Scientific American

NEW YORK, SEPTEMBER 28, 1850.

Genius is Democratic.

It is related that on the evening before the battle on the Plains of Abraham, Gray's "Elegy on a Country Church Yard" was read in a circle of officers, among whom was Wolf, the commander-in-chief. So fascinated was he with that incomparable poem, that he exclaimed, "I would rather be the author of that poem than the conqueror of Quebec." Wolf was right in his estimate of imperishable fame. The conquest of Quebec and the name of Wolf, appear as specks upon the page of history,—but while the sun shines on the hills of England, the prairies of America, and the mountains of Gilboa, the name of Gray will be revered, and his "Elegy" will continue to influence and inspire thousands of hearts in every part of the world. If Wolf had survived, he would no doubt have been made a Peer, as warriors and statesmen seem to be the only kind of men worthy of such honors in England; but what is it to bequeath the family title of Duke or Lord, in comparison with living "with the living for ever," like Gray. Long rows of ducal coronots on gilded escutcheons, nod gloomily in a hundred noble vaults of old England, but what are the titles of the dead to the living?

By late accounts from Europe, it is stated that Robert Stephenson was offered knighthood, and refused it. The reasons for such a refusal he knows best himself, but the title of Baronet could not elevate him, as a man, one step above his present position—it would not confer on him a single honor. Nevertheless, we cannot but say that we like Queen Victoria for the offer. As this is the way aristocratical governments honor their citizens, we feel some pleasure in knowing that engineering attainments are highly estimated by the present British Ministry.

We have also been informed that M. Farrady had been offered knighthood, and refused it from religious motives. That great and good man has no earthly ambition but to do good, and labor for immortality. This reminds us of the offers of knighthood made to Benjamin West, and refused; to James Watt, and refused, and the Peerage to Robert Peel, and refused. Titles could not add honor to the fame of any of these men.

Our object, in this article, is principally to notice the simple dignity, and what we would call "noble humility" of those great men who refused the titles offered them by the admiring sovereigns of their country. It is well known how these honors are coveted by thousands, —some would give their weight in gold to wear such honors, but those men whose names we have mentioned, were made of other stuff.

It would be well if some of our own people —those who are so fond of the titles Honorable, Squire, Colonel, Captain, &c.—would learn a lesson from the conduct of those great men.

Our own Ben West, the great painter, was modest; James Watt, the inventor of the steam engine, was meek and retiring; Farrady, the profound chemist, is humble, and Stephenson, the great engineer, appears to have no desire for honors conferred by one who "can make a belted knight, a lord, and duke, and a' that," but who cannotmake an honest, honorable, nor talented man. Genius is truly Democratic—the names of those great men may go down to posterity untitled, but not unhonored nor unsung—for they were and are noblemen of the human race.

Our Foreign Correspondence.

We call particular attention to our correspondence of this week. Every thing said in it may be relied on, and we can say this much for it,—it is from a source which the proudest paper in the United States might envy. We hope our people will take a lesson from the manner in which justice is administered in Scotland in respect to steamboat accidents. Allison says that justice is perhaps better administered in that country than in any other. Our Southern readers will find something interesting about cotton, and every body will be interested with the valuable discoveries mentioned as having taken place in Nineveh.

Machine for the Artificial Production of Ice.

Our constant readers may remember a communication published in Volume 4, respecting an invention of Dr. Gorrie, for the artificial production of ice. The communication was from New Orleans, and it was answered in a cotemporary paper, seemingly, from the same place, but it was unworthy of a notice from us. Since that time Dr. Gorrie, who is residing at Apalachicola, has matured his invention, after many experiments and many failures, and has succeeded beyond expectation in producing a machine which, by condensation and expansion of air, produces ice artificially in quantity according to the size of the machine, and that is, in great abundance, at no great expense. He employs two force pumps, which are the principal parts of the machine. Into the pump for condensation of air, a smaller pump injects water in a fine shower, while the air is condensing, which thus absorbs the heat of the air that is given out in the act of compression. Between the condensing and expanding pumps there is an air reservoir, which is of considerable size, and made like a steam boiler. This vessel is intended to receive the condensed air and retard its passage, so as to afford time for its effective cooling, and to act as a magazine of force for working the expanding engine. The expanding force pump is the principal and most interesting feature of the whole, because it is the agent in which the expansion of the air and the production of cold first takes place. All the other parts must be nicely adjusted in propertion to this part, for the making of the ice economically. The absorption of the heat is accelerated by immersing this vessel in water, and causing a jet of liquid to be thrown into its interior, as into the condensing pump.

