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PATENT LAW AND EQUITY

We lately referred to suggested amendments to the patent law at the Senate hearing in relation to bill No 4412, which passed the House several weeks ago, and the text of which we gave in our issue of March 6. The amendments suggested by members of the committee themselves during the hearing, plainly indicate that this particular bill will never be approved by the Senate in its present form, yet we do not know but, outrageous as it was, its introduction, and even its passage through the House, has been productive of some good, for it has opened the eyes of those interested in patents to the necessity of constant watchfulness, if, in the present state of the public mind, they would protect their property, and the discussion it has provoked has assisted to spread among the community a better knowledge of the principles of patent law. But taking it for granted that here, as Mr. Playfair says is the case in England, there is now "a general *concensus* of public opinion, that it would be dangerous to national interests to abolish patents for inventions," as bill No. 4412 would practically have done in many cases, there can be no doubt but that *some* change in our present law, or in the equalized methods of practice thereunder, is now generally called for.

Perhaps the principal fault found with the law as it now stands arises from the fact that, in so many cases, people buying what is openly sold are afterward compelled to pay again to other parties for what they had already bought, or supposed they had bought of those who had a right to sell. This is where the opposition to the present law has heretofore derived its principal strength in the popular mind, and without this support, from those who honestly think they have been aggrieved, all the efforts of interested parties in opposition to the rights of patentees would be of little avail.

Next to this complaint, probably, would come that of taxation for patents on things long in common use, where the patentee could make out a case of infringement only by a great stretch of his claim, but would expect parties to pay a small tax rather than "go to law" about it. This class of cases are best met by the clubbing together of the defendants to share the expense of a defense, a course which has frequently been adopted in the Eastern and Middle States, and which affords, under the law, a ready means of obtaining justice at but moderate cost to each one of the defendants. Much less is now said against the patent law on this score than was formerly urged, so feasible and practical has this mode of defense proved.

Added to the above causes of complaint, and as a later issue, there has been developed an increasing tendency among a certain proportion of the legal fraternity to charge excessive costs for proceedings which are really only *pro forma;* that is, where the cases are so plain that the defendant would not, with any proper notification, allow them to go to trial, or be brought at all, the lawyers have, by a little sharp practice, been able to collect ten times the royalty charged by the patentee, *as costs*, where no expense at all had been incurred. We have heard of cases where those who had unwittingly infringed, upon calling to pay the regular royalty, were victimized by the attorneys, without the consent of the patentee, and charged many times the sum they should have paid, although the lawyers did not know they had infringed, and did not know against whom to make out the papers, except as they obtained the particulars from the one who had called to pay up, when the papers were made out while their victim was waiting. We suppose that, where the latter cannot prove these facts, the business is all done "according to law," though it is certainly very far from equity, and it is a kind of practice which injures the patentee as directly as it robs the public.

As to those who are called upon to pay for a patent a second time, after having once bought a supposed right, there probably can be no law framed which would completely obviate the evil. The issuing of the patent gives the patentee a *prima facie* claim against any one using the patented article, device, process, invention, or discovery, without the consent of the patentee or his representative. Whether this claim is good, should the presumed infringer decline to recognize it, the United States courts must decide. Many cases of this kind, usually brought as equity trials, take from two to five years, and costs thousands of dollars, when perhaps the royalty charged by the patentee, or the damages which might be obtained from one infringer, would be trifling; but injunctions will not be issued by the courts against manufacturers or users until the case has been decided, and irresponsible parties may, meanwhile, manufacture and sell indiscriminately, with no practical remedy in the hands of the patentee. The latter may, and generally does, give notice through the papers that users of such-and such an article, device, or process, are infringing, but the manufacturer, or those interested in denying the validity of the patent, generally circulate counter statements.

