



NEW YORK, APRIL 1, 1848.

Lead Pipe for Domestic Purposes.

We have received a number of communications lately requesting our candid opinion relative to the good or evil effects from the using of lead pipe to conduct water for domestic purposes. We have expressed our opinion before on this subject, and have lately made many inquiries and collected opinions on the subject from a number of living sources, and have reason to change but little from the opinion we formerly expressed that "lead pipes were dangerous to use for domestic purposes." In some situations lead pipe is perfectly safe, and more safe to use in the conducting of river water than water from many springs.—London, New York and Philadelphia, we believe have suffered nothing from the use of lead pipe. We believe it is perfectly safe to use lead pipe in the conducting of filtered rain water, that is, those cisterns where the rain water is filtered through a bed of sand or charcoal. They are common in many parts of the country, and when the rain water is conveyed from tin roofs, it comes from the cisterns, if they are well built and bedded, as limpid as crystal and sufficiently imbued with carbonic gas to make it healthy. Mr. Hardy, in a communication to the Massachusetts Ploughman of the 5th of February, on this subject, seemed to be impressed with the belief that the water in *all our wells was filtered rain water*. He forgot the sulphurated hydrogen springs of Clinton and the salt springs of Salina.

We have had some experience in the use of water conveyed through lead pipes and have never felt any evil effects—but we have both seen and heard of the evil effects of it upon others. We have also had no little experience in the chemical preparations of lead, copper and arsenic, and have no hesitation in saying that lead at least can be used in some places with impunity, while in other situations the use of it would be at the peril of health and life. The editor of the Christian Citizen, in an article published not long since, and when just recovering from disease, uses the following language: "We take this opportunity to state that the sole cause of all the illness we have suffered the past year, has been the use of water pumped from a well through a lead pipe. With almost every particle of food and drink we have taken into our system for more than a year, we have taken, by this means, small particles of the worst mineral poisons; and the result has been days and weeks of the most intense suffering." And in another article, the same paper states that an attack of severe illness experienced by Dr. Woodworth of the Massachusetts State Lunatic Asylum, in Worcester, was caused by the use of water ~~conveyed~~ through lead pipe. The oxide of lead was detected in the water by analysis and the State removed the pipes, although the water works were in perfect order; and not long ago Mr. E. Highley of Templeton, came to his death by the use of water drawn through a lead pipe.

The acetate of lead is a bad poison and was the means of creating numberless terrible diseases in Herefordshire, England, among the cider makers, who at one time used lead in their presses. The antidote to acetate of lead is glauber salts which converts the acetate into inert sulphuret. The use of river water and that of many springs by carbonizing, or creating the sulphate on the inside of lead pipes, renders them safe, but the carbon crust if broken off and drank, is dangerous. The bichromate of potash will detect lead in water. A small quantity of the water should be placed in a watch glass, and if a drop of the chrome be dropped into it and a light curdy yellow matter be precipitated, it is an evidence of lead, and for such water lead pipe should not be used. Or if the lead is in the water in a state of white carbonate, if a little of the supercarbonate of ammonia be put into the wa-

ter to precipitate the lead, and if the precipitate be taken and dissolved in sulphurated hydrogen water and become black, it is a sure sign of the carbonate of lead being in the water.

The condition of water for supplying villages and cities through lead pipes should be carefully attended to. The presence of lead in water may be detected by agitating the water well in contact with air and then subjecting the deposit to analysis. If by experiment any water be found to act upon lead and hold it in solution, such water should not be conducted for use through lead pipes, but if the water be found not to hold the lead in solution, it is perfectly safe to use for domestic purposes conveyed through lead pipes. Water can be conveyed from sulphur springs through lead pipes with impunity but not from springs where there is uncombined chlorine or carbonic acid. The lead ores are generally combined with sulphur, hence the safety of water taken from such situations.

If hydrochloric acid be added to water and a precipitate is formed, and if ammonia be added and the precipitate remains unchanged, it is a sign that the precipitate is the chloride of lead. Sulphuretted hydrogen gas produces black precipitates of lead.

Every person knows that lead is a poison in almost all its combinations, and as the salts of the oxide of lead are colorless any person can apply the above tests and decide for themselves.

Infringement of Patents.

