. The decision was delivered orally by Judge Blatchford.

Removal of a Hotel at Coney Island.

Our readers will doubtless remember the description we published about a year ago, concerning the moving of the Hotel Brighton, one of the largest hotels at Coney Island.

Another neat piece of work has just been accomplished in the removal of the Ocean House at the same place. This large hotel, 42 x 55, two stories high, with large piazza, was erected twenty years ago, and at that time stood about 600 feet back from the surf. The many changes in the beach since then have washed all this land away. The hotel was placed upon piles two years since, as the indications were that at any time the foundations might be washed away. This proved true, for last year the ocean had reached the hotel, but no immediate danger was feared, as the piles were 20 feet long and firmly bedded in the sand. The owners of the hotel thought it safe, and expected, from its situation over the ocean, the attractiveness of the site would benefit the business. This was the fact, but this winter, during a heavy easterly storm, another slice of the beach was removed, and when the storm had subsided, the hotel was left quite alone in the Atlantic, some 50 feet from shore, standing on piles. There was a probability of the sand cutting away and leaving no support for the piles, and also the danger of floating logs or ice battering them down, and it was decided to remove the building. The contract was awarded to Messrs. Louis Heineman & Sons, of Brooklyn, and they have just successfully removed the building to the solid ground, and it now stands some 300 feet back from the beach. The plan of operations was as follows: Rows of piles were sunk by water pressure under the hotel, reaching to the shore; these were capped, and upon them were laid heavy yellow pine sliding ways. Upon these ways the hotel was raised, the old piles being left standing. By crabs on the shore the building was pulled and slid from its position over the ocean to the bank. It is now securely located on terra firma, and has been preserved from being completely washed away, as the piles upon which it rested were undermined and carried out to sea almost before the hotel had reached its new home.

THE late Benjamin B. Hotchkiss, of Bridgeport, inventor of the well known quick-firing cannons, now used in the military and naval services of nearly all nations, acquired an immense fortune as the result of his ingenious devices. He left an estate valued at over twelve millions of dollars. His heirs are now litigating about the disposal of these millions, and the lawyers are likely to reap a harvest.

The International Exhibition of 1889.
(FROM OUR SPECIAL CORRESPONDENT.)

PARIS, January 12, 1889.

The first impression one receives on a general survey of the Paris exhibition buildings is an exceedingly favorable one. There is something about them that is pleasantly impressive, and this feeling augments as one passes through the various departments.

What it is that gives this impression is not at first clearly definable, but reflection discloses that it is the ornamentation, which is charming in its effective unobtrusiveness. Certainly no other exhibition has approached this one in the ornamentation of the windows and walls of the interiors, as well as the exteriors of the buildings. It is too early, however, to dwell upon this point, as much of it is only fairly begun.

The buildings are, as a whole, well advanced, and, so far as one can at present see, the opening day (May 4) will find matters in better order than is usually the case with exhibitions.

An American cannot well avoid a comparison of this with the Centennial exhibition of 1876, and will at once concede that, so far as the buildings are concerned, this Paris exhibition is quite beyond comparison, not so much in size, however, as in refined beauty.

If one confines himself to the grounds on which the exhibition stands, the Centennial exhibition has the advantage, or if one leaves the scenes outside the entrance gates out of mind, and thinks only of the actual exhibition grounds, then the Centennial again has the advantage. But the entrance to the Paris exhibition will be delightful, especially if one goes through the Trocadero, across the Seine, and past the Eiffel tower.

When we come to the arrangements of the exhibits, there may be room for a difference of opinion; for example, agricultural implements will be in the agricultural department, which is separate from the machinery department; hence, the effect, so far as it depends upon the magnitude of the exhibits, is diminished. On the other hand, however, to whatever extent the general machinery department suffers on account of the absence of the agricultural machines the agricultural department obviously gains, and it is perhaps preferable to have each special class of machinery exhibited in connection with the particular class of human industry to which it belongs, or with which it is most intimately associated. Nobody, however, who visited the Centennial exhibition of 1876 is likely to forget the impression made by the immensity of the machinery department, notwithstanding the comparative crudeness of the building. The Paris exhibition does not, it must be admitted, duly impress one with its immensity, notwithstanding that some of its buildings are over two miles apart in a continuous line. Even the main buildings are not impressive in their magnitude when viewed from their interiors, which occurs from the internal subdivisions.

It is these internal subdivisions which afford such opportunities for ornamentation, and that, therefore, lend the peculiar charm I have before referred to. At the Centennial one might spend hours in one department (as, for example, in the main building), and after the first *coup d'œil* (taking in the immensity), the building would attract but little attention or interest.