Now, in all such cases, it is probably safe to say that at least nine-tenths of the infringers know that there is a patent on the article, and when they purchase without acknowledging the rights of the patentee, they virtually "take chances" on the question of the ability of the latter to make good his claim in the courts: if they lose, we do not see what right they have to complain, as against the patentee. Although they may have good cause for saying that the manufacturer, or the one of whom they had bought, misrepresented the matter to them, that is a thing for which neither the law nor the patentee can be blamed, always supposing that the latter has given due public notice of his claim, as one who is conducting a tedious and expensive litigation through the United States courts would unquestionably find it his interest to do. As the principal features of the law become generally better understood, we find that complaints on this score are steadily diminishing.

As to the last issue, touching excessive costs where there has been no expense, there was considerable discussion in the late Senate hearing, and here the point was particularly brought out that it was entirely unnecessary to injure the rights of the patentee in seeking a remedy—that, in fact, this was an extremely roundabout and impracticable way. It is only the mode of practice here which needs amendment, and Mr. Storrow, of Boston, with the evident approval of the committee, urged that a bill be framed which should provide that the defendant might come into court and confess judgment before suit, and then be excused from costs or have to pay only such as had been actually incurred to that time.

This is, of course, in cases where it is not sought to question the validity of a patent, and no claim is set up in the way of a genuine defense to make it to the interest of the lawyers of the patentee to have the costs as light as possible. Some such law as this would be likely to do away with much entirely unnecessary litigation, and we do not see why its provisions should not apply as well to all cases brought in the United States courts. It would be only carrying out the doctrine of the common law, and ought to be made so as to bring down the costs in patent cases, where no genuine defense was set up, so that they would not exceed the costs of suits for similar amounts in the local or State courts.

TWO METEORITES.

We are indebted to M. John Isaac, of the San Bernardino (Cal.) *Times,* for an excellent photograph of a large meteorite, found at Ivanpah, near that place, a few months ago. It is the second specimen hitherto found in California. It weighed 128 pounds, and is nearly pure iron. It is covered with curious cup-shaped cavities, which in more than one case may be called holes. On one end a natural face shows a network of well defined crystals. A slab has been cut from the large mass, and the polished surface acted on by dilute nitric acid, by which treatment Widmannstattian figures of remarkable beauty were developed. This is the only holosiderite found on the Pacific coast as far as known, which yields these curious markings.

A small mass of meteoric iron was found in California in 1871, and was described by Prof. Silliman in the *American Journal of Science and Arts* for July, 1873.

In a communication on the last found specimen, Mr. H. G. Hanks, of the State Geological Society, refers to the large masses of meteoric iron which have been found in Mexico, New Mexico, and Arizona, and to the tradition among the inhabitants of Tucson, Arizona, that a shower of meteorites fell in the Santa Caterina Mountains about 200 years ago. The Smithsonian Institution has the 1,400 pound Irwin-Anisa meteorite found near Tucson. Another specimen from Tucson, presented to the city of San Francisco, by General James H. Carleton, is now at the rooms of the California Pioneers. A description of it may be found in the proceedings of the California Academy of Science, vol. 3, folio 48, and a full analysis by Prof. Bush, of Yale College. In the same volume, folio 30, Prof. Whitney has shown that a belt or path of meteorites lies nearly in a line from the Colorado river at La Paz to San Luis Potosi, in Mexico, possibly fragments of the same meteor. A mass of metallic iron was found by Dr. Evans on Bald Mountain, near Port Orford, in Oregon. San Barnardino is in the same general direction, and Mr. Hanks suggests that it might be well to look for other fragments along the same line.

Photographs of the Westville (Ind.) meteorite have been kindly furnished us by Mr. W. C. Ransbury, of that place, with an account of the circumstances attending its fall, about the first of November, 1876. It was not found until the following spring. While preparing a corn field for plowing, Mr. G. D. Wright, of Westville, La Porte county, came to a place where the ground had been furrowed for several feet since the previous year's cultivation, and in the western end of the furrow the meteorite lay. It is described as a dark, irregular mass full of cavities and irregular projections. It weighs 324 pounds, and measures 25 by 24 by 16¼ inches. It has not been analyzed. It appears to contain iron (in great abundance), copper, and nickel, also silica and mica. The stone is still in the possession of Mr. Wright.

