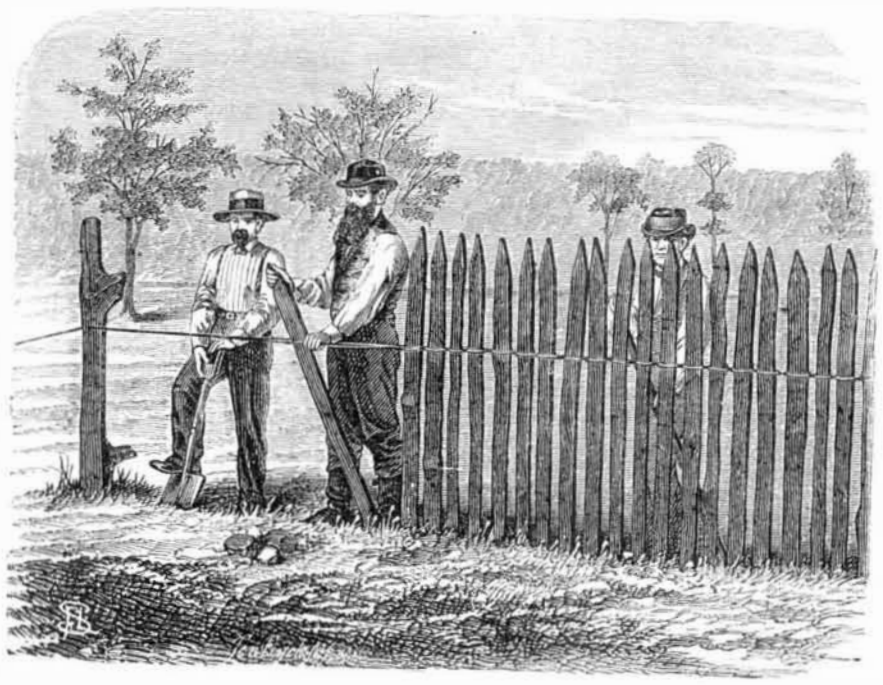
Wire and Picket Fence.

The use of wire as a substitute for bars between posts of fences, has gone the way of plank roads. It was "weighed in the balance and found wanting." The reasons for this termination to the experiment are too well known to need discussion here. The invention shown in the annexed engraving, employs wire only as a connector between upright pickets in lieu of the rails between posts, to which pickets are ordinarily nailed, and also reduces the number of posts required as will be seen in its description below.

It is intended to furnish a cheap, neat, and durable fence, that can be rapidly constructed, and dispenses with the use of nails.

The saving in posts is claimed to be sufficient to pay for the wire, as the posts are set from twenty to thirty feet apart.

Two wires are drawn through a hole in the first post set, and through similar holes in the other posts, to any convenient distance. The wires being fastened at the first or starting post, are left slack along the line for the insertion of the pickets, and wound around the last post of the section of fence under construction to keep them from being drawn back during the insertion of the pickets. The wires are then tightened by laying weights on the slack between posts, the palings distributed along the line answering perfectly for this purpose, one end being allowed to rest upon the ground and the other lying upon the slack wire, and as many being used in a bunch as may tighten the wire sufficiently.



P. DAVIS' IMPROVED PATENT FENCE.

The slack being thus taken up, the butts of the palings are successively set in a shallow trench dug between the posts on the fence line, and the tops being inclined laterally, until they will enter between the wires from the under side, they are brought to the vertical position, the wires being crossed between each picket, care being taken to keep the same wire always at the top.

The wires may be tightened if they should ever become slack by simply putting a twist in them, using a pair of palings for this purpose, turning them in opposite directions.

As fast as the palings are inserted, their butts are held by filling in and packing the earth in the trench.

This fence is impassable to all kinds of domestic animals, as nothing but a rat or similar burrowing animal can get under it, and a squirrel is about the only living thing which would attempt to climb over it. No domestic animal could crowd the pickets apart to get through it. The palings can not be pulled off, nor can the wind blow it down. The pickets take the strain off the posts, each one being, in fact, itself a post. The corner posts only require to be of greater strength than the other posts. Each post saves a paling, and may be made to look like it. The sides of the fence are uniform in appearance.

