Correspondence.

The Editors are not responsible for the opinions expressed by their Correspondents.

Dangerous Oils vs. Dangerous Lamps.

MESSRS. EDITORS:—I notice on page 148 of present volume, that Mr. Chas. B. Mann aims a blow at glass as a material for kerosene lamps. He has hit the nail on the head. So long as the low value of the light petroleum fluids offers large inducements to cheat, all legislation will fail to protect us from the horrors of kerosene burning. Of all substances, glass is the most unfit for kerosene lamps. A large portion of the accidents which result in death, are caused, not by explosions, but by the accidental breaking of glass lamps, which may occur in a thousand different ways.

Another large class of accidents, though but little understood, are those resulting from unequal expansion of the glass by heat. Being a very poor conductor of heat, the large amount generated by the burner is concentrated around the collar and top of the lamp, while the lower portion remains cool, causing the heated portion to expand, producing fracture. The lamp falls in pieces, and the overheated oil ignites.

Experiment also proves, that in a glass lamp, the heat, which cannot escape, is conducted by the oil in the wick down into the body of the oil, raising the temperature many degrees above that of the outside of the lamp, or the surrounding atmosphere; while in a metal lamp this heat is spread over the whole surface, and is rapidly dispelled by the air, leaving the oil cool. In order to test this matter, I placed, side by side, a glass and a metal lamp, containing the same kind of oil, and using the same kind of burner; the other conditions being as nearly as possible alike. After burning two hours in a room, at 71° Fah., I introduced, through the feeder, the bulb of a thermometer into the oil. In the glass lamp, the mercury indicated 104°, while in the metal lamp it only indicated 79½°. The collar and a small portion of the glass fount were very warm, while the main portion of the glass was cool; showing that the temperature of the glass is no indication of that of the oil within.

Many of the burners now in use conduct downwards but little heat, while others conduct an amount sufficient to bring almost any oil up to the flashing point. No glass lamp is safe from accident. I have known a shuttle to fly from a loom, breaking a glass lamp, and setting fire to the mill, which was saved only by the flames being smothered with a large amount of valuable cloth which happened to be handy.

For household purposes, I believe the rule I have adopted, at my house, to be safe. I have one or more lamps in each room, on stationary brackets, out of the reach of children, and only use one lamp to carry about the house. These lamps are all metal, and cost but $3 per dozen, and are more ornamental than my old glass lamps, costing three times that amount. I believe them to be absolutely safe. My cans are so constructed that the oil, in filling the lamp, is filtered through sand, so that no fire can possibly communicate with the interior. Give us safe, cheap, metal lamps and safe cans, and, in spite of legislative failures, we shall be comparatively safe. J. B. FULLER.

Norwich, Conn.

Petroleum Dangers.

MESSRS. EDITORS:—I am glad to see that petroleum dangers are at last exciting the attention they deserve; and it is to be hoped that we shall soon have the proper remedies. I had intended to write an article on the subject, but your last correspondent, Mr. Mann, of Baltimore, has nearly saved me the trouble, by expressing my views exactly: namely, that all petroleum oils are likely to generate an explosive vapor, when long confined with a vacuum above them, and subjected to a moderate heat; and that although thousands of gallons of positively dangerous oils are daily sold by ignorant and villanous dealers, yet the lamps in common use are as much at fault as the oils, as disasters have occurred with the best of oils. Now this state of things, I think, can be easily remedied, and I would offer the public a few suggestions:

First. Let us have lamps so constructed as to be as far as possible proof against accidents, and on such principles that any oil may be burned in them with perfect safety by careful and intelligent persons. Second. Let us have legal enactments, forbidding, under severe penalties, the sale of all light and volatile oils, for domestic purposes, and requiring all retailers to have their stock inspected, and proved to be unignitable at 110° Fah. Third. Let benzine and all the volatile products of our oil wells be used in specially constructed lamps for street lights, light-houses, etc., superintended by careful and competent hands, and in situations where, if an accident did occur, it could do no great damage.

