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THE PATENT OFFICE.

There is a growing conviction that this great institution is not conducted altogether in accordance with the purposes of its creation. Instead of being made to encourage the inventor and aid him in obtaining his patent, it seems—at least on the part of some of its employees—to be administered in the very opposite spirit. Doubts are resolved against the applicant, unnecessary technicalities are interposed to prevent the consideration of cases on their substantial merits; and where patents can no longer be denied, they are often emasculated by some prescribed phraseology, instead of leaving to the applicant the largest liberty, in this respect, which is not incompatible with the rights of other parties. And even the astonishing doctrine has been avowed—and more frequently acted on—that the decisions of the courts are not to control those of the Office, and that a patent may be denied by the latter while admitting that it would be sustained by the former.

This tendency—which is all the while increasing—must be checked, or the whole system is in imminent peril. Already has it become a matter of serious consideration whether the present practice of examinations should not be discontinued, and the functions of the Office limited to those of an advisory character, leaving to the applicant the ultimate right to his patent in his own language, subject to such conditions as will prevent him from practising successful frauds upon others. The present discontent cannot be greatly increased before some radical change in our system will be far from improbable.

These untoward results have been influenced mainly by the head of the Office. Commissioners have done more than any other individuals towards perverting the system from its legitimate purpose, so that, instead of being an instrumentality for promoting the progress of science and the useful arts, by securing to inventors the full enjoyment of their property, the Office is becoming a means of frittering away their rights to their smallest practicable dimensions, or for denying them altogether.

We do not intend to impeach in the slightest degree the integrity of any of the individuals above referred to, but merely to point out and account for some of the errors which we believe they have committed. Commissioner Fisher, who, more than any other individual, has contributed to this perversion of the great purpose of the Office, was placed at its head after an extensive practice before the courts in patent cases. His continuance in office was always regarded by him as a temporary means of securing a still more extensive practice in the future. Now the most profitable clients are the large companies, whose interests are adverse to the multiplication of patents, and who often feel annoyed at being obliged to pay royalties on the patented improvements which they desire to make use of. How natural that the attorney should sympathize with his clients and honestly imbibe their notions. How, almost inevitably, will he take a one-sided view of the whole matter, overlooking the rights and interests of the inventor and contemplating in exaggerated proportions the inconveniences felt by the great manufacturers on account of the multitude of patents that are allowed to issue. To expect the most upright mind to be wholly unbiased under such circumstances

would be to look for something more than human. This is not the right training for a good Commissioner.

The tendency thus communicated from the head of the Office operates to a greater or less degree upon all his subordinates, and has influenced the course of decision ever since. General Leggett seems to have done nothing to correct these errors of administration. He followed, quite implicitly, in the footsteps of his predecessor, and perhaps also felt himself further swayed from a just perpendicular by similar influences. The present Commissioner has been in his seat for too short a time to enable us to judge whether any change of spirit may be expected to guide his course. Let him be fairly tried, and honestly judged by the result of that trial.

But an influence of a character different from that above stated often operates to produce a similar result. When an application is rejected, the case is disposed of and the object sought for is attained. Stimulated by the desire of thus ending the investigation, many minds grow more ingenious in tracing resemblances than in appreciating differences. At all events, they are apt to frame for themselves some technical rules, from which, as from official ruts, it is difficult to move them, however inappropriate to the case under consideration. One of the most common grounds for rejecting a claim is that it would amount to the granting of a patent for a function or a principle. The rule when rightly applied is perfectly correct; but when only half understood, it is productive of much mischief. It ought to be remembered that, although an abstract principle or a mere function cannot be the subject matter of a patent, still, no patent can be valid that does not embody some new principle or exhibit some new function. The former is the uncaught wild horse of the prairie, which cannot be property; the other is that horse caught, tamed, and harnessed, and therefore capable of being appropriated.

