



NEW YORK, MAY 6, 1848.

**Bain's Electro Chemical Telegraph.**

Mr. Alexander Bain, the celebrated inventor of the Electric Clock, and many other inventions, has just paid a flying visit to this country to secure by patent his invention of the Electro Chemical Telegraph. He has been exhibiting his invention for a few days past in this city, and by invitation we examined his apparatus and received a full explanation of the whole operation, both theoretically and practically from the inventor himself.

The Electro Magnetic Telegraph as first contrived and now used in Europe and America is dependent, (as the name implies,) on Magnetism to move metallic bodies for the purpose of giving and recording signs, and as early as 1837 a Mr. Davy published in England a mode of using the electric current to mark signs on cloth by chemical means, but his apparatus was only capable of giving about six signs a minute in a short distance by several wires at one point.

By the invention of Mr. Bain he dispenses with the magnetic action to produce mechanical movements for making and recording of signs, and employs long strips of paper so perforated in groups that each group represents some known letter or sign. The non-conducting substance of the paper passing between the electroded parts of the machine intercepts the electric circuit except at each perforation where the electroded parts of the machine come in contact through each successive perforation, this admits the electric current to act with its natural velocity to complete the circuit and transmit the sign to a distant station where each sign is recorded by the electric pulsation passing into and through a chemically prepared paper made to revolve on a cylinder that travels at a like speed per minute as the perforated paper at the transmitting station. In this manner no time is lost by any mechanical movements or magnetic action or by any manipulation of the operator at the machine and by multiplying the parts through which the perforated paper passes giving each part a separate battery and a wire to each line of telegraph, the same communication is fully and simultaneously transmitted to and recorded at any reasonable multiplicity of distant stations, or if a machine consisting of twenty such parts is required to send to one, two or three distant stations only, all those parts not wanted are put out of action by simply turning back the parts that complete the electric circuit. In this manner Mr. Bain has transmitted signs representing one thousand letters (not words as has been erroneously supposed,) per minute; and at the average of 3½ letters to a word, this will be about 285 words per minute, but it is believed by Mr. Bain that he will be able shortly to transmit 3500 signs equal to 1000 words a minute, though he does not wish to assert that he has transmitted so large a number. No part of the machinery is liable to derangement, except the conducting wires, this is common to every other arrangement at present in use, though the time may not be far distant when this last inconvenience may be avoided. By this mode of operation the public news of Europe or of the United States, may be composed in either country or on the passage between, so that on the arrival of the steamer the composed news may be at once placed in the Electric Telegraph, and in a few minutes be transmitted to every important place in the country, for the Press to be copying it for the public information in places hundreds and even thousands of miles apart, within one hour of the same time at which it arrives; or a merchant having correspondence at a distant city can use his own mode as agreed between himself and his correspondent of signifying letters by perforations, and in transmitting a notice by this means, be secure against any one else knowing the business it

concerns, because the paper containing the received and recorded notice going to the correspondent would only be understood by him and the party who sent it. And from the rapid action of this mode one wire will transmit more than fifteen wires can do now, as so many communications can be successively sent in the same time now occupied for one. This mode is in use between London and Birmingham, a distance of 112 miles, and between Manchester and Liverpool, a distance of 32 miles. It has been proved from London to Liverpool, a distance of 226 miles, under an unfavorable state of the tunnels through which the connection of the wires passed, but the result was the same, and when Mr. Bain left England the London and Liverpool line was in course of completion throughout.

We shall be able to present our readers with a fine view of Mr. Bain's Telegraph, with description as to its operation, &c. in a few weeks.

**Science and Labor.**

There are many who suppose that scientific acquirements and a laborious occupation, are incompatible things. There never was a greater mistake. If there is a single fact more strong than another to strengthen our proposition, it is that of our great New England Blacksmith, Elihu Burritt, charming and rivetting the attention of wondering listeners in the vast metropolis of the British empire. Workingmen, just reflect for a moment upon the career of our blacksmith hero. A short time ago we beheld him, the son of a widow, laboring at his anvil for his daily bread. Now we behold him standing before princes, the noblest prince of them all—a prince of good works, noble thoughts, and a prince in eloquence and knowledge. How did Elihu attain to his present eminence? By the employment of his spare moments from hard labor in acquiring useful knowledge. There are many mechanics and laboring men who may not have the advantages of Elihu Burritt, and many more have not his capacity, but there is not a single individual who makes the best use of all his privileges, a fact which too many have to regret when the circumstances of age or worldly cares place such opportunities forever out of their reach. We speak now to young artisans and mechanics. We would sincerely call your attention to the acquirement of what is useful when you are young. Remember that knowledge is never a burden to carry along with you wherever you go, but is rather a letter of introduction to the society of the sensible and the truly respectable in every land, while it is in a thousand ways serviceable in the pursuits of life. Farquharson who purchased Fontonwell Abbey, was indebted for his wealth to but a very slight knowledge of chemistry, acquired independent of his profession. Ignorance on the other hand, is continually placing barriers in the pathway of man's advancement—We do not mean by "knowledge" that it should be acquired for the purpose of making money. Such an idea is derogatory to the character of man. Workingmen, for we are now speaking to you, should acquire useful knowledge for the very pleasure that is inherent in the acquirement of it, and for the object of being better men and better citizens. There is no way by which the working people will ever be elevated to a higher position in society, than by sound knowledge—"knowledge is power." When men intelligently understand themselves—their own rights and the equal rights of others, then they will exert an influence at once healthy and beneficial both for their own benefit and the benefit of society. This kind of spirit is now being developed and these opinions are now being extended among the working classes throughout many parts of the world. With a calm and solid judgment they perceive that virtue, common sense, correct information, and calm and liberal views are the only true guides for the elevation of any class of men, and certainly these views and these acquirements are not incompatible with Labor.