HOUSEHOLD FUNGI.

At a recent meeting of the Buffalo Microscopical Club, Mr. Jas. W. Ward exhibited a piece of glass which had been over a picture on one of the walls of his residence. It was covered with a very peculiar and interesting species of fungus, which withstood the action of soap and water in attempting to remove it. He attributed the growth to the exhalations of the breath of persons who had been in the room, and since noticing this fungus on the glass, he had examined several of a similar nature in other rooms and found them alike.

In the discussion that followed, Dr. Lucien Howe thought the fungus similar to that which attacks the common house fly, producing the well known contagious disease of flies. Dr. W. C. Barrett likened it to the fungi which permeates the walls of hospitals and other public buildings; and since then, according to the *Journal of Microscopy*, the president of the club, Prof. D. S. Kellicott, has found the same fungi on the windows of the Central School Building, and the

City and County Hall of Buffalo. Whether these fungi are associated with any human disease does not appear. If they will kill flies without harming humanity their multiplication is rather to be desired.

A NEW INDUSTRIAL SCHOOL OF ART IN NEW YORK.

The hopes expressed, at the recent dedication of the new building of the Metropolitan Museum, with regard to the future of the industrial art school in connection therewith, bid fair to be realized muchsoonerthan was then anticipated. A liberal gentleman, whose name is withheld at his own request, has offered the trustees of the Museum the use of a piece of ground fronting 200 feet in First avenue, near Sixty-seventh street, and extending in the rear 130 feet, for three years free of rent. In addition, he proposed to erect upon it, at his own expense, a suitable building for such schools, with a frontage of 200 feet on the avenue and two wings running back to the end of the lot. Moreover, he agreed to support these schools for three years at his own expense—allowing them to be entirely under the supervision of the trustees of the Museum during this period. All this he proposed to do in order to demonstrate beyond peradventure the advantages and necessity of such schools. The trustees of the Museum naturally lost no time in accepting the generous proposition.

It is expected that the new building will be ready for the opening of the schools in the autumn of the present year. It will be of brick and stone, and will cost about $10,000. In these schools will be regular day classes, and if occasion seems to demand it, night classes. It is intended that there shall be classes in drawing and designing, not only as applied to woodwork and iron, but a painting department will be opened, in which will be taught the principles of mixing colors, their chemical composition, and the effects of light and temperature upon them, the laws of harmonies and contrasts. Another department will be devoted to technical instruction in woodwork, and probably others in the working of iron and stone.

Diplomas and prizes will be given to the most successful competitors, and every effort will be made to advance and strengthen American industrial art.

Earthquake Shocks Superficial.

The superficial character of a Nevada earthquake was noticed some months ago. The Eureka (Nevada) *Leader* of April 17, relates another and similar experience. A miner at work in a mine on Prospect Mountain during the last shake at Secret Cañon says that while the tremor was plainly felt by his partners on the surface, he, at a depth of eighty feet, noticed nothing unusual.

The same miner says that through an experience of fifteen years underground he has observed one peculiar phenomenon, namely, that loose stones and bits of earth in mines are sure to fall between twelve and two o'clock at night. About this time it seems that everything begins to stir, and immediately after twelve, although the mine has been as still as the tomb before, the fall of little particles of rock and earth will be heard, and if there is a caving piece of ground in the mine it is sure to give way.

It would be interesting to know if other miners have ever observed this phenomenon.

A Recent Nickel Plating Decision.

