



NEW YORK, MAY 12, 1849.

A Characteristic of the Age.

When we look abroad upon the world and scan its most striking features and compare them with the features of the days gone by, we cannot fail to perceive that there is one trait at least which eminently characterises and distinguishes the present from all others that have preceded it; we refer to the spirit of rapidity in locomotion. It was the boast of Cæsar that his legions in one season had conquered in Asia and Europe, but in the same space of time which Cæsar's legions took to come from Rome to Albion's coast, an army could now be transported from the Thames to the Indus, or across the wide Atlantic—that ocean which to the ancients was a vast unknown.—History records with pride the feats of swiftness performed by their sure footed "steeds of metal true," but what is the speed of the swiftest animal in animated nature, in comparison with the swift winged messenger that travels along the copper wire of the Telegraph, or the disc-footed courser that pants unwearied on his iron girdled course from Lake to Ocean. Last year our country was thrilled by a famous horse on Long Island trotting 100 miles in 10 hours, and 15 years ago Mr. Osbaldistone in England, astonished the world by riding 200 miles in 10 hours by relays of famous racers; but what are all these feats in comparison with the feats of a few iron wheels driven with expanded water? The crippled soldier whose luckless limbs were left on some well fought field, can by the aid of science travel as quietly as if setting at his own fireside from Albany to Buffalo, during the time the swiftest footed racer could gallop one fourth of the distance. We may boast of "the speed of the Arab steed," and we may admire the eagle in his flight through the air, but neither the race of the one, nor the flight of the other have so much poetic inspiration in them, as the locomotive that fleets faster than the whirlwind or the steamship that marches proudly against wind and wave over the stormy deep.

Tinning.

The affinity between tin and iron, copper and brass, renders the process of tinning of much importance in the arts. By covering iron with a thin coat of tin its surface is preserved from oxidization, to which it is greatly disposed, and by covering brass and copper with tin, such as kettles, they are preserved from communicating poisonous effects, by the prevention of oxidization, owing to the coat of tin. The art of tinning plates is one for which England is at present more highly distinguished than any other nation. This art, however, was not practised in England previous to 1725, and it was derived from the Germans.

The process as at present pursued in England is somewhat different from the old process, and as it is much better, we will, as is our wont, compress as much knowledge as we can on the subject into the smallest possible space. The iron plates to be tinned are made of metal from the common English ore with a large portion of fine *hematite* from Ulverstone in Lancashire, and all are smelted with charcoal. The ore is first reduced to pigs, then to flat bars, and then reduced to plates by heating the bars red hot, and running them between case hardened steel cylinders to reduce the plates to an even surface of equal thinness in the whole sheet. Every inequality must be removed in the fine rolling or the sheets are considered unfit for tinning.—After this the plates are steeped in weak sulphuric acid liquor and then they are taken out and scoured thoroughly with sand and bran, so as to be quite bright to enable the tin to adhere. The tin is melted in deep rectangular crucibles and kept in a molten state by a moderate fire underneath. A quantity of suet is kept floating on the top of the molten tin.—

The iron plate is then taken up by one corner with a pair of pincers and dipped vertically into the tin and when withdrawn it is resplendent with the coating of tin which adheres to it. The dipping is repeated three times for what is called single plate and six times for the double plate.

The following process is for tinning with-out acids and was the subject of a patent in France a few years ago:—

The iron plates are scoured or cleansed in a large wooden vessel containing ten pounds of rye flour to 100 of water which is left to ferment with the plates in it until the scaly portion of the plates has been wholly separated, when they must be perfectly scoured to brightness by sand. When this is done the vessel for tinning is prepared with 80 pounds of fine tin to which is added 12 pounds of beef and 12 pounds of mutton fat, previously melted and poured into the tin which should also be melted. After this an ounce of silver is added and melted and the vessel is then fit to receive the sheets. Before the scoured iron sheets are dipped into the melted tin, they are dipped into a vessel into which is dissolved half an ounce of sal ammoniac for every three pounds of water, and from this lifted quickly and dipped into the cauldron containing the melted tin and fat. The sheets should be dipped vertically and lifted vertically, getting two or three lifts and dips before they are finally taken out. This process produces a coat of tin with a very minute *lamina* of silver, which makes the tinning very hard and solid and well adapted for exposure to the atmosphere. Small articles, such as tacks, &c. may be tinned in a stoneware vessel, by first cleaning the articles well and then treating them as has been described for the plates only melting the tin in a stoneware vessel over a charcoal fire.