The fence represented in our engraving is a rude farm fence made with split palings; but with sawed palings of equal widths, it can be made very tasteful in appearance, and any form of either wood or metal palings may be used, to suit the taste of the builder. The inventor states that three hands can easily put up six hundred yards of this fence per day. He estimates the actual expense of a complete farm fence with top-sharpened split palings, with butts coated with tar or petroleum, as less than fifty cents per rod.

The palings need only be set from four to eight inches in the ground, according to the character of the soil. When stones are plenty they can take the place of a trench, in which case the butts of the palings do not need any protective coating.

Whether this invention was called forth by our article on cheap fences, published on page 9, current volume, or not, we are unable to say, but it meets a want therein set forth. At any rate, men of inventive genius will find in that and the numerous similar articles we publish, hints that will guide them to important and profitable inventions.

This fence was patented through the Scientific American Patent Agency, June 29, 1869, by P. Davis, of Newport News, Va., whom address for further information.

Paper Hangings.

When an amateur attempts this kind of domestic decoration it is desirable that he should attend to the following instructions, otherwise the work, when finished, will show blemishes and stains. First, pumice-stone the wall to remove all irregularities of surface, then wash over the size, about one ounce of glue to a gallon of water, and when dry, the wall is ready to ready to receive the paper. The paste should be well boiled and then passed through a hair sieve to extract the lumps, a fruitful source of stains. If the walls are inclined to show damp, add a little corrosive sublimate to the paste to prevent mildew forming on the surface of the paper The most important matter is to allow the paper to remain pasted for about ten minutes before hanging, in order that it may be well stretched before being placed on the wall. Stout paper hangings such as the "flocks," etc., require a longer time. If these directions are attended to the thinnest papers will hang without a crease or the objectionable water stains which characterize bad workmanship.

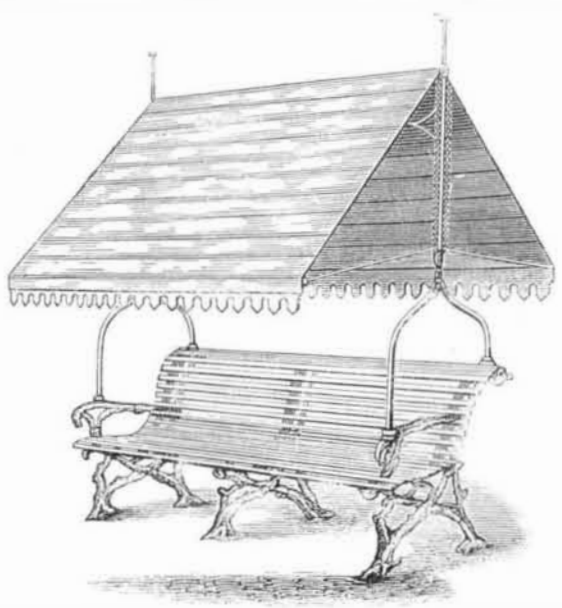
Gluing in Veneers.

I have advised the use of waterproof cements for fine inlaying, so that dampness will not affect them, but as this is not always convenient, it is well to make the glue so that it can be used and the work finished off in a short time. This is easily done by making the glue as thick as it will run, or so that it is like a jelly. If applied in this condition, it will set hard in thirty minutes, and the work may be cut down without fear or danger of its moving. I have done this frequently, in order to see what kind of work I was making. Always put a clamp on your work wherever you can, for although the glue will adhere of itself to the wood, it adheres much more strongly if pressed down by a clamp. Also, never put a veneer on a piece of work that is uneven, for although it map set square under the pressure of the clamp, when you come to scrape it, it will give way and yield to the inequalities, and when varnished and polished, will be full of depressions.

