

Practice of the British Courts in Relation to Infringement of Patents.

This article, according to the promise we made in our last week's number, is taken from Webster on the Law and Practice of Letters Patent:

An infringement of letters patent is prohibited by the clause contained in the letters patent, upon such pains and penalties as may be justly inflicted on offenders for contempt of the royal command. Prior to the state of monopolies all questions of this nature were tried in the star chamber, as contempts of royal authority; but by the second section of that statute, all monopolies are to be tried by the common laws of the realm.

Hence the remedies which now exist are by bill in equity, and by action at law on the statute.

A bill in equity is very frequently first resorted to by a patentee for the protection of his rights. The course is advisable where the patent is really good, since the injunction will prevent further infringement; and if the validity of the patent be questionable, the defendant being restrained until the validity is tried at law, the patentee will be in a better situation than if he had to depend on a jury for damages. Also the trial taking place under the direction of a court of equity, the plaintiff may be in a better situation as to evidence than he would otherwise be.

A court of equity protects patentees who have had enjoyment and possession under their patent, by restraining the defendant; and the principle upon which the court interferes is, that property in the patent may be inferred from the possession, and that the patentee has been fraudulently treated by the defendant.

The bill states the invention, the grant, the enrolment of the specification; the novelty and utility; and the infringement by the defendant. It prays an account of the profits, and an injunction that the defendant may be restrained in the infringement. It is also generally part of the prayer of the bill, that the right, if disputed, may be tried and determined at law under the direction of a court of equity; the final object of the bill being a perpetual injunction to restrain the infringement of the right claimed by the plaintiff. But it is not necessary that the right be established by an action at law before filing the bill, a right under the letters patent being matter of record.

The bill must state a sufficient case to justify the injunction, and the plaintiff must not depend on the admissions contained in the defendant's answer, for granting or continuing the injunction.

On filing the bill, an injunction is usually moved for and obtained until answer or further order. It is generally granted on the *ex parte* affidavits, and the defendant is commanded either to refrain in future from the alleged infringement, or to keep an account of the proceeds until it can be determined whether the patent is valid, and whether it has been infringed by the defendant. Formerly the court would not interfere, unless the party had a clear legal right, and if an injunction were moved for on filing the bill, the right must have appeared clearly by affidavit, and if moved for on answer, it must have been clearly admitted by the answer, at least not denied. But the severity of this rule is relaxed, and it is now held sufficient if the party can show possession under colour of title; and in claims of right under letters patent, the court had gone further, and granted and continued injunctions until hearing upon possession alone, although the title to the patent may be very doubtful, and a long and exclusive enjoyment will entitle a party to an injunction, until an action can be tried at law.

The affidavits, in support of the bill for an injunction, must state with particularity the alleged infringement; that the party, at the time of the application, believed himself to be the first and true inventor, for the belief of this, at the time of the application for the letters patent, will not be sufficient.

An injunction having been granted, the defendant in his answer must show, either that the letters patent are void, or that he has not infringed them. If the answer deny the novelty and utility of the invention, and state (such

being the fact) that the specification is imperfectly set forth in the bill, the court will dissolve an injunction previously obtained, giving the plaintiff liberty to bring an action, although the defendant admits by his answer that he has made machines upon the principle of the patent.

The answer being read, the injunction granted on the filing of the bill may be moved to be made perpetual or to be dissolved, or if refused when the bill was filed it may now be moved for. The court, in the exercise of its discretion, will continue or dissolve or grant the injunction, or will continue it and direct an issue at law to try the validity of the patent, or in dissolving it will leave the party to bring an action at law for the infringement, directing in either of these latter cases, that an account be kept pending the litigation, or, if the affidavits are very contradictory, dismiss the suit altogether.

The court, in directing a trial at law, will put the parties upon such conditions as the equity of the case may require. It will order admissions of particular facts and documents; also, an inspection of the defendant's premises and machinery, when the invention is practised in secret.

After verdict the court will, on motion, revive and make perpetual the injunction, unless there is reason to believe that the verdict will be disturbed, or a new trial granted.

Scientific Memoranda.

THE MAGNETIZATION OF HEAT.

