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INFORMATION AS TO THE PATENTABLE NOVELTY OF INVENTIONS.

The list of claims published from week to week in these columns, indicate truthfully the extent of business being transacted at the Patent Office.

It will be observed that inventors are far from being dormant, if they are not as numerous and active, as they were a year ago. Since the first of July we have received a great accession to our subscription list of subscribers, and for the information of each, we would state that it is the custom, at the office of this paper, to examine models or drawings and descriptions of alleged new inventions, and to give written or verbal advice as to their patentability, without charge. Persons having made what they consider improvements in any branch of machinery, and who contemplate to secure the same by Letters Patent, are advised to send a sketch or model of it to this office. An examination will be made and an answer returned by early mail. Through our Branch Office, located directly opposite the Patent Office in Washington, we are enabled to make special examinations into the novelty and patentability of inventions. Having the records of the Patent Office to search, and the models and drawings deposited therein to examine, we are enabled to give an inventor most reliable advice as to the probabilities of his obtaining a patent, and also as to the extent of the claim that it is expedient to set up when the papers for an application are prepared. For this special examination at the Patent Office we make a charge of Five Dollars. It is necessary that a drawing and description or a model of the invention should accompany the remittance. Address—

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TELEGRAPHING BY OCCULTATION OF LIGHTS—SEVERAL CLAIMANTS FOR THE DISCOVERY.

On page 22 of our present volume, the method of telegraphing by lights, according to experiments performed by Professor Tuttle, of Cambridge, Mass., was fully described. The nature of his invention consists in making the time of the disappearance of any fixed light correspond to dots and lines of the Morse telegraph alphabet, and also "by making the time of the appearance of the light correspond to the same thing."

The London *Mechanics' Magazine* published our description of the system, giving Professor Tuttle the credit of the invention, but it now claims it for Prof. Babbage, of London, who is also known in scientific circles to be a most ingenious mechanician. In the last number of the *Magazine* received by us, it is stated that in 1851 the United States government appointed a Lighthouse Board, to inquire into the condition of our lighthouses, and in the report presented by its members, there is a paper by Prof. Babbage for distinguishing lights by occultations, by a system similar in its nature to that of Prof. Tuttle.

We are not informed when Prof. Babbage invented his system, but Mr. H. J. Rogers, of this city, on page 39 present volume of the SCIENTIFIC AMERICAN, claims to have invented it in 1844—seven years before the paper printed by the Lighthouse Board.

As applied to lighthouses and vessels at sea, Prof. Babbage has worked out his system in a more complete manner than any of our American inventors, and if not the first inventor, he deserves credit for having made the system most perfect. By his system it is impossible to mistake any casual light on shore or at sea for a lighthouse, or one lighthouse for another. Every lighthouse on a coast is to have its special number, and it is made to repeat its number continually during the time it is lighted. This is accomplished by inclosing the upper part of the glass cylinder of an argand burner by a thin tube of brass, which is allowed to descend slowly by mechanism before the flame, then suddenly start back, thus causing an occultation and reappearance of the light. Thus, if the number of the lighthouse is 24, there is first two occultations and a short pause; then four occultations and a longer pause, and so on all night.

Prof. Babbage describes the following method for telegraphing by occultations between lighthouses and ships in distress:—

1st. The ship fires a gun and hoists a light.

2d. The lighthouse ceases repeating its number and becomes a steady light, informing the ship that its signal has been observed.

3d. The ship having a prepared message in numbers, expresses it by occultations of its own lamp.

4th. The lighthouse occults its answer.

This is a most simple system of telegraphing at night by lights. With common coal-oil lamps and an understood system of messages represented by numbers, it is very easy for persons to hold converse several miles distant at night. Neighboring farmers in the country may devise their own alphabets and communicate in this manner with one another. And with a secret alphabet, military night signals may thus be transmitted in the absence of rockets.

REVIVAL OF BUSINESS.

Our merchants are experiencing a glad surprise in the rapid revival of business. The city is filling with dealers from all parts of the North and West, who are here for the purpose of buying goods. There is an almost complete destruction, however, of the credit system, our jobbers generally refusing to sell on longer time than from ten to thirty days.

