

Scientific American.

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Our New Half Volume.

This number being the first of a new half volume, and as we always have had a large addition of new subscribers at such periods, we commence this number the same as if it were the beginning of a new volume; that is, so far as it relates to the commencement of a new series of articles. It is therefore a very excellent time for persons to become new subscribers, as they will have, in this volume, the best record in the world, of the progress of American Inventions and Discoveries for the next six months. We will also publish a series of miscellaneous illustrated articles in it, which we are confident will afford much gratification and impart a great deal of new and useful information. It affords us much pleasure to acknowledge during the past few weeks, an astonishing large increase of new subscribers.

Needful Discoveries.

The New York "Tribune" of the third inst., contained an article with the above caption, in which two new discoveries were suggested. It says:—"in order effectually to advance our civilization two discoveries in a different department are now urgently required. The first is a method of hardening metal, so that stone may be cut by it with the same celerity and ease, as we now cut wood with steel. It must be supposed that the rocks, which form so large a part of the crust and even of the surface of the globe were intended for the uses of man.—Wherever great wealth accumulates, either in the hands of a sovereign or a people, you may see its representation in their enduring structures of stone."

It then speaks very truly of the unending nature of wooden structures, and their liability to take fire, but the remedy which it suggests is founded in error. It says: "It seems within the limits of scientific possibility that a method may be discovered of hardening some of the present metals, or an amalgamation of some of them, so that a boulder from the side of a mountain may be sawed into blocks, pillars, and beams by means of machinery, similar to that used for reducing pine logs to planks and boards. If iron upon being heated in carbon can be made to change the combination of its particles so as to become capable of cutting simple iron, as readily as old cheese, may not an additional equivalent of carbon, or the addition of some known or unknown substance, so increase its tenacity and hardness as to make it capable of sawing granite? If not, have any other metals the property of becoming so indurated? It is said that the ancient Peruvians wrought stone with tools of tempered copper. Shall we never regain this lost art?"

We have heard a great deal of the copper tools of the ancient Egyptians, as well as Peruvians, but we must say, that they did not at all equal our modern steel tools in any respect; those who talk so much of ancient copper tools, and the *lost art* of tempering, betray much ignorance. The plain idea presented in the above, as a suggested remedy for cutting stones like sticks, is simply the use of a harder metal than any which is now used in stone dressing. But suppose we had a metal ten times harder than any we now have, we could not cut stone with it as easily as we now can cut wood. The great obstacle to the cutting of stone with ease, lies in the nature of the material to be reduced and shaped. Its particles possess more cohesion, and are much harder than those of wood; they therefore require the exercise of a greater amount of mechanical force for their separation, either by cutting or abrasion. The needful discovery to effect this, has been made and applied; it is steam power. Perhaps, the most useful discovery, as a substitute for wooden structures, is a strong cheap material, like cast iron, which is capable of being moulded into any form without cutting at all. It will be a happy day for our citizens, especially in large cities, when all the buildings will be composed of cast iron in place of stones, sticks, mortar and mud.

Respecting the other desirable discovery it says:—"The other great desideratum is the production of heat without combustion. The accumulation of population and power in the world has been for many centuries in the colder latitudes. The greater part of the habitable globe, best adapted to support human life, lies under the colder zones, there the homes of the great majority of the race must continue to be. Indeed, the use of fire seems to have been one of the earliest steps towards civilization. In all the northern States of this Union more is annually expended for fuel than for bread. It would almost seem to be one of the duties of the Creator, who had fitted up this planet for the abode of his creatures, to ventilate it with air of such a temperature as would be congenial to life. At any rate there must be in the mystery of his laws better methods of producing heat than the combustion of trees, or of coal, sparsely stored in the almost inaccessible bowels of the earth. Heat exists in all known substances. It gives to liquids and fluids their form, and chemistry has discovered the method of releasing it from each and making it available. It is a product of friction and of the combination of many common substances. In the human organization it is generated by the combustion of atmospheric air. It is above us in the clouds, that retain their vapory constitution through the winter, and beneath us in the earth, that keeps up its equable temperature through all seasons alike. Would not the same amount of energetic experiment and patient study that has been required to perfect the steam engine, if applied to the study of these laws, obtain results of incomprehensible importance and influence?"

