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ERICSSON'S CALORIC ENGINE.

(*From the Newbrunswick Courier, Oct. 2.*)

We last week promised to lay before our readers a description of this new invention, which promises to supersede the use of steam as a motive power. The articles descriptive of the Caloric Engine were published in *Hunt's Merchant's Magazine*, for July, 1852, printed in New York.

After mentioning several circumstances to show the wisdom of the course pursued by Captain Ericsson, in not subjecting his invention to public examination, until he could present it in a shape so conclusive, as to satisfy the judgment of practical men; and to trample down that carping, sneering criticism, with which every and rivalry sometimes seeks to strangle the productions of insipid genius; which in the opinion of the writer, he has accomplished,—the article proceeds :—

We have, with great care, examined this machine, the principles and construction of which were fully explained to us by the distinguished inventor. It is alike remarkable for sublimity of conception and simplicity of detail. Like the forces of nature, its operations, although great, are gentle. Two engines upon this plan are now in operation at the works of Messrs. Hogg & Delamater—one of five horse, the other of sixty horse power.

The latter is the most extraordinary piece of machinery we have ever seen. It has four cylinders. Two, of seventy-two inches in diameter, stand side by side. Over each of these is placed one much smaller. Within these are pistons, which are attached to their respective cylinders, and so connected that those within the lower and upper cylinders move together. Under the bottom of each of the lower cylinders, a fire is applied. No other furnaces are employed. Neither boilers nor water are used. The lower is called the working cylinder; the upper the supply cylinder. As the piston in the supply cylinder moves down, valves placed in its top open, and is become filled with cold air. As the piston rises within it, these valves close, and the air within, unable to escape as it came, passes through another set of valves, into a receiver, from whence it is to pass into the working cylinder, to force up the working piston within it. As it leaves the receiver to perform this duty, it passes through what is called the regenerator, which we shall soon explain, where it becomes heated to about four hundred and fifty degrees, and then enters the working cylinder, it is further heated by the fire underneath. We have said, the working cylinder is much larger in diameter than the supply cylinder. Let us, for the sake of illustration merely, suppose it to contain double the area. The cold air which entered the upper cylinder will, therefore, not half fill the lower one. In the course of its passage to the latter, however, we have said, that it passes through a regenerator, and let us suppose, that as it enters the working cylinder, it has become heated to about four hundred and eighty degrees. At this temperature, atmospheric air expands to double its volume. The same atmospheric air, therefore, which was contained within the supply cylinder, is now capable of filling one of twice its size. With this enlarged capacity, it enters the working cylinder.

We will further suppose the area of the piston within this cylinder to contain a thousand square inches, and the area of the piston in the supply cylinder above, to contain but five hundred. The air presses upon this with a mean force, we will suppose, of about eleven pounds to each square inch; or in other words, with a weight of 5,500 pounds. Upon the surface of the lower piston, the heated air is, however, pressing upwards with a like force upon each of its one thousand square inches; or in other words, with a force of 11,000 pounds. The air, then, which, after over-coming the weight above, leaves a surplus of 5,500 pounds, if we make no allowance for friction. This surplus furnishes the working power of the engine. It will be readily seen, that after one stroke of its pistons is made, and it continue to work with this force, so long as sufficient heat is supplied to expand the air in the working cylinder to the extent stated; for so long as the area of the lower piston is greater than that of the upper, just a like pressure is upon every inch of each, so long will the greater piston push forward the smaller, as a two-pound weight upon one end of a balance will be quite sure to bear down one pound placed upon the other. We need hardly say, that after the air in the working cylinder has forced up the piston within it, a valve opens, and as it passes out, the pistons, by force of gravity, descend, and all is again ready, and fills the supply cylinder, as we have before described. In this manner, the two cylinders are alternately supplied and discharged, causing the pistons in each to play up and down, substantially as the pistons in steam-engines do.