Don't be afraid to rub down with sand paper, under the impression that you are spoiling the work, but let the varnish get thoroughly dried, and be hard before you attempt it. Be sure, also, to remove every particle of varnish if you touch it at all, otherwise that which remains will take a coat while the bare wood will not take so much, and you will have a surface full of scars and ridges. It is not necessary to touch the wood in rubbing down, but go down to the wood, so that a waxy appearance is presented, and you will have a handsome finish that will add greatly to the beauty of the work. White holly is easily soiled when used in connection with ebony, by the dust from it, and it will be necessary to rub it, or scrape it delicately, before varnishing, without touching the ebony.—*Watson's Manual of the Hand Lathe.*

TENT ROOF GARDEN CHAIR.

It must be confessed our English cousins are men of taste in all that pertains to personal comfort. The dainty garden chair we illustrate herewith must indeed be a comfortable



thing in which to recline and enjoy a fragrant Havana, after dinner. The roof is composed of a roller and two canvas shades, which are wound up or extended at will by means of a brass endless chain. Our readers will agree with us that this chair is a very enticing piece of garden or farm furniture, and as it can be imitated easily we shall expect next summer to see many of our suburban gardens adopting the luxury. An article executed tastefully like the one illustrated, will sell, and we hope some of our manufacturers will get them up ready for the next season. A few such tent chairs in a garden would obviate the necessity for a summer-house.

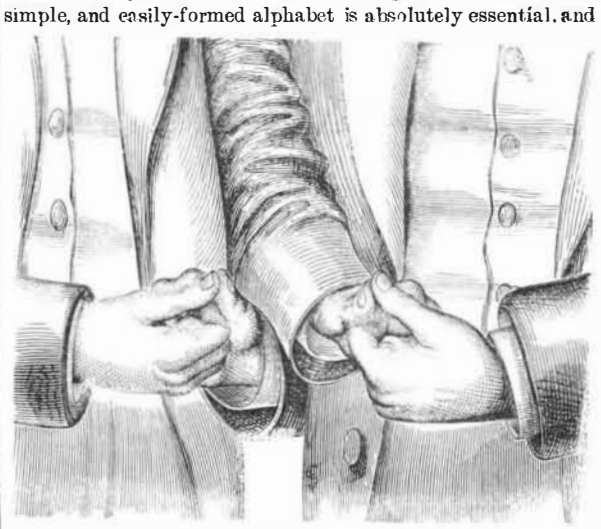
COMMUNICATION WITH AND BETWEEN DEAF MUTES

The sign language, used as a means of communication between deaf mutes, is of course unavailable in the dark, and is also unadapted to the use of blind mutes. It is, moreover unadapted for private communications, as the language spoken to one is spoken to all present who understand it. Spoken language can be whispered, or its volume can be so reduced as to be inaudible to other ears than those for which it is intended; but the force of the sign language cannot thus be modified, and when private conversations are held, written language is generally employed. Besides the tediousness of this process, it cannot always be resorted to, and therefore inventors have tried to devise means whereby conversations may be carried on under all circumstances except the fatal and insurmountable one of separation.

We have within a year or two read in some foreign journal, the name of which we cannot at present remember, of an instrument employed for effecting communication between deaf mutes, or between them and those not versed in the sign language.

We have before us a slip which describes this instrument, and which states that the invention was made by Mr. Bertram Mitford, of Cheltenham, England. "He uses a hollow case of any convenient form or size, made of wood or other suitable light material, and this case is provided with a handle by which it is to be held in the hand of the person using it. On the side of the case which faces the user there are contained the letters of the alphabet, numerals, or other signs useful to persons holding conversation with one another; and upon the opposite side, which faces the person communicated with, there is provided an opening protected by glass. In the interior of the hollow case are placed a number of slides worked by buttons which traverse along slots arranged each immediately above a different letter or sign. The upper end of each of these slides carries the corresponding letter or sign to that marked on the case opposite to the particular button; and when any slide or button is pushed along the slot, the corresponding letter or sign will be presented at the glazed aperture on the opposite side of the case. By successively raising and lowering or moving the slides it is obvious that words can be easily spelt and communication be established with the deaf and dumb without necessitating the knowledge of the signs known as the deaf and dumb alphabet."

