Hitherto the inventor has enjoyed, so far as the courts could secure it, the exclusive control of his invention which the Constitution guarantees. His patent has been regarded in the courts as presumptive evidence that his claim to the invention covered was a just claim. Under the proposed amendments of the law, all this will be reversed. The patentee's right will be burdened by needless penalties in the shape of heavy fees, and laid open to invasion by any one who chooses to infringe it. And when his case is brought into court the inventor, not the infringer, will be treated as the culprit.

Every inventor feels that the bill is aimed against him; and should it become a law, we fear that there will result a disastrous fulfillment of the prediction of a hard-working and hitherto successful inventor, who says:

"One thing I have decided upon. If the law is changed, so as to lessen my rights as an inventor, I am through, I quit the field, and thousands of others will be compelled to do the same."

The country cannot afford to have such men quit the field. Policy, as well as justice, forbids any measure tending to compel them to quit the field; and the members of the lower house should not be left to enact the proposed wrong unwarned.

Let every citizen, who has the great question of justice and wise policy at heart, use the telegraph freely, and encourage his friends to do likewise. The cost will not be great, while the good that may be done in preventing hasty or underhanded action may be enormous.

In case our suggestion arrives too late, or the telegraphed advice fails to stay the passage of the bill, then by the same means the popular will might be brought to bear directly and successfully upon the President. In either case use the telegraph.

THE SAWYER-MAN ELECTRIC LIGHT.

It will be remembered that in our issue of December 7th, 1878, we gave illustrations of this novel and promising form of electrical apparatus. Since that date the inventors have been busy with endeavors to perfect the invention, and on the evening of February 20 a public exhibition of the light was given in this city by the Dynamo-Electric Light Co. Several improvements in details of construction have been made, but no radical changes. The chief improvement is in the bearing of the upper carbon holder, to allow for expansion; the lamp has also been made slightly taller. The light exhibited was soft, pure, and steady, and susceptible of perfect regulation. Any lamp in the circuit could be turned up or down, from a dull glow to brilliant incandescence without affecting the rest. An important improvement has also been made in the switch.

The dynamo machine used was about half the size of the one previously employed; there were more lights in the circuit, and the illumination was more brilliant and satisfactory. Comparison was made with gas light, and also with the voltaic arc, clearly demonstrating the superiority of light by electric incandescence for ordinary uses. The carbons used in the Sawyer-Man lamp are now proved to be comparatively indestructible. If, however, the lamp should be broken or otherwise injured by accident, it can be as easily and cheaply removed and repaired as an ordinary gas-burner. As regards economy, tests upon a large scale have not yet been feasible. With the power at command the indications are that the production of light by this system will range between one-fifth and one-half the cost of gas.

A NEW FORM OF CARBON.

In describing the Sawyer-Man electric light, last December, mention was made of the peculiar carbons employed, the manner of their production being a secret which Mr. Sawyer did not choose at that time to disclose.

We have now been favored with an exhibition of the process, and a very pretty experiment it makes. The carbons in question are about half an inch long, with the diameter of one-sixteenth of an inch. Their color is steel-gray, and the surface is hard as steel; within the carbon is tolerably soft.

In his earlier experiments Mr. Sawyer employed as the source of incandescence slender pencils of gas retort carbon in an atmosphere of illuminating gas. The carbons were slowly destroyed, but at the same time they took on a superficial deposit, evidently of carbon, but unlike in luster and hardness any carbon that Mr. Sawyer had seen. Inferring that a more rapid deposit would be made in a denser hydrocarbon, Mr. Sawyer experimented with a great variety of such liquids, finding olive oil most satisfactory. His method is simply to heat the carbon to an extremely high temperature, by passing through it an electric current, while it is immersed in the oil. The best results are obtained by the use of a pencil of willow charcoal, upon which an intensely hard deposit of carbon rapidly forms as the hydrocarbon is decomposed by the heated pencil.

Life Saving Mattresses.

The Navy Department has been experimenting with a mattress designed for use on vessels at sea, with results said to be favorable. The mattress is filled with cotton, but the process of preparation to which the cotton has been subjected makes it impervious to water for many hours, and renders it capable of sustaining a heavy weight—that of a man without any difficulty. It possesses other properties which, it is claimed, make it a most comfortable bed; the cotton being free from all oils and impurities, not liable to knot or pack, and proof against vermin of every kind.

THE GARY MAGNETIC-MOTOR DECEPTION.