We trust our readers will be able, from the brief description we have here attempted, to understand at least the general principles upon which this machine operates. Its cylinders draw their supply from the atmosphere. Its boilers of fire, the engine not being supplied by scalding vapour, drawn from hissing boilers. The caloric engine draws into its iron lungs, the same element which expands those of the most delicate child, and derives its motion and its power from that sustaining source, upon which depends the existence of all animate life.

We have endeavoured to explain the construction of the caloric engine. Its most striking feature consists in what is called by its inventor, the regenerator. Before describing this, we will present the grand idea upon which it is based. First let it be remembered, that the power of the atmosphere is precisely the same as that employed to produce steam within its boilers. It will be seen that from the very nature of steam the heat required to produce it, amounting to about 1,200 degrees, is entirely lost by condensation the moment it has once exerted its force upon the piston. If, instead of being so lost, all the heat used in creating the steam employed could, at the moment of condensation, be recovered to the furnace, there again it could, in producing steam in the boilers, but a very little fuel would be necessary; none, in fact, except just enough to supply the heat lost by radiation. The reason is obvious. Let us suppose the steam has passed from the boiler, has entered the cylinder, has drawn the piston forward, and is about to pass into the condenser, there to change its form, and be again converted into water. This steam, yet in the cylinder, and uncondensed, possesses all the heat it contained before it quitted of the boiler. It has driven the piston forward, but in that effort it has lost no heat. That source of power it still contains.

Let it be supposed that the heat contained in the steam could, at the moment it is converted into water within the condenser, be saved, and by some device be again used to create steam from water within the boiler, with what exceeding cheapness could the power of the steam-engine be employed. But it is quite impossible thus to re-apply the heat of steam: it cannot thus be saved; and hence every effort to economize in this manner would be unavailing.

The propositions we have here advanced were, it appears, more than twenty-five years since familiar to the scientific mind of Captain Ericsson. He was at that early period deeply impressed with their importance, and regarding heat as the sole source of motive power, was anxious to discover some element in which it could be so employed, that after giving motion to machinery, it should be returned to set over and over again for the same purpose. Little reflection was necessary to convince him that steam was not this element. It must consist of some permanent gas, and atmospheric air seemed admirably adapted to the purpose. Accordingly, it was employed by him.

In a work entitled 'A Dictionary of the Arts of Life and Civilization,' published in London in 1833, the author, Sir Richard Phillips, mentions an engine which Captain Ericsson then had in operation in that city, as "a machine which was intended to be refitted to the performance of those powers of machinery, which hitherto have been made to depend on the intervention of boiling water and its steam.' The author further says, that he 'has, with inexpressible delight, seen the first model machine, of five-horse-power, at work. With a handful of fuel applied to the very sensible medium of atmospheric air, and a most ingenious disposition of its differential powers, he beheld a mechanical agent, which appeared capable of extension to as great forces as ever can be wielded or used by man.'

The author adds :—'The principle of this new engine consists in this : that the heat which is required to give motion to the engine at the commencement, is returned by a peculiar process of transfer, and thereby made to act over and over again, instead of being, as in the steam-engine, thrown into a condenser, or into the atmosphere, as an useless waste fuel.'

During the last nineteen years, Captain Ericsson has employed much of his time, and expended large amounts of money, in overcoming those practical difficulties which are ever stumblingblocks in the way leading to the successful development of a great principle in new machinery. This has now achieved. The great principle of his invention, as stated by Sir Richard Phillips, is still retained, embodied in that practical and complete form, which renders this engine economical, absolutely safe, durable, simple in construction, and in action efficient.

Let us now attempt to describe the regenerator, to which we have referred. Without this, the machine we examined would possess, in point of economy, no advantage over the best constructed steam-engine. With it, the advantages are incalculable. We have also fully illustrated the leading idea conceived by Captain Ericsson, of employing heat over and over again. To attain this, is the object of the regenerator.