This liquid is not congealable, and is withdrawn from a larger, though properly proportioned quantity, contained in an insulated cistern, into which, after performing its office of imparting heat to, or in other words, absorbing cold from the expanding air, it is returned through the eduction valves of the engine. As the liquid of this cistern has its heat diminished at every stroke of the engine, by the abstraction of the jet at one temperature, and its return at a lower, it is practically a reservoir of cold—an accumulator of the refrigerative action of every cylinder full of expanding air. It is thus fitted to be the laboratory in which ice may be manufactured, and which it produces by abstracting the caloric of fluidity from water, immersed in it in suitable vessels.

Cold of an intensity of even hundreds of degrees below the atmosphere may be obtained by this process, but experiment shows that the temperature of the cistern most favorable for the rapid production of ice, is at about 10° F. The expanded air partakes of the same temperature as the cistern, and, therefore, at 10° F., leaves it charged with a high degree of cold, which the economy of the scheme requires should not be wasted. Instead, therefore, of being allowed to escape into the atmosphere it is directed through an apparatus—made like a brewer's refrigeratory for cooling worts—around which is placed the water it is intended to prepare for congealing.

It has been ascertained that pumps of a cubic foot capacity worked at a temperature of 90 deg. Fahrenheit, and fifteen revolutions a minute, are adequate to make a ton of ice per day.

Dr. Gorrie is not the least estentatious about his discovery, and what speaks volumes for his generosity, like Dr. Arnot, he considers his invention a benefit to the human race, especially in warm climates, hence he gives it freely to the public, and seeks no exclusive privilege from government.

To our Cotemporaries.

We are much obliged to you for the very favorable notices you have given of our new Volume. We are certainly much indebted to you for the good will you have always exhibited towards the Scientific American. Our friends are always increasing—we never had so many favorable notices before, nor so many of such a flattering nature. We are proud to know that the Scientific American is universally regarded with no little pride among our friends of the press. We will try and make it always worthy of their esteem.

A Question for the Curious.---Molten Metals.

Why will all the metals, and most other fusible solids, when in a fusible state, buoy up the same metal in a solid state?

1st. That this is the case is beyond the possibility of a doubt, as any one can easily satisfy himself by experimenting.

2nd. That iron, brass, lead, zinc, tallow, &c., &c., occupies less space when cool than when melted, I consider as certain from their shrinking when cooling.

Now, if it occupies less space when solid it must be heavier than when melted, and so the heavier swims on the lighter. A reason for this is requested. E.

[We publish the above to make a few comments thereon, as we receive a great number of communications of a similar character, which we do not answer, because a critical examination of standard philosophical works would lead the authors to the same conclusions with ourselves.

Our correspondent has overlooked the most singular phenomenon in both of his questions, without even thinking it was anything but what he could give a good reason for; that is, the rendering of metals fluid by heat:—can he explain that? All we know about nature's laws, is only secondary knowledge,—we cannot, and never will be able to judge of prime first causes, because we cannot reach beyond the laws of *our* own creation, which are cognate to those of all created objects. Every mechanic who has had cause to melt metals, knows the facts stated above, but for all this, those who do not know about such things, must suppose that the solid cold metal will keep floating on the molten and remain solid. No. When cold metal is put into molten metal, it floats for a time, but it soon mingles with the fluid, and can, by stirring, at once be made to sink. The cause of the metal floating is, no doubt, owing to electrical repulsion. A needle will float on water from the same cause. Every body knows this, but this is certainly no more curious than the fact of a piece of steel—a magnet—supporting, by the law of electrical attraction, a piece of iron many times its own size—(a piece of loadstone 14½ ounces having carried 16 times its weight.) Now, if the question is put to the most astute philosopher in the world, "why is the magnet thus enabled to lift a weight so many times greater than itself?" he could not answer. Scientific men know that certain things produce certain effects, and by induction they establish a theory, or in other words arrange the facts. This is science. The man who knows the greatest number of facts, is the most scientific man.