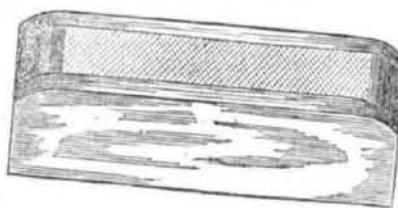
The unselfish part of community is beginning to be thoroughly roused to do something for the protection of Inventors' rights. Too long have men of genius been deprived of their just rights. Inventions have been stolen and patentees have been plundered and have not been able to get a redress of their grievances. In a great number of instances speculators have made themselves rich by the inventions of men who had to sell their patent rights for a mere pittance, and while the purchaser, or purloiner has been enabled to flaunt in silk and lace, the inventor has often walked the streets in rags. Many suppose that as some patents have been infringed with impunity because the patentee was either too poor or averse to law to prosecute for infringement, that patents have become like water spilt upon the sands. But justice will not always slumber—retribution will yet take hold of those who do wrong. Agents of patents should not be usurers to irritate public feeling by exorbitant prices, or a narrow selfishness—the public good should always be looked after and then the public will protect the patentee.

Yankee Manufactory.

In the village of Birmingham, Conn., there is a machine for making brass chains, and works as if endowed with human instinct. By every turn of the driving wheel the wire for the chain is wound off a reel and pulled forward to its proper place and position, the end running through the last formed link, exactly the length for two links cut off, first one end turned over into a link, then the other, the former dropping down through the machine, leaving the latter projecting above, so that the wire can be instantly pushed through it, when it is cut off, two more links formed, and so on, until a large roll of wire is transformed into a perfectly-formed chain by the unaided operation of self-acting machinery, hardly a finger having been lifted during the process.

Important to Emigrants.

An important bill has been reported by Mr. Grinnell, from the Committee on Commerce, a few days since, which provides for the ventilation of vessels conveying passengers between Europe and this country. Companion ways are to be erected over the apartments, so that one door may be always open. Metallic ventilators are to be placed in the apartments with receiving and exhausting caps, to receive fresh air, and expel foul air. The bill also provides for commodious cooking ranges. A penalty of \$200 for each violation of these rules. There are other regulations which Mr. Grinnell intends to introduce as amendments, which he thinks will prevent ship fevers and other kinds of sickness among immigrants. The bill repeals the laws limiting the number of passengers to two for every five tons.

Steel Pen Renovator.

The above cut is a representation of a method for removing many incrustations that are the attendants of steel pens. It is the contrivance of a Mr. Hancock, and is not new now, having been described some time since in the Glasgow Engineers' Magazine. But as it is very simple and we have not seen it in use, we think that some of our Eastern friends should introduce it, as they can do up these things about the slickest of any other folks, the neat handed Italians not excepted.

This instrument is simply a piece of very fine wire card, such as is used in carding the finest wool, and it is mounted on a neat mahogany frame, or the frame may be made of fine bird's-eye maple or good black walnut. On the two ends of the frame is placed a piece of velvet, and when a steel pen becomes clogged or rusted, or if greasy, a few wipes over the card drawing the pen towards the velvet end of the instrument, will immediately make a new pen of it. This is superior to a glass full of shot and it can be made very neat and cheap, so as to look handsome upon a desk. A brush made of stout bristles placed very compact and made in the very same manner, will answer the same purpose, but the bristles must be of the best and most rigid quality. As steel pens save much valuable time to the pensman, not requiring mending, and as summer is approaching when ink is apt to ferment and in that state have a strong affinity for the metal, the above little instrument may in that case be a friend to many, who like ourselves are often in trouble with our pens for want of such a friend to let off their turgid spleen by a graceful wipe.

Transmission of Motion, Speed and Power.

Wheels are the most beautiful as well as the most economical means of transmitting power from the main driver to the minutest points of connected machinery. No driven part of machinery can exert more power than is in the main driver—there is always a loss however small by friction (resistance.) And whenever friction or resistance is entirely overcome in a machine then may we look for perpetual motion, and not before. Cog wheels are much used in the transmission of power and speed, to the rotary motion of which, as Ewbank says, "we are to attribute the great superiority of modern over ancient mechanism." In factories the belt and pulley have justly supplanted the old cog wheel movements, but there are other small machines such as lathes and clocks, that are much better operated by cog wheels than any other mechanical means. If a great number of shafts are wanted to be driven and only a small space to pack the machinery, cog wheels are the best for this purpose.