Judge Blatchford, of the United States Circuit Court, has just rendered an important decision in the case of the United Nickel Company against Pendleton, which was a test suit with regard to the nickel plating patent. The case was argued some two months ago on a motion to attach for contempt, and the decision was awaited with much interest by the entire nickel plating trade. Judge Blatchford finds, as a matter of fact, that Pendleton was not using the double acetate solution, and denied the motion for contempt. There is much rejoicing among the nickel platers, who were bound to pay a royalty averaging about two cents a gallon per day, according to the capacity of the tank used for the solution, and this regardless of the quantity consumed, or of the fact that it might be empty. As these tanks in some large establishments equal 2,000 gallons, the tax was regarded as peculiarly onerous. Even for a 100 gallon tank $2 a day or $12 a week was a payment sometimes complained of as a grievous hardship. Unfortunately for this class, the great body of manufacturers are committed for another year, having taken out their licenses dating from the 1st of April, the delay in rendering the decision thus working in favor of the plaintiffs to this extent.—*World.*

A Fat Boiler Explodes.

A fat boiler in a soap factory in Detroit exploded May 2, fortunately without killing any one. The boiler was a cylindrical shell of quarter inch iron, twelve feet high, five feet in diameter, and surmounted by a conical top, in which was a man-hole capped as is usual in steam boilers. The boiler contained between 6,000 and 7,000 pounds of tallow, boiling under a steam pressure of 35 pounds. The top of the boiler was thrown up through the second floor and roof of the building, over a corner of a three story building, and fell about a hundred feet from where it started. A shower of grease covered an area from 100 to 300 feet wide and about 400 feet long. The boiler had been used six years, and had been corroded within by the fatty acids until it was no thicker than a silver five cent piece. A considerable portion of the factory was wrecked, but only one man was hurt, and he but slightly.

THE NATIONAL ACADEMY OF SCIENCE.

GLEANINGS FROM PAPERS READ.

Mention was made last week of the more important proceedings of the meeting of the National Academy of Science, April 20–23. In his paper on the sea urchins of the Challenger Expedition, Prof. Agassiz said that the new species taken belonged to a fauna not known along our shores, but limited to the slope of the continental plateau, at depths ranging from 100 to 2,900 fathoms, and called by him the Continental and Oceanic Districts. From these districts the Challenger had collected forty-nine new species, and the Coast Survey and other expeditions about thirty-five. These were all in addition to the two hundred species known in 1874. Only two new shore species were found by the Challenger. The most interesting of recent discoveries in the sea urchin line are of two new families of this group, which represent more or less ancient fossil types of Palæozoic and Cretaceous times, types previously supposed not to exist in recent seas.

The marine districts into which the sea bottom is divided in indicating the bathymetrical limits of sea urchins were given as follows: The littoral, down to 100 or 150 fathoms; the continental, from 50 to 600 fathoms; and the oceanic, from 500 to 2,900. The continental sea urchins date back to the Tertiary, and the oceanic to the time of the chalk, of which they are very characteristic. All of the species collected by the Challenger had previously been collected by the Coast Survey in 1867 and later years.

