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Labor Lost.

It is no uncommon thing for some men to spend years of earnest thought and earnest toil, to produce works of striking ingenuity, and after having, as they supposed, brought their works to perfection, discover that others have preceded them, and their labor is lost. And instead of receiving the plaudits of the multitude, and rich rewards for their sleepless nights of anxious thought, and days of ceaseless toil, meet only with the mortifying intelligence, *labor lost*. Many, many disappointed ingenious men have we known, but we must say, that in a great number of cases, the individuals were to blame themselves, because they had not made sufficient enquiries respecting the progress of invention.

It is not possible for a man to walk safely in the path of mechanical invention unless he reads attentively and enquires diligently at those repositories of useful information, "scientific periodicals." During the past two weeks we were forcibly impressed with the necessity of saying a few words on this subject. At the Fair of the American Institute, a very respectable and good natured gentleman exhibited the steam water wheel described on page 208 of our last volume, and he felt not a little mortified when we pointed out the erroneous principle upon which it was constructed.—Within the present month we were shown the model of a rotary engine, upon which the inventor had expended much thought and toil for four years, during intervals of business. He was sanguine respecting his achievement, but he had not read our history of the rotary engine in Vol. 4. He acknowledged that had he "been acquainted with the Scientific American two years ago, it would have saved him a great deal of money and trouble, but now all his *labor was lost*." When a person has his mind fixed upon constructing some new work of mechanism, he should first search for knowledge on the subject, in good standard books or sterling periodicals. He should then enquire, "is it useful?" This is the grand criterion point. It is true that many inventions have been brought forward, which were at first looked lightly upon, but afterwards arose to great importance. This was the case with the steam engine and many other machines, and it is not always those engaged in occupations with which the invention is related, that are capable of judging correctly of its merits, because it is human nature to be wedded to what are called "settled opinions." It is not possible to give advice in many cases respecting what is *useful*, the inventor must rely, not stubbornly, but reasonably, upon his own judgment. If a machine has superior usefulness, it may take some time to find its way, against other interests and prejudice, into public use, but it will eventually occupy its proper place. The countless number of *perpetual motion* machines that have been brought forward, have all resulted in *labor lost*. Usefulness was not the main consideration in their construction, therefore, although many of them were ingenious and skillful mechanisms, yet after all they were but splendid toys—*labor lost*.

Stoves and Heating of Rooms.

The art of heating apartments by warm air, heated in a separate apartment, has been known since 1792. In this department of science, the names of two American philosophers stand pre-eminent, namely, Benjamin Franklin and Count Rumford. The best way to heat apartments, is from moderately heated surfaces. Highly heated surfaces are dangerous to health, and should be guarded against by every family. At one time, (and we do not know but it is done yet in some places) a number of public buildings, such as churches, &c., were heated by hot air raised to a high degree of heat by passing over plates raised to a high degree of temperature, and then distributed in pipes through the building. In one instance this plan had nearly proved fatal to most all the officers and clerks in the Lon-

don Custom House. Care should be taken not to let the iron work of a stove get red hot, for in that case it absorbs the oxygen from the atmosphere, and vitiate the air of the room, rendering it unfit for the support of human life. Large surfaces, then, moderately heated, are the best means for heating apartments. A great number of heating apparatus have been patented in our country. With these we are not specially acquainted, to speak from experimental testing of their merits, but we examined one patent, after it was granted last year, belonging to a Mr. Hilson, of Albany, N. Y., which embraced some good new ideas, and was founded on scientific principles. It had a large heating surface, it fed in the air through a covered channel, thus preventing a low cold draft on the floor, and it had some other advantages which we now forget. There may be others embracing every economical and useful point, and we would gladly speak of them were they particularly known to us.

The patents on stoves are almost beyond counting. Every year displays new modifications and combinations, but many of these are not improvements. Some old kinds of stoves impress us with more favorable ideas of their good qualities than those of the most modern date. The stove plates are generally made now too thin, mere shells, *sweated* down to the utmost attenuity. They last but a short time to burn coal, at least those parts of them that are any way exposed to the fire, and in every case, the smaller the stove the thicker should be the plates, for a small stove requires to be heated to a greater degree of heat, to heat the same amount of air in an apartment, than a larger one. For merely heating apartments, the thinner the plates of the stoves and the greater the amount of heated surface, so much the better, for the surface may be kept at a very moderate heat, and warm as much air as a small stove at a higher temperature. Cooking stoves should always be plain, strong, and simple in their parts. They should have ovens heated alike on every side, easily cleaned, and their furnace easy of access to a shovel;—something which, so far as we have seen, and that is considerable, is overlooked in all coal stoves,—the grates need a radical reform.