Our Prize Essay.

The Prize Essay on our last page is now completed. It is not long, and therefore embraces as stated the outlines of the reforms deemed necessary for the better protection of Inventors' rights. We have received quite a number of other communications on the same subject. Some of these we will condense, and present in future numbers, especially those from the pen of *Junius Redivivus*.—They are terse and of an attractive nature.

E. Maher, Esq. the author of the Essay, is at present residing in Philadelphia. He is minutely acquainted with the business of the Patent Office, and has talents which might elevate him to some of the most distinguished stations in our country.

In respect to improvements or reforms in our Patent Laws, our own personal attention has been directed lately to the evils and injuries arising from the present mode of contesting patentees' rights. The articles of the person referred to above touches this point, as will be seen when published.

Iron Stores.

Five iron stores have been erected on the corner of Murray and Washington streets, this city, by Mr. E. H. Lang. Each store is 20 by 56 feet long, and they have been erected without dirt, bustle, bricks or mortar, the usual attendants of brick houses, which incommode our streets more than any thing we know of. Each story is supported by rows of fluted pilasters, the courses between which are compactly bolted, and the seams of panels completely covered and concealed from the view by an ornamental cornice. Thus the walls are in fact one solid iron block, capable of supporting an immense weight. There are about 150 tons of iron in the buildings. The first row of pillars and panels was cast at the West Point Foundry, the 3d and 5th at the Novelty Works and James's Works, and the 2d and 4th at Burdon's Works in Brooklyn.—The cornice and ornaments were made by W. L. Miller, 40 Eldridge st. The mason work required was done by Messrs. A. & J. White, and the carpenter work by Samuel Martin.—The entire cost is stated to be about \$20,000. They have been put up in the course of two months. The only danger apprehended from iron buildings is the expansive nature of the metal. This should be guarded against as well as possible.

Pressure of the Ocean.

MR. EDITOR.—It is a common remark with both landmen and seamen that if a common empty glass bottle be tightly corked, carefully sealed, and then by suitable means lowered to a great depth in the sea, that it will come up partly filled with water, although upon examination the cork and sealing wax are in as perfect a state as they were before being lowered. It is also the opinion of many that the immense pressure which must evidently be experienced at such a great depth forces the water to press through the pores of the glass, and thus to partly fill the bottle. Being in a position to test the truth or falsity of the above remark I took the opportunity of examining the subject and give below the experiments and their results.

A common empty green bottle was carefully corked, sealed and lowered to the depth of about sixty fathoms. Upon hauling it immediately up again the bottle was found to contain about one fourth its capacity of water although the cork and sealing were apparently undisturbed. This experiment proves therefore, plainly, that the above remark is correct and that the water actually forced its way into the bottle. There being a great diversity of opinion at the time by those witnessing the above experiment in regard to the manner in which the water entered the bottle; the following experiment was made expressly to determine that point.

An empty glass tube was carefully closed at both ends by means of a spirit lamp and blow pipe and lowered to the depth of eighty nine fathoms, where it was allowed to remain fifteen minutes by the particular request of those who believed that the water actually forced its way through the glass. Their belief was, however, suddenly changed when the tube was hauled up containing not the least particle of water. The water evidently passed through the cork since the latter experiment proves that the water could not have passed through the glass.

These experiments on the pressure of the ocean were made on account of the difference of opinion of the passengers on board. Indeed I was surprised that such a difference of opinion could exist.

We have been about forty days out and as we have the south-east trades we will be in Rio Janeiro in fifty days or thereabouts, by the 3d of March.

