

Scientific American

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The Progress of Invention.

From the great number of patents issued every week, and the vast number of inventions in the shape of discoveries and improvements, which are continually pouring forth upon the world, many, otherwise very sensible people, have become quite skeptical on the subject—perfect unbelievers in the progress of invention. To them invention and humbug are synonymous terms, and the whole congeries of patents are just so many gilded cards to gull the public. This class are not generally composed of ignorant men, in the common acceptance of that term, (although many of them are), nor are they unskilled, but they appear to have a rooted disposition to jeer at all inventions, especially those in their own line of business, at least if the improvements are made by those out of such a business. There are many mitigating circumstances to pardon this skepticism. Every week brings out some new invention, which proves to be nothing more than some old abandoned one. The great fault with a number of men who have very ingenious minds, is, the want of extensive information—they are practical and constructive, have dispositions of making at once with their hands that which they have designed in their heads. Reading and study require greater powers of determination than severe physical labor, but all those who do labor in this field are amply repaid for it afterwards. There are a great number of useless things patented, some of which gain no small degree of favor for a time, while many good ones are neglected and despised by those who should know better about such things; and it often takes years of patient working before their merits are fully acknowledged. This was the case with steam navigation, submerged water wheels, and many other inventions which we might mention. The progress of invention is gradual, and blessed be God! who gave man the faculty, it is sure; and of late years the inventions and discoveries in science and art, exhibit a series of the most splendid triumphs of mind over matter, respecting which “the most immoderate flight that ever poet took when warm with wine, was moderate conjecturing.” The men of forty-five years of age, now living in our city, have seen the first successful steamboat which navigated our waters, and the young man of twenty-one, he who has just arrived at the age of manly responsibility, is a cotemporary of the first locomotive. What revolutions these two inventions have produced—steam navigation and railway locomotion—and what a gorgeous panorama passes before our vision as we trace the progress of other inventions. The subject is one which requires the long labor of some scientific philosophic historian to do it justice. In 1809 there was only one steamboat in the whole world, now, who could count their number? They navigate the Nile, the Red Sea, the Ganges, the Danube, the Rhine, the Thames, the Clyde, the Hudson, the Ohio, the St. Lawrence, the Mississippi, and the golden sanded Sacramento. America, Europe, Asia and Africa exhibit in every steamboat a monument to the progress of invention.

In 1830 there were only thirty miles of locomotive railway in the world, now there are no less than 18,000 miles. America has no less than 7,000 miles, and will soon have 10,000 in operation. Massachusetts alone has more than 1,000, and Pennsylvania 1,200. In 1836 there were only 15 miles of railroad in the State of New York, now there are nearly 1600. Then the slow canal boat and stage coach wound lazily up the Mohawk Valley, and we remember well how it required more time to whip an old bolter into a canter, than it now requires the iron horse to whistle itself from the crags of Cohoes to the rocky pass of the Little Falls. What, with the Steamboat, the Railroad and the Telegraph, as inventions for distancing distance, the ends of the earth are brought together, and civilization is now fast finding its way into the most darkened corners of the earth.

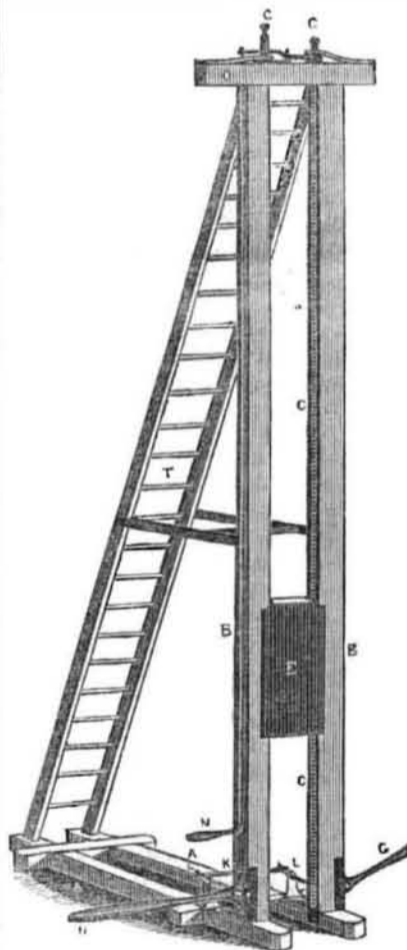
The progress of invention is one of those grand means, in a general scheme, which the most unobserving cannot fail to notice, of bringing about the fulfilment of that remarkable prophecy of Burns, “when man to man, the world around, shall brothers be.” There were men who looked upon Fitch and Fulton as mad, and some of the Members of Parliament thought Stephenson a demented foreigner; and when the first line of telegraph was erected in our country, we heard a wealthy and well educated merchant pronounce it “a humbug!” We feel the necessity of frequently calling attention to inventions in the aggregate; for in some arts, the progress is slow, almost infinite in additatives, to bring them to perfection, but not the less sure in progress for all that, though unheeded and unobserved by the majority.

