

SCIENTIFIC.

HALL'S PATENT PADDLE-WHEELS.—The objects of this invention are, the removal of the distressing and injurious tremour in steam-vessels, occasioned by the stroke of the paddle-boards upon the water; the avoidance of the lift of back water; and the employment of the powers of the engine to the greatest possible advantage.

In its construction, the arms or spokes of the wheel diverging from each extremity of the shaft are not opposite and parallel to each other respectively, as in the ordinary wheel, but those at one end are placed alternately with respect to those at the other end of the shaft. The paddle-boards uniting these arms will be consequently at angle with the axis of the wheel. They are also joined together so as to form angles with each other throughout their entire breadth, and salient and re-entering angles with the side of the vessel. The paddle-boards are made to assume the requisite form by being slightly twisted from right to left, and left to right alternately, which is readily effected by previously steaming them, and they are sufficiently rounded to preserve an equal dip in the water in dispositions of the wheel. There is thus obtained a continuous surface representing a single paddle-board, carried in alternate directions from arm to arm round the wheel until the extremities meet.

The paddles are affixed to each wheel, so that the salient angles of the one-wheel shall enter the water at the same instant with the salient angles of the other, and, as necessarily follows, the re-entering angles of each wheel also enter simultaneously. The resistance is then identical with that of oars when rowing, with the advantage of being continuous.

In action, the paddle-boards thus arranged enter the water in an endless series, and increment by increment, without noise or any concussion upon the water, and present to it, throughout the entire revolution of the wheel, an equal and constant resistance; while the action upon the water is at right angles with the shaft or line of motion.

The results of this construction are:—

1. Perfect freedom from all vibration communicated to the vessel by the paddles.
2. Absence of any disagreeable noise or flapping of the paddles upon the water.
3. No lift of back-water by the emerging paddles.
4. The greatest regularity and smoothness in the action of the engine.
5. Increased speed imparted to the vessel beyond that hitherto obtained with equal power, by the avoidance of the lift of back-water, and the application of a continuous propelling power in place of the alternating or reciprocating one heretofore employed.

When the vessel is laden beyond her ordinary trim, or where it may be deemed desirable to employ deeply-immersed wheels, the advantages desirable from this construction are proportionally augmented.

Although the expression "paddle-boards" has been exclusively used in the above description, iron or other metal may be substituted for wood. The construction partakes of the properties of consecutive arches resting alternately upon each other, and consequently present the strongest form of which divided parts are susceptible. Simplicity is also a prominent characteristic of these wheels; and, as regards expense, they do not exceed that of the most ordinary paddle-wheels in present use.—*United Service Journal*.

THE NEW ART OF SUN PAINTING.—While France and England contend for the honour of this new invention, let the following contrast of the conduct of the claimants be placed in parallel:—

"Mr. Daguerre's ingenious discovery, which has assumed the name of 'Daguerrotype,' continues to excite great curiosity and admiration. It is affirmed that the Emperor of Russia has offered 500,000 fr. for his secret, and that he has declined the munificent reward. It is not likely that his friend, M. Arago, will succeed in obtaining a larger national one from the Chambers."—From a Paris Letter in the *Post*.

M. Daguerre had better secure what he can for his discovery at once, as Mr. Talbot, his English competitor, is determined to make no secret of his plan, which was detailed at the last meeting of the Royal Society. We give it as concisely as we can:—

The subject divides itself into two heads, the preparation of the paper, and the means of fixing the design. To make what Mr. Talbot calls ordinary photogenic paper, he selects paper of good firm quality and smooth surface; none answers better than superfine writing paper. He dips it into a weak solution of common salt, and wipes it dry, by which the salt is uniformly distributed throughout its substance. He then spreads a solution of nitrate of silver on one surface only, and dries it at the fire. The solution should not be saturated, but six or eight times diluted with water. When dry, the paper is fit for use for all ordinary photogenic purposes.

