



MUNN & COMPANY, Editors and Proprietors.

PUBLISHED WEEKLY

At No. 37 Park-row (Park Building), New York

O. D. MUNN, S. H. WALES, A. E. BEACH.

TERMS—Two Dollars per annum—One Dollar in advance, and the remainder in six months.
Single copies of the paper are on sale at the office of publication, and at all periodical stores in the United States and Canada.
Sampson Low, Son & Co., the American Booksellers, No. 47 Ludgate Hill, London, England, are the British Agents to receive subscriptions for the SCIENTIFIC AMERICAN.
See Prospectus on last page. No traveling agents employed.

VOL. VI. NO. 22. . . . [NEW SERIES.] . . . Eighteenth Year.

NEW YORK, SATURDAY, MAY 31, 1862.

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 1848 and 1849 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, for whose sole benefit it is granted.

For full particulars concerning extension, address
MUNN & Co.,
Editors and Proprietors of the SCIENTIFIC AMERICAN,
37 Park-row, New York.

THE BEST GUN.

As the uncertain position of our foreign relations will probably arouse Congress to adopt the measure so long urged by the officers of our engineer corps—the providing of very heavy guns for our sea-coast fortifications—and, as the measure will involve a very large expenditure, it is important that the best gun known at the present time should be adopted. It seems to us that by selecting the valuable features of the several inventions which are presented, a gun may be formed better than any that has yet been made. There are three kinds of cannon now in use in our service, each of which has some advantages peculiar to itself, and we do not see why all of the advantages cannot be combined in a single gun.

The Rodman gun, made of cast iron which is cooled by a current of water circulating through the core, has advantages of strength and durability manifest to theory, and that have been most conclusively confirmed by experience.

The Parrott gun, formed by reinforcing a cast-iron core with hoops of wrought iron, has the same theoretical advantage as the Rodman gun, with the superiority of greater tensile strength in the exterior hoops.

Dahlgren's last plan, of casting the gun without trunnions, and securing these to the piece by hoops and breech bands, obviates the serious objection of angles and corners in cast-iron cannon.

Now, why would it not be wise for the Ordnance Department of our army to try a gun cast hollow by Rodman's method, but without trunnions on Dahlgren's plan, and then to reinforce the breech with hoops coiled and welded on Parrott's system? It may be that the wrought-iron hoops will receive a permanent set from the momentary expansion of the core

at the instant of discharge, or the several systems may be in some way incompatible with each other, and the Department would, of course, have a few guns thoroughly tested before proceeding to construct the many hundreds that will be required for all of our forts. We throw out the suggestion, having confidence from the previous history of the Department that no prejudices will prevent the adoption of any invention, either domestic or foreign, which will tend to promote the efficiency of our artillery.

PROPOSED AMENDMENTS TO THE CANADA PATENT LAW SYSTEM.

A bill is now pending before the Canadian Parliament for the protection of British and foreign patentees, and to encourage arts and manufacturers. It contains liberal and enlightened provisions, and should it become a law it will relieve our provincial neighbors of the charge of illiberality toward inventors of other nations. As the Canadian statutes now stand a person in order to secure a patent must be a resident subject and the inventor of that for which the patent is sought; thus effectually closing the door against all foreigners, without distinction, and leaving Canadian subjects free to appropriate whatever they can lay hands on from the inventors of other countries. The injustice of this system is plainly manifest, and very naturally soured our inventors against their unreciprocal neighbors. The bill now before us is designed to sweep away this unjust system. It provides that any person, or the assignee of any person, who has obtained a patent for an invention in Great Britain, or the United States, or any foreign country, for a new and useful invention or composition of matter, shall, upon the production of the proper papers, be entitled to Letters Patent in the Canadas, which shall remain in force until their expiration in the foreign country where previously obtained. The fee to be required is thirty dollars. We cannot conjure up a single good reason why this bill should not become a law without delay or opposition, and we trust its mover, Hon. Mr. Moore, will not flinch in urging its speedy passage.

By the act of March 2, 1861, our patent laws were amended so as to place inventors of every nationality on the same footing as to fees with our own citizens, except such countries as discriminate against us. This virtually shuts out Canadians—unless they pay a fee of \$500—simply because they discriminate against us. If it is assumed by the opponents of this reform that the old system is best, because it leaves resident subjects free to patent whatever they may chance to discover themselves, and also to roam through the domains of foreign science and arts, we reply that the argument is unsound, and has so proved in the history of the Canadian Provinces. It is also dishonest, as it evinces a desire to take and use that which properly belongs to another; and thus encourages a species of piracy which our neighbors would not wish to have practiced upon themselves.