We are but partially acquainted with the relations of heat. Caloric is a chain, the middle links of which are all that philosophers see. Heat has the effect of expanding almost every thing, but not all, for it contracts alumina. It is generally supposed that heat hardens clay, and so it does; but apply a more intense heat to clay than is applied to burn bricks, and what have we? A fluid. Clay can be made fluid in a crucible, and a very hard substance when cool, is the result.

We have answered our correspondent, as well as any other scientific man could, and have endeavored to throw out some useful hints to others.

The Sea Serpent.

The sea serpent has been seen and shot at in the Cove of Cork, Ireland. Some of the scales of the sea serpent have been found, which his serpentship rubbed off on the supports of the "Beacon." A rifle ball was fired at him by a Mr. Travers, and it is supposed that he was wounded. He leaped thirty fathoms (150 feet) out of the water—so says Mr. Travers in a letter to the Cork Constitution. He must be a flying as well as a sea serpent, at this rate. Well done, ould Ireland.

War about the Materials of the Washington Monument.

At the late Meeting of the American Scientific Association, it is reported, that Prof. W. R. Johnson said, that the stone of which the Washington Monument, at Washington, is built was of poor quality, and would not last. Mr. Whittlesey, the President, we believe, of the Association, has written the following letter to the Assistant Marshal of Connecticut, denying the statement in terms a good deal more emphatic than courteous:

Dear Sir:—Your favor of the 3rd was received this morning with a slip of newspaper containing the false and infamous statement of Professor Johnson. It is totally unfounded in every respect, as you may perceive by the accompanying reports and article, of which another will appear to-morrow, which I shall send you. Every test and examination gives additional evidence of the superiority of this monument for the purpose of an enduring monument. It is a proper material in every way to build the whole structure of, in place of being used for facing of the main edifice, fourteen feet of the thickness of which is built of gneiss rock, the firmest in the world.

I am sorry that a man who styles himself Professor should so recklessly expose his ignorance. Most sincerely yours,

Elisha Whittlesey.

In addition to this, Robert Mills the architect, and Prof. Page, of the Patent Office, sent a letter a short time since to the Philadelphia Ledger stating that they had tested by a powerful hydrostatic press, the relative power of this stone, in comparison with others, to sustain a crushing force. The letter says the marble was selected by the Board of Managers with great care, after experiments and consultations with competent scientific gentlemen, and when a few courses were laid, Professor Johnson addressed a communication to the Board expressing this opinion, that the material was not durable, and he asserted he could crush it in his fingers like loaf sugar. The Board immediately took measures to test the material, and the result was that the average of eight different blocks tested showed that the crushing force of the marble exceeds ten thousand pounds, equal in strength to the granites, and capable of sustaining a weight four times as great as the Monument. The atmospheric action on the same description of marble was ascertained by Dr. Page to be the fifteenth part of one grain, (the specimens were cut into inch cubes, and the time of action four weeks,) compared with the large crystal marble of New York, (like that used in the facing of the General Post-office,) it was found to be but a moiety, while the Patent Office light sandstone lost 18 60-100 grains.

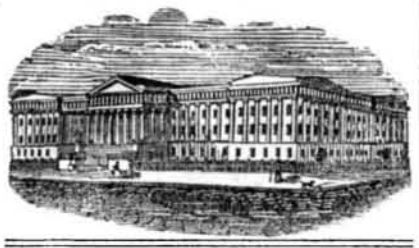
Perhaps Prof. Johnson may be able to prove his side of the question perfectly clear, the way Dr. Thompson once floored Dr. Ure.

Prizes by the American Institute.

The Institute this year will award a gold medal for the best plan for ventilating steam and sailing vessels; also, one for the best plan of ventilating public and private buildings. Five hundred dollars are also appropriated for premiums to apprentices—a very commendable practice, indeed. The Fair will be open three weeks. Those who desire to have engravings made of their machines for the Fair, can have them done at this office, in a far superior style than they can elsewhere.—Those desiring their inventions examined and noticed, should drop us a few lines, or call at the office.

An Improved Water Wheel.

We have received information from a trusty correspondent about a new Water Wheel, invented by Mr. Daniel Ehle, of Fort Plain, N. Y., who has applied for a patent. It is superseding the wheels in use around that place, and our informant, who is well acquainted with different kinds of wheels, states that it is better than any with which he is acquainted, and is superior to Rich's, which he considers an excellent one. We have a hope that we may be able to present this wheel to our readers, well illustrated, at some future day. Every improvement in prime motors is of great benefit to the world.



