Scientific American

NEW-YORK, JANUARY 29, 1853.

Mechanics and Industrial Education.

A convention was recently held in the city of Albany for the purpose of forwarding measures to the establishment and endowment of a college in this State, where young men will receive a profound education, and be taught practical mechanics. An association for this purpose, of which D. C. McCullum Esq., architect, an excellent man, is President, has been in existence for some time. The objects of the association are good; we like them, and we hope to see them carried out fully and fairly by the contributions of the mechanics of the State of New York, independent of all political patronage. At the said convention, W. Deering, of Albany, stated that the operatives belonging to the manufacturing establishment to which he belonged, had set in operation a plan for raising funds to establish the People's College. The plan is for each operative to pay in six cents per week as an endowment fund. This is commencing the work in the only rational and proper manner to ensure success. If all our mechanics throughout the State would go into this scheme heart and hand for one year, they would raise a handsome fund indeed. There are no less than 200,000 mechanics in this State, and if each one could pay six cents per week into this fund, it would amount to $12,000 per week, or $624,000 in a year. If one-half of this number would thus contribute (a number which we think are able to contribute), they would in one year establish the strongest college in this State. But will they do it? that is the question. This project originated with the "Mechanics' Mutual Protection," an order which at one time promised to to be exceedingly useful and beneficial to manufacturers and mechanics. Its objects were to cultivate a good feeling between them, and to advance knowledge and skill in the arts. Many of the best mechanics in this State joined it, and hailed its rise as the dawning of a brighter day. It prospered for a few years, and has still a weak existence. It might have been prosperous and strong now had not some political enthusiasts endeavored to make it subservient to party purposes. It has done some good however, and it may rise again, and become wise and beneficial.

With respect to Industrial Colleges, some foreign countries are far in advance of us, but not so in Britain, for there are no such institutions in that kingdom. On the continent of Europe, however, they have been in existence for a long period, and have always been advancing in usefulness. In many of the German States, institutions for industrial instruction are in a highly efficient state. The pupils reared in them are in constant demand, and are esteemed above all others. In the Trade Schools and Polytechnic Institutions of Germany, it is estimated that 13,000 men annually receive a technical and scientific training; and in schools attended by the working classes during their leisure hours, upwards of 20,000 operatives are systematically studying the elements of science and art. In the capitals of the German States there are central institutions of the nature of industrial universities, the object of which is to teach the principles of science and art applicable to production, preparatory to their being afterwards practically followed out in the operations of the factory and the workshop. The importance of these technical colleges is recognized by even the smallest of the German States, which support them at considerable expense. In the institution at Carlsruhe (Baden) with its museums, laboratories, and workshops, there are 330 pupils, whose training is superintended by 21 professors and teachers. The Central School of Arts and Manufactures in Paris annually educates 300 pupils in applied science and art, and exhibitions in connection with it exist in 29 departments, for the instruction of poor but meritorious artisans in the provinces. The pupils of this school readily find employment on leaving it, and 500 of them are known to be holding posts of importance in various parts of the world.

No country in the world has progressed so rapidly in the knowledge and skill of the industrial arts as these United States within the past 20 years. Every machinist knows what great improvements have been made in tools and all kinds of machines. We are not marching forward merely, but running a race for the character of "the master mechanics of the world." With the establishment of Industrial Colleges in every state, the time will soon arrive when this character will be ours.

Miller's Evaporator.

The annexed engravings are views of an evaporator for marine steam boilers, to supply any deficit of pure water by the surface condenser of James. M. Miller, of this city. The condenser was illustrated and described on page 17, this volume, Scientific American, and our readers will acquire a perfect understanding of the whole subject by consulting the said description in connection with this one.

Figure 1 is an outside view of the evaporator, and figure 2 is an interior view—a vertical section of figure 1 taken, through the dotted lines, D C. The same letters refer to like parts.

This evaporator is simply a distilling apparatus, constructed with tubes of the same kind as that used for the condenser, and is merely to distil from salt water any deficiency of the fresh condensed water for the boilers. Very little will be required, but it is best to have appliances to meet every emergency. Salt

Figure 1.