For the purpose of understanding this instrument, our readers will bear in mind the construction and operation of the machine. We have before stated, that atmospheric air is first drawn into the supply cylinder, from whence it is forced into a receiver, and that from this it proceeds towards the working cylinder, before reaching which it passes through the regenerator. This structure is composed of wire net, somewhat like that used in flour manufactories, of sieves, placed side by side, until the series attain a thickness, say of twelve inches. Through the almost innumerable cells, formed by the intersection of these wires, the air must pass on its way to the working cylinder. In passing through those, it is so minutely subdivided, that the particles composing it are brought into close contact with the metal which forms the wires. Now let us suppose, that the portion of the regenerator at the extreme end nearest the working cylinder is heated to a high temperature. Through this heated substance the air must pass before entering the cylinder, and in passing through it, it takes up, as is demonstrated by the thermometer, about 450 degrees of the 480 degrees of the heat required, as we before stated, to double its volume. The additional 30 degrees are communicated by the fire beneath the cylinder. As the air, thus rarefied, expands, it will force the piston upward; it has done its work—valves open—and the imprisoned air, heated to 480 degrees, passes from the cylinder, and again enters the regenerator, which it must pass before leaving the machine. We have said, that the side of this instrument nearest the working cylinder is hot, and should be here stated, that the other side is kept cool, by the action upon it of the air entering the supply cylinder, and passing in portions of its volume. Consequently, as the air from the working cylinder passes out, the wires absorbs its heat so effectually that, when it leaves the regenerator, it has been robbed of it all, except about 30 degrees. In other words, as the air passes into the working cylinder, it gradually receives from the regenerator about 450 degrees of heat; and as it passes out, this is returned to the wires, and is thus used over and over again, the only purpose of the fire beneath the cylinders being to supply the 30 degrees of heat we have mentioned, and that which is lost by radiation and expansion. Extraordinary as this statement may seem, it is nevertheless incontrovertibly proved by the thermometer to be quite true.

When physical causes, productive of unexpected mechanical results, are carefully examined, they will always be found adequate to effect what, upon a cursory view, might appear marvellous or incredible. Thus, after an examination of the reason why this compact regenerator so effectually absorbs and transmits heat, its operation, will cease to create wonder, although it cannot fail to excite profound admiration. We will state the causes of its efficiency.

The regenerator, contained in the sixty-horse engine we have examined, measures twenty-six inches in height and width internally. Each disc of wire composing it, contains 676 superficial superficial inches, and the net has ten meshes to the inch. Each superficial inch, therefore, contains 100 meshes; which, multiplied by 676, gives 67,600 meshes in each disc; and as 200 discs are employed, it follows, that the regenerator contains 13,520,000 meshes, and consequently that as many small spaces are left between the discs as there are meshes, we find that the air within is distributed in about 27,000,000 minute cells. Hence, it is evident, that nearly every particle of the whole volume of air, in passing through the regenerator, must come very close contact with a surface of metal, which heats and cools alternately. The extent of this surface, when accurately estimated, actually surpasses belief.

The wire contained in each disc, is 1,140 feet long, and that contained in the regenerator, is consequently 228,000 feet, or 41½ miles in length, the superficial measurement of which is equal to the entire surface which a cylinder fifty feet in diameter, and one foot feet in diameter; and yet the regenerator, presenting this great amount of heating surface, is only about two feet cube—less than 1-1000 part of the cubic contents of the engine.

Involved in this wonderful process, of the transfer and re-transfer of heat, is a discovery which justly ranks as one of the most remarkable ever made in physical science. Its author, Captain Ericsson, long since ascertained, and upon this he based the sublimest feature of his caloric-engine, that atmospheric air and other permanent gases, in passing through a distance of only six inches, in the fiftieth part of a second of time, are capable of acquiring, or parting with, upwards of four hundred degrees of heat. He has been the first to discover this marvellous property of caloric, without which atmospheric air could not be effectively employed as a motive power. The reason is obvious. Until expanded by heat, it can exert no force upon the piston. If much time were required to effect this, the movement of the piston would necessarily be so slow as to render the machine inefficient. Captain Ericsson has demonstrated, however, that heat may be communicated to and expansion effected in atmospheric air with almost electric speed; and that it is therefore, eminently adapted to give the greatest desirable rapidity of motion to all kinds of machinery.