In the latter part of November last the New York *Times* printed a column letter from Boston describing, as a fact accomplished, a magnetic motor which was to supersede steam; a contrivance which produced motion "by no external agency, simply from the magnetic power of the machine." It was a great discovery, sure to revolutionize the world. There was a lot of talk about polarity, magnetism, "the neutral line," and the usual story of humble genius upsetting all the established laws of science. The inventor had not been a student; knew nothing of philosophy from the books; "had I studied or read books," he said, "I should never have experimented, as the books told that what I was after was an impossibility, that there was no such thing;" but he kept on—and got it!

The world is too full of perpetual motion mongers to justify the SCIENTIFIC AMERICAN in noticing them until they become obtrusive. Toward the middle of December, the *Times* gave another lift to the deception. This time the Gary Magnetic-Motor was about to startle the world by producing the electric light out of—nothing. In the words of the writer: "By the simplest of devices, which he exhibited to me to-day, Mr. Gary utilizes his own newly discovered principle in such a way as to generate electricity for the light at absolutely no expense beyond the cost of the machine, which itself is automatic." After listening to a pretended description of the working of the machine, the *Times* writer remarked to Mr. Gary: "Your new invention, then, is simply a practical application of the principle, which you have discovered, of the existence of the neutral line, at the point of the magnetic field where the polarity changes, and which is antagonistic to the heretofore universally accepted theory that magnetism is a static force?"

"Precisely," was the reply. "It is only on this principle that the thing is possible."

In its March issue, *Harper's Monthly Magazine* comes to the aid of the *Times*, by printing without comment, as a regular article, a long and cleverly written account of "Gary's Magnetic Motor," with several illustrations, which will be found on another page in this issue of the SCIENTIFIC AMERICAN.

We may be mistaken, but the internal evidence is extremely strong that the same hand that wrote the first (possibly also the second) *Times* article, also wrote the account in *Harper's*. It was shrewdly done; and the manifest attempt to insinuate more than his words really implied, in regard to the quasi-indorsement of the machine by scientific men, raises the suspicion that the writer may not have been so thoroughly deluded as he seems. Be that as it may, THE SCIENTIFIC AMERICAN is in position to say that the assertions in regard to the exhibition of the Gary motor in motion by self-generated force are not true; that the assertion that "professors from Harvard and from the Massachusetts Institute of Technology called, examined, and were impressed" is not true; that apparatus constructed according to the drawings in *Harper's* will not do what the writer says they will do; in short, that the pretended motor is a deception, to be classed with the Keeley motor and like contrivances.

It is very much to be regretted that the editors of periodicals so worthy of esteem as the New York *Times* and *Harper's Magazine* should give place to such assertions, unsupported by the most positive, competent, and conclusive evidence.

The world is full of snares for capitalists, always prompt to snatch at delusive promises of sudden profit; and the fact that the pretensions of the Gary motor have been accepted without a question by a magazine like *Harper's* may be the means of inducing many to put money into projects that are sure to result in disappointment and loss.

THE PRESERVATION OF FORESTS.

In an article with the above title in the *North American Review*, Felix L. Oswald, after reviewing the disastrous effects which have followed the wholesale destruction of forests in various countries of the world, remarks that since the year 1835 the forest area of the western hemisphere has decreased at the average yearly rate of 7,600,000 acres, or about 11,400 square miles; in the United States alone this rate has advanced from 1,600 square miles in 1835 to 7,000 in 1855, and 8,400 in 1876. Between 1750 and 1835 the total aggregate of forests felled in South and Central America (especially in Southeastern Mexico), and in the Eastern, Southeastern, and Southwestern States of our republic, may be estimated at from 45,000,000 to 50,000,000 acres. In other words, we have been wasting the moisture supply of the American soil at the average ratio of seven per cent for each quarter of a century during the last one hundred and twenty-five years, and are now fast approaching the limit beyond which any further decrease will affect the climatic phenomena of the entire continent.