I have frequently used pure benzine, with great success and economy, for light and for cooking meals, taking great care to have my lamp so full as to leave but little vacuum, and having the wick so tight that the flame could not pass down it; and never letting the bowl get above 80° Fah. But, though I could do this with perfect impunity, I should consider myself a murderer if I introduced such a practice to the public, as the world always will be full of people too stupid or careless to be trusted with even tallow candles.

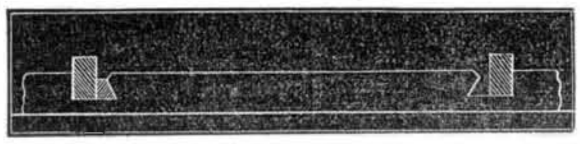
Now, I would point out some of the defects of our common lamps. Fragile glass bowls, mounted on high stalks often slightly fastened to narrow bases, itching to be knocked over and broken; short wicks passing loosely through short tubes, the flame only an inch above the bowl, in the top of which explosive vapor more or less always accumulates, as the oil heats and exhausts, the looseness of the wick giving free passage from the flame to the vapor: these things seem to be a combination peculiarly designed to invite disaster. I also object to the nicked wheel in the tube; though very convenient for turning the wick up or down, it will not work when the wick is tight enough to prevent the flame from being conducted downwards by the ascending vapor. A simpler and safer plan is to have the top of the burner, with the chimney, to swing over on a hinge, when the wick can be regulated with a pin or an awl.

With better lamps and good oil, the world may use petroleum, and suffer no more from it than it did in past times from tallow. LINDON PARK.

Brady, Pa.

Wooden Railroads.

MESSRS. EDITORS:—In your valuable paper of February 4th, in the "Correspondence" column, I notice that you would like to hear more in detail about the wooden railroad. We built, in 1865, a wooden railroad, $3\frac{82}{100}$ miles in length, to transport coal, by mule power, to the Ohio River, near Rockport, Ind. The cross ties were mostly split out of white oak, from 7 to 7½ feet in length; and the notches were sawn with hand saws, as shown in engraving. They were cut straight down on the outside, and bevel and taper inside, to keep the keys in their places, if they should get loose by shrinkage.



We placed the ties from 2 to 2½ feet from center to center. We used the best white-oak rails 3 × 6 inches, and keyed them in with oak, so that the bevel space was filled.

The cars used on this road had 24-inch wheels, 4-inch tread, 1½ inch depth of flange, and 2¼ inch axles, run in cast boxes lined with Babbitt metal. The weight of car was about 1,500 pounds, to carry 60 bushels coal=4,200 pounds (the Indiana bushel is 70 pounds); in all about 3 tuns per car. The cars ran smoothly and easily for six months, when the rails began to get soft, and to splinter for a quarter of an inch of depth. They were much the worst where the sun shone on them, during the summer months. About two miles of this road was through timbered land, and the rails in the shade lasted much better than those exposed to the sun.

The next trouble we encountered was in frosty weather; the splinters or mashed wood would stick to the wheel, and wind around it like rope, until it would run out with the grain of the timber, or break off at a knot.

In less than twelve months the road was rough, and we turned the rails, and replaced some with new ones. Some of the rails were worn down more than an inch, leaving the knots nearly full up to the first measure. This made a rough road; and we concluded to try flat bar iron. We sent for ten tuns 1½ × ⅜ inches, countersunk and punched for ¼-inch spikes. This worked so well that we put iron on the full length of road.

By using iron on the rails, we gained as follows: 1st. On the wooden road we had to keep two or three men to keep it in order; as soon as the iron was on, one hand did the work, and had half his time for other work. 2nd. One mule would do as much work as three would do on the wooden road, and the rails would last about four years, or until they would rot and not bear the weight of the cars.