"Nothing can be more perfect than the images it gives of leaves and flowers, especially with a summer's sun, the light passing

through the leaves, and delineating every ramification of their nerves. If a sheet of paper, thus prepared, be taken and washed with a saturated solution of salt, and then dried, it will be found, (especially if the paper has been kept some weeks before the trial is made,) that its sensibility is greatly diminished, and, in some cases, seems quite extinct; but, if it be washed again with a liberal quantity of the solution of silver, it becomes again sensible to light, and even more so than it was at first. In this way, by alternately washing the paper with salt and silver, and drying it by times, Mr. Talbot increases the susceptibility of the paper."

With regard to fixing the images, Mr. Talbot, after repeated experiments, finds, that if a photogenic picture be washed over with iodide of potassium much diluted with water, an iodide of silver is formed, which is absolutely unaltered by sunshine. This process requires caution: for, if the solution is too strong, it attacks the dark part of the picture. Mr. Talbot's usual method of fixing consists in immersing the picture in a strong solution of common salt, and then wiping off the superfluous mixture and drying it. If the picture thus washed and dried be placed in the sun, the white parts colour themselves of a pale lilac tint, after which they become insensible. Those preserved by iodide are always of a very pale primrose yellow, which turns to a full gaudy yellow whenever exposed to the fire, and recovers its former colour when cold.

Pictures with this prepared paper are taken, in the ordinary manner, with the camera obscura.

Sir John Herschel has, since the discovery was made known, turned his attention to this subject, and has already obtained the pictures from the light of Daniell's great galvanic battery; Sir David Brewster, too, has taken up the investigation.

NEW LAMP FOR LIGHT HOUSES.—Professor Faraday recently gave an interesting lecture at the Royal Institution on the subject of a new lamp invented, or rather brought to perfection (for the invention is not, it appears, altogether new), by Mr. Gurney, which Mr. Faraday proposed to call the "oxy-oil lamp," for want of a name better describing its nature, not having, as he stated, been at present informed what name the inventor intended to give it. The new lamp most nearly resembles the common Argand lamp, with this difference, that its burners may be made to equal at the lowest two and a half, and at the highest number fifty of the common burners, and into the flame of which a stream of oxygen gas is introduced, by which operation the character of the flame is changed from a dark smoky light to the bright and indeed brilliant light of the hydro-oxygen lights now used for microscopic exhibitions. The application of oxygen gas to the light of common oil lamps is not new, Dr. Priestly having discovered the use of such applications many years ago; but to Mr. Gurney belongs the merit of having overcome all the difficulties which stood in the way of its practical application and every-day use. The lamp in question is more immediately intended for light-house purposes; and Mr. Gurney it seems, has been engaged for three years in the most persevering and undaunted experiments in completing his task, which is the more laudable, inasmuch as, on the authority of Mr. Faraday, for five-sixths of that time all his efforts appeared fruitless in overcoming the objections to, and surmounting the obstacles which stood in the way to the completion of this useful invention. The introduction of the oxygen has the effect of decreasing the length of the flame, which is thus better adapted for the marine purpose to which it is destined; and it has the greatest of all recommendations—namely economy, in its favour. This is not, however, apparent at first view, for the gas costs double the amount of the oil. But the introduction of the former effect such a diminution in the consumption of the latter, that not only is the expense of the gas and the apparatus used in its preparation, paid for; but an ultimate saving, as well as a most superior light, is the result.

TO TAKE INK-SPOTS OUT OF MAHOGANY.—It is perhaps not generally known that a piece of blotting-paper, crumpled together to make it firm, and just wetted, will take ink out of mahogany. Rub the spot hard with the wetted paper, when it instantly disappears; and the white mark from the operation may be immediately removed by rubbing the table with a cloth.

TO TAKE INK OUT OF PAPER, AND STAINS OUT OF LINEN.—One tea-spoonful of burnt alum; a quarter of an ounce of oxalic acid; a quarter of an ounce of salt of lemons, and half a pint of cold water. Place in a bottle, and apply with calico.

Otto Guericke first observed the spark and light of electricity. Dr. Wall first noticed the resemblance of electricity to thunder and lightning.

Villain, in ancient times, meant a country labourer. St. Pelagius was a Cambrian, of the name of Morgan, and his heresy arose from his mixing some of the tenets of druidism with Christianity.

In sound, as in light, the angle of the incidence is equal to the angle of reflection. The laws of catoptricks to apply to sound.