If we consider how the agricultural products of the eastern continents become from year to year more inadequate to the wants of their still growing population, we may foresee the time when the hope of the world will depend on the productiveness of the American soil; but that productiveness depends on the fertilizing influence of the American forests. If they are gone we shall have on earth no newer world to hope for—no future Columbus can alleviate the struggle for existence. To stay such a catastrophe the author suggests that in every township, where the disappearance of arboreal vegetation begins to affect the perennial springs and water courses or the fertility of the fields, a space of say 50 acres should be appropriated for a "township grove," an oasis to be consecrated for ever to shade trees, birds' nests, picnics, and playing children. In all new settlements, where a remnant of the primeval forests has survived, let the woods on the upper ridges or on the summit of isolated hills be spared by mutual agreement of the proprietors. In the treeless regions of the great West not only amateur societies, but every grange and farmers' union of every county, should devote themselves to the work of tree culture; and every landed proprietor should see to it that the boundaries of his estates be set with shade trees, and that wooden fences be supplanted by quickset hedges. Let fruit trees be planted wherever there is a piece of ground neither otherwise occupied nor absolutely barren; and be sure that their influence on the atmosphere in summer and their fertilizing leaves in fall will more than indemnify the adjoining fields for the modicum of sunlight they may intercept. Any State where these precautions should be generally adopted, would soon be so unmistakably distinguished by the unfailing humidity and freshness of its fields and the abundance of its crops, that the sheer necessity of competition would induce backward neighbors to try the same experiment; and before long the maxim would not only be generally recognized, but generally acted upon, that husbandry and tree culture are inseparable.

THE TROUBLE WITH WIRE BINDERS.

So far as their utility at harvest time is concerned the self-binding machines cover one of the greatest improvements of the time. Their immediate money advantage is estimated as high as 20 cents on each bushel of wheat grown. The presence of bits of wire in the wheat when it reaches the mill is, however, a serious offset to the gain by automatic binding. The wire injures the stones, is liable to strike fire and explode the mill, cuts the bolting cloths, and is otherwise so mischievous that many millers have protested against wire bindings, and threaten to retaliate with special charges for grinding wire bound wheat.

It has been the practice of farmers to run wire and all through the thrashing machines. So long as the wire is bright and tough no harm is done; but if the wire is rusted and brittle, fragments remain with the grain, and serious trouble may result.

The conditions seem to call for a new invention, an attachment to the thrashing machine which shall cut the wire binding and remove it while the straw passes on to the thrasher. The work of removing the wire would seem to be nowhere near so difficult as the original task of putting it on the sheaf. If rusted wire cannot be entirely removed before thrashing, it would seem to be quite feasible to separate the bits of iron that remain in the wheat by a train of magnets in the cleaner. In either case we are sure that our inventors can overcome the difficulty by some cheaper means than the abandonment of automatic binders.

THE WASTE OF FIRE.

During the past year, without the occurrence of any remarkable fires, it has cost the United States about $200,000 a day to furnish employment to our town and city fire departments. What the fire departments cost we do not know; it is a good round sumat the least calculation. Architects say that 10 or 15 per cent of the cost of any building, properly expended, will make it practically fireproof. Our daily fire losses would therefore fireproof from $1,000,000 to $2,000,000 worth of new structures a day, or upwards of $300,000,000 worth a year. At this rate it would not take many years to reduce the daily fire losses to comparative insignificance.

It might not be a bad thing to forbid in towns and cities the erection of houses upon which less than 5 per cent of the total cost should be devoted to approved plans for preventing the spread of fire. In view also of the increased indifference to fire risks incident to fire insurance, it might be good policy to require that, for every dollar spent for insurance, a proportional sum should be expended upon means for preventing fires, or upon appliances for securing the prompt extinction of such as might be started. If preventive measures were thus made imperative for a decade or so, the country would soon be able to save a considerable portion of the $100,000,000 a year now directly or indirectly sacrificed to the "fire fiend"—an item certainly worth taking account of.

Neptune Favors Eads.

The opponents of Capt. Eads' jetty system at the mouth of the Mississippi used to threaten all sorts of disaster to that work by storms. There are indications now that storms may in reality act as an efficient co-operator and ally to Eads. During the severe storms of January a ridge of sand was raised some feet above high water mark, and half a mile long, across the jetties at an angle of 45°, about 100 yards back of the wing dams. Though broken in two by the jetties the ridge continues throughout of the same height and thickness. Captain Brown, who has charge of the works at Eadsport, says if the ridge remains as at present the triangles formed by it on either side of the jetties—the one being acute and the other obtuse—will eventually fill up with sand, and thus the jetties be greatly strengthened.

A correspondent, writing from Guilford, Conn., protests against the classification of the oriole among mischievous birds. He says that he has frequently seen them tear open the nests of apple worms and devour them, and thinks that birds with pluck enough to destroy such disagreeable pests ought to be fostered rather than destroyed.

Bleaching Vegetable Fibers.