But the lesson which we particularly wish to inculcate on this and other similar subjects is that less fastidiousness should be evinced in relation to forms of expression, where substantial merits are manifest. It should be remembered that there are much better patent lawyers outside of the Patent Office than within it; and that where the subject matter of an application is patentable, its shape should be left to be molded chiefly by those by whom it must be defended in the courts. We shall probably have more to say on this subject next week.

THE ILLUMINATION OF ART GALLERIES.

The new and celebrated painting of the "Roll Call" is now nightly exhibited in London to large audiences, by means of the oxyhydrogen or lime light, and all the colors of the picture are brought out with marvelous brilliancy, in fact with the same perfection as by daylight.

The idea of illuminating art galleries in the evening by the lime light is an excellent one, and we hope it may have consideration by the directors of our National Academy of Design and analogous institutions in this country.

Few evening entertainments are in themselves more interesting or elevating in their influences, especially for young people, than art exhibitions; but the existing method of illumination is so defective as to nullify their principal attractions. The yellow color of the ordinary gas flame has the effect to reveal only a portion of the colors of the paintings. The reds and yellows are seen well enough; but the blues and greens, and their various tints, are sadly distorted, and the artistic effect lost. Added to these defects is the vitiated atmosphere of the gallery, caused by the production of carbonic acid gas and escape of unburned gas from the hundreds of jets. A feeling of lassitude comes over the visitor, interest in the pictures lessens, and relief is sought by escape from the gallery into the open air. The use of the lime light or the electric light would obviate all such difficulties, as they generate no deleterious gases. By the exercise of a little skill, we think that either of these methods of illumination might be adapted with advantage for art galleries.

SOLVENTS FOR RUBBER.

For the information of correspondents, several of whom have made enquiries on the above subject, we give the following:

The proper solvents for caoutchouc are ether (free from alcohol), chloroform, bisulphide of carbon, coal naphtha, and rectified oil of turpentine. By long boiling in water, rubber softens, swells, and becomes more soluble in its peculiar menstrua; but when exposed to the air, it speedily resumes its pristine consistence and volume. Industrially, the ethereal solution of caoutchouc is useless, because it contains hardly more than a trace of that substance. Oil of turpentine dissolves caoutchouc only when the oil is very pure and with the application of heat; the ordinary oil of turpentine of commerce causes india rubber to swell rather than to become dissolved. In order to prevent the viscosity of the india rubber when evaporated from its solution, one part of caoutchouc is worked up with two parts of turpentine into a thin paste, to which is added $\frac{1}{2}$ part of a hot concentrated solution of sulphuret of potassium in water; the yellow liquid formed leaves the caoutchouc perfectly elastic and without any viscosity. The solutions of caoutchouc in coal tar naphtha and benzoline are most suited to unite pieces of caoutchouc, but the odor of the solvents is perceptible for a long time. As chloroform is too expensive for common use, sulphide of carbon is the most usual, and also the best, solvent for caoutchouc. This solution, owing to the volatility of the menstruum, soon dries, leaving the latter in its natural state. When alcohol is mixed with sulphide of carbon, the latter does not any longer dissolve the caoutchouc, but simply softens it and renders it capable of being more readily vulcanized. Alcohol also precipitates solutions of caoutchouc. When caoutchouc is treated with hot naphtha distilled from

native petroleum or coal tar, it swells to thirty times its former bulk; and if then triturated with a pestle and pressed through a sieve, it affords a homogeneous varnish, the same that is used in preparing the patent waterproof cloth of Mackintosh. Caoutchouc dissolves in the fixed oils, such as linseed oil, but the varnish has not the property of becoming concrete on exposure to the air. Caoutchouc melts at a heat of about 256° or 260°; after it has been melted, it does not solidify on cooling, but forms a sticky mass which does not become solid even when exposed to the air for months. Owing to this property, it furnishes a valuable material for the lubrication of stopcocks and joints intended to remain airtight and yet be movable.

POLYCHROME PRINTING.