Parlor stoves may wisely be designed for ornament as well as use, but the virtue of large moderately heated surface should never be overlooked. There are some singular ideas spread abroad respecting stoves of this kind, especially what are termed air-tight stoves. Any stove can be rendered air-tight with a tight damper, and that can be completely closed up in front. The whole virtue of air-tight stoves is in the mode of regulating the supply of air to produce a low combustion. The old self-feeding stove of Dr. Arnot, embraces every principle desired in such stoves. Some air-tight stoves have exploded by the carbonic acid gas being confined in them. This never would happen if there was a small vent left for it to escape through the smoke-pipe, and this should never be neglected, and in every case good ventilation should never be overlooked. As it regards the best stoves to use, who can give advice? Not one. Opinions are as various as themselves. We have pointed out the principles that should govern their construction and use, and those who are acquainted with the same, and those who are not, will see that the reasons advanced are not unsound, but the subject is far from being exhausted, and it may at some future time form the subject of another article.

Coal in New York.

The Albany Evening Journal states that a seam of coal, four feet in thickness, has been discovered by Mr. J. N. Cutler, of that city, in Coeymans—a few miles only from Albany, on the farm of a Mr. Vanduzee. It is believed to extend through Albany, Green and Schoharie Counties. If this information is positively correct, (for a four feet seam is a good one,) it will be a source of great value to the Northern parts of this State. We believe that the report of the Geological Survey, of this State, says, "there are no coal formations in it." This will be a contradiction of that assertion, but as that survey was not very minute, its general correctness will not be invalidated.

Great Fair of the American Institute.

No. 3.

INVENTIONS AND THE SCIENTIFIC AMERICAN.

There are no less than ten valuable inventions of machines displayed at the Fair, for the first time, engravings of which, together with descriptions, have appeared in our columns.—First, Mr. Ransom Cook's Electro-Magnetic Ore Separator, which can separate the crushed ore from the greywacke, quartz, &c., with a rapidity that is astonishing. Mr. Cook resides in Saratoga, N. Y. There were also exhibited the Steering apparatus, and the Capstan and Windlass apparatus of Mr. Andrews, of Boston. Also Mr. H. Law's patent Planing machine. Mr. Law now resides in this city, and his large machine is in full operation. Messrs. Lerow & Blodgett exhibited their neat and useful Sewing Machine. Dr. Worster exhibited his unrivalled Diving Bell; and Mr. Willard Day, of Brooklyn, his Sub-Marine Examiner. Messrs. Roys & Wilcox, of Berlin, Conn., exhibited their improved Wiring Machine, and the one for making stove pipe. All these machines were the subjects of great attention. Many knew them at once, having seen them in the Scientific American. They are all machines of practical value and of no common merit.

H. W. Chamberlain's Drawing Board attracted considerable notice, especially from a few draughtsmen, who could judge of its merits; and Mr. Hovey's Straw Cutters were much admired.

A number of other machines were exhibited with which our readers are already acquainted. Their merits almost tempt us to say a second time something in their favor, but our space forbids us to do so.

WARREN'S PATENT SPRING.

The spring patented by Thomas E. Warren, of Troy, N. Y., so applicable to all varieties of chairs, sofas, piano stools, and carriages of all kinds, is a most excellent invention. It was patented on the 25th of last month, and was generally admired.

PAGE'S WINDOW FASTENER.

This is the most simple window fastener that has come under our notice, and it is the cheapest. It has been patented recently, and a true judge of such things can see its merits at a glance. In lifting the window the hand has to be applied, but it fastens itself and locks the window at the bottom. It is eccentric, and is fastened on the sash of the window, occupying but about the space of a 25 cent piece. A silver gilt one only costs 25 cents, and those for common windows, all complete, less. Mr. L. B. Page, resides at Hartford, Conn. His invention was not entered in time to compete for a premium.

COWLES' PATENT VICE.

We notice a small model of this beautiful invention, an engraving of which was published in the 4th No. of the present Vol. of this paper. There is nothing in the *vice* way that compares with it for simplicity and utility. We hope the Committee will not overlook it in awarding premiums.