The machinery department is well advanced. The Brown engine, of which the *SCIENTIFIC AMERICAN* gave illustrations in 1877, is to be exhibited, and no worthier example of the best American workmanship is to be found. Some of your readers will possibly remember that some of the visiting English engineers fell into a singular blunder at the Centennial exhibition of 1876; inasmuch as that they condemned the nickel plating of the Putnam lathes, of the Brown engine, and of some other American exhibits; whereas these exhibits were simply highly finished with ordinary mechanics' tools, and not plated. There are, I hear, firms in England who are producing equally as high a grade of workmanship, but there is, to my mind, no risk at all in prophesying that no piece of machine or engine building will exceed the Brown engine for quality of fit, while none will equal it for finish.

It is reported here that Professor J. E. Sweet has just concluded to exhibit one of his new 100 horse power straight line engines. This is welcome news, for there is an American stamp of originality in this engine, *i. e.*, there are numerous departures from ordinary designs, and a sound reason for every departure.

Both these engines are to drive sections of shafting; the latter, however, not being as yet erected. I do not know if the various sections of shaft in each line are to be connected by a coupling or not. The bearings for the shafting are not self-adjusting in any respect, but this does not much matter, because the frame pillars on which they stand are bolted to heavy stone and cement foundations, and there is nothing to deflect or sag and throw the shafting out of line.

George H. Corliss' experiment of speeding up with gearing is not to be repeated here, nor is it likely to be anywhere else, as far as that goes, for it was too expensive; but it was a beautiful piece of workmanship, and engineers would remember the Centennial if for nothing else but Corliss' wonderful gear wheels.

We Americans know but little of French machines

and methods of metal working, except it be with reference to the large French steel works, and I purpose, in due course, to investigate these methods, in order to compare them with the American and English.

A word or two may not be out of place with reference to the feeling in England with regard to international exhibitions. I have frequently asked English manufacturers when there was likely to be such an exhibition in England, and the reply has almost invariably been the same, *viz.*, "We don't want any more international exhibitions. They don't do us any good, for the foreigners simply came over and copied our methods." Now, I do not think there is any justice in this. My memory goes as far back, very distinctly, as the exhibition of 1851, and I cannot call to mind any one branch of industry in which English methods were copied. On the other hand, I well remember how some of the foreign exhibits were held up by the English press as models for the English to follow: china and crockery were being prominent examples. In this connection the fact is recalled that English visitors to the Centennial exhibition at Philadelphia returned home and copied many American machines and methods; and, as a case in point, I believe that Messrs. Smith & Coventry, of Manchester, did so, with great advantage to their shop methods; and no one will dispute that this firm turn out a high class of work. Among other things whose acquaintance English engineers have made at exhibitions may be mentioned the Corliss engine, the Wheelock engine, the French metal cutting saw machines, and American watch making machines. Each of these has been copied in England, while I think I may say the same of the Brown & Sharpe milling machine, the screw machine, and the Morton Poole calender roll grinding machine, and, coming down to smaller matters, the twist drill and the emery wheel.

The space allotted to the United States is not equal to the amount applied for, but there is one vacant space that would be exceedingly valuable for any firm whose products were of sufficient importance and sufficiently ornamental to fill it. This space is the facade at the end of the machinery department. The corresponding facades in other departments are being ornamented by the exhibitors in the respective departments; as much as 200,000 francs having been subscribed for the ornamentation of a single facade. Hence, if any American firm applies for this space, it must be for an exhibit that will be effective in appearance and well up in quality. If the Disstons were to put their minds at work, I should think they could get up a design embracing their saws that would be attractive and suitable.

It is reported here that Edison proposes to span the machinery department with a rainbow of incandescent electric lights, which would, without doubt, be a most effective exhibit.

JOSHUA ROSE.

The Hydraulic Elevator for the Eiffel Tower.

The cylinder for operating one of the lower elevators in the Eiffel tower, in Paris, has just been shipped by the makers, the well known firm of Otis Bros. & Co., of this city. It is no small tribute to American ingenuity and enterprise that a leading French engineer should appeal to America when confronted with a new problem. The elevator starts from one of the legs of the tower, and rises, following an inclined path that varies its degree of inclination, until the landing, 489 feet above the ground, is reached. The difficulty arose from the nature of the course the car had to follow. No satisfactory offer could be obtained from French firms. After the 489 foot landing is reached, the difficulty ends, and an ordinary elevator of French manufacture is used for the remainder of the distance. We give some of the dimensions of the great cylinder: Diameter, 38 inches; length, 41 feet 7 inches; circulating pipe, valve, and water chest, all 9 inches; total weight, 51,400 lb.; working pressure, 180 lb. to square inch. It is two inches thick. The firm have shipped to Paris 300,000 lb. of machinery to run the two elevators.

More Grecian Excavations.