Professor Packard's study of the internal structure of the brain of king crabs (*Limulus*), commonly known as horse-foot crabs, led him to divide the histological elements into three kinds: 1. Large ganglion cells, filled densely with granules, and with a well defined nucleus similarly filled, and with a granular nucleolus. These cells terminate in large fibers, which subdivide. 2. Nerve fibers; these, like the large-sized ganglion cells from which they originate, are stained tawny brown with osmic acid. These fibers are coarse, their granular contents homogeneous. 3. Numerous very small nerve fibers, arising from very small nucleated cells. 4. Rounded masses inclosed in a network of fibers. In staining they resemble the *marksubstanz* of Diehl and the *punctsubstanz* of Leydig, but here the resemblance ends, as these balls are apparently composed of very minute nucleated cells and fine fibers arising from them. The general topography of the brain of *Limulus* is on a simple plan compared with that of *Decapodous crustacea* and insects. The brain is mostly composed of large irregular rounded masses or balls of granules, with a thick fungoid or ruffle-like periphery, formed by a layer of secondary smaller, rounded, granular masses. The lower half of, or two-thirds of, the entire brain is filled with these fungoid masses. In the upper third of the brain, whence the nerves originate, the larger ganglionic cells and the nerve fibers appear and preserve a definite topographical relation to the entire brain. The asymmetry of the brain is remarkable. Histologically, judging by his specimens of the brain of the lobster, the brain of *Limulus* agrees with that of other arthropods in having similar large ganglion cells. The smaller ganglion cells, so abundant in the brains of insects and crustacea, are wanting in *Limulus*. There are in *Limulus* no *ballen substanz* masses homologous with those of the other arthropods. Topographically the internal structure of the brain of *Limulus* is constructed on a wholly different type from that of any other arthropodous type known; so much so that it seems useless to attempt to homologize the different regions in the two types of brain. The plan is simple in *Limulus;* much more complicated in arthropods, especially in the brain of the crayfish, as from the decapodous brain there arises two pairs of anternal nerves besides the optic pair, and in external form the two types of brain are entirely unlike.

In his communication on the brains of extinct animals, Prof. Marsh reaffirmed his discoveries touching the law of brain growth, viz.: 1. All tertiary mammals had small brains. 2. There was a gradual increase in the size of the brain during this period. 3. This increase was mainly confined to the cerebral hemispheres, or higher portion of the brain. 4. In some groups the convolutions of the brain have gradually become more complicated. 5. In some the cerebellum and olfactory lobes have even diminished in size. 6. There is some evidence that the same general law of brain growth holds good for birds and reptiles from the cretaceous to the present time.

A series of observations on the *Odontonorthes*, or birds with teeth, from the cretaceous was first presented, and the skull and brain of the extinct *Hesperornis* were compared with those of the Loon (*Colymbus*), and the former was found to have a brain of less than one-third the size of the latter, and much more reptilian in form and proportion. The brain in two *Dinosaurians* (*Morosaurus* and *Stegosaurus*) was next compared with that of the crocodile. *Stegosaurus* was found to have a brain very much smaller than the crocodile, and other Dinosaurs agreed essentially in the same feature. It was also shown that of ancient animals those with small brains and large bodies were especially those that became extinct, those with large brains being more likely to survive.

In his paper on the Taconic system in geology, discovered by Eaton and maintained by Emmons, Prof. T. Sterry Hunt reviewed the evidence of a great and widespread series of rocks, pre-Cambrian in age, and occupying the position assigned by Emmons to the Lower Taconic or Taconian system, which, according to him, extends continuously along the Appalachian Valley from Vermont to Alabama, and more or less occupies large areas to the southwest of the Blue Ridge, from Virginia to Georgia, constituting in South Carolina the Itacolumite series of Lieber. Within the vast area occupied by these rocks in the great valley have been found a few small areas of fossiliferous strata, belonging chiefly to the Ordorian or Lower Cambrian series, but the characters of the great mass of these rocks are such as to lead to the conclusion that they constitute, as maintained by Emmons, a more ancient series. To the Lower Taconian rocks belong the peculiar magnetic iron ores found at Reading, Cornwall, and Dillsburg, Penn., which have been by some geologists regarded as Mesozoic, but were by Rogers assigned to the base of the Palæozoic. To this same series belong the limestones of the great valley, which occur in clays derived from the subaerial decay of the rocks. These, in their unchanged condition, contain beds and masses both of siderite and pyrites, and the alteration of these *in situ* has given rise to the limonites. In the formation of this from the siderite, or iron carbonate, it was pointed out by the speaker that there is a contraction of volume equal to about 20 per cent, to which is due the cellular character of the limonites and the frequent occurrence in them of Geodes. These older rocks are not without traces of organic life, having yielded in the Appalachian Valley the original *Scolithes* and related markings, besides obscure *Brachiopods;* and in Ontario, besides similar Scolithes-like markings, a form apparently identical with the more ancient gneisses. We may hope to find in the Taconian series a fauna which shall help to fill the wide interval that now divides the Eozoic rocks from the Lower Cambrian.

