

The Electric Telegraph.

No. 7.

The Electric Chemical Telegraph, is radically different from that of the Electro Magnet Telegraph. It is not operated by electro magnetism—no magnet is used about the whole apparatus. The principle of it consists in having a strip of prepared paper pass over a roller, on which rests a steel pen, and as the circuit is closed and broken, there will be light and dark marks made by the pen on the prepared paper, and these marks are the letters of any message sent along the wire formed by the operation of breaking and closing the circuit. The philosophy of this operation, consists in having the paper prepared with a solution of the ferro cyanate of potass and nitric acid, and the marks of the steel pen are formed by a decomposition of the iron by the electric current where the pen and prepared paper comes in contact, and consequently a new combination is the result, which is the cyanate of iron—a blue color. The prepared paper for the electro chemical telegraph could be made another way, but the above is sufficient to show its nature. It is a kind of calico printing. The first patent that was taken out for a telegraph of this kind was Mr. Davy of London in 1838. His invention was not a practical one, and consequently was never used. In 1843 Mr. Alex. Bain took out a patent for a very important improvement on Davy's in fact first made it of practical worth. In 1846, Mr. Bain took out another patent for a valuable improvement and his machine as improved, at least for an Ocean Telegraph, transcends every other that has been constructed. A full description will be found with engravings on page 273, Vol 3 Scientific American. We have now said enough to point out the difference between the *deflective*, the *magnet*, the *printing*, and the chemical telegraphs.

The science of electricity, as applied to telegraphing, is but in its infancy. As a public conveyancer of news, it is a young, but an intrepid and swift mail carrier. It will yet in a great measure supersede the letter bag, and consequently every improvement to render it more available to the public, is of great importance.

The first telegraph patentee in Britain and the first telegraph patentee in America have sturdily opposed every other inventor in the same field. This is human nature—frail and selfish. Two of the Examiners in our Patent Office, have been blamed for being interested in opposing the claims of every telegraph inventor but those of Prof. Morse, and circumstances seem to give just ground for complaint in this matter. The circumstances to which we specially refer, are the late transactions relative to contested claims of Bain and Morse for the Electro Chemical Telegraph—to every disinterested person who has paid attention to the matter in dispute, and to the evidence adduced on both sides, the claims of the former have not had fair play, for the whole world almost has had ocular demonstrations of the fruits of his invention, while the claims of the latter have to be sustained by dim proofs.

We have read the letter of Henry O'Reilly to Prof. Morse concerning the attempted *Telegraph Monopoly*. It is caustic and severe. From his letter it would appear that he has been ill-used by the Agents of Mr. Morse, but as this is a business controversy (but a very important one to the public) we will not say a word about it until it is settled at law. We have only been discussing different principles of secured telegraphs, and we will always advocate the just rights of the inventor, as viewed by us, without partiality and without fear. From the evidence which we have gathered together respecting the claims of different inventors, we believe that there are three telegraphs now before the people of the United States, totally different from one another, and separately the inventions of different inventors. The one is the Electro Magnet Telegraph of Mr. Morse; the 2d is the Printing Telegraph of Prof. House, and the third is the Electro Chemical Telegraph of Mr. Bain. Every one of these telegraphs is enough to confer scientific distinction upon their authors.

We have read the controversy in the Tribune between Morion and Mr. Page, Examin-

er in the Patent Office. Like all other controversies it is too personal and Mr. Page has given us cause of regret in using a term to designate a stranger, who has come to this country with character the most upright, and whose works as displayed in this city, place him in the front rank of inventors and mechanicians

For the Scientific American.

Blanchard's Gun Stock Machine.

Messrs. Editors.—In your valuable journal of November 25th, I find noticed a trial which recently occurred in the United States District Court, held at Philadelphia before Judge Kane for an infringement of Blanchard's Patent Gun Stock Machine. In that notice you say, "We wish to be impartial and we wish to see the true inventor protected. We will be glad to publish the views of Mr. Blanchard's friends and really wish that we could publish the evidence adduced at the late trial." In reply to this kind offer I would state that as soon as this important case is finally decided, it is my intention to publish not only the evidence adduced at the trials, but also the able and conclusive charges of Judge Kane which contain an enunciation of the most important principles involved in patent cases.