Shortly after the brilliant discovery by Faraday of the rotation of the plane of polarization of light produced by magnetism, M. Wartmann announced that he had tried the same experiment upon radiating heat. Many practical difficulties presented themselves. He employed the heat of a lamp, which he partially polarized by passing it through two piles of mica crossed at right angles. Between these piles were placed the electro-magnet, and a cylinder of rock-salt, and consequently very near the thermo-electric apparatus. The galvanometer, on the contrary, in order that the action of the electro-magnets might be preserved was at some distance; the consequence of which was a considerable increase of the length of the circuit, and a decrease of sensibility. In spite of these inconveniences, which he had clearly seen, but could not remove, M. Wartmann believed that he observed that the needle of the galvanometer, taking up a stable deviation under the influence of the ray not intercepted by the piles of mica, was displayed anew, and took a fixed position, different from the first, when the current was established, which seemed to prove rotation of the plane of polarization. Several persons are said to have failed in the attempt to re-produce the phenomenon, but MM. de la Prevostaye and Desains have succeeded, modifying, however, the process of M. Wartmann.—1st, they employ solar light; 2nd, they used for the polarizing apparatus two prisms of achromatized spar; and 3rd, which appeared to them indispensable, instead of placing the principal sections at 90°, they arranged them at an angle of very nearly 45°. They fully believe that their experiments establish, beyond a doubt, the rotation of the plane of polarization of heat under the influence of magnetism.

THE AURORA BOREALIS.

M. De la Rive experimentally supports the hypothesis that the luminous matter of the aurora is due to the electric fluid contained in the atmosphere at great heights, where the air is rarified. He shows that the light which results from the re-union of the two electricities in the upper part of the atmosphere of the polar regions, instead of remaining indefinitely distributed, is carried by the action of terrestrial magnetism round the magnetic pole of the globe, whence it seems to raise itself in a whirling column. This explains, he thinks, why the magnetic pole is always the apparent centre from which the light that constitutes the aurora borealis proceeds, or towards which it seems to converge.

DEPTH OF THE OCEAN.

We have received a communication from a correspondent, stating that according to calculations that have been made, water is com-

pressed by 15 pounds pressure to the square inch, to one 22,000 less its bulk. At this rate of 330,000 pounds would compress the water to a 22,000th of its original bulk. Oersted makes out that at the depth of 6000 feet a cubic foot of water would be compressed to about 5½ cubic inches. We do not believe any such *philosophizing*—give us facts, submit water to the pressure, and then let us know the result—we have, and know. Our correspondent thinks that water at a certain depth, would become dense as lead. Water has been submitted to the pressure of 1,300,000 lbs. to the square inch, and it was perfectly fluid at that.

ANIMALCULÆ OF THE SEA.

We have received a communication from a valued correspondent, who questions the accuracy of the reasons set forth on page 74, for the animalculæ, at 2000 feet deep in the sea, not being crushed. The reasons adduced there, is, that "the hydrostatic pressure is equal on all sides." Our correspondent says that he "cannot see how the fluid presses equally on all sides," for "if this were true," he says, "a body possessing no more than the 100th specific gravity of water or atmosphere, would have no more a tendency to rise in it than to sink." This is just where our correspondent has mistaken the matter, for the reverse is true. If the hydrostatic pressure was not equal on all sides—the lighter body than the fluid could not rise. We walk at the bottom of an aerial ocean, if raised to the top and the pressure removed from the surface (equal on all sides) of our bodies, they would swell and burst. This occurs partially to travellers who ascend great heights, and every aeronaut knows it to be true. Our correspondent must again read the concluding part of the article to which he refers,—the animalculæ do not rise to the top, any more than we can fly, but they move about as we can.

Telegraph Feats.

MESSRS. EDITORS—Will you favor a reader of your valuable paper, with the publication of the following article, by way of correcting wrong impressions imbibed by the public, from reading a paragraph, first published in the Utica Observer, and afterwards in your paper of the 26th ult. The paragraph alluded to is in reference to a so-called "wonderful telegraphic" feat, performed by a Mr. Porter, at the time of the accident which occurred to the cars, near Fonda, N. Y. That Mr. Porter did all that was said of him at the time, we will not doubt, and that the public should think "'tis strange! 'tis passing strange!" is equally to be expected; but the question is, does the fact of its seeming so very wonderful and magic-like, to those who know nothing about the theory or principles of telegraphing, or if they do, their knowledge is very limited, prove that it is really so? Or that Mr. Porter should be immortalized for doing that which has been done repeatedly, by many others, years since, while the telegraph was only in its infancy. It is not at all uncommon for those who are connected with the business, and especially operators and those who keep lines in working order, while out on the line making repairs, after a storm, or other interruption, to write back to the offices, on either side of them, telling where they are, how far they are out, the cause of the break, &c., keeping up a spirited conversation, simply by connecting and disconnecting the ends of the wires, in a manner perfectly understood by them, as did Mr. Porter. More than this. Some are expert enough to be able to read from the sensation produced by the shocks, while holding the ends of the wires in their hands, to tell what is said at the office, where the circuit is broken, their bodies being at the time a part of the circuit itself.

