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Prizes for Inventions.

We would call the attention of our inventors to an advertisement on our proper page for that purpose. The offers are for useful improvements connected with Railroads. We believe them to be fair, generous, and honorable to Mr. Ray. Having said this much, we cannot help throwing out some remarks to combat an idea which seems to be enter-by some, viz., that "the arts are now so perfect and complete as to leave little room for further improvement." This is not so, and never will be, with respect to the work of men's hands; great though the achievements of men have been, still imperfection is written upon them all. The works of God, the Great Creator, the Divine Architect and Mechanic, are alone perfect. The human frame, that machine of machines, is no more perfect to-day than when it sprung, bounding with life and beauty, from the inanimate dust of Paradise. This we cannot say of the works of man; the real perfect must ever be before us. When we look behind and see what progress man has made in invention, and then compare what he has done with the works of nature, we always find more imperfections in the former, and more perfection in the latter. It is true, indeed, in respect to the mechanic arts, that the present state of them may be called perfection in comparison with the state in which they were a century ago, but this should not damp the ardor of the ingenious mechanic. There is still plenty of room for invention and improvement; yea, and it will ever be so; with every new achievement, new wants will spring up; and, to provide for these, the inventor will still have to exercise his genius and the mechanic his cultivated skill. We can go on towards perfection, but can never reach it; and the more perfect the arts become, even after many ages will have passed away, still, something will always be wanting to complete the picture. With all our perfection in the arts, more new inventions are demanded to-day than ever there were at any period of the world's history; and the mechanic who may be living a hundred years hence will have the same story to tell. Here we have prizes offered for five new improvements, relating to railroads alone, and when we consider that it is only twenty years since the first scream of the locomotive was heard in our land—that not a single iron horse was seen panting along the iron track in the United States at that time, and that now his iron hoofs are heard thundering through the heart of the Green Mountains, over the Hudson, down the slopes of the Alleghenies, and along the banks of the Mississippi, well may we hold up that man to ridicule who even hints at a limitation to new inventions and discoveries. In twenty years we have built a track of twelve thousand miles long for the iron steed—what a race-course! In a few years more he will commence his race wet with the spray of the Atlantic; and will not slack his iron nerves till he has snuffed the breezes of the Pacific.

Inventors of America! the progress of invention in your land is entrusted to your keeping.

Measures of Length.

A correspondent writes us inquiring "what is the standard for tape or rule measures?" He says that he has a yard-stick and a two foot measure, and the one is longer than the one of his neighbor, and shorter than the other by about one-sixteenth of an inch. The fault is certainly not with the standard of measure, but the makers of those instruments. The standard of a yard is to be compared with the vibration of a pendulum in a vacuum at the level of the sea in London. The beat should be 39.1393 inches in a second, and the yard should be as 36 to this. This measure was adopted by an Act of Parliament, and is the one we use in America, our rules being derived from the English.

The Cold Weather.

For twenty years we have had no such cold weather, in any winter, as we have had during the present one. On Tuesday morning of

last week thousands crossed the ice on foot between Brooklyn and New York. On Thursday morning, also, great numbers crossed on foot. The greatest cold has been 4° below zero. This, however, is nothing to 36°, at which point it has been in Franconia, N. H.

Extension of the Woodworth Patent.

Some time ago we directed the attention of "all those concerned," to the efforts which were about to be made for the extension of the famous Woodworth Patent, for seven years beyond the term when it shall expire—which will be on the 27th day of December, 1856, nearly four years from the present date. Systematic and well-planned efforts to get the present Patent Committees of the two Houses of Congress to favor the extension of the patent, will be made, and no means spared to get the Bill passed. It is time that those who honestly believe themselves to be morally wronged by the monopoly of this patent were up and doing. It is for you, gentlemen, to organize and act. Things are managed in Washington with so much subtilty, that the first you will know will perhaps be an extension of the patent of William Woodworth to his heirs, &c., for a period of seven years from 1855. It may appear strange to some of our citizens that any public body in this free country would do such a thing—would dare to do it; but despotic and unjust grants of monopolies are not peculiar to kings and autocrats. Unless our rulers are watched, they will forget themselves; the people must let them know that their eyes are upon them, and that they will call them to account for every vote they give. There are Senators and Members in Congress against whom the breath of suspicion cannot be raised; let their attention be directed to this case.