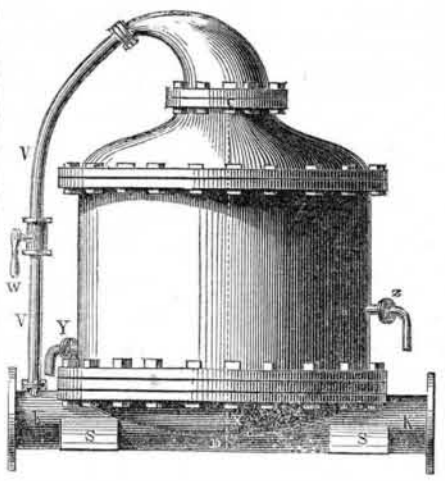
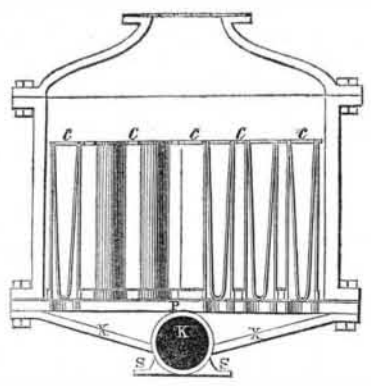


Figure 2.



water is introduced inside by forcing it by a pump through the pipe, Z, which can be washed out, when saturated, by the pipe, Y. This apparatus is placed nearer to the boiler than the *heater*, represented on the page referred to above. K K is the pipe which connects the exhaust pipe of the steam engine with the condenser. The vessel being filled with salt water, the steam of the exhaust passes up into the pipes, C C, figure 2, from the pipe, K, which is open inside to allow this. Two of the tubes are represented in full. Allowing the salt water to be cold, when the steam is first let in, condensation of the steam will take place for a short time, but it will flow onwards to the condenser. When the salt water is heated to steam heat, moderate evaporation will take place, and the vapor will pass up and then down the pipe, V, into the condenser; W is a cock to open or close communication with the vaporization chamber; S S are flanges to support the apparatus and bolt it on a suitable bed-plate; X X are side flanges which perform the office of braces; P is the bottom plate. All the outside parts are of cast-iron, and are made strong and durable. Water gives off some vapor, at a lower temperature than 212° as can be noticed in any boiler or during solar influence. A small apparatus of this kind, used perhaps once or twice on a voyage across the Atlantic, it is believed will be sufficient to make up any slight loss of condensed steam, to be used over and over again for the boilers, and thus meet any loss.

The surface condenser was the first which was tried by Watt, but he found so many difficulties connected with it, that he early abandoned it for the *jet* condenser, which allows the condensed water to flow away along with the injection. A good surface condenser for steamships is certainly a very desirable apparatus. The use of fresh water for the boilers instead of salt, which is now used, would save at least one-fourth of the fuel, and would in respect to its action upon the boiler, enable one to endure twice as long. Tubular boilers, owing to incrustations being so liable to form in the necks of the tubes, have always been objectionable for using salt water, although otherwise they are by far the most economical as steam generators. A good surface condenser whereby they might be fed over and over again with pure fresh water, is just what is required for them.

We are well aware that many surface condensers have been tried and laid aside, owing to the unequal expansion and contraction of the metals of which they were composed.—On our advertising page will be found the advertisement of Cobb, Mason, & Hill, of North Point Foundry and Machine Works, Jersey City, who have used the condenser for more than a year, and who will warrant them against fracture by the expansion and contraction of metal.

Stoves, Something Wanted.

There are perhaps one hundred stoves made in these United States, for one in any other country of an equal number of inhabitants. There is an old saying, "practice is perfection," which should be true, but *common sayings* are not always truthful ones, for assuredly we are far from having arrived at perfection in the manufacturing of stoves. We are not in possession of the statistics of the stove trade, but we have no doubt that it is one of the most extensive and prosperous in our country.—With all our extensive practice, where is there a stove to be found that has not some glaring defects. Our parlor stoves are destitute of tasteful and chaste ornament. The great majority of them seem to be designed upon the principles of elaborate and coarse flowered surfaces, as if these constituted the soul and body of stove beauty. While we are writing this, a parlor stove before us exposes a most inordinate amount of carved work, which the designer no doubt thought would immortalize his name among the craft, or make his fortune. If he had left off all his flowers and devoted his attention to the form of the stove, he would have done more for his own credit and that of our country. Stove designers seem to be smitten with the idea that combinations of flowers, scrolls, &c., constitute the very perfection of their art. Do the flowers of sculpture and architecture constitute the highest degrees of these arts? No, they are to the statute and temple what binding and lace are to a coat, they cannot make it look graceful or pleasing to the eye if it is of a bungling form. More attention should be devoted to the general form of parlor stoves; the French display much taste in the few stoves which they make.

