Woodworth Planing Machine.

In the case spoken of in our columns last week, which was recently tried at Pittsburg, Pa., Bloomer vs. McQuewan and Douglas &c. we stated that we would publish the substance of the matter elucidated in the said case. We hereby publish the charge of Judge Grier, as being the best exponent of the testimony given, and the effect it had upon the court. Before doing so, let us say that this is the most important case perhaps in which this patent has been litigated. This is not because of the parties, but the testimony. The French patents alluded to, we have seen, and they have never before, so far as we know, been brought into court, but knowing they were to be, we had a desire to know the effect they would produce, and so will hundreds of our readers; we therefore, without note or comment, request our readers to read the following charge of Judge Grier:—

Gentlemen of the Jury—As has been stated by the counsel for the plaintiff, the orders by these issues in this case were ordered by me sitting on the equity side of the court to ascertain—First, Was William Woodworth the original inventor of the machine patented by him on the 27th of Decmber, 1828? Second, Is the re-issue patent of July 8, 1845, for the same invention, intended to have been patented by the patent of December 27, 1828? This patent has been before me so often and for so long a time, that it has become stereotyped. In a recent case tried by me at Philadelphia, under the apprehension that the jury might not agree, I gave them a month to consider, but they decided the case by rendering a verdict in a day. If the same question should again arise, I would not a make a like order, because I am now perfectly satisfied.

The first question you will ask will be, what did Woodworth invent? You know that to entitle an inventor to a patent, his machine must be both new and useful. The intellectual production must differ from all others—it must have a distinctive character. It is plain and the fact is admitted that Woodworth did not invent circular cutters, rollers, nor cog work, that is the star gearing which has been spoken of—nor an endless chain—nor did he invent pressure by a spring or by levers. Did Woodworth invent the machine patented to him on the 27th of December, 1828, as it is in combination? If he did, then he is entitled to the patent—to the monoply as a reward for his discovery he was entitled to fourteen years, and in this case there have been two extensions of the patent, each for seven years, making in the whole, twenty-eight years.

Much is frequently said about the word principle, in the trial of patent actions. It may be considered as the foundation of every invention. It is, however, a slippery word—meaning the modus operandi, or mode of operation.

Have we any account of a patent, or means to effect the same object—to do the same work that is effected by the machine of Woodworth? A hundred trials have been had, including almost if not quite every circuit, but the patent has never successfully been assailed—there is no pretence that Woodworth was the inventor of the mechanical means detailed; but his claims cover a combination of tools to do the work—all the numerous attempts for a like purpose moved with the board or plank and failed to do the work—many persons came near being successful, but not one succeeded until the time of Woodworth.

The art of printing was not discovered until very recently—it was not successful until the fifteenth century. The art of printing calico preceded it, with the desire of intelligence exhibited by each generation. It may be considered remarkable. It is the same with many other inventions, which have since been added to the arts. People may be found who will swear that they know all about it, although no person can be found to corroborate such testimony. It is proper perhaps for counsel to do all that can be done, but such evidence cannot avail against the fact of invention, and the issue of a patent. In the trials which have been had in other circuits resort has been made to the inventions of Bentham, Bramah, Muir, and also Uri Emmons. In the issues the counsel have abandoned the repetition and claims of the persons named—the cheat of Emmons is palpable—he cheated Woodworth out of one half of his patent. The counsel have abandoned urging that objection.

The French patents were the only matters that I desired to hear about. They are, however, defunct things, dug out of the archives of a foreign office. Neither of them contain the elements of the Woodworth patent. The learned Professor Locke has explained to you the several devices contained in the French patents and the difference between the Woodworth cut and the cut of the French inventors. He has explained the matter fully. Woodworth invented, as I have already said, a combination of cutters and pressure rollers to effect an object—it accomplished the purpose—no man can appropriate the machine without authority. The pressure rollers in his machine may be graduated as may be desirable—the essence is to combine the whole to produce a beneficial result. The Frenchmen have been trying—but they are like Bentham and Bramah and Muir—they have done nothing.