The vein of coal at this place being about worked out, we opened a vein near Yankeetown, Warrick county, Ind. This vein is about 20 feet above the Ohio River at high-water mark, and 8,530 feet from its bank. We built a road to the river last summer and fall. About 6,000 feet of this road is trestle work, on river bottoms, from 3 feet to 16 feet high, 10 feet span, 20 feet string timber (6 × 11 in white oak.) The old flat bar iron and cars are used here. We used a piece of flat bar iron, about 18 inches in length, alongside of the flat bar at every joint, so that the ends of the iron are not mashed down into the timber to make it rough. This road is properly graded, the steepest grade with the loaded cars being 9 inches to the 100 feet. Three mules bring five cars up this grade, which is on trestle work, 10 feet high, planked with 2-inch lumber. We are not in full operation yet, but expect that one team of three mules will haul from 2,000 to 2,500 bushels per day to the river. We shall put on a small engine, as soon as we are able and find one to suit us. A six tun engine would do our work, we believe.

The flat bar iron cost us near $1,100 per mile; tires, about 12 cents apiece—we used our own timber. (Cutting ties cost 5 cents; sawing notches and trimming out, 5 cents hauling out of woods, 2 cents.) We had to purchase some oak lumber, not having enough on our land. Price paid was $16 per thousand, delivered along the road. We used near 325 thousand feet of lumber, on the road and a few miners' shanties. Our vein of coal is from 4 feet to 4 feet 2 inches thick (what miners call "blasting coal.")

All that we can say to those building wooden railroads is, they will not be long in using flat bar iron on their roads; by so doing, they will save many a dollar in the way of repairing rails, etc.

Narrow gages and light T iron will take the place of the wooden roads in a short time, if cheap railroads are wanted. The T iron is a little more expensive at first, but in two year's time it will pay for the difference in keeping the road in order. J. M. SPEER, SR., & SONS.

Warrick county, Ind.

Payne's Electro-motor.

MESSRS. EDITORS:—From the interest I feel in the production of an "electro-magnetic motive power," I am induced to say a word in relation to the article which appeared in the *Telegraph Journal*; and I was very properly placed in doubt by your article of the 11th inst. In the description given by the writer who was privileged to see the wonder that is to turn the world upside down, he distinctly states that there were five magnet cores equidistant in the fixed ring, and six in the revolving set, thereby avoiding any dead center. Now any person giving such an arrangement a little attention, will readily come to the conclusion that there must be a dead center in any and every possible position; therefore the engine's moving at all can only be accounted for by supposing that it was, in some way, coupled to the source of power which drove it, which would, at the same time, solve the problem of the brake. It would not be very difficult to ship and unship a coupling by means of the electro-magnet.

Montreal, C. E. POLAR.

A Circular Saw Eighty Years Old.

MESSRS. EDITORS:—Mr. John Coop came into our factory to-day with an old rusty circular saw, about 16 inches in diameter, 18 gage, with four cross-cutting teeth to the inch, and a one inch and a quarter square hole in the center. Mr. Coop says that he made the saw; that is, he sent to Birmingham for the steel, and cut out the saw, and filed the teeth in it, in a dockyard in England, eighty years ago; he says he used it for sawing, running it in a lathe, and calling it at that time a "fly saw." Mr. Coop is now nearly 95 years of age, and made this saw when a boy of about 14 years old.

The old gentleman claims that this is the first circular saw that was ever made in England. I tried to purchase it from him, but he would not dispose of it. He wanted it cleaned up, as he said, to carry to Florida with him, saying that when he dies he means to have that saw with him. Mr. Coop is certainly a rare specimen of longevity and perfect health; he has always lived temperately; eats no meat, never was married, and never has seen a sick day.

Pittsburgh, Pa. J. E. EMERSON.

How to Select Right or Left Hinges Instantly.

MESSRS. EDITORS:—The following simple method of selecting right from left-handed loose jointed butts or hinges, may be useful to many of your readers, as it has often saved me considerable trouble and annoyance in sending inexperienced persons to the stores for such articles: Take up the closed hinge from the counter, and open it from you, holding it in both hands; if you wish for right handed ones, hold fast with the right hand, letting go the left. If the hinge remain intact it is right handed, but if it fall to pieces, or apart, it is left handed. Holding fast with the left hand and letting go with the right, will prove which are which, by a similar test.

