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Water for Cities.

In cities and villages, the interests of their inhabitants are so blended together, that it is impossible to isolate them. A farmer may cut innumerable ditches and drains through his property, without interfering with any other person's interests; but a common sewer in a city for the purposes of necessary drainage, is a different affair; hence the necessity of the municipal laws to accomplish for the public benefit, works that are often against private interests. There are three kinds of public works, over which corporate bodies should exercise a wise control, and which should not be neglected by any city corporation whatever. We refer to well paved streets, well drained streets, and an abundant supply of good water. There are many other interests, perhaps a thousand, beside these, such as gas light, public parks, halls of justice, marine accommodations, &c., &c., but the three above specified interests never can be justly neglected. In many places the public interest and benefit of a good supply of water, is ignorantly or selfishly overlooked. New York never exhibited more wisdom than when she, at a vast expense, projected and accomplished the Croton Water Works. Long before had the Philadelphians immortalized the Water Works at Fairmount; and Boston has completed an undertaking, although not so great as that of New York, yet it is one which does her honor and shows her wisdom.

The best way to supply a city with water, when it can be done, is by gravitation, carrying a large and pure supply by ventilated canals, or pipes from a higher to a lower level. This mode is attended with great expense at first, but it is always cheapest in the end. But when a corporation cannot afford to enter upon an undertaking of this kind at once, still it is no less a duty to afford a good supply of water by some other means; and no reasonable means should be neglected for doing this. although opposed by great private or minor public interests. The city of Albany, N. Y., was visited with a most terrible confiagration last year, and it was generally allowed that there was a great want of water to assist in arresting its progress. New York used to be often in the same predicament, but she is not so now. Albany has exhibited much dilatory policy in this respect, while the City of Detroit, Michigan, has exhibited a spirit which might well make her hang her head. We see that a report has been presented to her Common Council, to supply the city with plenty of water, by employing steam engines to throw it up from the Hudson, afterwards to be filtered and then supplied to the inhabitants. This plan is recommended by men of ability, and in the present instance it is a good one—a wise one. The outlay would not be much, and this much we can say in favor of it, there are some cities in the world, containing ten times more inhabitants, that are well supplied by steam engines in the same way as is proposed to supply Albany.

The town of Pittsfield, Mass., suffered last year by a fire for the want of an abundant supply of water. This it should never suffer again, while so many beautiful streams can be conveyed from but a short distance, "Sparkling clear from the mountain's rocky side." Every city, every village, every house, should be well supplied with good water. Water is as essential to health—yea to existence, as food or the air we breathe. We have been induced to make these remarks, with a view to say a word for a good object, hoping that the hint will be appreciated by every place for which the coat is fitted. We hope to see the time, and trust that it is not distant, when elegant and cheap public baths, or free baths, will be established in this and every city in our country.

We have received a communication from J. B. Eldridge, of Philadelphia, and a number from other correspondents. We will give them due attention. They have just come to hand.

Water and Steam Explosions, and Engineers.

Many bodies posses the curious property of taking a spheroidal form under certain circumstances, and in this state they possess very different properties from what they do in any other. Water in a red hot boiler becomes spheroidal, and the evaporation, strange as it may appear, is fifteen times slower than in its ordinary state; and what seems very singular, the water is only 205°, while the boiling heat is 212°; but if the boiler is allowed to cool a little, the whole suddenly passes off into steam. When an engineer, in charge of a boiler, unacquainted with this law, found that the water was too low, and the bottom plates red hot, was then to let in a little water, this would, on contact with the red hot plates, assume a spheroidal state; but when he would let in a little more, to cool the plates to the required temperature, the whole would suddenly pass off into steam, and an explosion would be the result. It is a curious property of water, that it generates steam at 212° of heat, and will give off only a certain amount of steam, according to the amount of heat continually imparted to it in a given time. Were not this the case, but that water at 212° was suddenly to assume the steam state, it would be as unmanageable as gunpowder, for a machinery propellant. As it is, no other substance, (fiuid or gas) can equal it for safety and beautiful economy, as a laboring force to drive machinery. The great difficulty that science has to contend against, in its safe application and use, to prevent heartrending and terrific accidents, is carelessness and ignorance on the part of those entrusted to guide and master it. When the steam boiler becomes the master of the engineer, instead of the engineer master of the boiler, then in a *divine* interposition alone, out of the common course of nature, is an accident prevented. It would be a good plan for every State to appoint a faculty of competent engineers, to examine all engineers and to grant them diplomas of competency, without which no one should be allowed to take charge of a steamboat, locomotive, or other engines. We do not like to advocate any measure that appears aristocratic, but this is not. Every engineer should possess certain qualifications to be entrusted with the management of what concerns public life and property. The qualifications should be known, but we advocate no rule or service to be qualified—the knowledge and ability is what the public wishes, to take charge of all that is dear to them while travelling on steamboat or railroad.