We have thus attempted to describe only a machine destined, as we believe, to work a revolution in the commerce of the globe. It consumes but a very small proportion of the coal required for the steam-engine. It is entirely free from every element of explosion or of danger. Watchfulness is not imperatively required, as in the steam-engine. If left unattended, the worst that can happen is, that after exhausting the heat of its fire and of its regenerator, it will stop. We have seen one of these machines, which had been run at full speed during twenty-four consecutive hours, consuming but nine hundred and sixty pounds of coal. After feeding the fires, it continues to run three hours without replenishment, and after withdrawing the ashes, it continues to work with a full power for the period of one hour, in consequence of the astonishing action of its regenerator alone. We believe, we have not, in the slightest degree, overrated the importance of this machine, in point of economy and safety. If we have not, the world may well start with exultation. In magnitude of results, no invention can rank with it. The electric telegraph is one of great interest and value, and to him who reflects, that the electric lightning has by it been made to have been tamed, and brought to the very lips of man, there to be freighted with human language, and sent abroad, to girdle the earth with thought, it seems almost sublime. Still, it is generally inferior, in practical importance, to the discovery of a motive-power such as we have attempted to describe. Human speculation fails adequately to estimate its influence upon the social and commercial relations of men and of nations. Its effects will naturally be first exerted upon the ocean. It is here that the value of such a power will be most appreciated. Here it will soon become the strong arm and right hand of commerce. It may be different with steamers, built with engines on this plan, a ship of a thousand tons can be propelled from San Francisco to China and back, with less coal than is now required for an ordinary ocean-steamer to cross the Atlantic.

The annals of the mechanic arts furnish no instance of an important invention having been brought before the public in so complete a form as to warrant its being carried out on a scale of the first magnitude from the outset. Ericsson's Caloric Engine will form an exception. It may be affirmed with confidence, that vessels, built expressly for the reception by Messrs. Perrine, Patterson & Stack, measuring twenty-two hundred tons burthen, and her engines, which are being constructed by Messrs. Hogg & Delamater, comprise four working cylinders, each of 168 inches in diameter. We have visited both the ship-yard and the engine-manufactory, and have inspected with more than ordinary interest the work on which more than four hundred men are now busily engaged. The ship is quite a remarkable structure, both in point of form and strength. The engines being placed in the centre of the vessel admit of a better form of midship section than in steamships. Of this the builders have availed themselves by giving such a rise to the floor that strength and easy lines for passing through the water are appropriately combined. The lines of the ship at the entrance are singularly fine; and yet by a very judicious application of the 'wave line,' as it is technically called, the low possesses all the fullness requisite for a good sea-boat. The run is alike peculiar for easy lines combined with stability and requisite bearing. The strength of floor, which is built entirely solid from stem to stern, surpasses any thing we have seen in this country, noted as it is for producing the best ships in the world. In order to give additional strength to the ample timbers, the entire frame is bandied by a double series of diagonal braces, of flat bars of iron, let into the timbers at intervals of about three feet, each series being riveted together at all the points of intersection. In addition to the ordinary central longitudinal keel, the engine bearers, which are the keels of the floor timbers, for three-fourths of the length of the ship. On these keelsons the bed-plates of the engines are secured by bolts passing through the floor timbers. These bed-plates extend over the entire area occupied by the engines, and present a continuation of iron flooring, not witnessed in any steamship. The security thus attained is further enhanced by dispensing entirely with the numerous holes through the bottom of the vessel, which in steamers are necessary, and have often brought that class of vessels to sinking condition. The engines being arranged in the centre of the vessel, the decks are cut off at its entrance, and as the whole of the machinery is confined within a vertical trank 76 feet long and 18 feet wide, ample space is left on each side of the ship for staterooms along its entire length, with unbroken passages, fore and aft, on either side.