LATHES.

Messrs. Scranton & Parshley exhibit some beautiful engine lathes, in the machine room. For durability and excellence they are not excelled by any on exhibition at the Fair. See advertisement.

HYDRAULIC RAM.

D. M. Smith, of Meridith, Delaware Co., N. Y., exhibits a model of a Hydraulic Ram. We remember that Mr. S. received the first premium at the State Fair, Syracuse, last month. We have examined the principle of his invention, and believe it good.

STAFFORD'S FLOUR AND MEAL.

Some barrels of flour and meal were exhibited, as dried by a process invented by Mr. J. R. Stafford, of Cleveland, Ohio. The meal relieved of water, is perfectly dry and sweet, and the difference in its swell, from even freshly ground meal which has not been kiln-dried, is very perceptible. Meal thus prepared will keep sweet for years, and (being guarded from external moisture,) may be carried round the world. The manufacturer is Mr. T. C. Floyd.

SPRING MATTRESS.

We believe that the benefits of sleeping on good mattresses are beginning to be more generally appreciated. Those exhibited at the

Fair by Mr. O'Neil, of 133 South Second street, Philadelphia, denominated "O'Neil's Patent Spring Mattress," possess every essential quality.

Testimonial to the late Chief Engineer of the U. S. Dry Dock, Brooklyn.

On Tuesday of last week, Mr. W. J. MacAlpine, C. E., was presented with a splendid testimonial by the workmen who were employed under him. It consisted of a gorgeous salver, two pitchers and goblets of silver, richly chased, and of the value of \$350.

The ceremony took place on the Masonry at the head of the Dock. The presentation was made on behalf of the workmen by Mr. Robert White, the Master Pile-Driver, an old man who has been employed during the whole progress of the work, commencing as a journeyman and gradually working up to his present position. We cannot give the address delivered on the occasion, as it is too long for our columns, but will give an extract to show what Mr. MacAlpine has done:

"We have, guided by you for many years, been enabled to achieve a triumph over obstacles by many deemed insurmountable, and to found and complete a structure that will stand ever as a monument of your fame, and of which we all feel justly proud.

You have battled with the mighty sea and driven it back from its bed: deep amid the treacherous quicksands have you triumphantly gained a footing—and on this spot, thus wrested from old Ocean, reared this work of surpassing durability and beauty."

Let the quarrels of political leaders be fierce and selfish as they may, or cunning and grasping, as they eye the spoils which are to be their rewards—with them we have nothing to do, and to them, nothing to say, but in the matter of scientific honor, we must denounce the spirit which dictated the removal of an officer who has triumphantly overcome great difficulties, and founded and nearly completed a national work, of which we all may be proud. He should have had the honor of laying down "the top stone with rejoicings."

Copper of Lake Superior.

Dr. Jackson, U. S. Geologist, has written a letter to the U. S. Gazette, contradicting the report circulated, that he had said at the meeting of the American Association for the advancement of Science, that "the copper mines could not be worked properly for the want of sufficient means to cut and handle the huge masses of copper, at a cheap enough rate." He says:

"I stated that the working of native copper mines was a new business, not only in this country, but for Europe; and that it was impossible to predict with certainty the result of deep working; but that so far as experience had gone on Lake Superior, it had proved that for the depth of at least 536 feet, the vein at the Cliff Mine, on Eagle River, had enriched, and that huge masses of copper were extracted from that mine, and were cut up into pieces of a ton or more in weight, at the moderate cost of \$7 per square foot of cut surface, and that the miners have acquired great dexterity in the management of these immense masses of copper.

Furthermore, I stated that the Pittsburg and Boston Company, working the Cliff Mine on the west branch of Eagle River, had declared a dividend of \$10 per share to their stockholders, while the capital paid in was estimated at about \$20 per share."

This is something like what Dr. Jackson would say. We confess that we had always our doubts about the other statements attributed to him.

New Jersey Zinc.

At a meeting of the Society for the Development of the Mineral Resources of the United States, recently held at Philadelphia, the New Jersey Zinc Company presented some specimens of their ores, and several articles made from the metal. The zinc ore (oxide) of New Jersey is combined with iron ore called Franklinite, and the two are separated by roasting, pounding and sifting. The combination is mechanical, but there is some dispute about whether the Franklinite is magnetic or not.