Describing the experiments lately made at the Allegheny Observatory in the measurement of radiant heat, Prof. Langley told of an improved thermo-electric apparatus due a product of the American iron industry. The experiments on a great variety of substances had thus far shown that iron in extreme thinness (cut into strips about one-third of a millimeter wide and 1-500 of a millimeter thick) was the best. The speaker exhibited specimens of iron rolled in the Pittsburg mills, which were so surprisingly thin that from 10,000 to 12,000 sheets laid on each other equaled only one inch in thickness. From these was produced an instrument which had almost the promptness of action toward radiant heat which the eye has toward light, and which possessed a greater sensitiveness than any thermopile, and the speaker hoped it might prove useful to other workers in the same line of research as himself.

In discussing the absolute brightness of the solar corona, Prof. Harkness, of the United States Naval Observatory, said that as the sun's limb is approached the intensity of the coronal light increases with such enormous rapidity that its total illuminating power is mainly derived from regions within two or three minutes of the solar disk. Hence, if the intrinsic brightness of the corona is even approximately constant, the darkness during totality should be much greater in long eclipses than in short ones; and in a brief totality the streamers may possibly be obliterated by the intensity of the inner corona. Methods were explained and formulæ given by means of which the observations of Prof. Pickering on the total eclipse of 1870, and the observations of Prof. Langley on the eclipse of July, 1878, were utilized and rendered comparable, and the conclusions finally reached respecting the amount and distribution of light in the corona of July 29, 1878, were summarized as follows:

1. The total light of the corona was 0·072 that of a standard candle at one foot distance; or 3·8 times that of the full moon; or 0·0000069 that of the sun.

2. The photographs show that the coronal light varied inversely as the square of the distance from the sun's limb.

Church Towers.

The towers of Cologne Cathedral are now the highest in the world, the height they have attained being 5 feet higher than the tower of St. Nicholas's Church in Hamburg, which has hitherto been the highest edifice. Ultimately they will be 51 feet 10 inches higher. The *Cologne Gazette* gives the following as the heights of the chief high buildings in the world: Towers of Cologne Cathedral, 524 feet 11 inches from the pavement of the cloisters, or 515 feet 1 inch from the floor of the church; tower of St. Nicholas, at Hamburg, 473 feet 1 inch; cupola of St. Peter's, Rome, 469 feet 2 inches; cathedral spire at Strasburg, 465 feet 11 inches; Pyramid of Cheops, 449 feet 5 inches; tower of St. Stephen's, Vienna, 443 feet 10 inches; tower of St. Martin's, Landshut, 434 feet 8 inches; cathedral spire at Freiburg, 410 feet 1 inch; cathedral of Antwerp, 404 feet 10 inches; cathedral of Florence, 390 feet 5 inches; St. Paul's, London, 365 feet 1 inch; ridge tiles of Cologne Cathedral, 360 feet 3 inches; cathedral tower at Magdeburg, 339 feet 11 inches; tower of the new Votive Church at Vienna, 314 feet 11 inches; tower of the Rath-haus at Berlin, 288 feet 8 inches; towers of Notre Dame, at Paris, 232 feet 11 inches.

An Invention Wanted.

A correspondent, writing from Colorado, says there is much need in those parts of a portable steam drill for prospecting purposes. It should be so constructed that it could be packed on a mule or carried in parts by two men. Its weight should not exceed 150 pounds, and it should not cost over $200. The machine should be capable of drilling granite to a depth of 50 feet, making a bore three-eighths to three-fourths inch in diameter. Our correspondent is confident that a large market would be found for such a drill in Colorado for gold and silver prospecting.