The freight-deck also presents an unbroken area fore and aft, diminished only in width in the central part of the vessel. The coal being carried in the bottom, on each side of the engines, the fore and aft hold are clear for freight. The central compartment of the engine involves, of necessity, a *central* crank, and thus the spar-deck presents an uninterrupted area, on both sides, the ordinary obstructions crank-bearings being dispensed with. The slow combustion peculiar to the caloric engine renders the huge smokechannel unnecessary. A short pipe to carry off the gases produced by the combustion in the furnaces takes its place in the caloric ship. The absence of steam in every form is sufficiently important in producing a more pleasant atmosphere than in steamers, but far more remarkable is the fact, that the quantity of air which will be drawn into the engine, in the course of the voyage of a vessel of the engines, will exceed *sixty tons in weight* every hour! Captain Ericsson, is calling our attention to this fact, furnished us with a few figures that we feel certain our readers will be as much as we did, to comprehend how so vast a ventilation is effected. Each supply piston presents an area of 102 superficial feet, with a stroke of six feet. 612 cubic feet of atmospheric air will therefore be drawn into the engine at each stroke; and when the engine makes fourteen strokes per minute, 8,568 cubic feet. But as there are four supply cylinders, they will, in this space of time, draw in 34,272 cubic feet: and in 60 minutes there will be thus circulated 2,056,320 cubic feet. The weight of atmospheric air is nearly 13½ cubic feet to the pound; and thus it will be seen, that 68 tons of air drawn from the interior of the ship, through the engines, and passed into the atmosphere, every hour. The effect of such an extraordinary system of ventilation, in purifying the atmosphere of the ship, is self-evident.

The simple construction of the caloric engine, and the small quantity of coal to be handled, will reduce the number of engineers and firemen, in the aggregate, to less than one-fourth the complement required for steamers. This great reduction in the number of men, whose duties are incandescent and dangerous, will still further promote a purer state of atmosphere in caloric ships than in steamers. Again, as no smoke whatever is produced, when anthracite coal is used, the decks and rigging of the caloric ship will be as clean as in sailing vessels. We examined the combustion of the sixty horse caloric-engine most critically. No smoke could be detected issuing from the chimney, and we understand that with such a slow combustion and easy firing, smoke cannot possibly emanate from the anthracite consumed in the furnaces. Europe has scarcely any of this fuel, and in a national point of view, therefore, the invention of Captain Ericsson is important. We congratulate the commercial world, that this invention is to be presented upon a scale and in a manner commensurate with its surpassing importance. The experiment, on a large scale, now instituted by Mr. John B. Kitching, a merchant of the city of New York, who has for this purpose associated with him a few gentlemen of wealth and high standing. It is fortunate that he possesses the requisite means to carry out his enterprise with all the advantages to be derived from the introduction of this new motive power. He at once concurred with Captain Ericsson, that its development in practical operation would be of great value, but no doubt could thereafter be entertained concerning either. So far as human scrutiny and foresight can penetrate, this invention promises to be the richest boon to commerce and civilization yet attained by the application to machinery of the mighty energies exerted by Omnipotence for the benefit of our race. Upon the manner of its first introduction to the world will, in a great degree, depend the time within which it will be made generally available in practice. Mr. Kitching will be remembered as the man whose sound judgment and perfect self-reliance have so contributed to present the caloric-engine to the public, that a second trial will not be required to warrant its universal adoption.

THE FUTURE DESTINIES OF AMERICA.

"Among the various fields of broad political speculation there is none more suggestive than that discoverable in the future destinies of America. We use the term as importing not simply the thirty-three United States, but the entire western world —the two continents comprehended in the term "America." Of Europe Napoleon once remarked, that in half a century's time it would be either Republican or Cossack, and we can at least conjecture, which of these two it will not be. But how is the fate of America to be delineated or conceived? In their present political condition these immense territories resemble those of Europe in the days of Charlemagne. They are imperfectly stocked by a motley population, including barbarous tribes, degenerate races, rising communities, and powerful States. From North to South, and East to West, everything appears in process only of formation, incomplete and undecided. If we except the boundary between the British colonies and the Union—and, perhaps, there is no great reasonably for making even this exception—we shall find no frontier, demarcation, or limit likely to be stable between the Polar Sea and Cape Horn. It is as uncertain which or what will be the States of the American continent, as it was what would be the Kingdoms of Europe ten centuries ago. English, French, Russians, Spaniards, and Portuguese have each their representatives in the field, but besides these is a composite community more powerful than all.