The processes usually employed for bleaching fibers that are to be spun, especially linen and flax, consist essentially in boiling the fibers strongly for several days with alkaline lyes, which dissolve the gelatinous vegetable matter and other impurities that surround the fiber, and thus expose it, so that it is susceptible to bleaching with chlorine, which is to follow. The chlorine bleaching itself consists in putting the substance to be bleached alternately in chlorine baths and in hydrochloric acid or sulphuric acid, also in soda baths. The bath in which it is put at first is the strongest, and those that follow are successively weaker and weaker. The object of the acid bath is to release the chlorine that remains in the fiber and neutralize the lime with which the hydrochloric acid is combined, while the alkali baths neutralize the acid in the fabric or yarn, and prevent its destructive effects. During this treatment the goods are purified several times with a great deal of water, and to obtain a purer kind of white are put upon the lawn so that the actions of the chemicals shall be aided by the sunlight.

The disadvantages which this old process carried with it are somewhat as follows: The repeated operations with large quantities of water and of chemicals, partially with the aid of heat, require a considerable outlay of capital for works and utensils, a large outlay for the coal and chemicals used, as well as for labor, besides the time consumed. Besides this, the production of a perfectly pure white requires the aid of grass bleaching, limiting it to certain seasons, and necessitating a certain area of grassground, which increases the capital required. Finally, the chlorine baths, by the present process, are in winter frequently inactive, or of very feeble action. These are said to be overcome by a new method of bleaching invented by Beyrich, in Arnsdorf. The principles upon which this new process is based are briefly as follows:

Hypochlorite of lime develops much greater bleaching power when it acts in combination with oxalic acid or oxalate of potash than alone, or with any other acid.

Oxalic acid and its potassium salt do not attack the fibers as powerfully as the strong acids previously employed for bleaching.

The vegetable slime and woody cellulose which had to be removed by previous bucking, do not hinder the bleaching action of chlorine when oxalic acid or its salts are present. Beyrich is of the opinion that the great superiority of the process depends upon the circumstance that a part of the oxalic acid unites with the lime of the bleaching powder dissolved in the water, as is shown by the clear solution turning milky, and thus liberates the hypochlorous acid, which, in a free state, rapidly separates into its separate constituents, chlorine and oxygen, which act very energetically in this nascent state, hence the outer woody fiber does not check their action. Probably another part of the oxalic acid releases the fiber from the slimy portions owing to its own solvent properties.

The method of applying this new process depends somewhat upon the goods or fiber, but is in general as follows: They are placed at once, without previous boiling or bucking, in a chloride of lime bath containing oxalic acid for five or six hours, the time depending upon the fiber and on other circumstances. The temperature of the bath varies between 20° C. (68° Fah.) to 25° C. (77° Fah.). It is well washed and put into a weak sulphuric acid bath, or this may be omitted. It is better not to add all the oxalic acid at one time, but after putting in the larger part of it the fibers are put in very quickly, as the chlorine and oxygen are more active at that time. A while after the remaining acid is put in, and fresh chlorine and oxygen are produced and used. The weak acid bath that follows has as its object not merely the liberation of the hypochlorous acid that remains in the goods, so as to make it more active, but also to convert the lime salts (carbonate and hypochlorate) that are still in the goods into sulphate, which has a whiter color and does not diminish the luster of the fiber. The operation ends with washing well, passing through a soda bath to neutralize any acid that remains in it, and then wringing out well. These operations are repeated in this order a greater or less number of times, according to the quality of the goods, the baths being weaker each time, until the goods are a beautiful white.

It is advantageous, even in this process, to put the goods upon the grass a few days after the second course of baths, as it not merely imparts a purer white color, but makes them more durable, owing to the escape of the chemicals into the free open air. This airing must, however, follow the alkali baths, for otherwise it would produce a contrary effect to the one desired.

All vegetable matter, linen and hemp yarn and cloth, can be treated in the manner briefly described above; but those which are greasy, like raw cotton, and are not wet by water when immersed into it, must, of course, first be boiled in soda to remove this fat or grease, whatever it may be, and then when put into the bath of oxalic acid and bleaching powder, bleach much more rapidly, so that in the case of cotton, as well as of linen, hemp, etc., the oxalic acid proves an invaluable addition.—*Poly. Notizblatt.*

The Dode Method of Protecting Iron.