This fling at the duties of the Great Creator would never have been uttered by one who had drank deeply at the well of science.

The Great Creator has fitted up this world and does ventilate it with air congenial to life; he has also provided abundant means; and has established the most beautiful and simple laws, for the health and comfort of man. If the Great Creator had provided only for an elevated temperature for domestic and manufacturing purposes, by the development of heat from friction, man would be no better than the brutes which lie in the cave or the jungle, and know not the blessings of combustion. We feel grateful to the Creator for the beautiful law which he has established, for the development of heat by combustion. None can be more simple, and none require less labor from man in fulfilling the conditions necessary to its perfect realization.—We pity those who cannot see the beautiful adaptation in the laws of combustion to the wants and happiness of man, under all conditions, and in every clime. And when we reflect that the materials belonging to our globe, to produce combustion, are illimitable, we wonder at the spirit which called forth the above. Heat is produced by friction, and combustion—these two processes cover all the rest. It is not produced in man, as stated above, by the combustion of atmospheric air, but by that of the carbon and hydrogen introduced into our system in the shape of food and drink. It is estimated that the heat given off by a full grown man in 24 hours, is sufficient to raise 63 lbs. of water, from 32° F. up to the boiling point; the greatest part of this heat is due to the combustion of our food, but some is also due to the friction caused by the action of the muscles and the nerves. There is no country in the world where the expense of fuel is equal to that of food, but still, the expense of fuel in the coldest parts of our northern States is very great.—and this, let us say, is more in consequence of the violation of well known laws, than ignorance of them; we allude to the want of exercise in the open air, and the general immersion of persons in hot unventilated apartments. The very fact admitted above, that the colder regions appear to be the cradle of races and nations, is perfect evidence that the Creator has produced the best and most congenial atmospheric currents for general human happiness, and abundant experiments have been made with frictional electricity, and the friction of bodies, to satisfy any clear-minded man, that no amount of experiment or study, can develop heat from these means so cheaply as by combustion. At

present we need not dwell at greater length upon this subject; we will only say that simple combustion is a subject which has always afforded us deep cause for wonder and admiration; it is one of the most simple, yet most mysterious and sublime of nature's laws.

Value of Patented Improvements.

Within the past year we have noticed with much pleasure the increased attention which has been paid to patented inventions by men of capital. Several joint-stock companies have been formed for the manufacture and sale of good improvements, and we have no doubt that more attention will be given to this branch of industry in future. We could instance a great number of cases where inventors have realized a handsome competence from the sale of their patents within the past eighteen months, and it is by no means an uninviting field for men of means to undertake the management of good inventions.

The cost of an application for a patent rarely exceeds sixty dollars; and if the case is rejected, twenty dollars of this amount is returnable by law. Surely this is taking a very slender risk compared to the advantages likely to result from the sale of the invention if the patent is granted. If the aggregate number of patents issued did not directly or indirectly benefit the inventor, there would be less activity in this branch, and one reason why so many do little or nothing with their inventions, is owing to a want of energy in bringing them before the public.

We are always prepared to advise with applicants in regard to the novelty of their contrivances; and as managers of a Patent Agency the most extensive in the world, our facilities are not excelled, if equalled, by any other concern. Thousands of dollars have annually passed through our hands for disbursement, both at home and abroad, and not an instance can be produced where we have not faithfully accounted for every dollar entrusted to our care.

Starch Patent Extension Refused.

It will be remembered by our readers that we published, in No. 25, the specification of the patent of Orlando Jones, for making starch, who has petitioned for its extension, the official advertisement of which will be found in another column of this number. An application was made some time since for the extension of Jones' English patent; this was heard before the Lords of the Privy Council, in London, on the 8th of last month, and was decided in the negative—the extension was refused.

We learn by the "London Mechanics' Magazine," that in 1842 the inventor made a disclaimer in England, in consequence of a patent having been granted in 1824 to one Thomas Wickham, for the use of a solution of alkali, by subjecting rice to its action before it was ground, while all that remained of the patent of Jones, was for the use of the alkaline solution after the rice was ground.