☞ Reported expressly for the Scientific American, from the Patent Office Records.

LIST OF PATENT CLAIMS

Issued from the United States Patent Office.

FOR THE WEEK ENDING SEPTEMBER 17, 1850.

To S. T. Armstrong & C. J. Gilbert, of New York, N. Y., for improvement in the process of working Gutta Percha.

What we claim, under the first part of our invention, consists in the use of lime or other alkaline substance, with heat, in the manner substantially as herein described, in the cleaning of gutta percha, to neutralize the acid or acids contained in that substance in its crude or native state, and thus preserve and render more permanent its useful properties, as specified.

And in the second part of our invention we claim compounding lime with gutta percha, substantially as herein described, for the purpose of improving its qualities, preserving it wholly or partly from deterioration, and protecting it against the injurious effects of the atmosphere and heat, substantially as described.

To C. D. Birdseye, of New York, N. Y., for improvement in the process of preparing cream.

I claim the process described herein of distilling milk and condensing the same in sugar, for the purpose of preserving the flavor, as set forth.

To Wm. Blake, of Boston, Mass., for improvements in Spike Machines.

I claim the heading and carrying nippers in combination with the shears, the header and the griping mechanism, the same being made to operate in connection therewith, substantially as above specified.

And in combination with the lower nipper I claim the spring catches, latching and unlatching apparatus, applied to it for the purpose above specified.

To F. A. Calvert, of Lowell, Mass., for improvement inmachinery for Ginning or Picking Cotton.

I claim the combination of such parts as I have shown, forming a picking machine and their mode of action, as hereinbefore described.

To J. W. Carpenter, of Pontiac, Mich., for improvement in processes for preparing wheat for grinding.

I claim the application of an acidulous composition to wheat or other grain, the said composition being principally vinegar, but I do not limit my claim to the exact composition of acids, as herein described, while the same effects can be produced by the vinegar alone, or when combined with one or more of the other acids, especially with the sulphuric acid, for the purposes set forth.

[This, we have heard, is a most valuable discovery.]

To W. A. Collord, of Cincinnati, Ohio, for improvement in Paper Filers.

I claim, first, the arrangement and construction after the manner substantially as described, of a box or receptacle for documents and papers, having a lid fitting loosely within it, which is made to press down upon the papers by a spiral or other suitable spring.

Second, The rod, or its equivalent, attached to the lid, and moving in the guide slits or apertures in the sides of the box, the said slits terminating in a notch or shoulder at their upper extremities, for the reception and retention of the rod during the manipulation and examination of the file.

To Ebenezer Danford, Jr., of Geneva, Ill., for improvement in Grain Harvesters.

I claim the application to a reaping and mowing machine, of two sickles, working together in opposite directions, as set forth in the above specification and accompanying drawings, so as to throw the weight of the moving parts upon opposite sides of the centre of the crank or bit, for the purpose set forth.

To H. H. Day, of Jersey City, N. J., & R. McMullin, of Great Barrington, Mass., for improvement in India Rubber Hose.

We claim the making of flexible hose or pipe, by combining india rubber leather with a tube or rubber, substantially as herein described, the whole being united, forming one solid tube, making a strong, durable, and flexible hose, adapted as a substitute for leather and other similar pipes for the conveying of fluids.

To Gerrett Erkson, of Hobart, N. Y., for improvement in the Plow Clevis.

I claim so making a clevis with teeth or prominences, and cavities on the front surface of a socket matching with corresponding depressions or cavities and elevations on the surface of a movable bar, that the bar and socket when set together by a screw or other equivalent fastening in the required position, may have numerous bearings and be wholly prevented from either sliding or revolving in any direction without breaking the continuity of materials of which the parts are composed.

I also claim, in combination with a series of radial ridges, or a circle of cavities on the end of a clevis socket fixed at the extremity of the plow beam, a series of teeth or of conical points on a movable clevis bar, so adjusted to each other, that the guide hole of the clevis-bar may be held in any required position, and at any necessary distance from the axis of the beam, without relying on friction of the surfaces to prevent slipping, in the manner and for the purposes herein set forth.

To John B. Fairbank, of Leon, N. Y., for improvement in Printing Machines.