Mr. J. B. A. Dodé, of Paris, has patented a method of protecting iron from rust by a process of "platinizing." He coats the surface to be protected with a thin film of borate of lead, having a little oxide of copper dissolved in it, and suspended in it also bright scales of precipitated platinum. A red heat is employed to fuse the composition, which is either applied with a brush or employed as a bath, in which small articles may be dipped. Its effect is to cover the iron with a thin glassy coating of a bright gray tint, not far removed from that of polished iron itself, and unaffected by sewer gases, dilute acids and alkalies, and the heat of a kitchen fire. Modifications of the composition give the means of imparting different colors to the coating, and these are as easy of application as the platinum gray. The cost of platinizing is said to be about equal to that of applying three coats of paint, and about one tenth of that of electro-plating with nickel, Paris prices. A detailed account of the treatment of eight stoves is as follows:

	Fr.
1 liter preparation (retail)	3·75
1st furnace operation	3·20
Reagents for platinizing	4·00
2d furnace operation	3·20
Manipulation, wear and tear, etc	1·85
	16·00

This is less than 40 cents a stove. By treating the castings before they cool a still greater saving is said to be possible.

The "Evaporation" of Fruits and Vegetables.

The preservation of apples, potatoes, and the like by evaporating their juices rapidly, is becoming an important industry in Ohio and Michigan. A correspondent of a Detroit paper describes the operation of a factory in Lenawee county, having a capacity of 400 bushels a day. The apples are pared, cored, and sliced at once by hand machinery. The slices are then spread on galvanized screens and placed in the evaporator, a chamber running from the top of a large furnace in the basement upward, out through the roof of a three story building. The current of heated air is kept as near as possible to 240°. The screens of fruit rest on endless chains that move upward at intervals of three to five minutes, when a fresh screen is put in below and one is taken off at the third story completed. The dried or evaporated produce is then packed in pasteboard boxes holding from one to five pounds, and these in turn are packed in cases of 200 pounds each.

A bushel of apples makes about five pounds of the dried fruit; and the process of evaporation is so rapid that the fruit loses none of its freshness and flavor. In some of the factories the cores and peelings are converted into vinegar; in others into apple jelly, out of which every variety of fruit jelly is made by the addition of flavoring extracts.

Sweet corn, potatoes, and other vegetables have been successfully preserved by this process. The chief market for these products is the mining region of the West. Doubtless a large export trade will ultimately result from it.

Effect of Arsenic on the Body.

The London *Lancet* states that C. Gies, in a recently published paper, has given the results of a series of experiments undertaken by him on the effects following the administration of arsenic for a period of four months on pigs, rabbits, and fowls. The quantity given was extremely minute, the rabbits having only 0·0005 to 0·0007 of a gramme; the pigs, 0·005 to 0·05; and the fowls, 0·001 to 0·008 per diem. In all these animals the weight of the body increased, and the subcutaneous fat was augmented. In young growing animals the bones developed considerably both in length and girth, and they presented the peculiarity that wherever in the normal state spongy tissue exists, it was replaced by compact bone. The bones of the carpus and tarsus were in this way converted into solid bony masses. Moreover, a compact layer of bone was found immediately beneath the epiphysial cartilages of the long bone, just as Weigner found to be the case in animals supplied with small doses of phosphorus in their food. This was most distinct beneath the upper epiphysial cartilage of the humerus and the lower one of the femur, and was apparent after the arsenic had been given nineteen days, and where only 0·02 to 0·035 of a gramme had been taken. It was observed that other animals, fed in the same stable, presented the same appearance in their bones, and this Gies ascribes to the air being loaded with the arsenic eliminated by the lungs and skin of the animals to which it was administered, since he found that the changes were also observed in animals kept in a cage, the bottom of which was strewn with arsenic. Besides the changes in the bones, the heart, liver, kidneys, and even the spleen, underwent fatty degeneration. The young of animals fed with the arsenic were invariably born dead, though they attained a large size, and presented remarkable hypertrophy of the spleen and incipient changes in the bones.

Undue Haste in Education.

Barnes' Educational Monthly has an article from the pen of George Harper, in its last number, on the baneful influence of haste in the matter of education, from which we make extracts:

Partly owing to the stimulating nature of the climate, and partly also to the partially developed condition of the western country, which thus supplies to all comers unlimited scope for activity and enterprise, to the visitor from an older country, where things have long got into ruts, and where the wheels of progress, if they revolve at all, move along more slowly and systematically, it always appears as if, in whatever occupation they may be engaged, Americans are generally in a great haste and hurry about it! Thus the cry of "hurry up," in many keys, and in every accent known to the Aryan tongues, is heard in all directions, wafted on the wings of every wind to the newly-arrived immigrant's ears. Indeed, it is usually the first sound that greets his ears on landing on our shores, and the first words of our language that he learns.