While it is evident that this machine will answer the purpose designed; it does not, of course, supply the want we have stated. Sight is absolutely necessary to its employment. We have only noticed it as illustrating the fact that some simple, and easily-formed alphabet is absolutely essential, and



this alphabet must be capable of being read and communicated by the sense of touch.

Such an alphabet, which, so far as we know, is new, it is our present object to lay before our readers. It is the invention of a gentleman living in Brooklyn, and he permits us to make it public property.

In reading or communicating this alphabet the hands are placed, as shown in the accompanying engraving, to bring like fingers of the hands together. The hands are nearly closed as shown, and the balls of the five fingers are placed together, as indicated. The fingers of each hand may be numbered from the thumb, the thumb being called 1 and the little finger 5.

The letters are made by a quick strong pressure of the balls of the fingers of the individual communicating upon the balls of the fingers of the person addressed, the hands of the latter remaining passive; the letters being indicated according to the following system. The touches will be indicated by dots, the number of touches by the number of dots, the fingers with which the touches are made by its number; those on the right hand being further indicated by the letter R and those on the left being indicated by the letter L. Thus:

A - 1, L.	N - 5, R.
B - - 4, L.	O - 4, R.
C - - 1, R.	P - - 5, R.
D - - 2, R.	Q - 4, 5, L.
E - 1, R.	R - 2, L.
F - - 1, L.	S - 3, L.
G - - 3, L.	T - 2, R.
H - 4, L.	U - 5, L.
I - 3, R.	V - 4, 5, R.
J - - 5, L.	W - - 2, L,
K - 2, 3, R.	X - 2, 3, 4, R.
L - 3, R.	Y - 2, 3, L
M - - 4, R.	Z - 2, 3, 4, L.

The word "Brute" would be, spelled out, - - 4, L; - 2, L, 5, L, ; 2, R; - 1, R; only six motions, which can be made

in the time required for making the ordinary capital B with the pen. The number of motions required for spelling out word "Indestructibility" would require only twenty one motions, and it contains seventeen letters.

A system that could be more easily memorized might be devised, but it could not be executed so rapidly. With the alphabet we have given, it would be possible, after a little practice, to converse at the rate of one hundred words per minute, and as the motions are concealed by the position of the hands, eavesdroppers, if we may employ that term, would be counted out.

When a double letter is required, it is distinguished from other letters for which it might be mistaken by the touches being repeated more slowly. Thus, E, which is made by a single pressure of the first finger of the right hand will, when doubled, resemble C, which is made by two pressures of the same finger, unless the pressures are made full and slow.

Numbers may be spelled out, therefore no provision is made for them.

A slight twist of the wrist indicates the close of a word, and a brief hand-shake announces the close of a communication; pauses are not indicated, but ready made, as in speaking.

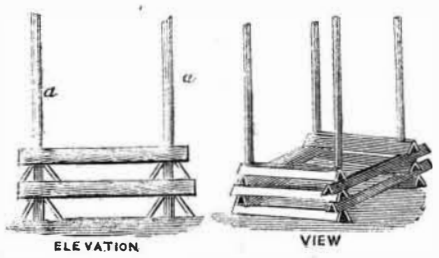
The position shown in the engraving is that adopted while persons are standing side by side, as in walking. In conversations, when persons are seated, the persons face each other, and the wrists cross; and in the reclining position, when persons face each other, conversation is practicable and easy.

The physical effort necessary to converse by this method is not nearly so great as in the ordinary sign language, a great advantage to sick mutes, who frequently are unable through failing strength to make their wants known.

We think our readers will agree with us that this is a very simple and ingenious method, and worthy the attention of those who are engaged in the care and instruction of deaf and blind mutes.