Inventors have much to do yet, and some grand discovery has yet to be made to economise fuel in propulsion; for the expense in that particular, especially for ocean navigation, is yet a great barrier to general intercommunication between distant nations. And shall it ever be, that we shall see the atmosphere as safely navigated as we now see the ocean? The day may not be far distant; inventors, when your courage flags, look back and feel your strength renewed by surveying THE PROGRESS OF INVENTION.

“Come, bright Improvement! on the car of Time,
And rule the spacious world, from clime to clime;
Thy handmaid arts shall every wild explore,
Trace every wave, and culture every shore.”

Improved Pile Driver.

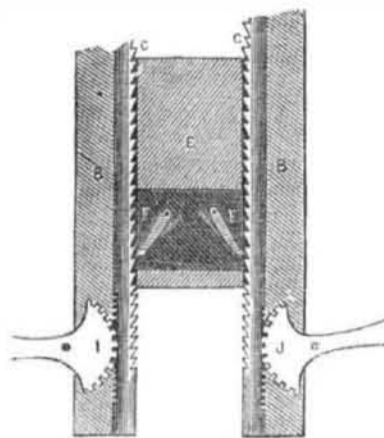
FIG. 1.



The accompanying engravings illustrate an improvement in the operative parts of Pile Drivers, invented by Mr. William T. Foster, of Jersey City, one of the inventors of the Rock Drilling Machine, illustrated and described in No. 20, Vol. 3, Sci. Am. Figure 1 is a perspective view; figure 2 is a vertical section, and figure 3 is an enlarged top view, to show the shifters, which allow the ram, or weight to be raised and fall down on the pile. The common pile driver has the outline of its frame constructed like figure 1, but the ram or weight is raised by a rope wound round a barrel, and when the weight is raised to the top of the frame, a pair of prongs throw the nippers on the rope out of catch with a staple on the weight, and the weight then suddenly falls. This improvement is to raise the weight with rack and pall, by working the weight with reciprocating ratchet levers, whereby two men can work the ram with the greatest ease—allowing them a little more time than four men with a windlass. A A is the bed framing; B

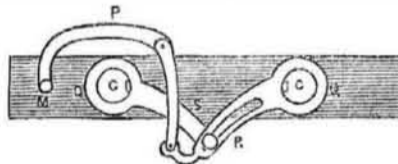
B are the upright posts forming the cheeks of the machine, C C are metal rack rods on the inside of the posts, B. E is the ram or weight for driving the pile. It is raised to the top of the posts, B B, and then allowed to fall freely by its own gravity on the head of the pile. This is the way the pile is driven down. The

FIG. 2.



improvement consists in the manner of elevating the weight, and the way of setting it free, consequently, is different from other plans.—The principal part is having the racks cut on round shafts or rods,—C C, in figure 1 representing the tops of them. This is to allow the shafts to be turned round, and also be moved freely up and down in their recesses in the posts, B E. G H are levers with arc racks, I J. (fig. 2) cut on their interior ends. These levers are connected together by a walking-beam arm, K, connected to the axis, L L, of the levers; therefore, when one lever is moved up the other moves down. The racks of the levers mesh into short racks on the back of the ratchet rods, C C. When the levers are worked, the rack rods, C C, are moved up and down alternately, and by having two spring palls, F F (fig. 2) on the inside of the weight, it will easily be perceived how the said weight is raised by the rods, C C, being alternately raised up and down. The weight cannot come down while the palls, F F, mesh into the racks. Whenever the weight gets to the cross head of the posts, the racks are turned round, inside, in their recesses in the posts, and the weight then comes thundering down on the pile. To turn the rack rods, there is a long handle, N, fig. 1, which, by drawing it to the one side, turns the rack rods out of gear, or into gear with the palls on the weight. Fig. 3 shows the levers attached to the handle, N, and the rack rods. S R are the two levers, with rings, Q Q, around the rods, C C. They are connected by a link to the oscillating arm, P, which is secured at M to the handle, N. One of the levers has a slot in it, and the other has a stud pin, which works in the slot, therefore, when the handle, N, is pushed to the one side, the rack rods are turned and disengaged from the weight, when the weight reaches the top. When the weight has performed its work, the rack rods are turned by the handle to engage the palls, F F, to elevate the weight again by working the levers. Except for shifting the machine, one man can elevate the weight, as the motion of the rack rods is arbitrary—alternately up and down every stroke. T is a ladder, also answering the purpose of a brace.