I have seen many a score of people puzzled to tell one hinge from another, until I showed them the above simple plan, when it was a mystery no longer.

Eastport, Me. W. A. MACKENZIE.

[For the Scientific American.]

WHAT BECOMES OF ALL THE STEEL PENS?—THEIR MANUFACTURE.

When at the works of Messrs. Thomas Jessop & Sons, in Sheffield, Eng., I was informed that *six hundred and thirty-one tuns* of sheet steel was manufactured and sold in 1868, to be manufactured into steel pens. I was about writing home, and dared not give the quantity, fearing that I was misinformed. Next day I returned to the office, and the clerk turned to the books and showed me the exact figure, which was something over 631 tuns. This is from one establishment, others making steel for pens also. Each tun of steel averages about 1,000,000 pens, making a total of 631,000,000.

What becomes of all the steel pens? Is it not reasonable to presume that the most of them are thrown away? How common it is to pick up a steel pen, the nibs of which are stuck together, to pull it out of the holder and throw it into the stove, and put in a new one! Then this is too soft, or too stiff, too fine, or too coarse, or does not make a fine hair line. For the least trifling fault, it shares a similar fate; and a trifling vexation often empties a whole box into the waste basket. Nobody considers the cost of a steel pen. Well, that's where the most of them go.

Now, this enormous and almost incredible quantity of steel for pens excited my curiosity, and I was curious to see how they were made in England. I took a letter of introduction to Mr. Gillott, and, calling on that gentleman, at his manufactory in Birmingham, was cordially received by him in person; and I was conducted through every department of his immense establishment, employing 600 operatives, mostly women, turning out about 20,000 gross of steel pens daily, comprising, at that time, thirty-three different varieties. First, the sheet steel, as it comes from the steel works, is cut into strips, generally wide enough for two pens in length; the scale is removed by acid, and the steel cold-rolled into strips. One of these strips is now seen feeding into a machine, which first stamps the name on it; at the next move it is under the die, and cut out into flat blanks. These are then formed into proper shape, by dies in a drop press, one by one. They are then taken to the tempering room, placed in small sheet-steel boxes, holding about a pint, and heated in a furnace to a cherry red; then poured into a hardening bath of an oil mixture, falling into a perforated dish. The bath is raised, the oil drained out from among them, and they are wiped clean. Then they are put into a regular coffee roaster (as I called it), holding about half a bushel, and turned slowly, by a hand crank, over a slow charcoal fire, until they are of a proper spring temper. They are then placed in tin cans, holding say half a bushel, and these cans are put into frames, and run by belts, like a tumbling barrel, until the pens are polished, and all the sharp corners worn off. They are then ground and polished at the points, on one of the most ingenious little machines that I ever witnessed in operation. A small iron cylinder, or wheel, is running horizontally, with a slow motion; a grindstone is also running horizontally, with its edge close enough to the cylinder to grind each point, as it turns past its face; next is a polishing wheel, running in the same direction and position, polishing the pen as it passes. By an ingenious little spring contrivance, the pen is held until it passes the grinding and polishing wheels, when it is let go, and drops into a box. The operator stands and drops them into the receptacles as they pass.

The next operation is slitting the points; this is done after they are tempered. The instrument used for this purpose is similar to a pair of shears. The pen being placed in a guide by hand, the slit is made just deep enough to cut through the steel and allow the points to spring into place again.

Mr. Gillott claims to be the original discoverer of the process for splitting the pen after it was tempered, performing that operation, in a secret room, for years before the process was discovered by others. He commenced life as a penknife grinder, and by this simple discovery was led to fortune. Slitting them while in a soft state, as was formerly done, left the points open, so that it was necessary to close them by hammering, a most tedious and costly operation.

Mr. Gillott informed me that he imported all of his finer quality of paper from France, for the covering of boxes, as it was not manufactured in England. This establishment consumes about 150 tuns of steel per year.

Mr. Gillott, noticing my fondness for mechanics, called a workman and had him take apart several ingenious machines, explaining to me the several parts. This liberality I very much appreciated. J. E. E.