SEASONING BOARDS.

A correspondent of the *Building News* recommends the piling of floor boards as illustrated in the accompanying diagram. Four long poles are planted in the ground, and the boards are placed at an angle against them as shown. By



planting posts at short intervals between the corners many more boards can be stacked in the same space. This method gives a much freer circulation of air than the ordinary method, and consequently the drying proceeds with greater rapidity.

Sound and Electric Figures.

What are termed sound figures may be produced in various ways. One way is to fix a plate of glass at its center with Burgundy pitch to an upright support on a stand, then to dust the plate with fine dry sand or other suitable powder, such as lycopodium. If now the plate be made to vibrate by drawing over its edge a violin bow, or some horse-hair tightly stretched from the two ends of a cane well rosined, the dust will in due time arrange itself into certain forms, lines, or figures. The same will occur by tying over a broad-mouthed glass or goblet with bladder that has been moistened and allowed to dry to a drum-like surface, and dusted with lycopodium or very fine sand, and then put upon a piano. Certain lines are soon visible after the instrument has been played upon, particularly when one chord only has been struck, so as to lessen the vibration. The blowing of a cornet, using one key, or the tuning of one note of any instrument, near the stretched membrane, will cause it to vibrate, and the dust to arrange itself into form. Thus these experiments clearly exhibit the effects of sound; and by due study of the dust lines we may see what sound, one long passed, has been. A somewhat similar application of this experiment has recently been made by a German philosopher to the study of the nature of electrical discharges between metallic conductors. It is found that when an electric discharge takes place between a horizontal plate of metal powdered with lycopodium, forming the positive pole, and a ball or point placed below it, the dust remains attached to the plate on a well-determined area.—*Septimus Piesse.*

Good Cider Vinegar.

Take ten gallons of apple juice fresh from the press, and suffer it to ferment fully, which may be in about two weeks, or sooner if the weather is warm; and then add eight gallons like juice, new, for producing a second fermentation; in two weeks more add another like new quantity, for producing a third fermentation. This third fermentation is material. Now stop the bunghole with an empty bottle, with the neck downward, and expose it to the sun for some time. When the vinegar is come, draw off one half into a vinegar cask, and set it in a cool place above ground, for use when clear. With the other half in the first cask, proceed to make more vinegar in the same way. Thus one cask is to make in, the other to use from. When making the vinegar, let there be a moderate degree of heat, and free access of external air.

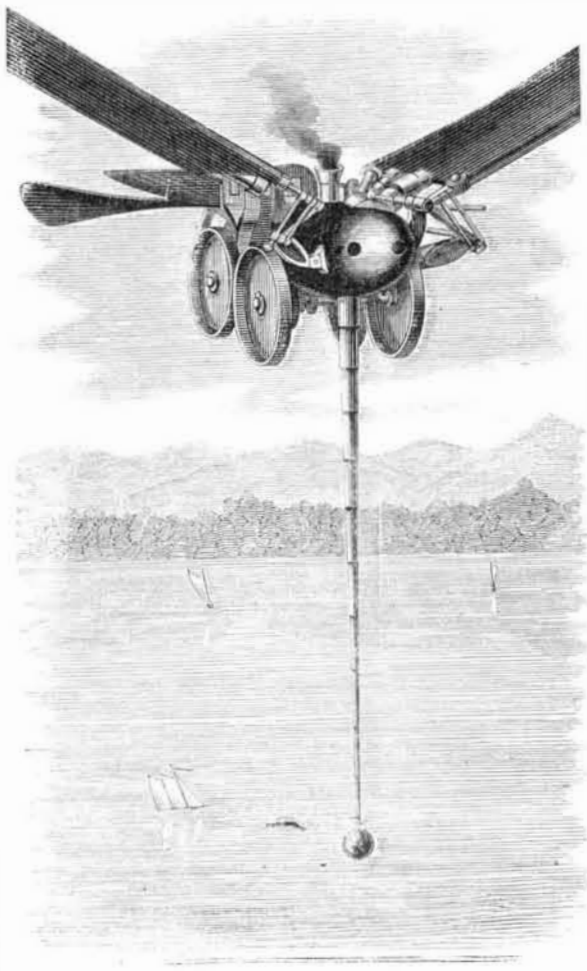
AERIAL NAVIGATION.

