

Scientific Museum.

Electro-Magnetic Railway Signals.

In the 'London Mining Journal' of the 24th Dec., we called attention to, and fully described a novel and effective plan of signaling on railways, through the instrumentality of galvanism, patented by Mr. Tyers. On Wednesday, a number of gentlemen connected with railways; and the members of the press, attended a private meeting, at which the Lord Mayor presided, to witness some experiments by working models, and hear an explanation of them. The patentee has succeeded in effecting by the means of voltaic electricity, with the utmost ease, simplicity, and efficiency, several important desiderata. Every train on passing a station gives notice to the station last left that the line is clear; it also at the same instant transmits to the next station in advance, by the sound of a bell, a signal of its approach. Signals can also be transmitted from any intermediate point between stations to give alarm and obtain assistance in case of break down, or any stoppage of the line; and any official at a station can communicate with the driver of a train at any distance as he is approaching—fog and auxiliary signals being thus superseded. This latter signal is made by the apparatus being caused to sound the steam-whistle, and at the stations are self-acting registers, keeping an exact account of every signal made; and in addition to stations they will prove highly valuable for tunnels, junctions, and crossings while shunting trains, and in other emergencies. The experiments were performed with celerity, were perfectly successful, and indicative of the real value of the invention when carried out in practice. The cost for each set is roughly estimated at 50L. to 60L. The apparatus has been successfully tested on the South-Eastern and Croydon lines; and the Lord Mayor expressed his gratification at the opportunity afforded him of witnessing the experiments. As great interest is now excited respecting the best means of preventing accidents on railways, this plan will, no doubt, receive all that attention from parties officially connected with them which its capabilities merit.—[London Mining Journal of the 24th January.

[Independent of any knowledge of the above invention, measures were taken to secure an American patent by one of our citizens, for a like invention previous to the date when the above invention was first brought before the public in England. It is not an uncommon thing for more than one mind to be engaged in studying out a like improvement at the same time, even when living thousands of miles apart.

Use of Grammar.

At a late meeting of the Liverpool Literary Society, a paper was read on the existence of dialects among the different Jewish tribes, although they all spoke the Hebrew language. This was attributed to the want of a grammar, but Dr. Ihne rose up and said he was of a different opinion. The Greek language was not founded by a grammar, but by Homer, and the modern German by Luther's translation of the Bible; grammarians only took such men for their models.

Fusible Alloy.

The law for the preservation of life on steamboats requires a particular safety fusible alloy to be used to prevent explosions of boilers.—The Treasury Department originally had this alloy made in the navy yards. Recently, Prof. Booth has been employed by the Secretary of the Treasury, at the Philadelphia Mint, to perfect this alloy by experiments. He is said to be rapidly approximating to satisfactory results.

Brilliant Lacquer for Paper and Papier-mache.

3 oz. powdered sandarac are digested in a sand-bath in 12 oz. alcohol, 2 oz. elemi-resin added, previously fused in an earthen pot, and the whole digested until dissolved. This lacquer is brilliant, and rather durable. A good lacquer for colors is 3 oz. sandarac, 2 oz. mastic, 2 oz. pounded glass, 1½ oz. Venice turpentine, and 1 lb. alcohol. After solution, the varnish is filtered through felt. It may be col-

ored red by annatto, dragon's blood, or red-wood, yellow by gamboge or turmeric, and green by buckthorn berries.—(Polytech. Notzl.)