It is not long since the late Common Council of the great city of New York passed a contract granting a monopoly to a Gas Company in the city, for seventeen years, and the grant was actually legislating for their successors, as it was not to take effect until they—the grantees—were six months out of office. If the present Congress extend the Woodworth patent five years before its expiration, it will exhibit a want of decency without a parallel; but, then, such considerations may not prevent its extension. The most effectual way to prevent its extension is to petition and use efforts to get the present grant repealed. We do not counsel this, but in consideration of the efforts made for its extension.

The Committees on Patents consist of Moses Norris, Jr., Charles T. James, James Whitcomb, W. C. Dawson, and Truman Smith—these are the Senators. The Committee of the House of Representatives consists of David K. Carter, of Ohio, M. M. Dimmick, of Pa., W. J. Ward, of Ky., Benj. J. Thurston, of R. I., and Alex. White, of Ala. These gentlemen are the proper persons to whom petitions on patents should be addressed.

Curiosities of Water—Explosions of Steam Boilers.

A respected correspondent, writing to us from Florida, informs us that in conversation with his engineer, a sensible practical man of great experience, who was once an engineer on board of a steamboat that was blown up, and by which he was a great sufferer, he gave it as his opinion, that a very inflammable gas is sometimes generated in steam boilers, and which is not indicated by any particular pressure of the steam. He says he has seen the solder of the steam pipes melt at 170 lbs. pressure, and has also seen it melt at only 70 lbs. pressure. He believes that this gas will explode like gunpowder, if it comes in contact with flame. A friend of his made a small boiler of a piece of steam pipe, and furnished it with a safety valve; he got up the steam in it until the safety valve opened, then he put out the fire under the boiler, and applied a torch to the steam issuing from the valve; an explosion like a bomb shell took place, blowing every thing into fragments and scalding him severely.

There can be no doubt but if the water is decomposed in the boiler, a torch applied to the gas issuing from the valve will cause an explosion. Water is composed of two gases, oxygen and hydrogen. These two gases, in the proportions which form water, will ex-

plode with fearful violence if a spark is applied to them, the product of the explosive gases, strange no doubt to some, is water. Explosions will take place in boilers when a torch is applied to the gases, if the water be decomposed. Red-hot iron will decompose water; the oxygen will combine with the iron and the hydrogen will be set free; if this hydrogen is mixed with 8 parts of the atmosphere, and a torch applied to it, it will explode with great violence. This, in all likelihood, was the cause of the model boiler explosion spoken of above. The melting of the solder at the different pressures spoken of is not so much to be wondered at, for there is only about 66° of difference between 70 and 170 lbs. pressure.

There is a question connected with steam which is more strange than any, and yet we seldom here it mentioned. It is this,—water at 212° gives off steam, this steam is totally different in its nature and action from water, and yet it is only 212° also. Why does not the water, at 212°, all flash in a moment, like gunpowder, into steam, that is, to 1700 times its original bulk? We cannot tell; we only know it does not do it. It has been proven by Faraday, however, that water, perfectly purged of all atmospheric air (which all water contains a portion of), when heated to 300°, explodes instantly; that is, it all flashes at once into steam. There is another property belonging to water not so universally known to engineers as it should be, namely, all the water in a boiler will become steam in a given time, when subjected to a constant heat and great pressure. If a certain amount of water, at the heat of melted ice, be put into a vessel, and a lamp applied to the same, it will be found that if the time occupied to bring the water from melted ice to 212° (the point where steam commences to be given off) be noted, and the lamp kept at the vessel for 5½ times longer, all the water will be changed into steam; it follows, then, that if a certain amount of heat be applied to water, for 5½ times the period it took to raise the temperature from that of melted ice to the steam point, all the water will be in a state to flash at once into 1700 times its original bulk. A cubic foot of water, converted into steam, occupies 1700 times the space it formerly occupied, if not compressed; and two cubic feet of water, converted into steam, occupies a space of 3400 cubic feet. The pressure exerted by such an expansive force is tremendous. If frozen water has burst cannons, is it to be wondered at that heat and water burst boilers? Every engineer should be thoroughly acquainted with all the known chemical and mechanical properties of water and steam. The observations of eminent practical engineers are very valuable; they are situated to observe the phenomena of steam, and there may be many not yet generally known.

The Rappings.

