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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 the subscription list of this journal, 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 securing 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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THE BOMBARDMENT OF FORT HATTERAS—SHELLS AND BIG GUNS.

For more than 20 years the officers of the Ordnance and Engineering Departments of the United States Army have been advocating the introduction of very heavy guns into our sea-coast fortifications, and Commander Dahlgren, of the Ordnance Department of the Navy, has been laboring to arm our ships of war with his large shell guns. The action at Fort Hatteras has demonstrated in a very conclusive manner the wisdom of both of these innovations. It was by means of the shell guns on board the naval vessels that the fort was reduced, while there is no doubt that if the place had been armed with Rodman's 15-inch guns, or even with 10-inch columbiads, the ships would have either been driven away or very quickly blown to pieces. But as the forts had mounted only 32-pounders, the vessels were able to lie out of the range of these and to pour their shells into the fort in such a storm as to drive the garrison into the magazine. From Engineer Thompson's report it seems that some 10-inch columbiads were on the way to the fort, and one had actually arrived, though fortunately it was not mounted. It is quite possible that if that one gun had been ready for service, the action might have resulted in the sinking of a portion of our ships and the withdrawal of the remainder.

When shells were thrown from mortars at an angle of 45°, the hitting of a ship one or two miles off was a feat of rare accomplishment, but with one of the great columbiads, which send their shells at point blank or at moderate elevation, a ship can be hit at almost every shot, and a shell exploding in the side of a wooden ship is so terribly destructive, that but very few shots are required to send the largest man-of-war to the bottom.

Even before the great revolution in naval warfare effected by the introduction of shell guns, the attacks on land fortifications by ships were seldom successful, but to send wooden vessels against forts armed with these guns would be simple madness.

The money which has been expended by the nation in enabling our Ordnance and Engineer officers to make their investigations has resulted in giving us knowledge of immeasurable value in this crisis; it has been as profitably laid out as any portion of the national expenditure.

PHENOMENA ATTENDING COMBUSTION—GAS AND CANDLE LIGHT.

A most interesting lecture was recently given on the above subject by Professor E. Frankland, F. R. S., of London. He stated that he commenced experiments in 1849 upon the summit of Mont Blanc, in the Alps, for the purpose of ascertaining the amount of combustible matter consumed by a common candle at that and other elevations. He found, as the average of five experiments, that a stearine candle diminished in weight 9.4 grammes, when burned for one hour at Chamounix; and 9.2 grammes when ignited for the same length of time upon Mont Blanc. These experiments went to prove that the ratio of combustion was almost independent of the density of the atmosphere, as the pressure at the two places varied several inches in the barometer. But when burning the candle on the top of the mountain it was noticed that the flame was not so brilliant as in a more dense atmosphere. This led Professor Frankland to make experiments, on his return to England, with a flame of gas burning under different pressures of the atmosphere, produced by artificial arrangements. He passed the gas through a governor valve, secured a uniform flow in the burner, and the experimental flame was placed at one extremity of a Bunsen's photometer. Near this flame was placed a similar jet surrounded with a glass shade, but it was permitted to burn freely in the air so as to compare it with the other flame that was subjected to variations of atmospheric pressure. The products of combustion were completely removed and a fresh supply of air furnished regularly to the experimental flame. The following is a table containing a summary of results :—

Pressure of air in Inches of Mercury.	Illuminating Power of Experimental Flame.
30.2	100
28.2	91.4
26.2	80.6
24.2	73.0
22.2	61.4
20.2	47.8
18.2	37.4
16.2	29.4
14.2	19.8
12.2	12.5
10.2	3.6

This table exhibits a constant decrease of light in proportion to the diminution of the pressure of air, as indicated by the mercury of a barometer. This is important information, and it points out a method by which the luminosity of flame may be greatly increased. In the flame of gas and candles the luminosity is mostly due to incandescent solid matter consisting of carbon in a minute state of subdivision. The amount of light depends upon the quantity of solid matter existing in the flame, and upon the temperature to which these particles are raised. Combustion was found to be more perfect with rarified than with compressed air, and the temperature of the flame was not materially different. The question that seemed to puzzle Professor Frankland, was the decrease of luminosity of the flame with the decreased pressure of air, while the combustion of the gas was about the same in quantity in both cases. After some experiments he arrived at the conclusion, than this was caused by a greater quantity of air finding access to the *interior* of the flame. It is well known that when atmospheric air is thoroughly mixed with a jet of burning gas by means of a cap of wire gauze, that the luminosity is thereby greatly diminished, but the temperature is *elevated*. The latter seems to be one point of difference from the experience of Professor Frankland. In the smelting of iron ore the pressure of air has been increased in many furnaces during recent years, and with a greatly augmented yield of iron in each case. Sir Humphrey Davy in his researches on flame, had noticed a diminution of the light with a decrease of pressure in the atmosphere, but he did not determine the relative amount. The table furnished by Professor Frankland is a valuable contribution to science. It supplies very useful information for increasing the brilliancy of flame.

THE INFLUENCE OF WAR ON INVENTIONS.

The Commissioner of Patents has deemed it expedient, in consequeunce of the lack of business in his department, to discharge a large number of the Examiners and Clerks from the Patent Office, and to greatly reduce the salaries of such as are retained. For instance, the First Examiners are reduced in salary from $2,500 to $1,800 per annum; and other subordinates in a like proportion.

The following figures show the falling off in applicants to be about 50 per cent from last year. For the week ending Sept. 4, 1860, the number of patents granted was 101. By reference to the claims published on another page, it will be perceived that only 54 patents were issued for the week ending the 3d inst.—being but about one-half the number granted in the corresponding period last year. There is no reason, however, why inventors should relax their energies in these times; on the contrary, when the usual avenues for money-making are obstructed, and, in many instances, closed, we think persons out of business will not find a better field for operation than to engage in inventing, if they have the genius; and if they have not, there are plenty of good patents which can be purchased for a moderate sum in these times, on which we believe fortunes may be made by exerting only ordinary business talent.

Men of genius! bestir yourselves, and make an improvement on some well-known machine, if you have not the ingenuity to strike out into some new field of discovery. If you cannot conceive a power to take the place of steam, improve the engine or boiler, or make a better and cheaper sewing machine, cider mill, churn, washing machine, or anything to diminish manual labor in any department of mechanics.

Capitalists, look about you and find an honest inventor who has patented a useful invention, but has not the means to bring it practically before the public, and either buy it or advance him money to work his invention, and thus help on a fellow being; at the same time, you will be likely to receive a larger interest on your money, and find it a safer investment, than buying bonds or stocks in these uncertain times.

All classes of persons, instead of lying idle and waiting for better times, should bestir themselves, renew their activity, and by thus doing, their very acts will hasten the good time anticipated.

GLASS FOR LEYDEN JARS.

A correspondent writing from Rochester, N. Y., informs us that he has experienced great trouble in obtaining proper glass for making Leyden jars by coating them with tin foil. He states that he lately coated six different white glass jars with tin foil, and was unable to charge any one of them with electricity. He also coated two green glass jars, which also failed, but he succeeded in charging one jar of coarse glass of a blue-green color. On making inquiries of the librarian of the Rochester Athenæum—a scientific and practical electrician—he was told it was difficult to obtain glass jars suitable for being charged with electricity, but by covering them with shellac varnish he partly overcame the difficulty.

Our correspondent believes this subject should be brought before the public as many persons may have had the same trouble as himself and no reliable information can be obtained on the subject in books. Glass manufactured with lead in the flux, or with too much soda, will not answer for making Leyden jars. Of course it is impossible to tell what kind of flux has been used it the manufacture by the appearance of the glass.