A publication of this nature while the matter in dispute is still before a legal or equitable jurisdiction, and while numerous other suits are pending in the several Circuits both in equity and law, seems to me scarcely justifiable; and however much benefit might be derived from such a course I shall not follow a bad example but will defer the opportunity offered of fully vindicating to the Scientific world the originality of Mr. Blanchard's invention until the final decision of these cases. At present I am at a loss to know to what extent the Jury were influenced by statements foreign to the Court or witness stand; but in my opinion other circumstances than the evidence given at the Trials had an important influence in producing the disagreement of the Jury empannelled. You were misinformed as to the point that the Judge charged the Jury with regard to some articles published in the Scientific American. During the course of the trial he simply cautioned the Jury against published articles, without however naming any publication and this no doubt gave rise to the reports which reached you. The result of these trials has clearly shown the inefficiency of our present Patent Laws when they are invoked to protect the rights of the Patentee. For thirty years has Mr. Blanchard been obliged to contest against those who were continually under some pretext or other infringing his Patent and he presents the singular spectacle of having always established his right before a legal tribunal, and yet his expenses incurred in establishing these rights have been greater than any income derived from the same. This threatens to continue as the same defences are set up in new cases which have been decided worthless in old adjudications. Under our present laws jurors not only consider themselves judges of facts, but assume the province of the Court and venture to decide upon doubtful questions of law. Step by step the true inventor is losing all the benefits which should be derived from the triumph of his labor and skill, and is placed at the mercy of those who are possessed of ample means to pursue a long contested legal suit. With regard to the publication of the evidence I would state that it has been reported in full in several cases which is now in my possession, and the same course will be pursued at subsequent trials. To such an extent as this evidence and the decisions founded thereon, may be considered by you valuable to your numerous readers, I shall at some future period avail myself of the privilege of your columns. This will be done however not so much for the purpose of vindicating the originality of Mr. Blanchard as an Inventor (for that has been adjudicated before the ablest jurists of the country) as to demonstrate the improper means which have so long delayed the final settlement of these questions.

AMOS K. CARTER.

Newark, N. J. Nov. 27th 1848.

In answer to Mr. Carter, we will be happy to publish the evidence and opinions mentioned in his communication, and after this we will not

publish any article relative to Mr. Blanchard's invention until the cases that are now before the courts are decided. Honor and truth are the planets that direct our course in conducting the Scientific American.—Ed.

For the Scientific American.

Messrs. MUNN & Co.—In the trial between the Blanchard Gun Stock Co. against Brown, Eldridge, and others, the Jury, as in a former case, were unable to agree.

The question turned upon the respective claims of Azariah Woolworth and Thomas Blanchard to the invention; whether it was simultaneous with both or whether Blanchard was the original projector and inventor.

This is the first time the two claimants have confronted each other upon the witness stand; Mr. Blanchard having disposed of his entire interest the day previous to his appearance in said capacity for the purpose above stated.

The case as yet remains undetermined by reason of the discharge of said Jury. Both parties have received patents.

Very respectfully yours, &c.

J. B. ELDRIDGE.

Philadelphia, Nov. 25, 1848.

A Singular Rock.

There is near Stoney Brook, Morris county, N. J. a huge rock lying on the mountains in a curious position. The stone is a boulder about 20 feet in length, 14 in breadth, and of a tabular form, with average thickness of 7 feet and weighing consequently about 150 tons.

But it is not the mere size and weight of such a stone removed by some unknown agency from its original bed, that gives it its interest; there are many such, and of even larger size, that lie scattered about the mountains. It is its peculiar position. It lies on three large stones of rounded form, and elevated above a piece of flat inclining rock from 2½ to 3 feet and making under it an openspace where one may find the cooling shade or protection from the shower. The rock rests its almost entire weight on two of the stones placed in a line nearly across the centre, and the spaces on which its great weight depends is in the one case 10 inches by 2, and in the other 5 by 6 inches. The third stone seems but to serve the purpose of keeping up the balance of what it preponderates on one side and here it rests upon a point only an inch in diameter.

So nearly is this rock balanced, that one with a good lever, properly adjusted, can move it; and thus by overcoming a difference in the balance equal to about 2 tons can move the whole 150 tons. What is a little singular, there are near by it three other large rocks resting in part on smaller stones, although not elevated like the former.

The Largest Scythe Manufactory in the World.

