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TRIFLES.

There is an entertaining work, with which we have all been familiar in our younger days, wherein a certain tutor expatiates to his pupils on the value of eyes. "Eyes and No Eyes," the story is called, and it is in the volume "Sandford and Merton." The substance of the matter is that one youth (No Eyes) goes gaping about the world, and sees nothing but that which he stumbles over, while the other (Eyes), finds something novel, something pleasing and useful, on every hand.

The world of mechanics, of science, of art, is full of trifles, or matters that seem to be, yet few take note of them. Wise above many is he who does.

We read, in a recent exchange, that "Towers's patent pin is being manufactured in large quantities, and is highly popular." "What is a patent pin?" asks No Eyes; "a pin is a pin, if it has a point, but what is there patentable about that? By the law, a thing that has been in common use for years cannot be protected!" That is true; but, as it happens, Mr. Towers did not patent the pin.

What then? Two little nicks in it, near the point. "And what's the use of two little nicks near the point, I should like to know?" pursues No Eyes.

Simply to prevent it from being drawn out by accident, so that it holds better, does its work more efficiently—in a word, is improved a hundred fold; and Mr. Towers will very likely reap a handsome reward for his idea. Thus "No Eyes" is silenced, and walks away with his hand on his beard and new ideas in his head. He begins to think that, if there is commercial value in two nicks near a pin's point, there must be other wrinkles worth discovering, and he is the man to find them.

Most frequently we are called upon to notice the organization of new companies to work patents on what are sometimes called trifles. They are trifles, but they exercise a most important influence on the world's comfort and economy; otherwise capitalists would not touch them.

It was a small thing to put a copper tip on a shoe; a small thing to put a crease in a bobbin to hold the first end of the yarn; a little matter to make an indentation in the rim of a tobacco box, to serve as a catch; yet each and all of these trifles, we are told, return their lucky owners handsome revenues. In making cut nails, a great difficulty has been to feed the sheet to the shears properly, so as to cut the metal without waste, and many complicated devices have been invented for the purpose. Recently, some wide-awake person discovered that, by cutting the nails with a punch, and skipping one at every stroke, the sheet might be fed straight through, saving an

immense amount of labor; this has been lately patented.

All these inventions are simply the practical illustration of the moral conveyed in the story mentioned at the head of this article. It is "Eyes and No Eyes" over again. Men without means go through the world crying out against their fellows for being rich when they are poor, and declaring that wealth is unequally divided, when some comrade equally poor in point of worldly goods, but with intelligence, energy, perseverance and determination to succeed, puts forth his hand and seizes a prize.

In this country there are abundant sources of wealth for those who wish it, but without eyes how can we see—without the will to succeed how can we hope to?

Somemen, having burned their fingers with a patent, shake their heads sagaciously; they wag their beards, saying, "Catch me in that business again!" This is as if a shipwrecked sailor should forswear the main because of misfortune. Perpetual-motion people, water wheels that pump their own water, windmills that manufacture their own wind—because these are worthless so are all and sundry machines akin to them; but good inventions, which serve some purpose, even if it be only to cut a slice of bread straight, are saleable and valuable. "He who runs may read," says the proverb; but he who keeps his eyes open will see many things.

THE "WINOOSKI" AND "ALGONQUIN" TRIAL.

In our last issue we published the report of the "civilian experts" who conducted the unfinished trial between the engines of the *Winooski* and those of the *Algonquin*, and we now propose to inquire, very briefly, what may be learned from that experiment. An impression has been created in the minds of the community that the trial was to determine the comparative economy of working steam expansively and following full stroke; but the trial was not made for this purpose, nor did it incidentally throw any light whatever upon the problem.

Mr. Forbes made a proposal to the Navy Department to supply one of the Government gunboats with engines of peculiar construction, designed by Mr. E. N. Dickerson, and he offered, if this engine developed less power than those in the other gunboats, or developed its power at less economy of coal, to remove it and supply its place with an ordinary Government engine. Mr. Forbes's engine was placed in the gunboat *Algonquin*, and when it was completed the Department assigned the gunboat *Winooski* for comparison, and the questions which the experts who conducted the trial had to determine were, the power developed by the two engines and the cost of this power in coal. The measure of the power it was agreed should be the number of revolutions of the wheels, they being precisely alike and immersed to the same extent.

