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NEW YORK, SATURDAY, NOVEMBER 10, 1860.

THE MANUFACTURE OF STEEL.

WE feel no hesitation in attributing the great advance made in the mechanical arts, in modern times, to improvements in the manufacture of iron and steel. All our important tools are made of steel, and these are the very life-springs of the industrial arts. It is only by tools of hard steel that the mines are bored and wrought from which we obtain our fuel and other metals. Our chisels, saws, and other tools by which all machines are fabricated, are composed of steel. We are so dependent upon this useful metal that, were a knowledge of its manufacture to be suddenly lost, most of the useful arts would soon fall back into barbaric rudeness. It is asserted as a historical fact that the ancients were acquainted with a method of tempering bronze, whereby they made tools as hard as those of steel; but we can only speak of that which we possess, not of that which is to us unknown. Of the usefulness of steel, and our dependence upon it, we have full and accurate knowledge; it is the grand agent which is employed in the fabrication of all kinds of machinery.

It would naturally be inferred that, with the vast extent of American manufactures and the illimitable number of machines which are annually constructed in our country, the manufacture of steel would also be carried on very extensively among us. Such, however, is not the fact; for—with the exception of some of the coarser qualities of steel that are made in several places in Pennsylvania, and the single establishment at Port Richmond, Staten Island, for making fine steel, and one at Troy, N. Y.—we import all that is used in this country. This should not be so, as we have the materials for making it stored up in endless profusion throughout the length and breadth of the land.

We have on several occasions directed public attention to the importance of manufacturing American steel, and a very peculiar opportunity is again presented for doing this. In decarbonizing pig iron in the puddling furnace, there is a point in the process when the whole metal in the furnace is actually steel; and if the deoxydation be arrested at this stage, steel is obtained as cheaply as wrought iron. The whole of this remarkable process is fully explained on another page, in the account we have given of Rieppe's invention, in the law case, relating to the manufacture of puddled steel. With such information, steel may be made from good qualities of pig iron in any puddling furnace; and surely our "iron men" will not be slow in adopting the system.

This kind of steel is not equal in quality to good cast steel; still it is a very valuable product, and it is now made by a number of the leading steel makers in England. So far as we know, there is only one establishment in the United States where the process of making puddled steel is carried on, viz.: Corning, Winslow & Co., near Troy, N. Y., where we have witnessed the operations and examined some of their excellent specimens.

The advantages of employing steel in place of iron are very obvious, because its cohesive strength is about double. By using it, we can greatly reduce the size and weight of many machines, and make them equally as strong, and run them at a higher velocity. Thus, if we take a power loom and reduce its weight about a fourth, it can be run at nearly one-fourth higher velocity, and thus about twenty-five per cent more goods may be woven by it in the same period.

Here is a hopeful subject for reducing the long hours of factory labor, and enabling the operatives to enjoy more time for recreation—mental and physical. This puddled steel may not be suitable for many purposes, as a substitute for cast iron; but as it is now made on an extensive scale in England—and may be in America—it is certainly a subject which should awaken general attention. And in addition to this, we assert that the field is also very inviting for conducting experiments to make steel in one continued process direct from the ore, instead of the round-about methods of puddling and cementation.

NEW ORDER OF THINGS AT THE PATENT OFFICE.

In our last number we published a letter from a Washington correspondent, touching the recent action of the Commissioner of Patents in creating a Board of Revision in the Patent Office. The suggestion thrown out by our correspondent, that the business of the Office would be thereby largely diminished, is likely to be verified to the fullest extent; and we feel confident that the retrograding tendency of the Office towards the illiberal policy which was swept out of its doors several years ago, will not only decrease the number of applications, and consequently the revenue of the Office, but will render the Office itself odious to the great body of our people, and especially to inventors.

The questions may be pertinently asked, why this new movement on the part of the Commissioner? What purpose has this officer to serve in appointing one set of Examiners to watch over the acts of another? Has the examination of the claims of applicants become so rickety and careless as to call for the creation of a board of surveillance and confirmation? The statement of a single fact may help us to explain this sudden and extraordinary movement. Not many months ago, two inventors quarreled about their respective rights to an invention, and the attorney, failing in his endeavors to reconcile the contestants, pointed out to them the only available remedy, viz.: the application for a patent by both parties, and the settlement of the question of priority of invention before the Patent Office by submitting testimony under its rules. The Examiner having charge of the cases, by an oversight, doubtless, allowed a patent to issue to each of these parties for the same invention. A sharp-sighted editor, over in New Jersey, discovering this fact, with singular infelicity of temper, charged the Patent Office with being *drunk*, which we have every reason to believe was not true. When the Commissioner's attention was brought to this hydra-headed issue, he was naturally solicitous about it, and felt, no doubt, that the integrity of the Office was in some degree affected by it. A worse calamity than this, however, could have overtaken the Office, such as being struck by lightning or swallowed up by an earthquake. Or it would be worse even to deny one single applicant the grant of a patent for an invention to which he is justly entitled. This has been done time and again, and often for such palpably absurd reasons, that one might almost charge the Office with the dual affliction of drunkenness and insanity.