It may be true that some comparatively insignificant improvements may have found their way to the Provinces from the States, but we have yet to learn that a single valuable improvement patented here has been manufactured there. Our enterprising inventors and manufacturers want protection for their discoveries, and until that is tendered to them they will not strive to introduce their improvements against the probability of a future open competition.

We fear this bill will fail, but we hope not, and we urge upon Canadian legislators not to ignore this wholesome reform, but to hurry it forward to a wise consummation.

THE GREAT TROY FIRE—IRON SAFES DESTROYED.

Our readers are aware that the enterprising city of Troy has recently been visited with a most destructive conflagration. It burned over from fifty to seventy-five acres of ground, and consumed, in its ravages, upward of \$3,000,000 worth of property. Bankers, merchants and housekeepers have hitherto been accustomed to trust their valuables to the custody of iron safes, but it now appears that too much reliance should not be placed upon the perfect fire-proof qualities of these safes. A valued correspondent, residing in Troy, who is fully conversant with the scientific facts in the case, writes us as follows on the

subject:—"The fire was one of the largest that has ever occurred on this continent, and, allow me to advise you, as you are in the habit of keeping valuable papers in your safe, not to be too confident in the protection which it affords. Hardly a safe standing out unclosed by brick has passed through the fiery ordeal. Troy is, as you know, a great place for manufacturing safes, and the thing is being hushed up and kept out of the newspapers, but the fact is, the safes standing isolated in a building are little protection. I have seen three opened within a day or two, and none of them had a paper legible inside. The wood work was pretty much all burned up—one safe, which I did not see, was opened before it had got perfectly cool, and the owners had the satisfaction of seeing the charred contents entirely burn up upon the admission of air. The fact is the safe makers have departed from the original idea of filling the safe with plaster of Paris, which is the only thing which will answer as protection. The value of this is shown by the fact that you cannot boil water in a tin pan, thinly coated with plaster, over a hot fire."

GENERAL TOTTEN ON THE SHIP AND FORT QUESTION.

General Totten, who is at the head of the Engineer Corps of the United States Army, and who is as competent to give an opinion on the subject as any person in the world, has just given a brief statement of the present relations of ships to land fortifications. It will be seen that his positions are precisely the same as those taken by the SCIENTIFIC AMERICAN, the *London Quarterly Review*, and all European and American engineers who have kept informed in regard to the subject. Our military engineers have been urging the department for years to provide guns of much larger caliber for our sea-coast fortifications, and we trust that recent events will stimulate Congress to delay no longer this measure of vital necessity. It was probably fortunate that the step had not been taken before this rebellion, as it is owing to their feeble armament that we are enabled to recapture the fortresses seized by the rebels; but in order to hold them against both domestic traitors and foreign foes they ought to be armed immediately with a 15 or 20-inch gun at every embrasure.

General Totten states the principles which have been established by experience, and these furnish a safe guide and firm basis for inventors seeking to devise further improvements.

The following are General Totten's positions:—

1. That the plans of our seaboard batteries are of the simplest character and cannot possibly be improved.
2. That the materials being the strongest, most indestructible, imperishable and cheapest possible, no change can be made in them with advantage.
3. That iron has been freely used for years past to guard the thinnest and most exposed part of these batteries, and its further use is perfectly easy on the existing works to any extent, and is a question of economy merely; it will be applied whenever needed; the walls may be entirely iron covered.
4. That all the changes in ordnance and projectiles are greatly in favor of land batteries, and against vessels, in any combat between the two.
5. That guns of unlimited size can easily be mounted and covered on land.
6. That no vessel can be built and floated that will not be penetrable to projectiles from such guns.
7. That one shot, rightly delivered, will probably sink the vessel, while the fort cannot be seriously injured by the return fire of the vessel.
8. That the methods of naval warfare cannot avail in such a contest.
9. That all the best results of modern science, skill and experience are incorporated with these defences as soon as these results are found to be reliable.
10. That while forts can now, as always heretofore, be readily reduced by land batteries, they cannot be reduced when duly armed and manned, by vessels.
11. That the use of steam is a very great and the only exclusive advantage which modern times has afforded to vessels.
12. That this advantage can be countervailed only by increasing the number and especially the caliber of the guns of the land batteries.
13. That the need for a full supply of guns for our forts is very great. The want of them is dangerous.