The Pensacola Gazette describes the Arcadia Cotton Factory, near Pensacola, which is now in successful operation. It is worked entirely by slave labor, runs 25 looms, and turns out one thousand yards of cotton per day.

**Economy of Power in Cotton Factories.**  
(Continued from our last.)

Considerable difference of opinion exists respecting the best bush metal for shafts to turn upon, and though of the first importance there is no point connected with the construction of machinery so scantily furnished with satisfactory experimental data.

James Ferguson, and other scientific men, having investigated this subject, recommend the metal composed of the most minute particles.

As friction results principally from inequalities on the surface of bodies coming in contact with each other, they very plausibly conclude (and experiments upon a small scale without the use of any lubricating substance seems to bear them out,) that fine grained metals presenting fewer inequalities on their surface cause less friction. This theory, however, does not seem to stand the test of experience on a large scale; indeed the whole subject of friction is involved in mystery.—All writers that I have consulted with the view of obtaining definite ideas respecting it, either express themselves with extreme caution, or deal in vague generalities. Cast iron properly hardened, has answered a better purpose for shaft bearings than any thing I have ever used. If it is well oiled the first month of its being used, a fine skin enamel is formed on its surface, which with the same quantity and quality of lubricating matter, will allow large shafting to revolve more freely than the finest brass or composition in common use. If, however, from neglect it is allowed to run dry until the metal wears, it is more apt to do so again, hence no agent of a cotton factory should leave the entire care of the shafting in subordinate hands during the first month at least of its operation. Of course we would not recommend the agent to apply the lubricating matter himself, but we do not think it would derogate from the dignity of his station, or permanently injure his fingers to apply them occasionally to the bearings to satisfy himself that they do not "heat." This may be reckoned among the "meaner things" that ought to be left "to low ambition," but we consider no man capable of starting up a new mill with profit to the owners, (in a place where manufactories are not already in successful operation) who is not willing to attend personally to every minutia until a proper system is established, and overseers, whose integrity and ability may be implicitly relied upon, are put in charge of the several departments.

Should any bearing wear so much as to prevent the shaft running true, it ought to be replaced by a new one at once,—if however, the surface is merely worn rough, its polish may be restored by applying brimstone mixed with oil, a few days while the shaft is in operation. When the oil is used for lubrication the best sperm the market affords is the most economical to use in a cotton mill. For shafting not over three inches in diameter, nor revolving more than 120 turns per minute, it answers well, for safety and economy, to have a hole about an inch square in the cap directly over the bearing, and kept constantly supplied with common tallow which being always in contact with the revolving shaft, it needs no other lubrication, unless the tallow is unusually hard, then a few drops of lubricating oil may be poured upon it once a week. As there is more danger to be apprehended from large shafting heating in the bearings the Lubricator should always be applied.—



THE LUBRICATOR.

This consists of a tin cup, capable of holding about a pint of oil, with a small tube passing through the bottom and reaching nearly to the top inside. It should be placed so that the lower end of the tube will point to the centre of the bearing; if the cup is filled with oil and supplied with a wick, one end of which resting in the oil and the other passing down through

the tube to the bearing, capillary attraction (the same principle that supplies combustion in the common lamp) will cause a constant dripping of oil from the wick, proportioned to its length and size. Any contrivance to raise the wick from the oil, or press upon it at the top of the tube will stop its capillary action when the shaft is not in operation.—The Lubricator should be applied to every bearing liable to heat from excessive friction.

W. MONTGOMERY.

(To be continued.)

**American Carriages.**

Two handsome omnibusses have arrived in Philadelphia from Troy, N. Y., of which the Ledger speaks in terms of the highest praise. The one is called General Taylor and the other Eclipse. They are said to exhibit a high degree of workmanship. The painting is beautifully done and the ornamental gilding and scroll work which the sides of each present, as well as the lettering, is of the most beautiful description. The interior of the coaches is furnished with crimson velvet cushions, of very superior make, while the sides are embellished with strips of highly polished mahogany. Each coach has been provided with a burning fluid lamp in front, to which has been added an improvement, consisting of tubes to carry off the smoke. Such specimens of mechanical skill exhibits the great perfection which the artisans of our country have reached in the manufacture of conveyances for the ease and convenience of the public. A number of very elegant light carriages were shipped from this city to London last Fall and met with high commendation and a ready sale.

**Cotton Raising and Cotton Spinning.**

A correspondent writing to the Alabama Planter, says:—

"Cotton raising is a rather uncertain and unprofitable calling. It is a little like gold digging, delusive: yet I do not know what else to engage in, unless I build a factory. I have water power near at hand sufficient to drive one or two thousand spindles. From what I can learn, manufacturing cotton is far more profitable than raising it. In fact, if a house with which I have correspondence, makes correct statements, a factory costing 15 to 20,000 dollars would pay for itself in twelve or eighteen months. If you can send me a partner with funds, I should be tempted to try the experiment."

**Herman Steamer, at Halifax.**

When the Herman put into Halifax, she was visited by Sir John Harvey, the Gov'r., accompanied by lady Harvey, the provincial Secretary, and a number of army officers. The boom of a gun saluted his Excellency on boarding her, and the vessel in honor of the occasion, was decorated with gay flags. Sir John was most graciously received, and after examining the different departments of the steamer, partook of a Luncheon in the saloon. On leaving, he was pleased to express the entire satisfaction and extreme pleasure he received from his visit.

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