Cheap Postage.

The Postmaster General's report shows that our Post Office system is in a very healthy condition, with a great surplus revenue. Many prophesied that when the postage was reduced from 25 to 10 cents for the highest rate of letter postage, that the Post Office Department would become a burden to the Government, as it barely paid expenses at that time. Now what is the result, we have a cheaper postage, and instead of a decrease, we have an increase of revenue. We never like to advocate a reduction of price for any thing whereby a fair competence is only obtained, at best, by individuals; but in governments, corporations and chartered companies, every reduction in their prices benefits the community at large: cheap water, cheap gas light, are general benefits to inhabitants of cities, and cheap postage is a general benefit to all our citizens. We advocate the reduction of letter postage to two cents, in every case pre-paid, for a distance not exceeding 100 miles; and no single letter to be more than five cents for any distance. We also advocate a cheap Ocean Postage—not over five cents for a single letter to Europe. The revenue would be increased by the reduction (argument, the P. M. G.'s Report) and the public would be greatly benefitted.

City Railroads.

A Committee has been appointed to receive proposals, plans, &c., relative to a Railway in Broadway, to relieve the streets of the carriages and omnibuses, which have become a nuisance in some sense. It is not likely that any thing will be done about it at present, or we greatly mistake the nature of the *faculty*. Our City Fathers can do some great things, and then again some great things are always to be done on paper. What has become of the Washington Monument, after all the pageantry and show displayed last year? Is that scheme to be a disgrace to our city, by being worse than the "baseless fabric of a vision," for it appears to be a visionary fabric with a *base*. What schemes, what nonsensical displays, is our city illuminated with from time to time. We hope that a double track will be laid in Broadway in the middle of the causeway, to allow two or three separate trains of cars to be going up on one track all the time, and two or three trains coming down on the other. There is no other feasible plan but this. Instead of injuring private property, like an elevated side railway, it will add to its value, and the saving to our city in repairing pavements will soon pay all the expenses of the Railroad. A branch should intersect the Broadway road at the Park, to run up Chatham street and the Bowery, and one along East Broadway. Other branches can easily be planned and safely constructed, both for the general good of our city and the private benefit, with a few exceptions, of all our citizens. An elevated railway in our city has as little to recommend it, to our view, as the building of a bridge on dry land and on level ground.

Improved Spindle Bearing.

A is the end of the spindle: it is of a cone form; B is the bearing-box, which is a hollow cylinder, with its front edge bevelled to fit the cone of the spindle; C is a cylinder of plumbago (blacklead) abutting against the conical end of the spindle, A, and the set screw is employed to push forward a plug behind the plumbago, to adjust it to the end of the spindle Plumbago is about the best substance for anti. friction that is known, and this arrangement is worthy of some attention.

The Woodworth Patent Planing Machine Case.

In our last number we merely noticed this case, because at the time of going to press the main facts had not reached us. We now present them as derived from correct sources.

The case was an action for alledged infringement of the patent for a planing machine. In 1845 a bill of complaint was lodged in the United States Circuit Court, sitting as a Court of Equity, by the plaintiff's assignees, for the Eastern section of Maryland, of the patent granted to Wm. W. Woodworth, administrator of William Woodworth, deceased, against Isaac Brown, for an injunction against the use of a planing machine in the city of Baltimore, which they insisted was an infringement of the patent. The injunction was granted.