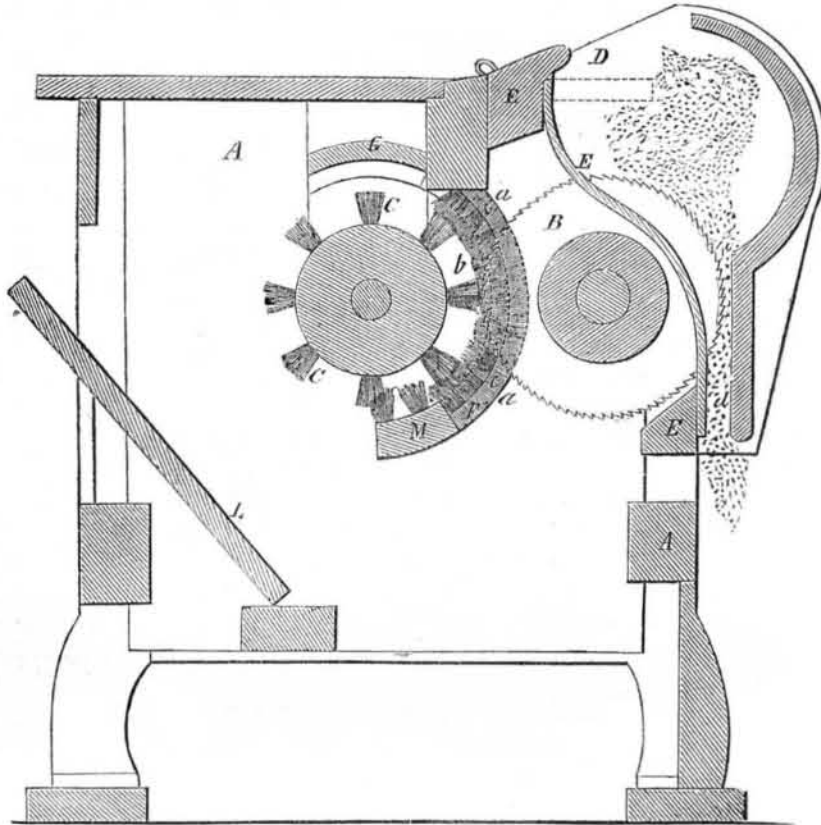
Acid and the Teeth.

Messrs. Editors.—An article in a recent number of the "Scientific American," on teeth, from the "Practical Dentist," says, "the great and all-powerful destroyer of the human teeth is acids—vegetable or mineral." I have a boy now three years old, who always enjoys good health, and all of his front upper teeth began

to decay as soon as they got through the gum, and also ulcerated at the roots—all the rest of his teeth are sound. I would ask, was it acid that destroyed his teeth—a substance that he, at that time, had never taken into his mouth in any other form than milk? If acids are the cause of all people's teeth decaying, why does not the teeth of all decay, when they are young—who do not clean their teeth? E. W. D. Norwich Town, Conn., Ct.

[The acid theory will not account for the decay of every person's teeth.—Ed.]

CAMPBELL'S COTTON GIN.



The accompanying engraving is a vertical section of an improvement in Cotton Gins, recently patented by Leonard Campbell, of Columbus, Miss., and a notice of which appeared in the second number of our present volume.

The invention consists in the employment of a concave having a series of slots cut through it for the saws to work in and carry the cotton through to the brush fan. The sides of these slots are covered with bristles, which serve as the saws force the ginned cotton through the slots, to further clean it from all impurities.

A A represents the frame of the gin, and B is a ginning saw of the ordinary construction; C, the brush fan, is also similar to those in the common gin; D is the hopper through which the cotton is fed; E is the ordinary concave through apertures in which the ginning saws revolve; F is the intermediate concave already referred to, placed between saws and the brush fan. The bristles or brushes placed at the sides of the apertures, a a, by metal plates. By the action of these brushes the dust and dirt which may be drawn through the outer concave by the ginning saws will be separated

from the cotton as it is carried through them by the saws.

The brush fan and saws revolve together, the latter operating upon the cotton as it is fed in at the hopper, D, stripping it from the seeds, and carrying it through the slots in the concave, F, to be further operated upon by the brush fan and concave—the seed falling down through the spout, d, of the hopper; G is a concave top for preventing a current of air from passing down toward the brush fan and concave, thus tending to choke the machine; M is a portion of the concave, to which are affixed additional brushes for a further action upon the cotton, which escaping from them is thrown against the inclined board, L, over which it passes into the cotton room.

Experienced cotton growers have expressed themselves favorably upon the merits of this invention. We have never seen it in operation, but we are inclined to think it possesses some features which will render it capable of producing a cleaner staple than the ordinary gin.

The inventor can be addressed at Columbus, Lowndes Co., Miss.

A Powerful Locomotive.