"A rapper in New England, of the Andrew Jackson Davis school, professes to have had a recent communication from the spirit of Ethan Allen, in which he stated that he and Tom Paine were stopping at a hotel kept by John Bunyan."

The above is from an exchange: it is a sad commentary upon the intellectual and moral qualifications which make up the school referred to,—a sad reflection to find a spirit of infidelity creeping into the community under a disguised form, and leading in its train the credulous and simple-minded. What a vast account the leaders of such schemes will have to render.

American Axes in Canada.

The Montreal Herald states that a manufactory of American axes has been established on the Lachine Canal, by Messrs. Scott, Brothers & Co. Their steel and iron are imported from England, and their coal from Pennsylvania. To balance the expense of importing coals, they have the tariffs both of the Province and the United States. They have the Provincial duty of 12½ per cent. against imported hardware, and, instead of the 30 to 40 per cent. duty the United States imposes on British iron and steel, they have the nominal one of 2½ per cent.

The American Axe, it is well known, is of a peculiar shape, curved in its outline, and very thick towards its edge—so that a section of it would not be an acute triangle, but the meet-

ing at an acute angle of two curves. Its use is principally to fell trees, and the object of its peculiar shape is to clear itself when struck into the green wood, so as not to stick, and require an effort to extricate itself, but to come out easily, and rather to recoil, for another blow.

Photography and Gutta Percha.

At a recent meeting of the London Photographic Club, Mr. Fry exhibited some pictures on glass, prepared with a combination of collodion and gutta percha, which the Athenæum speaks of as being charming. The gutta percha is added in small quantities to the collodion (or ethereal solution of gun cotton), in which it readily dissolves, and the latter is then used as in the ordinary collodion process, the picture being developed by pyro-gallic acid. The film on the glass is described as being for more adherent than that obtained by common collodion or by albumen. The sensibility of the preparation is such that a positive copy from a glass negative has been obtained in five seconds by gas light.

The Photographic Club, says the Athenæum, is exciting much interest among artists; and at the last meeting, which was at Mr. Fry's house, Sir Charles Eastlake, Mr. Harding, Mr. Roberts, Mr. George Cruikshank, and a number of other eminent artists, were present.

Felt Cloth Carpets.

The Journal of Commerce gives an account of a novel production which the Bay State Mills—those which recently drove the British shawls out of the market—have produced. It is a felt cloth carpet, printed in block work, and designed according to weight either as a floor cloth or druggut. The threads of wool are not spun or woven, but drawn out and laid together, the whole mass being felted like a hat body. Within a few months, fabrics have been put together in this way, showing a different color on either side, and designed for coats to be made up without lining. The Bay State Mills make this cloth with a white ground, about 40 inches wide, weighing from 4 to 24 ozs. per yard, and print it in elegant carpet designs, showing the richest combination of brilliant colors, and furnish it at 75 to 90 cents per yard.

We do not see why this kind of carpets should not answer as well as the woven kind.

Burning of a Steamship.

The British steamship Amazon, from Southampton to the West Indies, was entirely consumed by fire on the 3rd inst. Out of 165 persons on board, only 19 were saved. The fire was caused by spontaneous combustion. In this case it appears to us that if hose of vulcanized india rubber attached to the steam boilers had been employed, the fire could have been put out easily in its early stages. Will our steamship owners think of this?

Petition for Extension of Patent.

United States Patent Office.—On the petition of Samuel Truscott and George Wolf, of Columbia, Pennsylvania, and James Dougherty, of Philadelphia, Pennsylvania, praying for the extension of a patent granted to them for an "improvement in the mode of making cast-iron wheels to be used on railroads, and applicable to other purposes," for seven years from the expiration of said patent, which takes place on the 17th day of March, A. D. 1852.

It is ordered that the said petition be heard at the Patent Office on Tuesday the 16th of March, next, at 12 o'clock m.; and all persons are notified to appear and show cause, if any they have, why said petition ought not to be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specifically set forth in writing, at least twenty days before the day of hearing; all testimony filed by either party to be used at the said hearing, must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

THOS. EW BANK, Com. of Patents.

[The above petition will no doubt excite a great deal of attention among our railroad car wheel makers. This wheel is well known and has been the subject of many patent lawsuits. A verdict of \$3,000 was rendered against a company a few years ago for the infringement of a patent.