LAW.—Law, like the commandment, does justice unto children in the third and fourth generation, but unfortunately lets the father starve in the meantime.

THE PEARL.

HALIFAX, FRIDAY EVENING, MAY 10, 1839.

A London paper of the 6th ult. has been received during the week. The extract annexed on the state of the revenue we copy from the Gazette.

LONDON, APRIL 6, 1839.

The Revenue Tables for the quarter and the year are published in another part of *The Sun*; and we can congratulate our readers on their very favourable character. The increase on the year, as compared to the year ending April, 1838, is 2,122,866*l*. The increase in the present quarter as compared to the corresponding quarter of last year, is 565,243*l*. The increase of the Customs is for the year 1,053,179*l*., for the quarter, 349,899*l*. Nothing is a better test of the well-being of the people than the Excise revenue, and this has increased in the year 334,002*l*., and in the quarter 135,658*l*. Stamps have increased 143,101*l*. in the year, but have decreased 7,941*l*. on the quarter. The Taxes yield in the present year 73,577*l*. more than last, and the present quarter 45,864*l*. more than the corresponding quarter of last year. The whole increase of the Post-office revenue in the year is 25,257*l*. and of this 23,000*l*. accrues in the present quarter.

We are glad to find that the report of the injurious conduct of the Baptist Missionaries in Jamaica proves to be unfounded. The following is an extract from a Despatch from Lieut. General Sir Lionel Smith, Governor of Jamaica, dated January 6th, 1839.

"But I will tell your lordship on what the agents in this country have founded their complaints against the Baptists and Stipendiaries. Previous to the 1st of August there were meetings of the planters in several of the parishes to fix wages. This was, no doubt, watched with suspicion. Were the poor negroes to have no friends to advise with, against a combination which was to grind them down to gratuitous labour with their old masters? This was the sin of the ministers and the stipendiary magistrate. They were found the friends of the negro when the object was to impose upon him, and then it is complained they interfered with 'the free and voluntary dealing' of master and servant.

"There was the same senseless clamour against me for advising the poor women not to perform heavy field labour (cane hole digging), my answer is that the first step to improve the civilization of the negroes in the West Indies, is to raise the condition of the women. I preferred the dictates of humanity to the interest of short sighted planters."

The Council of Upper Canada have refused to pass the Assembly's Bill for sending Commissioners to England. The Clergy Reserves question remains as unsettled as ever.

We are happy to record the following expression of regard entertained towards the Hon. Joseph Cunard by the inhabitants of Miramichi. The accompanying remarks are from the Gazette of Wednesday.

The Hon. JOSEPH CUNARD, who crossed the Atlantic in the Great Western, arrived at Chatham, Miramichi, on the 23d ult. He was received not only respectfully but very affectionately by the Inhabitants. A procession of the Tradesmen and industrious classes met him as he approached, accompanied him into the Town, and presented to him the subsequent Address. The compliment paid to him he richly deserves—he, as well as his Brothers, have done much for Miramichi. Their Enterprise and extensive Establishments have greatly promoted its prosperity and afforded employment to large numbers of Mechanics and Labourers: we like this exhibition of good feeling—we like to see the valuable services of an Individual so honorably and gratefully acknowledged.

TO THE HON. JOSEPH CUNARD.

SIR—

We, the Mechanics of Chatham, beg leave to express the pleasure we feel in congratulating you upon your safe return to your home; to acknowledge the value we attach to you as an intelligent and enterprising Merchant; for the patronage, encouragement and preference, at all times bestowed on our domestic manufactures; and for the determined spirit on every occasion evinced, to promote the local interests of the town, as well as the general prosperity of Miramichi.

We are deeply impressed with the large claim you have upon this section of the Province, for the praiseworthy manner in which you steered them through the crisis which convulsed the manufacturing and commercial worlds, in a way highly creditable to yourself and advantageous to them.

We notice with the liveliest emotion, the announcement of the stupendous undertaking which the firm of Samuel Cunard & Co.—of which you are the head in Miramichi—have entered into with Government, for the conveyance of the mails between Great Britain and the North American Colonies, by Steam. We are fully aware of the magnitude of this arrangement, and duly ap-