The largest scythe manufactory in the world is in the State of Maine a few miles from Hallowell. It belongs to Reuben Dunn, Esq., a very enterprising gentleman. The establishment consists, besides warehouses, furnishing shops, &c., of three principal buildings for manufacturing, two of which are one hundred and forty-four feet each in length. In these, and in departments connected with the establishment, are employed about one hundred men, many of whom have families settled at the place. A flourishing village has grown up within a few years, and is rapidly increasing.

Twelve thousand dozen scythes are annually manufactured, to produce which are required 450,000 lbs. of iron, 75,600 lbs. of steel, 1200 tons of hard coal, 10,000 bushels of charcoal, 100 tons of grind-stones, and half a ton of borax. The last article is used in the process of welding.

The proprietor has been at great pains to manufacture a superior article, and no scythe is permitted to go into the market till it has passed the ordeal of two experienced and careful workmen, besides the examination of the general superintendent, whose inspection extends to every part of the establishment.—This care has given these scythes a celebrity which secures a ready sale for all that can be furnished.

Mr. Dunn is erecting additional works in the vicinity, which will soon be completed, when he will be enabled to turn out 17,000 dozen scythes annually.

Rapid Motion and Sound.

The following article by Mr. Scott Russell and published in the London Athenæum, will be found of considerable interest to many of our readers.

Until the existence of the very high velocities now given to railway trains, no opportunities have existed of observing any phenomena, in which the velocity of the observer has been sufficient to affect the character of sounds. The author, having had occasion to make observations on railway trains moving at high velocities, has been led to notice some very curious effects in sounds heard at 50 and 60 miles an hour. These effects are not heard by an observer who is stationary. He found that the sound of a whistle, on an engine stationary on the line, was heard by a passenger in a rapid train to give a different note—in a different key from that in which it was heard by the person standing beside it. The same was true of all sounds. The passenger in rapid motion heard them in a different key, which might be either louder or lower in pitch, than the true or stationary sound.

The explanation of this was given as follows:—The pitch of a musical sound is determined by the number of vibrations which reach the ear in a second of time—32 vibrations per second, of an organ pipe, give the note C, and a greater or less number give a more acute sound, or one more grave. These vibrations move with a velocity of 1024 feet per second nearly. If an observer in a railway train move at the rate of 56 miles an hour, towards a sounding body, he will meet a greater number of undulations in a second of time than if at rest, in the proportion which his velocity bears to the velocity of sound; but if he move away from the sounding body, he will meet a smaller number in that proportion. In the former case, he will hear the sound a semi-tone higher, and in the latter a semi-tone lower than the observer at rest. In the case of two trains meeting at this velocity, the one containing the sounding body, and the other the observer, the effect is doubled in amount. Before the trains meet, the sound is heard two semi-tones too high, and after they pass, two semi-tones too low—being the difference of a major third.

There were next explained, the various effects which the noises of a train produced on the ears of passengers at high velocities. The reflected sounds of a train, from surfaces like those of bridges across the line, were at ordinary velocities, sent back to the ear changed by less than a semi-tone, so as to cause a harsher discord, which was an element of the unpleasant effect on the ear when passing a bridge. In a tunnel, also, the sounds reflected from any irregularities in the front of the train, or behind it, were discords to the sounds of the train heard directly. He showed, however, that, at a speed of 112 miles an hour, these sounds might be those of a harmony with each other, and become agreeable, for the sounds reflected in opposite directions would have the interval of a major third.

Sir. D. Brewster observed, that in his opinion, the explanation of the curious effect of rapid motion of the observer on sound, was to be sought from physiological causes, and not acoustic; and pointed out what he considered to be analogous phenomena with respect to light—such as the augmentation of light at the boundary of moving shadows, the perfect clearness with which objects could be seen through rapidly moving openings in screens, and the production of color by screens in motion under certain circumstances.

Sir. W. S. Harris conceived that all the effects were to be explained by the undulatory theory of sound, in the manner in which they were explained by Mr. Scott Russell.

Building Societies.

Building Societies appear to be quite popular in Canada. A loan meeting of the Upper Canada Building Societies was held at Toronto a few weeks ago, when shares of the stock were sold at the average bonus of 58 1-4 per cent. The shares of the Niagara District Society sold on Monday last at an average bonus of 45 per cent. These Building Societies are calculated to effect much good in affording aid to those who are otherwise unable to procure the means for the construction of dwellings and the purchase of homesteads.