Naturally enough, says the writer, this general propensity to hurry and restlessness is not without its influence also upon the character of the common schools; and here, it must be confessed, it really does very considerable harm, by introducing the unnatural brain-forcing, mind-weakening process into education, of which we are now beginning to reap the bitter fruits, as well as to hear not unfrequent complaints. In everything our people seem to be too impatient of results; they want, and must have, immediate returns for their outlay, whether in affairs of business or in education. They cannot afford to wait patiently for the slow progress of mental growth which is the law of the development of the youthful intellect, and consequently teachers must adapt themselves to the popular whimsies, and follow the unnatural cramming system which weakens instead of invigorating the mental powers. It should not be forgotten that, in one sense at least, teachers are just like other trades; they simply supply, or make to order, what is wanted in the educational line. Like other dealers, they must strive to please their exacting customers by furnishing the precise article which they find best suits the market; otherwise, like the unfortunate Moor of Venice, they would very soon find their "occupation gone." And thus it happens that under this false system, the pupil is pitchforked from one "branch" to another, crammed with one text-book after another, and boosted from one grade to another with a rapidity and "business dispatch" which rivals machine-made hard biscuits; with this very important difference, however, that usually when the baking process is completed, the bread is found to be well done; while the minds of the children are (according to natural temperament and mental constitution) often either overdone or underdone, seldom indeed are they done to a turn, which could hardly indeed ever happen under a process so opposed to nature's wise yet unyielding laws—which can never be insulted with impunity. To have got through so many score of wearisome pages in so many different text-books seems to be the one object of attainment. But, although there is only the difference of one small letter between through and thorough, there is a wonderful difference in the educational significance of the two words! To fond, unthinking, ignorant parents, this result may seem highly satisfactory; but to the reflecting mind this brain-forcing process exhibits a melancholy instance of great want of conformity to nature's wise and salutary rules, which it is ever our highest wisdom to discover, and when known, our bounden duty implicitly to obey.

The writer facetiously adds that, in the triumphant progress of mechanical discovery, some ingenious person may come out some fine morning with an invention which will do away altogether with teachers of both sexes. "May we not," says he, "reasonably imagine that, in the pages of some future school journal, there might be found an announcement of the result of such discovery, graphically described as 'a self-acting, self-adjusting, metallic, patent teacher; a wonderful machine, which is warranted to secure at once the most perfect discipline and the highest order of scholarship in all branches; cheap, safe, and expeditious; and adapted to all classes of schools, colleges, and seminaries of learning?'"

Could not a patent metallic teacher, somewhat after the pattern of Frankenstein, be ingeniously put together by somebody, and made to work by the combined action of clock work, steam, and electricity? The complicated mechanism and clock work, combined with steam power, to do the teaching (which would be conducted mainly on the object teaching, or oral method); and the electricity, which is always on hand and ready for business on a moment's notice—the briskest and liveliest spirit of this nether world—just the thing for a teacher of the modern advanced school, would of course be equal to the task of preserving the most perfect order and discipline in the largest school or college, by a simple apparatus of wires attached to the roof, whence, on the least occasion for interference, an invisible hand might instantaneously descend, and slap their cheeks, rap them over the knuckles or elbow, pinch their ears, etc., etc.—the punishment being always exactly suited to the offense, and no favor shown.

To realize all those fond dreams, however, may yet take a long time; possibly may be delayed till the dawn of the millennium, if not a little while longer; but as for mechanical, soulless, routine teaching, where the individuality of the teacher is entirely lost and absorbed in the modern cast-iron system of education, Heaven knows we have enough and to spare of that commodity already, and thus can the better afford to wait patiently for the full fruition of the system—in the advent of the patent metallic, automaton teacher.

Incendiary Rats.

A correspondent calls attention to a fire risk attending open spaces about chimneys and other sources of heat. So long as such spaces are empty they are a protection; but they make admirable nesting places for rats, in case they are accessible to these vermin; and when filled with waste paper and other rubbish dragged in by the rats, the case is materially altered. In a recent fire in a mill, happily extinguished before any serious damage was done, the fire began in the space between the boiler chimney and the sill upon which the flooring was laid, in which the rats had collected a large quantity of broom straw and other inflammable material. Had the fire burst out in the night the single watchman would have had more than he could manage to put it out.