"A remarkable innovation upon the ordinary process of color printing has just been introduced to public notice at the International Exhibition, London, by Messrs J. M. Johnson & Sons, printers, etc. The new process is perfectly distinct, in every respect, from any of this class by which it has been preceded. Although embodying some very striking features, it is in itself a very simple matter. So simple is it, in fact, that the first idea which suggests itself is: Why was it never thought of before? Briefly, it consists in printing any number of colors at a single impression; it is color printing without blocks or stones, and with colors which are not ink, the colors forming at once the block and the pigment. The colors are molded and cut into blocks, when the various pieces forming the subject to be produced are fitted together in an iron frame. It is placed on a printing press, and impressions are produced upon moistened paper. The advantages of the new system over that ordinarily practised are very marked; any number of colors can be printed at a single impression, instead of requiring a separate block or stone for each impression. The prints become perfectly dry in a few minutes," etc.

The foregoing is from a recent editorial article in *Engineering*. If our esteemed cotemporary will send 3d. over to the British Patent Office and procure a copy of Robert Reymond's patent 14,078, April 20, 1852, it will find an answer to its interrogatory. This supposed new discovery is more than twenty years old.

A patent for substantially the same idea was applied for in this country by E. B. Larcher, but rejected, in 1868. But Moritz Laemmel was more successful, for on July 4, 1871, he obtained an American patent for the thing; which grant is chiefly of value as illustrating the little worth of our so-called official examinations, to carry on which an army of five hundred men and women is maintained at Washington, at an enormous expense, which is assessed upon and paid by inventors.

AMERICAN OYSTER CULTURE.

A short time ago, Frank Buckland counted forty oyster spat on a bunch of five American oysters, in a lot sent to the London market by some of our exporters. Such apparent disregard for the future alarmed him, and he straightway warned us, in *Land and Water*, that we were squandering our resources, and that if we did not do something immediately to protect our young oysters against rapacious oyster catchers, or to increase the supply by artificial propagation, our oyster grounds would be exhausted, just as those of England have been.

In an Englishman, even a naturalist so well informed as Mr. Buckland generally is, the assumption that oyster culture is something practically unknown in this country may be excusable; but for a clever writer like the author of the pleasantly written paper on oysters, printed in the current number of the *Popular Science Monthly*, to assert that nothing in the way of oyster culture has been done here is altogether unpardonable. To set forth so minutely the antiquated methods of Europe as models for our oyster growers to imitate is an aggravation of the fault for which even a residence on the Jersey coast offers but partial mitigation. It is fortunate that our New England oyster growers are not vindictive, else they might overwhelm our erring friend with remorse by sending him a few hundred "extras" as a sample of what are covering hundreds of thousands of acres of the bed of Long Island Sound, all natives raised from the spawn by a system of culture developed on the spot. To a writer accustomed to be accurate, however, it may be sufficiently humiliating to learn that of late years the finer grades of the varieties which he writes about with such enthusiasm have been transported from Connecticut breeding grounds, the fruit of a culture which he declares to be non-existent.

The French experiments in this line have been public undertakings, officially reported on: with us they have been the work of unpretending oystermen, whose aim was oysters, not fame; and having accomplished their object, they have gone about their business, quite unconscious of the service they were rendering the country. The consequence is that, though the business has developed to enormous dimensions, those not directly engaged in the work know little or nothing about it; and even those who have taken upon themselves the task of writing up the oyster trade of the country have missed its most important feature, by going to the markets instead of the oyster grounds for information, or by assuming that methods which prevail south of New York are also those of the East.

Ever since the country was first settled, Long Island Sound has been noted for producing oysters of superior size and quality. They are of the northern species, characterized by great breadth and thickness, firm white meats, and delicate flavor, qualities which the southern oyster cannot rival even when transplanted into the same waters. Owing to the streams which freshen the water along the Connecticut shore from Greenwich to Bridgeport, and to a less degree farther east, where the influence of the open sea is more