The next question is—Is the re-issue patent of July 8, 1845 for the same invention, intended to have been patented by the patent of December 27, 1828? If the patents were alike it would have been useless to have made the surrender. My brother Story examined the old patent, and he informed the counsel for the patent, that the ingenuity of the opponents of the patent would defeat it, if not amended. In consequence of that suggestion, it was surrendered, and a new and amended patent applied for and granted. The court has examined the old patent and finds it to be imperfect. You will ask what machine did Woodworth send to Pittsburg in 1830? Was it a vertical machine like the dry dock machine which was at work in 1828, and all the world were running to look at? or was it a horizontal machine of the same kind? The tools in the first machine were the same as at present used—they were not quite so perfect as the tools which were put in the horizontal machine. Every mechanic would see the want of such tools. The Washington witnesses, whose depositions have been read, have supposed that two patents must be alike. They have misapprehended the subject. Surely if the first patent was imperfect, he had a right to surrender it. The question, therefore, is, what kind of a machine did Woodworth invent? Did the specification attached to the patent correspond with the machine? If not, he had a right to correct it. I have very little doubt about the question, and I think that you should not. If you agree in the affirmative you will say so by adding "yes" to the first question—and the same affirmative will be added to the second question. The case, however, is with you.

The jury retired, and after an absence of ten minutes, returned into court, affirming both questions, and deciding that William Woodworth was the original inventor of the machine patented by him, December 27, 1828. And, also, that the re-issued patent of July 8, 1845, was for the same patent intended to have been patented by the patent of December 27, 1828.

Shaler & Stanton, and G. G. Sickles, of New York, counsel for plaintiff. Dunlop and Loomis counsel for defendants.

Paris Academy of Sciences.

Iodine in the Air.—M. Chatin, Professor in the School of Pharmacy at Paris, lately read a paper before the Academy of Sciences on the presence of iodine in the air, and its absorption by the system in the act of breathing. He had also detected the presence of iodine in rain and snow water.

Preserving Meat.—M. Edouard Robin addressed a communication on the advantages resulting from the use of rectified coal oil in preserving vegetable and animal substances. There were presented specimens of preserved flesh which had been kept in a bottle for a long time along with a very small quantity of the oil placed at the bottom. The evaporation of the oil, at the ordinary temperature, had sufficed to preserve the meat, notwithstanding its presence in damp air.

Inertia Momentum.

Macedon Centre, N. Y., May 7, 1851.

Messrs. Editors.—I would like, through your columns, to obtain an explanation of the following—exposing the sophistry if there is any.

Inertia is resistance to change of state. Now suppose a certain ball to be without the influence of gravity: if I move this ball it will offer resistance to the moving power. If I move it again the same distance, but do it in half the time, it will offer twice as much resistance; if in one-third the time, three times as much resistance, &c. Again, if I double the quantity of matter in the ball it will offer twice as much resistance; if I make the quantity of matter three times as great, the resistance will be three times as great, &c. Hence, inertia depends upon velocity and quantity of matter, and we have VQ=I; V representing velocity, Q quantity of matter, and I representing inertia. Now if the velocity changes the inertia changes; hence, when the velocity becomes naught the inertia becomes naught, as we then have 0Q=0; we therefore conclude that a body at rest has no inertia, and it follows that motion must be given to a body before it can give resistance; but if a body offers no resistance until after it begins to move, why does it require any force to move it—that is, to start it at first? For resistance equal to a power is essential that the power may be a power.

Again—will it be answered that it does require force to start the body and additional force to overcome the inertia? Then it must be that, to stop a moving body, we must first overcome its momentum (inertia in one form) and then we must stop the body after that.

And again, if it offers no resistance while at rest, what does the power that must be applied to move it act against? For action and re-action, always being equal and in contrary directions, there must be a re-action (or resistance) equal to the action, that the action may be an action. Whoever will satisfactorily answer these points will much oblige yours, M. C.

[It will not be difficult to expose the sophistry of the above; and here let us say that upon no one subject have we received more communications than on inertia. We have thrown the most of them into the fire, and intend that this answer will serve as a point of reference for a long time to come. As our correspondent occupies a situation in which it is absolutely necessary for him to possess correct information, in order that others may receive the same from him, respecting this great principle of Natural Philosophy, the one which lies at the root of the science of mechanics, we comply the more readily with his request.