The Hydraulic Ram.

The object of the hydraulic ram is to raise water above its natural level, which is done by a simple hydrostatic principle. If a bar of iron be made to stand upright, it will press with its whole weight on the point on which it rests; but if a column of water be poured down a perpendicular tube, it exerts a force not only downward but laterally, so that it would have a tendency, if the tube was closed at the bottom, to expand the bottom of the tube into a globular form, by pressing on each side equally. If the tube be very long it must be capable of resisting a great pressure at the lower end or it will burst. If now a smaller pipe be made to connect with this tube at the bottom, and a stop cock be placed at or near the point of junction, the pressure of the water will be very great at the place where the stop cock is. If the cock be suddenly opened, so great is the pressure that a jet of water will rise in this pipe to a considerable distance above the top of the other pipe. If the cock be opened and shut successively, a continued stream is obtained from the smaller pipe. This is the simple principle of the Water Ram.

The two Grandest Works in the World.
NIAGARA SUSPENSION BRIDGE.

"I raised (says the distinguished Engineer) my little wire cable on Saturday, and anchored it securely both in Canada and New York. To-day, (March 13,) I tightened it up, and suspended below it an iron basket, which I had caused to be prepared for the purpose, and which is attached to pulleys along the cable. On this little machine I crossed over to Canada, exchanged salutations with our friends there, and returned again, all in fifteen minutes. The wind was high, and the weather cold, yet the trip was very interesting to me—up as I was 240 feet above the rapids, and viewing as I did, from the centre of the river, one of the most sublime prospects which Nature has prepared on this Earth of ours.

"The machinery did not work so smoothly as I wished, but in the course of this week I will have it so adjusted that any one may cross in safety."

TRIAL OF AN IRON TUBE.

The first of the eight great iron tubes, says the Liverpool Albion, required for carrying the Chester and Holyhead Railway over the Menai Strait was tested on Saturday, at Chester, in the presence of Mr. Stephenson the projector, and a large number of engineers. All support being removed, the tube had a clear span of 400 feet, each end resting on a stone pier. The experiment was then tested by running locomotives and heavily laden ballast wagons through—one train of 28 wagons filled with iron, weighing upwards of 300 tons. The deflection of the tube was not more than a few inches.

It is strange that both the above trials were made on a Saturday.

The Climate of Mexico.

The climate of Mexico, is peculiar; beautiful, calm and serene, but the atmosphere has so much less oxygen in it than ours that the whole economy of life is changed. The pulsation is increased almost double in frequency and there is a want of that vigor and robust feeling which our climate affords a healthy man, and once reduced by disease there, it is almost impossible to regain health and strength. The mornings are cool, too cool, for a man in a relaxed state of health to exercise without danger of taking cold which is almost as bad as any other disease there; and the days are so hot that the rays of the sun cannot be borne without producing fever. The natives wrap up in cloaks in the morning and retire at noon.

Notice.

In connection with the able articles from the pen of Mr. Gilroy, we will commence next week a series of articles on the "*Economy of Power in Cotton Factories*," from the pen of a scientific and thoroughly practical gentleman, long and intimately engaged in the cotton manufacture.

A new steamboat built of live oak and cypress, has just been launched on Lake Erie. She is to be called the "Maid of the Mist."

Scientific American—Bound Volumes.

The second volume of the Scientific American, bound in a superb manner, containing 416 pages choice reading matter, a list of all the patents granted at the United States Patent Office during the year, and illustrated with over 300 beautiful descriptive engravings of new and improved machines, for sale at this office—Price \$2.75. The volume may also be had in sheets, in suitable form for mailing—at \$2.

The back Nos. of the present volume may also be had upon application at the office.

THE**SCIENTIFIC AMERICAN.**

Persons wishing to subscribe for this paper have only to enclose the amount in a letter directed (post paid) to

MUNN & COMPANY,

Publishers of the Scientific American, New York City

TERMS.—\$2 a year; ONE DOLLAR IN ADVANCE—the remainder in 6 months

Postmasters are respectfully requested to receive subscriptions for this Paper, to whom a discount of 25 per cent will be allowed.

Any person sending us 4 subscribers for 6 months, shall receive a copy of the paper for the same length of time