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**EXTENSION OF PATENTS—FOR WHOSE BENEFIT THEY ARE GRANTED.**

There seems to be an impression among inventors that since the law of March 4, 1861, went into force the previous law, in respect to extending patents for seven years, was abrogated. This is not so in regard to cases which were patented under the old law. Any patent which was granted prior to March 4, 1861, may be extended for seven years on proper application to the Patent Office, provided the patentee has not already been amply remunerated for his invention and proves to the satisfaction of the Commissioner that he has used proper diligence in attempting to realize gains from his patent. The patentees of 1851 should lose no time in making out a statement of their profits and losses in consequence of their patents, and in seeing counsel in regard to an extension, if they wish the term of these expiring patents continued for another seven years.

It is often the case that the extended term of a patent produces to the patentee a ten-fold profit over the amount realized during the first fourteen years of its existence. The assignees of a patent cannot obtain this extension: it must be done at the instance of the inventor—or, if deceased, his heirs may apply for the extension, but in either case ninety days' notice of their intention should be given—for whose sole benefit it is granted.

For full particulars concerning extension, address

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**FINE TOOLS.**

It is a trite saying that "a bad workman quarrels with his tools;" but a corollary ought to be added to this effect: "a good workman quarrels with bad tools." Watch-makers, engravers, mathematical instrument-makers, die-sinkers, model-makers, mechanical dentists, machinists, in fact all metal-workers, have occasion to use the best tools. They cannot always find time to make them, and as a consequence are obliged to resort to stores; this is all very natural and proper.

The intelligent American workman must have remarked the almost universal prevalence of foreign brands on fine tools and instruments of all kinds. Stubb's screw plates are the best in market. A bolt screwed in one of them fits the hole made by the tap, which is more than can be said of other brands. The threads are fine and well-proportioned; instead of being a shallow groove on the bolt it is clean and well defined. This is as it should be. The rimmers

of this same brand are perfect tools. They are five-sided; in this form they are less likely to stick or jam, for one edge that cuts is always backed up by two other edges, so there are no two cutting opposite each other. They are so finely tempered that the sharp ends of the small sizes scratch glass, and they work in tough, unannealed steel without injury. Wherever we go we see the same articles inquired for. They have become standard, and men buy them because they know they will do good service.

Why do we not make our fine tools? Darling and Schwartz, of Bangor, Maine, make a steel scale which is both a straight edge and a rule, and is divided into very minute fractional parts of an inch. This tool cannot be excelled. J. R. Browne and Sharp, of Providence, R. I., make steel scales, wire gages, steel squares, and vernier callipers of excellent workmanship and material. Some few other firms make twist drills, of late, but beyond these there are few who manufacture fine machinists' or metal-workers' tools. The saws that jewellers use must return an immense profit. They are at present sold for five cents each, and it is manifest, from the burrs on the side of the blades, that the teeth are cut on hundreds of them at once. Indeed a planer bed or a milling machine might be stowed full of these things from end to end, so that they could be sold by the makers for a slight advance on the price of the raw material. Those used at present are of Swiss or French make.

Look at the countless array of tools wanted by mechanics. Small taps, screw plates, tap wrenches, rimmers, small hammers, screw-drivers, drills, and drill bows, or their equivalent, saws, mandrels of standard sizes, etc., etc. There is no need to specify the whole paraphernalia of the machinists' or metal-workers' bench. They ought to be made at home instead of being imported. These hints are for the benefit of whom it may concern. We should like to see American mechanics using American tools, and we are sure that any one having sufficient capital and patience enough to wait until he, or they, could make a market for their goods, would reap an ample fortune. Respecting the ability of our workmen to compete with foreign production there is no question. When we can make drills for musket cones, or watch pinions, that will drill 150 feet in steel, without being ground or tempered, we can make anything else of equal excellence that we choose to turn our hands to.

**LOCATION OF STEAM GAGES AND INDICATORS**

A correspondent informs us that he has two steam boilers connected by a pipe which is furnished with a stop valve for closing the communication between the boilers. He recently had the valve closed and found that the pressure in one boiler was 50 pounds to the square inch and in the other 20. On opening the valve the pressure immediately rose to 65 pounds. It would be interesting to have further particulars in regard to this experiment, but with our present light we are inclined to attribute the surprising result to the location of the gage in such position that it was acted upon by the current of steam in its passage from the high pressure boiler to the lower.