Inertia and *resistance* are totally different principles: inertia simply means that property of matter whereby it is incapable of spontaneous change. This law of matter is evidently not understood by those who present arguments like the above; for inertia has nothing to do with velocity nor the quantity of matter. A ball of 1000 pounds is just as incapable of changing its state of motion, or rest, as one of five pounds. The velocity and the weight of a ball measures the force—the laboring force applied, and that has nothing to do with *inertia*. A body endued with inertia cannot of itself, independent of all external influence, commence to move from a state of rest; neither when moving can it arrest its progress and become quiescent. The same property by which a body is unable, by any power of its own, to pass from a state of rest to one of motion, or the contrary, renders it incapable of increasing or diminishing any motion which it may have received from an external cause. A body moving at the rate of 10 miles an hour cannot increase its speed to 11 nor change it to 9 by any energy of its own. If there was such a power in any body it would have the capacity to commence moving from a state of rest to any velocity. Inertia merely means the passive nature of matter. It is easily explained thus: "A ball shot out of a gun would continue, by the law of inertia to move forever in a straight line. The reason why this does not happen is owing to the resistance of the atmosphere and the law of gravity, which, by its magic eye, attracts everything on earth to its centre. A ball at rest will continue at rest forever, unless it receives some outward force impressed upon it." The example of the ball in the letter is not to the point, for we cannot conceive of a ball "without the influence of gravity," and how any other person can, we are unable to divine.

We do not know who would make the supposed answer put into the mouth of another, in query second of our correspondent.

In answer to query third, let us put the question as it should be, "If inertia offers no resistance, while at rest, what does the power that must be applied to move it, act against, for action and re-action are equal," &c. We hope this will make the subject clear, for the *power* to move *inertia* is nothing, and it acts against nothing. The power to move a weight is something, but the *power* is just as much *inertia* as the weight is. What is the power spoken of here to move the weight? Is it not obedient to the law of inertia, as well as the weight? Yes. But our correspondent puts the case in a totally different light. What every philosopher understands by *force*, is a a body in motion. A body at rest and another in motion are incapable of spontaneous change, therefore the difference in *inertia* between them is=0.

The language used to explain the *property* of inertia in many popular works is calculated to mislead the student. The term "*resistance* to move," is faulty. Inertia means indifference to rest or motion: it implies as strongly the absence of all resistance to the reception of motion, as the absence of all power to move itself. The term *vis inertia* (force of inactivity) used by Newton and some authors who desire to appear scientific, is wrong—it is a misnomer, as inactivity means the absence of all force.

Our correspondent's points have been correctly and satisfactorily answered to him and others, we have no doubt; and we hope those who read this will not hereafter, if they have done so before, discuss a question of the "*composition* of forces," under the name of *inertia*, as has been done in the above communication.

Converting Frigates into Steam Propellers.

Francis Grice, Esq., the Naval Constructor at the Philadelphia Station has just had completed a model of the U. S. frigate St. Lawrence, which is chiefly designed to show in what manner and how easily a steam propeller can be attached to any vessel in the navy.

The magazine is placed forward of the boiler, and is so constructed that an explosion is impossible. Pipes through which a flow of water passes are admirably arranged about the magazine, so that by turning the main cocks, the whole is submerged, and beyond the penetration of fire. This improvement was conceived by Charles W. Copeland, Chief Engineer of the United States Navy.

The coal bunkers are arranged alongside the boiler, and for a ship the size of the St. Lawrence, will carry 275 tons. The employment of men for the St. Lawrence, with the improvement of the model attached will be 80 less than now required, which, economically speaking, is worthy of consideration in these days of retrenchment and reform. The propeller is made on a scale, so that one for a full sized frigate would be twelve feet in diameter, which would propel the vessel from 7 to 8 knots per hour. The after magazine, spirit room, bread rooms and other storage rooms, are well constructed, of easy access; the pursers', engineers', and other officers' rooms are all very nicely arranged. The model has 44 guns, exactly.

The engine and boilers, take the place of the ballast usually stored in the same apartment of the vessel, and thus they have the two-fold importance of propelling the vessel and ballasting her at the same time. In order to attach the propeller, it is not required to remove the rudder, nor cut away or damage the stern post of the vessel.

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