It appears that Delphi, in Greece, where Apollo prophesied for a thousand years, and the Amphictyonic Council sat, may now be purchased by Americans for the purpose of explorations. The Germans have Olympia, the site of the most famous temple of Jupiter, where they have been excavating with rich results. The Greeks are working at the Acropolis in Athens, and the English and Americans in other places. France, Germany, and England have had schools in Greece for study and exploration for some years. The American school has been maintained for six years since its foundation by the Archaeological Institute, supported by contributions from American colleges ill able to give. Delphi is regarded as the richest of all sites, and it can now be had for \$80,000. The village of Castri, on its site, must be bought and removed. To raise this sum, Professor Charles Eliot Norton, of Harvard, recently came to New York and laid the matter before a few prominent gentlemen at the house of Bishop Potter. He pointed out that if there is any

value whatever in the study of the art and literature and philosophy of the ancient world, it must hereafter, in order to be pursued effectively, be pursued in connection with the explorations which are being carried on, both in Asia and Europe, on the sites of Greek and Roman and Egyptian cities and temples. These explorations have already almost revolutionized our knowledge of the Greek and Roman world. 'The excavation of Delphi would be attended with results of the profoundest consequence, and, as *Frank Leslie's Newspaper* states, no such opportunity has been presented to Americans before, and it is hoped that the sum required may be speedily raised.

For Star Gazers.

Doubtless all of our readers have noticed the brilliant appearance of the planet Venus in the western sky in the early evening hours, and a great many have wondered what its relative position to the earth and sun may be to cause it to shine with such unusual brightness. Many also have noticed that the planet Mars has lingered near Venus for several weeks, and would like to know the reason for this apparent nearness. To such inquiries the almanacs give no response. They merely record the fact of a conjunction or opposition occurring on a certain day, without giving any explanation of the phenomena.

To that large and ever-increasing class of our readers who are interested in the ever-varying appearance of the heavens we commend the concurrent number of the *SCIENTIFIC AMERICAN SUPPLEMENT*, which contains a most interesting article on the planets for February, 1889, illustrated with what is an entirely new feature in astronomical record—a map of the solar system, giving the exact position of every major planet for the 1st of February, and the amount of movement of each in its orbit during the month.

Being drawn to exact scale, the distances of the planets from the sun, the earth, or each other may be measured with a fair degree of precision, and the cause of every conjunction, elongation, opposition, etc., appears almost at a glance. It also forms a complete index to the position of the planets in the sky at any time of the day or night. In fact, it is a complete key to the movement of the planets for the month, and we have no doubt that large numbers of our readers will be surprised at the number of questions regarding the solar system which may be answered by means of the map.

The Total Solar Eclipse of the Sun, Jan. 1.

The observations of the parties from the Lick Observatory, at Bartlett Springs, were very complete, and will soon be published by the Observatory. A communication from Prof. J. E. Keeler says:

"My own observations were made with a 6½ in. equatorial telescope, to which was attached a spectroscope with the attachment devised by Hastings, and described in the report of the eclipse at Caroline Island. The phenomena which I observed did not correspond exactly with his observations, but are in partial support of his theory.

Prof. Barnard obtained nine photographs with three cameras equatorially mounted on a polar axis driven by clockwork. His negatives have not been developed yet.

Prof. Hill observed the times of contact, assisted me in my work, and studied the structure of the corona with the finder of the 6½ inch telescope. Time was obtained by telegraph from the Lick Observatory.

Prof. Leuschner obtained seven measures of the light of the corona with a wheel photometer devised and made by Brashear.

Mr. Geo. W. Yount made an oil sketch of the corona, and several other persons made sketches, which were given to the party.

The sky was a little hazy, but all the observations were considered successful."

Oxygen.

Pure oxygen gas, says A. H. in the *English Mechanic*, may be obtained from the atmosphere at a trifling cost, so as to enable it to be collected in unlimited quantities in gasometers, like coal gas, for application in the arts, manufactures, etc. This process depends upon a peculiar property possessed by the earth baryta of absorbing oxygen at one temperature and evolving it at another. The process is as follows:

Mix the baryta with a portion of hydrate of calcium or of magnesium; place the mixture in an earthen tube heated to dull redness; oxidize it by passing a current of atmospheric air over it. As soon as the oxidation is complete, connect the tube with the gas holder, and allow a jet of steam to act upon it. This converts peroxide of barium into hydrate of barium, and the excess of oxygen is given off and collected in the gas holder. The baryta is then again oxidized by a fresh current of air and deoxidized by steam. The whole process may be repeated as frequently as required. One ton of baryta thus treated yields about 2,500 cubic feet of pure oxygen every twenty-four hours, and this, as it does not lose any of its properties, at the mere cost of fuel and labor.