We have never seen a stove of a perfectly convenient construction for domestic use, especially in the cleaning out arrangement, and for kindling the fire. Cylinder stoves, although very neat and excellent in their way, are exceedingly inconvenient for cleaning out. The fire of all stoves should be so placed with reference to the door, that it can be cleaned out with a shovel. Now, no stove that we are acquainted with is thus conveniently constructed. A common stove, after being kindled, when it fails to ignite the coal, is very troublesome to clean out and re-charge again. The cylinder stove has no convenience in arranging for kindling with wood and charcoal. We are speaking of coal stoves, those made for burning wood are convenient enough in this respect.

For cleaning out the oven—the low oven of a stove—it would be very easy to cast the back plate with an opening to be covered with a slide plate running in between side grooves like the lid of a box, this plate could be removed, and at any moment a small hoe might be introduced without any trouble to draw out the dust and soot, and thus keep the flues always clean. The patents for stoves are very numerous, but the right kind of stove has yet to be invented.

Paine's Patent for Ventilating Cars.

A correspondent enquires of us if it is true "that H. M. Paine's patent for railroad cars has been overthrown by H. B. Goodyear, the assignee of E. Hamilton, on a case brought before the present Commissioner of Patents."

We would state for the benefit of our correspondent, and perhaps many others, that H. B. Goodyear has published advertisements setting forth that in the case of an "appeal" or matter of "interference" between Henry M. Paine and H. B. Goodyear, assignee of E. Hamilton, priority of invention was decided in favor of Hamilton as the inventor. H. B. Goodyear gives information to all the railroad companies (and especially the "New York Car Ventilating Company,") who have derived licences from Paine, that unless settlement is made within a reasonable time they will be sued for violation of the patent.

On December 18th, 1852, the Commissoner, of Patents, S. H. Hodges, Esq., decided that E. Hamilton was the first inventor of the improvement for ventilating railroad cars, by the arrangement of *vertical blinds or shutters* adjusted to act as deflecting panes.

This decision may not be final. An appeal can be carried to the Assistant Judge of the District of Columbia, and from him to the District Court of the United States here (N. Y.) There is something about the business which we have not yet been able to dig out. H. M. Paine received a patent on the 6th of January 1852, the decision of the Commissioner of Patents cannot overturn that patent. A Judical Court has the power to declare *it void* and of none effect, and no other. What may come out of this case we do not know; the Commissioner of Patents made the decision upon the evidence presented to him, but that is all, it does not settle the matter by any means.

British Patents for Colonies.

Since we penned the article last week about Patents for the Colonies of Britain, we have received a letter from a correspondent, who states that the British Government has no right nor business to grant patents for Colonies, which have obtained Legislatorial authority; "consequently," he says, "all the money that has been received for such purposes, by said Government, was obtained under false pretences." This is strong language. He also asserts that "an American can import a patented article into Canada, in defiance of all the patents there which are granted only to residents and citizens." We affirm that it is the duty of the British Government to provide a means for foreigners obtaining patents in the colonies, since they cannot obtain such privileges by Colonial authority.

Another New Motive Power.

In the "New York Tribune" of Saturday last, Darius Davison publishes a long advertisement about some new motive power which he has discovered, that is to save 90 per cent. of fuel. One such Power is enough at once; we hope he will bring it out soon, so as to give the public a view of it. We are prepared for the "Wooly Horse" whenever he makes his debut. Those sea captains who trust to good sails save 100 per cent. of fuel; Mr. Davison is therefore ten per cent. behind the old sea marks yet. The next discovery may be a power to make two pounds of coal for one used.

The Clock Lamp.

A correspondent informs us that Robert Wicks, formerly of Williamsburgh, now of this city, invented a Clock Lamp seven years ago, which was like that recently patented in England by E. Whele.