The problems seem simple enough, but they were not settled by the trial, and would not have been settled if the trial had been completed. All that would have been settled, was the power of the two engines and its cost under the exact conditions in which the engines were run during this trial. The *Algonquin's* engine, with a grate surface in the boiler of only 142 square feet, and cutting off at about one-ninth of the stroke, developed almost as much power as the *Winooski's* engine with 200 feet of grate surface and following four-tenths of the stroke; and this result was due simply to the fact that the *Algonquin's* engine was using steam at 70 pounds pressure, while the steam in the *Winooski's* boiler was at a pressure of only 17 pounds. But suppose that these conditions had been reversed; or suppose that the steam in the *Winooski's* boilers had been raised to 50 pounds pressure, or to 30 pounds, or even to 20 pounds, what would have been the result? No man can tell by any process whatever, except that of trying the experiment. Again, suppose that the steam in the *Algonquin's* engine, instead of being cut off at one-ninth of the stroke, had been cut off at two-ninths, or three-ninths, or four-ninths, what effect would have been produced on the amount of power and its relative cost? A dozen trials might be made with these two engines, and the results reversed at each trial by some change in the conditions of one or both of the engines.

If the attempt is made to draw from this trial any lessons in regard to the comparative economy of high and low measures of expansion, the absence of equality in the conditions is still more fatal. In an experiment for such a purpose a difference of a single pound to the inch in the pressure of the steam would wholly destroy the value of the results; but in this trial the mean pressure in one boiler was 16.8 pounds and in the other 70.79 pounds.

If the two parties to the contract are willing to accept the conditions under which the engines were run as sufficient to settle the questions, then the trial has accomplished the purpose for which it was undertaken, but it is idle to study the results of running two engines under such very different circumstances for any light on the science or art of steam engineering.

THE UNITED STATES AND THE FRENCH "EXPOSITION UNIVERSAL" OF 1867.

The principal motive which induces manufacturers to incur the large expense of transporting their articles to popular fairs and exhibitions, is, that the qualities of their wares may be more widely known, and thus a larger sale may be obtained. The fairs are great advertising agencies, and to this fact they owe their success. The trade between this country and Europe consists mainly in the export of cotton, tobacco, grain, petroleum, provisions, and other raw materials, and the import of innumerable manufactured articles in return. Our manufactures are almost exclusively for the domestic market, or for export to South America and the Indies. Consequently, European manufacturers, who are eagerly competing for our market, have an interest in presenting their wares at our exhibitions, while most of our manufacturers have no interest in sending their products for exhibition at European fairs. In consequence of this controlling element, the United States have made a sorry appearance at the international exhibitions of London and Paris. The English or French manufacturer of cassimere, or calico, or porcelain, may obtain an advantage over his competitors by sending samples of his goods to the exhibitions, but no individual grower of wheat, or cotton, or tobacco, is likely to have the demand for his products increased by displaying samples at these fairs. Our manufacturers of clocks, of porcelain teeth, and of a few other articles, find a demand for their wares in France, and they will probably send specimens of their work to the exhibition, but the great mass of our manufacturers and producers have no inducement to incur this expense.

We are indebted to the Hon. William H. Seward, Secretary of State of the United States, for a pamphlet containing a map of the "Exposition Universal for 1867," with the official correspondence in relation to it. From this it appears that the exhibition is to open on the 1st of April, 1867, and to close on the 31st of October, of the same year; all applications for admission, with a description of the articles to be exhibited, must be presented before the 31st of October, 1865; the expense of packing and transporting the articles must be borne by the exhibitors; if on the receipt of any article the exhibitor, or his agent, is not on hand to take charge of it, the carrier will be required to take it away immediately; goods will be admitted into the exhibition from January 15, 1867, to March 10, 1867, inclusive; the removal of all goods, after the close of the exhibition, must be completed before the 30th of November, 1867; all communications by exhibitors from this country should be addressed to N. M. Beckwith, Esq., care United States Legation, Paris, France. The space allotted to United States exhibitors is 2,788 square meters—about equal to an area of 100 by 300 feet.

Unless the time for making application for admission is extended beyond the close of the present month, certainly no considerable number of articles can be expected from this country. The exhibition has been mentioned to a very limited extent in our papers, and probably not one in ten thousand of our people has yet heard that such a fair is to be held in the summer of 1867. It would require extensive advertising, and probably an appropriation of money by Congress for paying the freight on articles, to fill even a quarter of the space which has been assigned to this country, but if all exhibitors must make their