The respondent denied in his answer to the injunction, that Wm. Woodworth was the first and true inventor of the planing machine and improvement for which the original patent of 27th of December, 1828, was issued; and he further insisted, that even if William Woodworth was the first and true inventor of the improvement, &c., for which the original patent was granted, yet that the re-issued patent of the 8th of July, 1845, issued with an amended specification, (on the surrender by the administrator of the original patent for an alledged defective specification,) was not for the same invention, for which said original patent had been granted. And he also denied that the machine used by him was the same in principle and mode of operation as the machine covered by said patent. On the filing of the said answer, the injunction was dissolved; and the Circuit Court thereupon ordered that issues of fact framed by the court should be tried by a jury at the bar of said court, as a court of law. Three issues were directed to be tried, and upon these the case was contested at November term, 1848, but the jury was unable to agree. At the present term the issues were again submitted to a jury, after a full investigation and argument, and on Saturday evening the jury returned their verdict as follows:

On the first issue, the jury find as follows:

That William Woodworth was the original and first inventor of the improvement, for which he obtained a patent on the 27th of December, 1828, excepting the part thereof disclaimed by William W. Woodworth, his administrator, as by his disclaimer filed in the patent office, on the second day of January, 1843.

On the second issue, the jury find that the patent issued to the said William Woodworth, administcator as aforesaid, on the 8th day of July, 1845, is *not* for the same invention as the patent above mentioned to William Woodworth, with the exception of the part disclaimed as aforesaid.

On the third issue, the jury find, that the machine used by the respondent is the same in its mechanical principles and mode of operation, with the improvement for which the above mentioned patent of 1828 was granted, after excepting from the said patent the part disclaimed as aforesaid

As the suit was founded on the patent of the 8th July, 1845, the practical result of the verdict is in defendant's favor.

The case was decided on the 1st inst.

For the plaintiff—Messrs. Latrobe and Nelson. For the defendant—Mr. Schley.

Scientific Memoranda.

SOLAR PHOSPHORI.

There are many substances in nature, which when heated te a certain degree, acquire the property of becoming luminous at low degrees of temperature, and when merely exposed for a time to the sun. Canton's phosphorus, which is obtained from calcined oyster-shells, possesses this property; and common oyster-shells may be rendered phosphorescent, by attending strictly to tbe following directions, which are given by the discoverer for the purpose:—Take the most flaming coals off a brisk fire, and throw in some thick oyster-shells; then replace the coals and calcine the shells for an hour. Remove them carefully, and, when cold, it will be found that, after exposing them for a few minutes to the sun, they will glow, when taken into a dark room, with most of the prismatic colors.

Fluor spar, several varieties of phosphate of lime, and marble, becomes luminous, when heated to a certain point, without undergoing combustion. The luminous property may be best exhibited, by scattering them, in coarse powder, upon an iron plate, heated to redness.

Many animal substances are naturally phosphorescent. This property in the glow-worm is well known; and it appears that salt-water fish become luminous in about twelve hours after death, the brilliancy increasing till putrefaction is evident when it decreases. This effect, however, does not take place in fresh water.

The common *argand* gas burner will be much improved if the orifice is made to consist of two concentric rings approximating very nearly together to allow a thin cylindric sheet of gass to pass between them, like the camphene lamps.

The common velocity of over-shot wheels in England, is now 6 feet per second—it used to be only 3 feet. The increase of velocity has been found to be beneficial.

The wheel known as Morgan's Paddle Wheel is the invention of Elijah Galloway, the author of a work on the steam engine.

As the time is at hand when skaters will be out and away on our glassy rivers, we caution each one to provide himself with a vulcanized india life-preserver. A stock for the neck can be made double, and made into a small life-preserver by having one of its ends made of a small tube with a screw valve, to fill the hollow india rubber neck stock with air. This hint will, we hope, be appreciated.

What is meant by perpetual motion? Some machine that will return more power than it receives.

Good Copal Varnish is made by dissolving equal parts of copal in alcohol cold, and caoutchouine.

Turpentine will dissolve india rubber, so will naphtha and caoutchouine.

The way to couple three engines to one crank shaft, so as not to have two cranks pass the centre at the same time, is to couple them at equal angles, when there would be a perfect equilibrium.