THE WORKING OF THE NEW YORK FIRE DEPARTMENT.

A writer in the *Evening Post* gives a very interesting account of the successful working of the New York City Fire Department.

In 1860, the amount of home and foreign fire insurance capital in this city was $32,000,000. In 1870 it was $51,000,000. The ratio of fires was greater under the old volunteer, than under the new paid system, which went into operation in 1865. Each engine house has one steam fire engine, with two horses; and one tender, with one horse, to carry hose, fuel, and apparatus. Each of these houses has a company of twelve men. They are provided with comfortable lodgings within the houses, and are, night and day, in constant attendance, except when at meals, which are taken near at hand. It provides the requisite hook and ladder companies of twelve men each, with the same quarters and regulations.

There are now 45 engine houses and 15 trucks for hook and ladder use, making a force of 165 horses and 720 men. There are 5 commissioners, who control the department, a central headquarters, chief engineer, secretary, medical officer, telegraph alarms, bureau of combustible materials, and firemen's library. To these officers are to be added 10 district engineers and 1 chief assistant, who devote their entire time to the service.

THE FIRE TELEGRAPH.

The system of telegraphy in use is the patent of John N. Gamewell, but the machinery to carry out a more perfect system for this city—the batteries and automatic street boxes—are the invention and patent of Mr. Charles T. Chester, one of the most accomplished electricians. Colonel Stephen Chester, of the Potomac Army Engineers, directed the surveys and the erection of the lines to complete it. The entire work—posts, wires, and machinery—cost about $600,000. There are 84 stations, including engine houses, insurance patrol stations, and officers' quarters, to which to send messages, and 540 street boxes, from which alarms of fire may be sent to the central office. The telegraph alarm apparatus, under the hand of a good operator, works with a rapidity and certainty before unknown in electrical apparatus. It consists, in brief, of three parts:

1. A receiving apparatus, which has the capacity to receive and note 56 alarms of fire, from all parts of the city, at one and the same time. With this apparatus the modern hotel annunciator is so connected, that it instantly drops a figure, showing the line of wire over which the alarm is coming, and at the same instant marks, upon a coil of paper, the number of the station. Each of the 56 wires, which together cover the whole city, includes a given number of stations, and it required great skill to arrange them that they do not interfere one with another, since a part or all might be in use at the same time. Fifty-six pens, moved by 56 relay magnets, are arranged under this coil of paper. Each pen and magnet is connected with some one of these 56 wires. The street boxes are so arranged that, when an alarm is to be sent to the central office, the current of electricity, which always flows through the line, may be broken so as to cause the discharge of any one of these little magnets. This works 4 results in the receiving apparatus at the office, namely: strikes a loud gong or bell, throws into view the number of the wire on which the alarm comes, starts the register wheel, and marks the number of the box where the alarm is made.

2. A transmitting apparatus, equally beautiful, instantaneous and perfect in its work.

3. An apparatus for testing the condition of all these wires; for discovering at once in the office any break or injury within a few yards of its actual locality; or for testing the connection of any of these lines with exterior-lines going out of the city.

At all times, night and day, two operators are on duty at the central office. When an alarm is given, the precise engines and trucks which should answer know it. If the fire spreads, and a second alarm is given, those who should respond know it; and so of a third, which brings into action all the force that can possibly be required.

RAPIDITY OF THE SERVICE.

The horses are all selected, groomed, and kept in the best manner. They are kept in sufficient force already harnessed, and so surprising is their instinct and so admirable their training, when the electric gong strikes in the engine house, they back instantly from the stalls into position before the engine, the doors are flung open, and the engine starts on an average in 22 seconds after the alarm is received, often in 18. An alarm, reaching the central office, is transmitted to every engine house, patrol station, and officers' quarters' all over the city, in 45 to 50 seconds. If we add to this instant movement and rapidity of execution, the most perfect fire apparatus which modern science and skill can devise, the unflagging power of steam, an enlarged and skillful method of instructing the officers and men in classes, which General Shaler, president of the Board, has personally introduced, the effective power of this small force stands in bold relief over that of the volunteers when they numbered even 3,800 men.