If the reader will glance at a map of America he will observe that the two continents appear fairly and intelligently partitioned among greater and smaller States, but the truth is that few of these formations or divisions give any promise of durability. Next to the United States lies the famous country of Mexico, one of the noblest territories in the world, and so vast that before its recent losses, its extent was more than five times that of the Spanish Peninsula. To this day it comprises immense provinces abounding in mineral and vegetable wealth, rich in historic traditions, and possessing advantages from geographical situation which are second to none. But Mexico at the present moment exists in little but name. It cannot maintain, organise, or maintain any constitution or government. It cannot discharge any of the functions of a State, or provide for any political necessities, domestic or foreign. Its substantial anarchy is only mitigated by the sparseness and indolence of its population. It has no frontiers except on the map; the very Indians invade it at all points with impunity, and an enemy more formidable than the Indians is waiting for the inevitable consummation which it would be wholly superfluous to precipitate.

To Mexico succeeds a chaos of republics, resembling it in origin, prospects, and position, and stretching from the passes of the Isthmus, almost to Cape Horn. The very names of these States are only known to European readers as those of repudiating debtors. Their wars, though conducted with the ferocity of cannibals, and almost deserving a record from their very barbarity, survive scarcely the memory of their own generation. To enumerate the constituent provinces of "Columbia" would seem a gratuitous piece of pedantry, and it would read like a mockery if we expatiated upon the demarcation, politics, and prospects of Peru, Bolivia, Chili, La Plata, Oriental, and Paraguay. The most assiduous student of current history, recoils from the murders, massacres, and revolutions of people whose energies appear concentrated on homicide, and whose actions seem scarcely more comprehensible than those of the Polynesian islanders. For such communities no permanence can be reasonably anticipated, and it would be easy, indeed, to say in what respect the cutthroats of Buenos Ayres surpass the native savages of Patagonia.

The eastern half of the southern continent is absorbed in the enormous Empire of Brazil—a State which has at least a legitimate dynasty, an ancient title, a settled Government, and a respectable population. By its righteous and liberal treatment, 50 of the colonies of Portugal have maintained the worst element of political evil, and the sincerity which it is now evincing in the abolition of the slave-trade is evidence both of sound policy and administrative power. But there is little energy in the Brazilian character. They are clearly not a conquering—scarcely, perhaps, an enduring race, and they are almost lost in the boundless expanse of territories nominally their own. We see, therefore, in America three great divisions—those of British America, America by excellence, and Brazil. The second of these, in its present condition, is the least. If years have doubled its extent, is still not so large as either of the other two, and yet this extraordinary State already aims at universal dominion, and stretches its views of conquests over two continents and two oceans.

We need be at no trouble, we are sure, to bespeak the notice of the reader for the letter of our American correspondent, which we publish to-day. An "Order" has been instituted in the Union, under the name of the "Lone Star," for the avowed purpose of extending the "power, influence, and commerce of the United States *over the Western Hemisphere and the islands of the Atlantic and Pacific Oceans.*" The highly figurative language in which the objects of the society have been described in its public ceremonies is likely to excite more ridicule than interest, and some allowance must doubtless be made for the exaggeration of which all transatlantic reports are found in partake. We believe, however, that the League of the ascribed does in reality symbolise a ruling sentiment of the Union; that, it is not unlikely to supply organization to resources which wanted little else, and that the sketch given by our correspondent of its probable operations is not overcoloured. So mighty, indeed, are the actual strides of the United States towards dominion, that they can hardly be exceeded even by visions of this extraordinary society. Though Texas and California are scarcely yet connected in the political fabric of the Union, we have seen the first step taken to the absorption of Mexico. But this week our intelligence from Washington announced that in dealing with Mexican territory of the Isthmus of Tehuantepec Congress would not condescend to any negociation with the Mexican Government; and while a new and more formidable attempt upon Cuba is almost only matured, a design upon the Sandwich Islands is advertised with scarcely a paragraph to spare. Napoleon did not deal with Europe more freely than the United States propose dealing with America, and the very nation which in the case of the Lobos Islets exclaims against the unreasonableness of Peru in pretending to territory 10 miles from its coast, is content with hovering over the Islands of the Caribbean, in pushing its claim pretensions across the broad Pacific, and endeavouring to extend its jurisdiction to a distance of a thousand leagues.