I claim the mode of representing letters and the sounds of letters, by means of characters made by changes wrought upon a less number of movable type than the number of letters or sounds of letters represented. The type being made upon, or attached to, the bottom of wires or rods, which are worked by keys at or near the top, substantially as herein set forth.

To S. L. Graves, of Springfield, Ill., for improvement in Corn Shellers.

I claim the device herein described, for twisting and forcing the ears of corn between spring shelling plates, substantially as herein set forth.

To Sylvester Groesbeeck, of New York, N. Y., for improved tool for forming plaster cornices and mouldings.

I claim arranging a former, for making mouldings upon the walls and ceilings of a room, upon the diagonal of a square frame, and making an angle of forty-five degrees with each side of said square, for the purpose and in the manner described.

To George Mallory, of New York, N. Y., for improvement in Daguerreotype Plate Holders.

I claim the daguerreotype plate holder, constructed substantially as herein described, of a block with a spring edge, by which the plate is secured to it.

To Wm. Morrison, of Carlisle, Pa., for improvement in Spring-beams to Plows.

I claim, first, the adjustable spring-bar interposed between the point of draft and the frame of the plow, in the manner and for the purpose herein set forth.

To J. L Mott, of Mott Haven, N. Y., for improved roadway for rail cars and ordinary vehicles.

I claim the method, substantially as herein described, of making rails for the road ways of streets, &c., by combining with the rails on which flanched car wheels run, outer faces of sufficient breadth for the wheels of common carriages to run, made curved or inclined from the top of the rail, substantially as described.

And in combination therewith, I also claim making wide faces on the inside of the rails, substantially as described, for the wheels of common carriages to run on, as described.

To Benjamin Severson, of Schenectady, N. Y., for improvement in cast iron Railroad Car Wheels.

What I claim is a cast iron wheel in one piece, having the rim connected to the hub by two plates joined together at intervals, at points as small as may be, and nearly equidistant from the rim and hub, said plates being of such form that each section by the plane of the axes, passing through the points of union, shall present two pointed arches, uniting at the apex, the one springing from the ends of the solid hub, and the other from the edges of the rim—and a similar section between the points of union, shall bestow flat curved lines bending towards each other, and joining the ends of the solid hub with the edges of the rim; and a circular section passing through the points of union of the two plates, shall produce a double series of flat arches, united to each other at their ends. The whole being constructed substantially in the manner and for the objects herein set forth.

RE-ISSUES.

To Anson Atwood, of Troy, N. Y., for improvement in Stoves: first patent dated May 14, 1850.

I claim the air chamber, in which the air is heated previously to its admission to the fuel, in combination with the apertures by which the heated air is caused to impinge on the upper surface of the fuel, substantially in the manner and for the purposes as described.

To Isaac Gregg, of Philadelphia, Pa., for improvement in Brick Presses: first patent dated June 6, 1848.

I claim the making the moulds of extra depth, in combination with the elevation of the bricks in the moulds, after they have been pressed a distance equal to the extra depth given to the same, and the removal of the surplus thickness of the bricks, raised above the tops of the moulds, by a knife, or its equivalent, for the purpose of giving uniform solidity and perfection of form to the bricks, prior to their final removal from the moulds, substantially as herein set forth.

To Stephen P. Ruggles, of Boston, Mass., for improvement in Printing Presses, first patent dated Nov. 10, 1840.

I claim a platen raised and lowered by machinery substantially as above described, in combination with the movable tympan plate on which the sheet of paper is placed, and the bed supporting the type with their faces downwards, the whole being arranged, and operating together, substantially in the manner and for the purpose herein explained and set forth.

I claim supplying the press with paper, and removing the same after it is printed, into a box attached to the tympan carriage, by means of a vibrating table, operated by a cam on the shaft, in combination with a frisket, as above described, connected to the frame of the tympan plate, and pressed down upon said plate by a spring, and raised when the tympan carriage recedes with the printed sheet by means of a cam on the shaft, through the intervention of a bar with a roller, shaft, and angular piece of metal, the whole being arranged and operating together, substantially as hereinabove explained and set forth.

I claim grooving or channeling the fountain roller or plate under the same, in the manner and for the purpose above mentioned.

I claim the peculiar combination of machinery for the lateral vibration of the distributing roller; said combination consisting of the pulleys on the shaft, B, band, pulleys, rods (two lever, shaft and distributing roller frame, the whole being arranged and operating together, substantially in the manner and for the purpose above mentioned.