The Privy Council, without going into any evidence, decided that there was not sufficient merit to warrant an extension, and whatever merit there was, the credit belonged to another, and the applicants were ordered to pay £100 to liquidate the expenses of those who opposed the extension, as there was no grounds at all for them (the applicants) making the application. This appears to be a peculiar decision, and the first of its kind, we believe, in any country, namely, awarding costs to those who opposed the application for the extension of a patent.

The India Rubber Case Again.

Three weeks ago (on page 187) we noticed the granting of an injunction by Judge Betts, against the New England Car Spring Co., for an infringement of the patent of Edwin M. Chaffee, the extended term of which H. H. Day had purchased of the patentee. Since that time the defendants in that suit have applied to the Court to dissolve the injunction, which was only a temporary one. We do not know at present if the motion to dissolve will be granted, but we would state that this Company claims to have a title to manufacture car springs of india rubber by a license from Good-year and Judson, who claim to have a superior

title to the patent of Chaffee. It seems to us that our U. S. Courts are clumsy, elastic, and interminable in their actions and operations. There seems to be no power in them for bringing matters to a final issue, or else india rubber is too elastic for them to grapple with. No sooner does a case seem to be settled and the india rubber contracted to its natural dimensions, than some one gives it a long pull and a strong pull, and out it is drawn again before the courts to a length as endless as that represented by the ancients in the figure of a serpent swallowing its tail. In the decision of Judge Betts, it is stated that H. H. Day paid E. M. Chaffee, \$11,000 for this extended patent, which extension was granted in 1850 by Mr. Ewbank. The most curious part of this transaction perhaps is that H. H. Day was the most active opponent to the extension of the patent, and even after it was granted, he published a circular, with the opinions of a number of lawyers attached, asserting that it was granted illegally. At present he seems to consider it one of the most legal extensions ever granted—worth at least \$11,000. Well, everything about this india rubber case partakes of the nature of the article itself; it is strong, elastic, durable, impervious to moisture, can stand a high degree of heat when sulphurized, it vulcanizes the courts, and electrifies the lawyers.

Telegraph Fire Alarm and Steam Fire Engines.

During the past winter our city has suffered severely by extensive conflagrations; these calamities naturally incite us to inquire "can no proper remedy be provided for them?" Although we believe conflagrations cannot be prevented entirely, we have no doubt but they may be greatly lessened in extent and frequency. In Boston they have a telegraph fire-alarm system, by which, in a second of time, information is sent to almost every engine house, of the exact situation of a fire when it breaks out, so that the firemen can dash off in an instant to the point of action. This system has been the means of preventing many disastrous fires in that city. Let it be adopted in New York, and it will save the city some millions every year.

In Cincinnati there are one or two steam fire engines, which are stated to be very effective, and capable of throwing such heavy columns of water rapidly on a fire, as to drown it out in a very short period. Let our Common Council get one of these engines built, and give it a fair trial, and if it prove to be half as good as has been represented, it will save a thousand times more than its expense, in a single season. Our city and the insurance companies can afford to expend a very large amount for the prevention of extensive fires, and they should not act penny wise and pound foolish to do so, but at once adopt more effective and energetic measures to accomplish such ends. We suppose that \$5,000,000 will not cover the losses caused by fires in this city during the past year; the one-tenth of this amount expended judiciously, will, we believe, prevent five out of every six fires which break out from becoming large and destructive.

The Independent.

Owing to the destruction of the publishing office of the "Independent" by fire, some of the subscribers will doubtless fail to receive their paper. Those who do not receive it are requested to inform the publisher, Mr. Joseph H. Ladd, No. 22 Beekman-street, New York, as soon as possible, and also state the time, as shown by their receipts, when their subscriptions expire. Exchange papers and the press generally will confer a great favor by publishing this notice.

Pure Milk.

A bill has been introduced into the Legislature of New York, for the incorporation of a company to supply this city with pure milk.—The cows of the company are to be fed on grass, grain, &c.—no distillery slops. It is scarcely possible to obtain any pure milk at present; the milk pedlar's best grass field is a water hydrant.

We are obliged to Hon. F. B. Cutting, Hon. S. A. Douglass, Hon. W. H. Seward, and Hon. H. Walbridge, for Congressional favors.