Now what I wish to correct, is the impression that this one thing done by Mr. Porter is so very remarkable. It is not at least to many I might name in the science and history of the Telegraph. The press and public should use judgment not to give too favorable an opinion of any new thing performed, without first inquiring if it is not already old, and to give credit to whom credit is due.

I make these statements in your paper that they may reach those who will appreciate them

—believing as I do that all of the readers of the Scientific American are men of liberal views or will be, at least if they continue to peruse its valuable pages any length of time.

ADJUSTMENT.

[The paragraph to which our correspondent alludes was different in the Scientific American from what it was in the "Utica Observer." That paper merely stated the fact—we explained the manner. Having seen the paragraph so universally copied as something never done before, we are glad that our correspondent throws both old and new light on the subject.—E.]

Paddles for Canals.

MESSRS. EDITORS—*Gents.*: The reading of the remarks of "Economy," in your journal of the 24th ult., has reminded me of my promise to furnish you with a description of my steamer, which at the time of the promise was the subject of an application for letters patent, both in this country and abroad; but owing to the attempted double-dealing of capitalists with whom I was engaged, the papers were never completed,—and the invention is now public property, and boats are now running, and others building, with the main principles of the invention incorporated into their general features. Those that are running make 6 and 7 knots per hour without surge or wash, in our narrow canals, and can make 9 in such canals as the Chesapeake and Ohio, without any damage to the banks, other than would occur when horse power is used.

The mould of the vessel, according to my specification, is that of an ellipsis, through the midship cross section, the longest axis being horizontal; this axis shortens as you approach the stem or stern posts, and as the elliptic figure is continued, and the perpendiculars remain the same, the axis at length shifts and becomes vertical, continuing to diminish its horizontal diameter till it joins the stem and stern in the form of a wedge. The horizontal diameters are so shortened as to form an elliptic water line, when a line is drawn along the bends, or acute curves of the midship sections.

The wheels work vertically through the vessel's bottom, on each side of the keel, and a little abaft the midship cross section. The buckets or paddles are so curved that the cord of their arc shall equal their dip. Their working faces are not radial in any part of their planes, but recede from the perpendicular of the wheels' axis, about the measurement of the paddles' dip. The action of this wheel may be deemed a mechanical paradox, for the paddles enter the water edgewise, push in nearly parallel lines with the keel, and emerge without any lift, and yet have no joints of any kind in their construction. A wheel of this kind in the "Eureka," 9 feet in diameter, makes 39 revolutions per minute, without causing a swell, and the ship never exceeds 7 per cent; in fact the angle at which the paddle meets the water, together with the wheels' position in the boat, precludes, in a general sense, any slip at all, for the volume of water to be moved before a swell can be made, is at all times many tons weight heavier than the boat or boats she is calculated to tow.

In conclusion I would remark, that as far as 6 or 7 miles per hour is concerned, running singly, or towing boats in line, the experiment of steam traction on canals was successfully tested a year ago, and is now progressing—a large steamer having been completed within the present month, and at the moment of writing this is on her way to the Erie Canal.

HENRY M. PAINE.

Worcester, Nov. 14, 1849.

Struggles of Genius.

It is an interesting spectacle to observe the struggle of man's inventive genius, in conflict with powerful opposing elements, and see the difficulties which are insurmountable to ordinary capacities, overcome by prudence, resolution, and a determined will. Less attractive but only the more instructive, perhaps, is the contrary spectacle, where the absence of those qualities renders all efforts of genius vain, throws away all the favors of fortune, and where inability to improve such advantages renders hopeless a success which otherwise seemed sure and inevitable.