FIG. 3.



Application has been made for a patent for this invention, and it has already been sold. Peter Kiyler, 333 Ninth st., this city, is the assignee, who will answer communications (p.p.) which may be addressed to him.

To Make Tracing Paper.

Mix six parts by weight of the spirits of turpentine, one of rosin and one of boiled nut oil, and lay this on the paper with a brush or sponge. If the balsam of copavia, or Canada balsam is employed as a substitute for the rosin, a finer quality of tracing paper is the result. The paper should be well dried before it is used.

To Our Cotemporaries.

A copy of the present number of the Scientific American is forwarded to every newspaper publisher in the United States, for their perusal, antecedent to the commencement of Volume 6. Our cotemporaries have hitherto spoken in high and courteous terms of our efforts, and we shall rejoice to know that we have not forfeited their kind wishes for the future.

The field occupied by us, is one that in no way interferes with any other publication in the country—and while aiming to extend the benefits of mechanical ingenuity—we feel encouraged to still further exertions from the continued smiles of the community and our brethren of the press. We have never pursued an indiscriminate system of exchange, it being impossible for us to do so without experiencing a heavy draft upon our pecuniary condition. This is readily perceived from the fact that in the peculiar field to which our efforts are mainly directed, we are continually culling from the great book of nature the mysteries of science and philosophy—thus rendering the Scientific American a valuable acquisition to every publisher's exchange list. We can only say, that to those who choose to insert the prospectus found in an extra enclosed in the number sent, they will be entitled to the “Sci. Am.” through the volume without an exchange.

We find by actual count, that 563 papers published our prospectus to Volume 5.

We shall esteem it a favor to be informed of any omission on our part in sending the paper, and we request all publishers, who insert the prospectus, to send a copy, marked, to this office.

Water Wheels.

We have received a communication from Mr. George Westinghouse, of Central Bridge, N. Y., stating that Mr. Levi Totten, an old millwright, had told him that he put up four wheels on a horizontal shaft, for a saw mill, on the Oswego river, in 1829, and that several reaction water wheels, on one shaft, had been put up on the Oneida river in the years 1825 and 1826.

We have received a great number of communications within the past five months, about Parker's Water Wheel, some in favor and some against his claims—but by far the greatest number against them. It is not our purpose to allow much controversy on any one subject—for it generally becomes an old story, of no profit to any body. When short, crisp and racy, it does good, but not otherwise. The principal complaint has been against Parker's agents for collecting rent on wheels they did not construct or put up. Well, it is aggravating to any man who has paid a millwright for a water wheel, in the full faith of its free use, to be called upon to pay rent or stop the mill. If Parker is not the first inventor of what he claims, the thing is to prove it at law, and then his claims are made void. On the other hand, if he is the first inventor (and many suits have been decided in his favor) surely in the eye of the law his claims should be upheld.

“Brains.”

A worthy cotemporary has worked himself up into fermenting heat, because we alluded to some of his ginger-pop extracts, giving him credit for the full value of them under the cognomen of “Brains.” He thinks we are in dudgeon about them, but we assure him that we are not; on the contrary we are cool and calm as a whale brushing away a blue bottle. In allusion to our article last week our cotemporary says, “as we have no *mulish* propensities, will the editor be so good as to keep his offspring from breaking over into our premises, to the great annoyance of the quiet and unobtrusive “Farmer.” The editor can only answer, “I am Saul, the son of Kish, sent out to seek my father's long-eared ‘hanimals,’ and having wandered into the quiet premises of the Farmer, lo! I found one of them.”

The Gillard Light.

We have received some very interesting information from a Manchester (Eng.) correspondent about the actual operation of this light which we will publish next week.