The causes which elevate and give a higher moral character to the new force are equally effective. The lyceum, in the hall of the central office, now contains a valuable library of 6,000 volumes, the gift of underwriters and private citizens, comprising largely choice biography, travels, history, and practical science, from which all the members of the force can draw and use. Dr. Charles McMillan, the medical officer of the Board, has done much to this end, in his strict examination for admission to the force, in rejecting men of bad habits or physically unsound, and in maintaining a system of competitive examination for promotion, which rests on merit alone.

LOSSES BY FIRE.

The following table of losses by fire from 1866 to 1870 shows unmistakably the good financial results of the system:

	No. of fires.	Loss.
1866	796	$6,428,000
1867	873	5,711,000
1868	740	4,142,000
1869	850	2,626,000

Of the 850 fires in 1869, 807 were confined each to one building, showing the promptness and efficiency of the efforts to subdue them.

The cost of maintaining the present service is about $950,000 per annum; a sum well invested, when we compare it with the immense losses to which we are exposed, and keep in view the growing intelligence, manly habits, and pride of character which the discipline of the organization most sedulously fosters. It is most favorable, when compared with the service and the cost of the old volunteer department. The direct cost of that, per annum, was above $500,000, but the indirect expense in other forms was proved before a committee of the legislature to have swelled the sum to rising $1,000,000. The above table, from the careful reports of the insurance department, shows a reduction in losses, from 1866 to 1869, of $3,800,000; and the losses in 1870, since the new charter went into operation, were $506,000 less than in 1869, while the moral and effective character of the force has improved more than in any previous period.

Is the Interior of the Earth Solid or Fluid?

Although the doctrine that the earth is a molten sphere, surrounded by a thin crust of solid matter, was once almost universally taught by geologists, there have of late years been brought forward several arguments to the contrary, which, apparently, are more in favor of its being a solid, or nearly solid mass throughout; and these arguments are fully entitled to our consideration, as our object is not to defend any particular theory, but to arrive, as nearly as we can, at the truth. I will, therefore, in the first place, proceed to scrutinize all which has been brought forward in opposition to the older hypothesis, and then to consider whether any other explanation yet advanced is more in accordance with the facts of the case.

First of all, we are to answer the question as to whether it is possible for such a thin crust to remain solid, and not at once to become melted up and absorbed into the much greater mass of molten matter beneath it? This latter would doubt less be the case, if the fluid mass had any means of keeping up its high temperature, independently of the amount of heat it actually possessed when it originally assumed the form of an igneous globe. The question, however, in reality answers itself in the negative, since it is evident that no crust could even commence to form on the surface, unless the sphere itself was at the moment actually giving off more heat, from its outer surface to the surrounding atmosphere, than it could supply from its more central parts, in order to keep the whole in a perfectly fluid condition; so that, when once such a crust, however thin, had formed upon the surface, it is self-evident that it could not again become melted up or re-absorbed into the fluid mass below.

This external process, of solidification due to refrigeration, would then continue going on from the outside inwards, until a thickness of crust had been attained sufficient to arrest, or neutralize (owing to its bad conductibility of heat) both the cooling action of the surrounding air and the loss of more heat from the molten mass within; and thus a stage would soon be arrived at when both these actions would so counterbalance one another, that the further cooling down of the earth could be all but arrested: a condition ruling at the present time, since the earth-surface, at this moment, so far from receiving any, or more than a minute amount of heat from the interior, appears to depend entirely, as regards its temperature, upon the heat which it receives from the sun's rays.

We have next to consider the argument that, if the earth's exterior were in reality only such a thin covering, or crust, like the shell of an egg, to which it has often been likened, that such a thickness would be altogether insufficient to give to it that stability which we know it to possess, and that, consequently, it could never sustain the enormous weight of its mountain ranges, such as, for example, the Himalayas of Asia, or the Andes of America, which are, as it were, masses of rock piled up high above its mean surface-level.