What a blessed thing it would be for the country if this foolish system should never be revived. It has been the cause of more social misery to the favored classes of our people than all other causes combined. Carefully collected and reliable statistics reveal the astounding fact that out of every hundred men who engage in mercantile pursuits in this country, ninety-seven become bankrupt at some period of their lives. What a wretched life do these people lead! A brief period of wild extravagance, followed by long years of bitter humiliation. And this is the lot of almost all of our whole mercantile class. How much wiser and happier is the life of that three in the hundred who do not fail! These people commence by close economy, and, not being impelled by enormous expenses to make great nominal profits, they do a snug business within their means. As their capital increases they enlarge their business and their style of living; always keeping both, however, within moderate bounds; and thus their life is one of steadily advancing prosperity. This happy life would fall to the lot of all of our merchants if trade was universally done on a cash system.

If this great reform cannot be universally pursued, we hope to see a large number of our dealers adhere to it. All the burden of the change has now been borne, and it is only necessary to continue the cash system that is now in practical operation. If the war should sweep away forever our credit system, this one blessing would more than balance all its evils.

ALUMINUM BRONZE—BRASS.

A great number of experiments have recently been made by B. L. Proctor, of Newcastle-upon-Tyne, England, to test the qualities of aluminum bronze (copper and aluminum) and common brass (copper and zinc) for withstanding corrosion, when exposed to acids and various gases and the moist atmosphere. No less than thirty-one different experiments are recorded in the *Chemical News*, and from these Mr. Proctor draws the following conclusions:—

It appears that the bronze has a little advantage over ordinary brass in its power of withstanding corrosion, and that its surface, when tarnished, is more readily cleaned. This should give it a general preference where cost of material is not an important consideration, especially if strength, lightness or durability is at the same time desirable.

In comparison with brass, it is but little acted upon by ammonical salts and coal gas, and it thus offers advantages for the construction of gas meters, stop-cocks, and joints in all gas fittings. It is also well adapted for door plates and bell handles, as it is not easily acted upon by the weather; and even when it becomes dull, it can be easily rubbed bright again with a piece of soft leather. Brass is very liable to corrode at the edges, when used for hinges and almost every other purpose; aluminum bronze is free from this defect. For culinary vessels, aluminum bronze is superior to tinned brass and most of the materials now used; and for drawing instruments, telescope tubes, and all kinds of philosophical and mathematical instruments, it is altogether superior to brass. Aluminum bronzes cannot be made of a good quality except with perfectly pure copper.

THE NEW SPANISH RIFLED CANNON.

On another page will be found a description of the artillery recently adopted, after thorough experiments, by the Spanish government. They have decided on using muzzle-loading rifled cannon, made with a core of cast iron, hooped with wrought iron, essentially on Capt. Blakely's plan. These guns are advertised in the English papers, with either steel or iron cores, at very low rates—12-pounders for $150 and 200-pounders for $2,000. It was a Blakely gun that did the most execution at the attack on Fort Sumter. The ablest engineers in England seem to be following the conclusions of our own ordnance officers, that there is no better material for artillery than cast iron. Whether Blakely's plan of hooping the central core with wrought iron is better than Rodman's plan of making the gun wholly of cast iron and increasing its strength by cooling it from the inside, remains to be determined by experiment. It is quite possible that Blakely's may be better for light field pieces and Rodman's for heavy fortification ordnance.

We have thought for some time that the Blakely gun was the best yet produced in England, and this indorsement by the able commission of the Spanish government of course tends to confirm this opinion.

GREAT TRIAL OF STEAM PLOWS.

An extensive trial of steam plows, lasting 12 days, has recently been made at Leeds, England, and the *Mark-Lane Express* gives an elaborate report of the experiments. Most of the work was done by engines stationed at the side of the field and drawing the plows across by long ropes; though it seems there were at last two engines that traveled over the ground. The *Express* concludes that the latter system is impracticable, but concludes that plowing on the long-rope plan may be introduced on very heavy clay soils as a partial substitute for horses.

The engines cost from 2,500 to 4,000 dollars apiece, and the cost of the plowing ranged from $1.38 to $2.10 per acre. The fastest work was at the rate of about three-fourths of an acre per hour, and the shortest at the rate of an acre in two hours and a half.

The *Express* comes to the conclusion that steam cannot be used profitably in plowing any land that can be plowed by two horses at the rate of 1½ acres per day.

BESSEMER'S PROCESS OF MAKING STEEL.

In our last week's issue we published some extracts from a paper read by Mr. Henry Bessemer, of Sheffield, before the Institution of Mechanical Engineers, on his mode of refining iron and making steel. Our extracts related merely to the quality of the metal and the uses for which it is adapted. On examining his paper the second time we are so impressed with its readable and instructive character that we are induced to publish the remainder of it, and it will be found on another page. Besides the remarkably clear and vivid account of his own brilliant process, Mr. Bessemer gives the plainest and best description that we have seen of the ordinary mode of making cast steel.