Yours respectfully, S. N.
On board ship Tarolinta, Lat. 3° 55' S.; Long. 28° W. Feb. 22, 1849.

Steam and Water Power.

A water-mill is necessarily located in the country afar from the cities, the markets and magazines of labor, upon which it must be dependent. Water appears to run very cheaply, but it always rents for a pretty high price, and the first cost of dams, races, water-wheels &c., is on the average quite as great as that of a steam engine and equipage, and the annual repairs are, at least, equal. No casualty, entailing unexpected expense, ever need happen to a steam engine; while water mills are always liable to injury or destruction, from floods; and the interruption of work from low water is a continual and very expensive drawback. A man sets down his steam-engine where he pleases—that is, where it is most to his interest to plant it, in the midst of the industry and markets, both for supply and consumption of a great city,—where he is sure of always having hands near him, without loss of time in seeking for them, and where he can buy his raw materials and sell his goods, without adding the expense of a double transportation.

The expense of a steam engine is not much if it is well managed. It should be of sufficient capacity to work all the machinery with ease, without using steam at a high pressure. It should be as carefully attended as a clock—nothing should be suffered to go out of repair from carelessness, and nothing should be wasted from neglect.

Wages in Germany.

Thousands of stocking weavers in Germany—adult men—get only 40 cents a week in the stocking weaving business. The employers add to these wages two slight meals per day.

Hoe's Printing Presses.

A paragraph is going the rounds of the papers to the effect that over \$3000 worth of papers are spoiled per annum in the New York Sun establishment, by the use of Hoe's lightning presses, and that therefore they are a disadvantage compared with other printing machines. We venture to assert that there are no other printing presses in the world upon which the immense edition of this paper can be printed, even at one half the speed, which will not spoil a far greater amount of papers that are now lost. Previous to our lightning presses, three of the most approved double cylinder machines were employed, and the number of spoiled sheets was much greater than now, though our edition at present is much larger.—*New York Sun*.

[We saw the paragraph referred to above in one of our Philadelphia exchanges—the Gazette we think, and we were not a little surprised at it. It was a correspondent's letter. This settles the question.

Huge Casting of a Propeller Wheel.

On the 26th ult. there was cast at the People's Works, Kensington, Philadelphia, a huge Loper propeller wheel 11 feet in diameter for the steamship Carolinian, now building in that city. The whole job was accomplished in less than a month from the commencement of the pattern, and more than two weeks of this time was occupied in drying the mould properly. The metal used was a composition of brass and copper, 16,000 pounds of which was melted in a single cupola in about two hours time, the pouring into the mould being accomplished in less than a minute. An examination of the casting has proved that it is perfect in every respect.

Great Fall Factory.

At Niagara Falls, where there is as much water power as might drive all the machinery in the world, there is a factory for the manufacture of wooden pails, which is believed to be the largest in the world. The factory is owned by Messrs. Patterson and Murray, and is a large four story stone building. They have in operation as much machinery as can turn out 1000 pails per day and about 500 tubs. The factory consumes a million feet of pine logs a year, and band and wire iron in proportion. The machinery is all of the latest and most improved description, and the facility and rapidity with which the pails are now made are in striking contrast with the slow and laborious process of hand manufacture practised a few years since. And the beauty and uniformity of the article are as striking as the celerity with which it is manufactured.

Great Shafts.

The shafts for the engines of the steamship Atlantic, E. K. Collins' Line, have just been completed at the forge of L. B. Ward, foot of 59th street, N. R., and weighs 87,397 pounds. The cranks of the same ship weigh 43,154 pounds, making the weight of shafts and cranks as forged, upwards of 65 tons.

Patents Issued.

In the list of Patents this week is one to Mr. J. Van Kuran for an improved cast iron Railroad Car Wheel. Prof. Morse's patent for his Chemical Telegraph is also issued, and we shall be able to present an engraving and description of Mr. W. M. Haines' Calculating Machine in a few weeks. It is a very simple and durable one.

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