The motive power of the Baltimore and Ohio Railroad Company has been improved and rendered more efficient by the completion of one of those first class, powerful coal-burning passenger engines. It is designed for the heaviest of the mountain grades, commencing at Piedmont, 307 miles from Baltimore, and running about sixty miles near Three Forks the junction of the Parkersburg road. The engine has ten wheels, six of which are drivers, and a truck of four wheels. The drivers are 50 inches in diameter, and the trucks 30. The cylinders measure 19 inches in diameter, with 20 inches stroke of piston. The cylinder part of the boiler is 48 inches diameter and 14 feet long. The drivers are connected, and have a weight of 45,000 lbs., equally distributed between them by means of levers and springs. The whole weight of the engine in running order is 60,000 lbs., or 80 tons, and the entire length from back of foot-board, to point of fender in front is 28 feet. It is supplied with a cut-off, for working steam

expansively. This engine is intended to draw five passenger cars up the heavy grades at a speed of twenty miles per hour; is known as No. 208, and was designed by, and built under the direction of Mr. Hays, of the company's foundry.

Floors in Paris.

A correspondent of the New Orleans Crescent, in Florence, writes—"there is not one room in one hundred in Paris that has a carpet on it. The floor is made of brick, laid down generally in large squares, and it is cleaned by pouring on it a quantity of brick-dust, and then throwing over it a quantity of water, and then scrubbing it till it acquires a polish, fairly painful for the eye to look upon.

We have received from John Jewett & Sons, 182 Front street, a very beautiful specimen of oil cloth printing, by the method of James Jenkins, patented May 12, 1852. It is a portrait of Washington. We had not supposed that the art had arrived at such perfection.

Niepee de St. Victor's Engravings.

The Heliographic Engravings upon steel, received by us from Niepee de St. Victor, have attracted considerable attention. Many of our artists have called to see them, and great curiosity has been expressed to know the exact process by which the result has been accomplished. Will the inventor confer upon us the great favor of transmitting to us a full account of his process in all the particulars, including the mode of preparing his sensitive varnish, &c.? Any of our friends who choose can call at our office and see these engravings.

Cheap Globes.

Messrs. Editors.—I take the liberty of calling your attention to the necessity of the producing a cheap Globe, that is, a Terrestrial Globe, as the best means of giving correct instruction in Geography. Cannot globes be made of india rubber or gutta percha, say two feet in diameter, for a much less sum than the ones now in use? If you think it at all feasible, I trust you will direct the attention of the inventive genius to this important branch of education.

J. FORBES.

St. Louis, Mo., Feb. 1st, 1854.

[This is a very important suggestion; we heartily agree with the views of our correspondent. The globes that are in common use, are far too dear. We want to see a globe of 12 or 18 inches in diameter, in every house; at present, few of our working people have them, because they cannot afford them.

LITERARY NOTICES.

THE HAND-BOOK FOR THE ARTISAN, MECHANIC, AND ENGINEER.—This is a new work, Oliver Byrne, C. E., editor, and T. K. Collins, Jr., publisher, Philadelphia. This is a very excellent work, and Mr. Byrne certainly deserves credit for the great amount of new and useful information he has collected and presented here to American Mechanics. It is principally designed for the machine shop: it is illustrated with a great number of excellent working drawings of lathes, bolt cutting machines, planers, slotting machines, gear cutting engines, drills, &c., designed by W. B. Beament, engineer, Philadelphia. The book is chiefly devoted to the use of tools, and certainly we do think it is the best work on the subject ever published in our country. It deserves an extensive circulation. For further information see an advertisement of this book on another page.

THE NEW ENGLANDER.—The present number of this able Quarterly Review, published by P. W. Northrop, of New Haven, Conn., contains 10 original articles of great power. A review of Prof. Silliman's visit to Europe afforded us much pleasure. A review of the "Bards of Scotland," published by Carter & Bros., of this city, is full of praise in respect to the character of that excellent book.

CLARK'S WORK ON LOCOMOTIVES.—Blackie & Son, publishers, 117 Fulton st. This able work will be complete in about 26 numbers—22 having already been issued—62 1/2 cents each.



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