I claim the use of the side and cross strips, or either of them, in combination with a tympan supported by the platen plate, the said combination forming a pair of nippers, as it were, for rigidly holding the sheet, however small the margin may be, until it is effectually free, or disengaged from the form, after an impression is produced.

DESIGN.

To John C. King, of Boston, Mass., for design for bust of Daniel Webster.

What I claim as my invention, or production, is the design of a bust of Daniel Webster, as represented in the annexed drawing.

[As we have had many enquiries about whether a drawing was necessary or not, for busts, and alto-relievos, the above claim will give the necessary information to two or three late correspondents. Every thing but chemical discoveries require drawings.

Iron Direct from the Ore.

We see by some of our exchanges, that Mr. James Renton, of Newark, N. J., has erected, along with some associates, a furnace at Charlottenburg to make iron, by his new process, direct from the ore. If this can be done, then we can beat foreign manufactures with, or without a tariff.

For the Scientific American.

The Sinking of Ice.

The sudden disappearing of the ice in some of our northern lakes, at the approach of spring, has given rise to the notion that it sinks to the bottom. The well-known fact that the specific gravity of ice is less than that of water, nearly as 93 to 100, excludes the possibility of its sinking, as supposed.

As I observed that this theory of sinking was vindicated by a learned professor at the late meeting of the "American Association," I wished to show, in a few words, that this apparently singular phenomenon depends entirely on the specific gravity of ice being less than that of water. In consequence of this, ice must, in all cases, rise to the surface when left to float freely in water, however minutely it may be divided, as long as a crystal remains. The temperature of the deep water of those lakes, always more or less, counteracts the effects of the cold atmosphere of the winter around them. As the cold increases it first overcomes the temperature of the water in shallow places and along the shores, so as to form ice. This continues to extend and increase as long as the temperature of the atmosphere is so low as to absorb the caloric faster than it is supplied from below.

On the approach of a thaw the temperature of the atmosphere rises, and it ceases to absorb the caloric from the surface as before, while the heat from below reverses the process, and a thaw is commenced. The ice diminishes slowly at first, but as its quantity diminishes, the supply of caloric increases, and the melting will progress at a rapidly increasing ratio. During all the time of this process, all the ice that remains will constantly present itself at the surface, showing an immense sheet, while its depth is reduced to a mere pellicle, and the next hour it is completely dissolved. SILAS CORNELL.

Friends' Y. M. B. School, Providence, 9th M., 9th, 1850.

[There are some things about the sinking of ice, which our worthy correspondent has overlooked, viz., the suddenness with which very thick cakes of ice disappear. The sudden disappearance of ice is common on all the northern lakes—Champlain, St. George, Oneida, Ontario, and the River St. Lawrence. Prof. Olmstead was in error respecting the phenomenon being peculiar to Lake Champlain,—and we know, practically, that it is not reduced to a thin pellicle before it so suddenly disappears. There is what is called anchor-ice—ice seen lying at the bottom of rivers and ponds; we know considerable about such things. The anchor ice, as it is called at the North, will make a good subject for another paper to the next Convention, and it would be a benefit to science if some of our deep-thinking men would study, personally, the phenomenon next spring.

Steam between Philadelphia and Liverpool.

The project of establishing a monthly steam packet line between Philadelphia and Liverpool is likely to be realized, through the enterprise and liberality of Richardson, Watson & Co. They have headed a list of subscriptions to this undertaking with the sum of $100,000—one-third of the amount required to build two propeller steamships of 2,000 tons burthen, to run, once a month, to and from the places named, the passage to be made in 14 days; the number of steamers to be increased to four, if found necessary. The merchants of that city have long been talking of such a project, but this seems to be the first efficient step towards the enterprise. Its success will induce others to follow, and Philadelphia, through the agency of steam, may be again distinguished for her commercial prosperity.

Assuredly no city in the Union presents a better field for constructing steamships than Philadelphia, and it is not too much to say, that her anthracite coal will yet be used in preference to the bituminous, on sea as well as river steamships.

The Quickest Passage.

The Steamship Pacific arrived at this port on Saturday, the 21st inst., in 10 days and 4½ hours. This is the fastest passage ever made between New York and Liverpool.