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Contents.

(Illustrated articles are marked with an asterisk.)

Table listing various articles such as 'Nebular theory and an inquiry into Kepler's harmonic law', 'Paper bag machine, improved', 'Patent decisions, recent', etc.

EXPLOSIONS DUE TO LOW WATER.

In our issue of March 8, we published an article in which we exhibited the fallacy of the popular ideas relating to the consequences of low water in steam boilers...

In the article above referred to, we showed the possibility of cold feed water, entering a boiler filled with steam, producing the condensation of that steam and the consequent collapse of the boiler.

Let us suppose, as an extreme case, a plain cylindrical boiler, of 42 inches diameter and 30 feet length, to have become completely emptied, by some accident, and then to have a supply of water forced in under the conditions last described.

The case which we have supposed would, evidently, be likely to produce explosion, were the pressure not relieved by the safety valve; but it must be remembered that this is the extreme case, and one likely to be seldom met with.

nearly 800 pounds per square inch, except for one very important circumstance: that is, that saturated steam already existing would, as shown by experiment, be condensed by the slightest increase of pressure and, thus yielding before the newly developed vapor, the result would be that the pressure would really be but very slightly increased.

Our readers will be very likely to agree with us, we think, when we draw the conclusion that the statement that "water coming in contact with red hot iron creates a gas ten times as explosive as the best gunpowder" requires some modification.

INJUSTICE TO WORKMEN.

It is always the case among antagonistic parties that there are a few on either side who rush to extremes and, by their precipitate and ill advised measures, neutralize such satisfactory adjustment of the question in dispute as might be effected through the efforts of the more cautious and conservative majority.

RECEIPT AND CONTRACT.

Received of Joliet Iron and Steel Company, the full amount due me as per pay roll for services rendered said company during the month of January, 1873.

And for the consideration of the above mentioned, I do hereby agree that said company shall not be liable to me (nor my heirs, executors, administrators, or other persons who may be dependent upon me for support in case of my death) for any damage or accident resulting or occurring to me while in its employ, whether caused by the negligence or carelessness of any of the officers or employees of said company, or from any other cause whatsoever.

Further, that I will continue in the employ of said company from month to month at the current rate paid by said company for the class or kind of work done by me, and not leave the employ of said company or refuse to perform my daily duties without fourteen (14) days notice in writing of such intention to the superintendent, foreman, or the person under whose orders I am employed, previous to the time of leaving or failing to perform my daily duties.

And in consideration as aforesaid, I do further agree that in case I fail to comply with the conditions last aforesaid, that I will forfeit all moneys earned by me and remaining unpaid at the time of such failure on my part to comply with the terms of this contract.

Witness.

Although it is possible that this contract may be legally valid under the statutes of Illinois, we doubt whether its terms would receive a rigid interpretation from any court or be enforced through any jury. It is plainly inequitable, inasmuch as it gives to the employer rights which it denies to the employee, and places the latter in a position in which his means of support may be at any moment taken from him without warning, and without leaving him any mode of redress.

We cannot too strongly protest against the adoption of such a method of governing workmen as the above would signify, and we would earnestly advise its discontinuance. It is on such proceedings as this that the harangues of the leaders of strikes and labor uprisings find a substantial basis, which lends to their arguments a weight with men who otherwise would fail to be moved by them.

It seems to us that the coercion in this case is as evident and in every respect as much to be condemned as that exercised in the contrary direction by the unions. Indeed, if employers adopt this course, with their restrictions on one hand and those of his society on the other, the future of the working man is at best sadly unpromising.

PROPOSED NEW PATENT LAW IN ENGLAND.

A committee of London patent agents has prepared a bill for a new patent law, the passage of which through Parliament is proposed. It is a sort of a patent hash, having been made up, apparently, by means of scissors and paste, its components being derived, in small items, from the patent laws of various countries.

Some items are then taken from the American law. Examiners are to be appointed, all cases are to be examined as to novelty, and rejections made when the examiner thinks proper. This officer may summon the applicant and compel him to make such amendments as he may require.

The grant of patents to the first applicant, whether inventor or introducer, as at present provided, is prohibited, and patents are only to be granted to the inventor or his authorized agent.

The last mentioned clause is the only really sensible improvement that the bill contains. The effect of the other provisions will be to place difficulties and troubles in the way of inventors, without conferring benefit on anybody.

What is needed for the encouragement of the useful arts in England, and in every other country, is:

First, the publication in cheap and popular form of the drawings and specifications of all patented inventions, so that the people may become fully informed as to what is doing or has been done in the arts.

Second, the reduction of the fees and the forms for obtaining patents, so that the masses of the people, who are poor, but among whom the real thinkers and inventors are to be found, may readily secure patents for their new ideas.

Third, the placing of the entire control of the patent, from the day of its issue to the close of its term, in the hands of the inventor, to be his property, to be used as he thinks proper, subject to no compulsion or other official interference.

Nearly all of the changes proposed in this bill are steps in a backward direction, not an advance in keeping with the spirit of the age. The present British law is immeasurably superior to this one now proposed. Indeed the existing law is admirable in nearly every respect and works admirably. Almost the only change it needs is a reduction of the enormous patent fees it now requires, and the limitation of the issue of patents to inventors only.

PSEUDO SCIENCE.

We have before referred to the fact that mere reasoning, not based on sufficient observation of Nature, almost always leads to false conclusions and baseless theories, that this was the main fault of the ancient philosophers, and is still the fault of that class of moderns who labor under the serious disadvantage of deficient mental training; we have also asserted that docility to Nature's teachings and a liberal amount of resignation of our own speculative faculties are the real means to come to the knowledge of the truth.

Kant had evidently never been instructed in regard to the resistance of motion by friction, and he was ignorant of the fact that all motion, once imparted, would continue in the same direction as long as it was not prevented by other causes, of which friction is the most common and, on the surface of our earth, the permanent cause which finally arrests all motion. Having no conception of this, but imagining that force must be a metaphysical immaterial thing which can be communicated to matter, he distinguishes two kinds of force, living force (vis viva) and dead force (vis mortua), and he illustrates these two forces by the following experiment: "When a book lays on the table," he says, "and I push it forward with my hand so slowly that it stops moving as soon as the contact of my hand ceases, I give it only a dead force; but when moving it with such violence that it continues its motion after the contact of the force-giving hand has ceased, I give it a living force. So a heavy box or trunk, dragged over the floor, is moved by a dead force, but a stone thrown by hand is moved by a living force."

Another illustration of a similar nature is Goethe, who in the latter years of his life had a notion to study optics, and wrote a volume on light and colors, in which he proves that he had not the least capability of making experiments, and was still more deficient in his powers of observation. His conclusions are almost all false; he is perhaps worse than