NUMBER FIVE.

We give herewith an account of an aerial steam machine designed by Joseph M. Kaufmann, a Glasgow engineer, an account of which we condense from *Engineering* of March 6, 1868. Only about two ninths of the wings, which are long and narrow, are represented in our engraving. From this remark the reader will understand they were of great length, and we may add that they were pointed somewhat like the wing of a swallow.

The actual machine, which the model was constructed to represent, was designed to be of the following dimensions:

From stem to stern, 12 feet; from stem to tip of tail, 14 feet 11 inches; greatest depth, 4 feet 6 inches; greatest width, 5 feet 1 inch; length of each wing, 35 feet; area of each wing, 221 square feet; length over the "gies," 17 feet 3 inches; Length of pendule, 40 feet; weight at end of pendule, 85 lbs.; total weight of machine, 7,000 lbs.; nominal power, 40-H. P.; intended speed, 40 miles per hour, the tank or tender taking a supply of oil and water sufficient for five hours.



As will be inferred from the engraving, it is intended that progress should be gained by flapping the wings, these wings being driven in such a manner that their motion resembles that of the wings of a bird as closely as possible. It is intended that when the machine is rising, the wings should make 120 strokes per minute. The pendule, which can be raised and lowered as desired, is for the purpose of keeping the machine in a horizontal position. The machine represented is exclusively for flying over land, and it is furnished with wheels on which it can run when on the ground; Mr. Kaufmann states, however, that by a few simple alterations it can be made available for traveling over water, and in case of its alighting be converted into a boat furnished with paddle wheels.

The model, to which we have already referred, weighed, complete, 42 lbs.; and during the experiments with it, its boiler, owing to its small size, was not fired, steam being supplied from an independent boiler. The model was made entirely to prove the correctness of the inventor's theory, and to ascertain if the connections to the wings could be made strong enough to withstand the violent twisting and bending strains to which they are exposed. In the model the motive power consists of a single vertical steam cylinder fitted with a piston in the usual way, the piston rod carrying a cross-head which is coupled by links directly to the wing beams. The wing beams are fitted to shafts which run for about three fourths the length of the machine. To these shafts are also connected the "regulators" by which the feathering motion of the wings is governed. Each wing is secured in four places, and has its center of oscillation directly opposite its working beam. The "gies" can be moved alternately so as to steer the machine either to the right or left without disturbing its horizontal position.

During the trial the model was securely fastened down and loaded with a considerable weight to prevent it from moving, it being at the same time raised on supports so that its wheels were clear of the ground. Steam at a pressure of 150 lbs. was then turned on, when the wings made a short series of furious flaps; but, through imperfect workmanship, the left wing suddenly gave way about two feet from its base, when the other wing, being subjected to extra strain, failed also. Mr. Kaufmann states that these accidents were in a great measure caused by the wings having been lengthened three feet previous to the trial, and being thus exposed to a greater strain than they were constructed to resist. The wings having been removed the machine was put to the final test of being run at a speed of 1,500 double strokes per minute, and it was found to be quite uninjured by this experiment. Altogether, Mr. Kaufmann considers the trials to have been satisfactory, and since the trial referred to he has been engaged in the construction of a larger machine on the same principle, but having the beams worked, through gearing and eccentrics, by a horizontal engine. This machine is also to be fitted with shifting aero-planes, and is to be accompanied by a tank-car with accommodation for two persons. It is intended that this machine should rise into the air after a short race on *terra firma*, drawing behind it the tank-carriage; it is to be of 120-horse power, and is to weigh 8,000 lbs. complete. The tender is to carry ten hours' supply of fuel and three hours' supply of water; and with this tender and three cars the machine is intended to make fifty-six miles per hour.