We may be wrong in selecting our starting point, but, if we mistake not, the oversight here referred to led to the establishment, by the Commissioner, of this patent police arrangement.

Such a mistake as the one referred to is a rare occurrence in the Patent Office, and is not very likely to be repeated; it seems to us, therefore, unnecessary and unwise, however laudable the intentions of the Commissioner, to shackle the business of the Office, and its applicants, with such new-fangled schemes and checks.

Commissioner Holt, in his annual report to Congress, January, 1858, in referring to the progressive increase in the number of patents issued from year to year, gave utterance to sentiments which found a response in the heart of every American inventor. He says:—"This result is due alike to the inherent and irrepressible energy of the national mind, and to the admirable system by which it is excited and fostered. That system, while it wisely avoids the laxity of European laws, as decidedly, on the other hand, eschews that stern, unsympathising, distrusting temper, which would receive the inventor as a stranger beneath the roof of the Patent Office. That better policy, which adopts the happy medium between these two equally pernicious extremes, and which, while welcoming the inventor as a friend and patron, in that frank and free conference with him enjoined by law, kindly and anxiously sifts from his invention its minutest patentable features, is a policy essentially American in its aims, and must be inflexibly maintained in the administration of this Office so long as it remains faithful to the high mission with which it is charged." Noble language and noble sentiments, worthy the head and heart of their author!

Any departure from the principles so happily enunciated by the late Commissioner Holt, will not only work mischief to the Patent Office, but will serve to crush out the energies of the inventor.

We believe that Commissioner Thomas desires to discharge the duties of his office with fidelity. We believe he desires to do only that which will promote the best interests of the Patent Office, and those who seek its fostering protection and encouragement, and that he would regret to leave it in a less prosperous condition than he found it. We cannot, however, shut our eyes to the fact that, in making changes and filling appointments, he has selected those who will give shape to his policy from among the number who have never been accused, so far as we know, of pursuing that essentially American policy which welcomes the inventor, and kindly and anxiously sifts from his invention its minutest patentable details.

Some of the older Examiners, who are now, by virtue of their positions, exercising a most potential influence over the affairs of the Office, are stoics to the policy so eloquently enforced by Commissioner Holt.

In confirmation of what we have said about the effect of this new and singular experiment of the Commissioner, the official list of claims published in our paper this week will show its first fruits. It will be observed that the number of patents which usually averages nearly one hundred per week, is reduced, at one *stroke*, to thirty. So much for the *revisionary* experiment. At this ratio it will not be long before the doors of the Patent Office will be plastered over with these significant words, "TO LET; inquire of the Secretary of the Interior, office on F-street, round the corner."

WATER GAS.

A fierce dispute is raging in the city of Philadelphia in regard to water gas, and in order to ascertain the merits of the case, the proprietors of this journal determined to send a commission to Philadelphia to examine the matter. We selected Charles A. Seely, a gentleman whose scientific acquirements and whose knowledge of the subject gave us confidence in his ability to conduct the inquiry. His report will be found on another page; and while the bearing of his statements will be readily understood by chemists and gas makers, perhaps the following facts will render them intelligible to a wider circle of our readers.

Gas can be made from rosin as well as from coal, and under many circumstances it is more economical. The St. Nicholas Hotel, in this city, is lighted by rosin gas made on the premises, at an expense of about $1 50 per thousand feet, while the gas companies charge $2 50 per thousand feet, and the rosin gas is better than the city gas. In order, however, to burn rosin gas successfully it must be made in the neighborhood where it is burned, as it is loaded with inflammable substances which add much to the light, but which are deposited if the gas is carried through long pipes laid in the ground. The hotter the gas is when it reaches the burners, the more of these inflammable substances will it contain.

Now, Sanders' process, about which the discussion is going on in Philadelphia, and by which it is said the Girard House is lighted, consists simply in throwing a jet of steam into the retort along with the rosin. His specification has been published in full in our paper (Vol. I., page 286, new series). It is claimed that, by this plan, five-fold more gas can be produced from the same rosin, without any considerable deterioration in the quality, and at a cost of 30 cents per thousand feet. If this is true, it is certainly one of the most valuable discoveries of the age, and one which it will give us pleasure to publish to the world. It will be seen that Mr. Seely comes to the conclusion that the statement is not correct, reciting in his report the leading facts on which this conclusion is founded. Our only desire is of