The action of currents of steam, though familiar to engineers in other situations, seems to have been strangely overlooked in its effect upon gages and indicators. Clark, in his most able work on the locomotive, states that repeated observations showed the pressure to be greater in the steam chest than in the boiler, and he remarks that from the carefulness with which the observation was made and the perfection of the instruments, it is as difficult to doubt the statement as it is to believe it. There may be difficulty in doubting the statement, but to believe it is simply impossible. Steam will not flow from a vessel of lower pressure into a vessel of higher pressure. There must have been some error in the observation, and a very probable cause of this was the location of the gage in such position that it received the impact of the swiftly moving current of steam which rushes from the boiler into the steam chest.

Currents of steam may operate not only to raise the mercury in a gage, but also to lower it so as to indicate no pressure whatever, even in engines working steam at a pressure of 30 or 40 pounds to the inch. This effect is produced by inserting the gage pipe at right angles to the current of steam, when

the steam is drawn out of the pipe by the friction of the passing current, and we may even have the indication of a partial vacuum. This matter is worthy of attention on the part of the builders and runners of steam engines.

**LIGHT WANTED.**

Most of the Examiners in the several departments of the Patent Office keep their work well up, so that but a reasonable delay occurs between the filing of an application for a patent and the official decision. But there is one class of cases which is sadly neglected, and which, in behalf of inventors, we ask the Commissioner to have corrected. We refer to the class designated "Photics," *i. e.*, the room in which coal-oil and other lamps are attended to. Not a day passes but what one or more applicants for a patent in this line writes to us or calls at our office to inquire when his application for a patent, made months before, will be acted upon. A gentleman at the West, whose application for a lamp was filed in the Patent Office May 4, 1864, writes under date of October 31, as follows:—"I should like to know about my lamp application. The delay has been a serious injury to me. I should like to know at once what has been done in the matter. I have a matter to patent far more important than anything I have yet sent you, which I shall put in other hands unless I can learn something definite about my present application. It has been longer than I ever waited before for a decision after making an application."

This extract is a sample of letters of complaint we are constantly receiving from inventors who have cases pending in the "Photic" department. Will Commissioner Holloway see that the great coal-oil consuming interest is attended to?

**WAR A STIMULANT TO INVENTION.**

The impregnable fleets of ironclads which protect the waters of these United States might never have been but for the presence of war. Secure in its pacific policy the Government would have watched the progress of more belligerent nations toward building armored ships, without making a similar provision. Even after the war actually commenced it was hard to convince some officials that iron-clad ships were useful, and not until positive evidence was given of their necessity did Government set to work at them in earnest.

The case has been the same with breech-loading small arms. When the war is nearly ended these weapons are adopted on a large scale. From armored ships, and small arms in general, down to the most minute equipment of the soldier, this war has proved a spur to invention, and the result is well shown in the efficiency of our armies and the comfort of the men in the field.

It is not a comparative superiority over other nations that we enjoy in this respect, but a positive one. Neither is it necessary to condemn the Armstrong gun, already condemned in its own country, and vaunt the powers of the Parrott rifle, to prove our assertions. The Ericsson wrought-iron gun and the Rodman 1000-pounder can speak for themselves, but they would not have spoken for many years to come had not the war stimulated the inventors, and projectors of these pieces of ordnance to put them to the test of actual duty.

Our country enters on a new era, with new systems in all of its several departments. The science of war itself has been changed, and tactics once thought necessary to the proper handling of troops in action are supplanted by less intricate ones. The professional soldier has learned something from the volunteer officer, and what the latter lacked in training has been supplied by his fertile invention, and a mind quick to comprehend situations and to make the most of them.

The arts languish when the torch of war blazes. Lured by its brilliancy men forsake peaceful callings and seek the imminent deadly breach. But the inventor makes men of iron and brass in their stead, whose muscles are tireless, and whose skill is unsurpassed. Where one man falls in the field forty rise up in the factory in the shape of useful machinery. But for this fact there could be no war, for our armies would go naked, hungry and athirst.

War is always the stimulant of invention, and the nation which has the clearest-headed men, and the