Correspondence.

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

The Fossil Man of Onondaga--Opinion of an Anatomist.

MESSRS. EDITORS:—I have read with a good deal of interest the accounts I have seen in your excellent paper of the "stone giant," or the fossil man, found on the farm of a Mr. Newell, by some laborers while engaged in digging a well.

Many of the accounts I have seen in the papers are fanciful and wholly imaginary. At first we were told it was a veritable petrifaction, and a full description of the same was given. Next we were informed that it was an "image," the work of the Jesuits; then again it was the work of a Canadian, made in 1868, from Onondaga plaster. Recently I saw an extract from the Syracuse *Journal*, in which was an article signed by James Hall, State geologist, and S. B. Woolworth, Secretary of the Regents of the University, in which it is maintained that it cannot be a petrifaction, because the soft parts of an animal are never petrified, decomposition taking place so rapidly. Now, Messrs. Editors, the above-named gentlemen may be men of science, in their way; they ought to be, occupying the places they do; but it is plain they are not anatomists, or they would never make the above statement.

Decomposition is ordinarily the fate of all animal substances, hard as well as soft. But we have many well-authenticated instances of human bodies, buried in certain localities, becoming petrified. It is not more than four or five years ago that we had an account in the New York papers of the removal of a man, or his body rather, that had been buried six or eight years, when it was found that complete petrification had taken place. No part had even begun to decompose except the end of the nose, and that was very slight.

Besides, I can show Messrs. Hall and Woodworth, if they will call upen me, the half of a human heart petrified, plainly and distinctly to be seen, as any one acquainted with anatomy will admit at once.

I have many other similar petrifactions in my possession. None of these could, for a moment, be supposed the work of the cunning Jesuits or of a shrewd Canadian, hid in the earth to surprise somebody—but were picked up, some in Pennsylvania and some in Wisconsin—each partaking of the nature of rock common in the region where it was found.

The same thing, no doubt, is true of the plaster man of Onondaga. As plaster or gypsum is common in that region, petrifactions in that locality would, of course partake of the nature of gypsum. I have never seen the stone giant above referred to, but it would take more than I have yet seen to convince me that it is not a fossil man.

Dr. Westcott's communication in your last issue takes the most common-sense view of the subject of anything I have seen. One good anatomist is a better judge of the nature of the curiosity in question than a thousand State geologists or Regents of the University.

Don't let us set a shoemaker to repairing a watch—every man is a judge of his own trade. GEO. W. STONE, M.D.

Warren Center, Pa.

The New English Method of Setting Tires.

MESSRS. EDITORS:—The article headed "A New Method of Setting Tires," in the SCIENTIFIC AMERICAN, under date of Nov. 6, and which you describe as being patented in England, and as to the utility and serviceability of which you seem to have some doubts, has come to my notice.

I not only share your doubts about its general utility, but I assert that its theory is all wrong. It is, in my opinion, an imposition upon the common sense of any intelligent wheelright, and hundreds of them will bear me out in this assertion. It is a violation of the common laws of nature; this alone would be sufficient to condemn the whole thing.

The nature of iron is such that heat will expand and cold will contract it. How could nature come to the assistance of man any way more favorable, especially in that class of machines which combine wood with more or less iron.

What is more simple or requires less time, than to measure the tire, weld it, and allow a certain amount of draw, according to the size and condition of the wheel? Every intelligent blacksmith knows exactly how to govern himself in order not to let the action of the tire be too great in its contraction. I say the contraction should not be too great, as it would strain the wheel out of its natural position, and more or less injure its strength by giving it a constrained dish, which we carefully seek to avoid.

Now this new method makes necessary a procedure which is entirely injurious to the strength and stability of a sound wheel; namely, the unnatural contraction by force of the wheel in order to set the tire. A well put up wheel can only be contracted as far as its elasticity will admit, and to do this