Whether or not the Union possesses stability enough in itself to carry it through the ordeal of such extensive aggrandizement may be a question of doubt, but it is not to be denied that the disorganization of the American continent, is such as almost to invite the attempts of a conquering Power. The States, too, though they are actually independent, contain within them a population immensely exceeding that of the other communities on the two continents even in numerical strength, and incomparably superior in energy and intelligence. Hitherto, by an unparalleled fate, they have escaped all intermeddling, and whatever race, without any perceptible modification of their political unity, and the desire of preserving the Confederation entire does really appear to have prevailed for the time over all other passions. If this feeling should still predominate, it is difficult to put any limits to the possibilities of the future; but it seems not a little singular, that visions of such unscrupulous conquest should be entertained at a moment when the disruption of the original States has been seriously threatened, and is still a matter of public declamation.—*London Times.*

AMERICAN INGENUITY.—An English paper publishes a series of lectures on American ingenuity, recently delivered in Boston by a Mr. McTennon, of the British Navy. The following is an extract :—

"He thought there was something original in the American mind, and that as far as invention went, they were the first in the world. This was to be attributed to various causes; and they were more inventive than the English for the following reasons :—If a man invented anything in this country, he was looked upon as a projector, and his efforts did not meet with encouragement; but, if he invented anything, ever so little, he was considered a great man, taken in hand by influential men, and made a fortune. He knew several who had amassed large sums, from £1000 to £20,000. He should like to see a Englishman do the same—he would be laughed at, if he expected it. [Applause.] The first invention he could speak of was one that amused him very much. He saw a large ship which was coming to Europe with wheat, and alongside was a very curious thing, like a mud machine, and several bags full of grain. He was very much astonished, and went on board to examine the machine, which he found to be a great elevator, which was intended to pump the grain from the barges into the big ship. He at first laughed at it, and thought it a Yankee invention and a fib, but when he got on board, he found that it pumped the grain at such an awful rate, that it almost drowned him before he got up the hatchway. [Laughter and applause.] He found it delivered 20,000 bushels per hour. "Suppose," said the speaker, pointing to the ceiling, "there was a great hole up there; it would send the grain at such an awful pace, that we should'nt all get out—for we should be drowned, quite half of us. [Great laughter.]

The next thing that struck him as an ingenious matter was at Cincinnati, where the hogs killed in the Western States last year for exportation were 954,000. There was a man there who discovered a method of making gas from hogs' lard. [Great laughter.] It seemed a funny thing, but it was a fact. The Mayor of Milwaukie city, in Wisconsin, who was a great friend of his, actually told, him that he was making a bargain with the man to light the town with gas out of hog's lard. He certainly did not live there long enough to see it himself, but he was told it was true, and he believed it. [Cheers.] Another invention was a zine paint, which he described as being most beautiful, and worth a trial by all present. Another very ingenious thing he had witnessed at the Patent Office in Washington. It was pointed out to him by a gentleman, but he could not describe it. It had a large handle to it, and he asked what it was, when he said it was a sewing machine, [great laughter,] which could make seventeen pairs of pantaloons a day; but it was then out of order, and would not work, and he did not see it himself, and he could not therefore vouch for its accuracy, but he believed it to be true.