At first sight, this style of reasoning not only appears plausible, but even seems to threaten to upset the entire hypothesis altogether. It requires but little sober consideration, however, to prove that it is rather, so to speak, sensational in character than actually founded on the facts of the case; for it is only requisite for us to be able to form in our minds some tangible idea of the relative proportion which the size of even the highest mountain bears to that of the entire globe itself, to convince us, if such a crust could once form and support itself, that it could with ease support the weight of the mountains also. The great Himalayan chain of mountains rises to a maximum altitude of 31,860 feet, or six miles above the level of the sea; and if the earth could be seen reduced in scale down to the size of an orange, to all intents and purposes it would look like an almost smooth ball, since even the highest mountains and deepest valleys upon its surface would present to the eye no greater inequalities in outline than the little pimples and hollows on the outside of the skin of an ordinary orange. If this thin crust of the earth can support itself, it is not at all likely to be crushed in by the, comparatively speaking, insignificant weight of our greatest mountain chains; for, in point of fact, it would be quite as unreasonable to maintain such a disposition, as to declare that the shell of a hen's egg would be crushed in by simply laying a piece of a similar egg-shell upon its outside.

That a very thin spheroidal crust, or shell, enclosing a body of liquid matter, such as an ordinary fowl's egg, does possess in itself an enormous degree of stability and power to resist pressure from without, is easily demonstrated by merely loading a small portion of its surface with weights, as long as it does not give way under them. Even when placed on its side (or least strong position), it is found that a portion of the shell, only one quarter of an inch square, will sustain several pounds weight without showing any symptoms of either cracking or crushing; or, in other words, this simple experiment indicates that if the external crust of the earth were but as thick and strong in proportion as an egg-shell, it would be fully capable of sustaining masses, equal in volume and weight to many Himalayas, piled up one atop of another, without any danger whatever to its stability.—*Extract from a Lecture by David Forbes, F. R. S.*

The Revenue of the Patent Office.

For several years past, the funds received at the Patent Office, from inventors, for the transaction of their business, have been, by act of Congress, turned over to the Treasury, and the Patent Office sustained by specific appropriations, yearly made for that purpose. We desire to call attention to the injustice and unfairness of this matter. The Patent Office is not only a self-supporting office, but its revenues are large and flourishing, and steadily increasing. Transferring to the Treasury, the moneys received by this bureau from inventors and other applicants for patents, is raising revenue from a source whence it should not be done; while appropriating from the Treasury to sustain the Patent Office, tends to create the impression that it does not support itself.

The money paid to this office is not a legitimate source of revenue to the Government. It comes from individuals, and is paid into the exchequer of the Patent Office for a specific purpose, that of facilitating the business of these individuals. It is unjust and unfair to divert a cent of it for other purposes. In our opinion, all the moneys received at the Patent Office should be used solely to carry on the business of that office, and to give increased facilities for the transaction of that business.

As the law now stands, we apprehend there is more of delay and obstruction in the dispatch of current work in this office, than there should be. The office is crowded for want of room, and inventors are compelled to wait for months ere their affairs are brought to a final and successful termination. The Commissioner of Patents and his entire force of assistants devote themselves with unusual and most commendable energy and faithfulness to the prompt and speedy performance of their duties, but they find it a matter of impossibility to proceed as fast as they desire, and as rapidly as the necessities of the work demand.

Every application for a patent, or claim for an extension, etc., should be made almost immediately upon its being filed in the Patent Office, thereby assisting inventors and tending to increase the business of the office. If the Commissioner of Patents were empowered to retain and disburse, as the necessities of the office demanded, the moneys received therein, the speedy transaction of business would be insured. And we think Congress should look into this matter, and change the present mode of transferring Patent Office funds to the Treasury. Its revenues should be expended solely upon itself, and should not be diverted to any other purpose whatever.

[We copy the above remarks from the *Republican* (Washington city), and are glad to find that influential journal interesting itself in Patent Office reforms. The suggestions are worthy of consideration.

THE Glue Works, at Peabody, Mass., manufacture 2,260,000 lbs. per annum.