the back of the trunk, and has its front end resting upon the bottom of the trunk, or upon whatever is placed therein or passing through it—resting therefore upon the flax. A weight, *l*, is suspended from the end of a pair of arms, *m m*, which stand out from the front of the lid or mouth-piece; and this weight causes the flax to be tightly compressed in the trunk. The arms, *m m*, are connected by a rod, *n*, to the shorter arm of a lever, U, of the first order, which works upon a fixed fulcrum, *o*, the longer arm of the said lever having a wedge, *p*, suspended from it, which wedge constitutes the stop before alluded to for arresting the forward motion of the bar, N. The wedge, *p*, works in a slot, *q*, in the forward end of the said bar, passes through a slot, *r*, in the guide bar, *g*, and rests against the back side of the front part of the said guide bar, which, as will be seen by reference to fig. 1, is of angular form. The bar, N, is arrested in its forward motion by the back part of the slot, *r*, coming in contact with the wedge, the hight of which will therefore regulate its movement. When the wedge is raised so that its point only enters the slot, it will not arrest the bar at all; and consequently the latter then receives the full throw of the eccentric; but when the broadest part of the wedge is in the slot, the bar is pushed so far back, that the eccentric will scarcely act upon it at all, or the wedge may be made broad enough to stop the movement of the bar, N, entirely, and thus stop the feed. The parts are so adjusted, that when the proper quantity is being fed through the trunks, the mouth-piece, *k*, will, by means of the arms, *m m*, rod, *n*, and lever, U, hold the wedge such a hight as to allow the bar, N, the proper movement necessary to give the feed rollers the required amount of motion every time they act, and should there be any increase in the quantity of feed, the mouth-piece will be raised, and cause the wedge to be depressed, and therefore lessen the length of the feed; the contrary effect being produced if the quantity of the feed decreases. The amount of the feed may be increased or decreased at pleasure, by altering the length of the rod, *n*, or by altering the distance of the wedge from the lever, U.

More information may be obtained of this invention by letter addressed to the patentee, at Salem, his place of residence.

Pennsylvania Coal for Gas.

"Up to the present time our Philadelphia Gas Works have been dependent, in a great degree, upon the collieries of England for their supply of material. The coal fields of Western Pennsylvania have not furnished an available substitute. This fact gives more than ordinary interest to the discovery of gas-producing coal in the immediate track of the Sunbury and Erie Railroad. We subjoin extracts from a report made by the Manhattan Gas Company, on the gas-producing qualities of this new Pennsylvania product, and an analysis of it, made by Dr. Chilton, of New York.

'Manhattau Gas Company, of New York, 14th June, 1854. Charged with McKean and Elk County coal, 150 lbs.:

Produced	1st hour,	145	feet gas.
"	2nd "	153	"
"	3rd "	155	"
"	4th "	127	"
"	5th "	69	"
		649	feet.

One tun of coal, 2,249 lbs., will produce 9,691 feet gas and 44 bushels coke of a superior quality, weighing 1,523 lbs.'

Analysis for the McKean and Rochester Coal Co., by James R. Chilton, M. D., New York.

'Fixed Carbon,	58·87
Bitumen,	33·21
Water,	4·10
Ashes,	3 82
	In 100 parts.'

'This is a remarkably good quality of coal. It yields a good substantial coke, and, in its mode of burning, closely resembles the best kind of Liverpool coal. The proportion of sulphur in the sample analyzed was very small.'"

[The above is from the "U. S. Gazette," Philadelphia. We are glad to know that Pennsylvania has such excellent gas-producing coal, but we must say that the analysis of Dr. Chilton rather puzzles us. What is meant by "bitumen" is difficult to tell, and affords no satisfaction whatever respecting its gas producing qualities; in fact, it affords poor consolation for the character of the coal in the manufacture of gas, for it simply means, that only 33 per cent. of the coal, will produce as much gas as an equal quantity of bitumen.

We saw some experiments made about ten years ago, with Pennsylvania bituminous coal, in making gas, which were very satisfactory, but the coal is not equal to good cannel by any means for producing it.

[For the Scientific American.]

Electricity as a Motive Power.

Your correspondent, P. Vergnes, on page 331, seems to think that this subject is but imperfectly understood, and that it requires the aid of algebra to solve the practicability of Electro-magnetism as a prime mover. To both of which I yield my partial assent; at the same I think, that he, even, with the aid of algebra, has failed to throw much more light on the subject than we previously possessed. I agree that it is important that this subject should be solved, and I would ask M. Vergnes, if it has not been solved for three years, by the failure of Prof. Page's Engine? I believe that that failure has (at least for the present) decided that question in the negative. Prof. Page failed, as I at the time predicted (Vol. 7, page 91 "Sci. Am.") and for the reasons I then pointed out. I do not believe, as M. Vergues appears to do, that electricity will ever be profitably applied as a motive power, except by the intervention of electro-magnets; my reason for believing so is, that Nature invariably employs electro-magnets whenever she employs electricity for the purpose of producing motion.

The animal is the most perfect electro-magnetic machine extant, and if art ever succeeds in making one as perfect as these natural electric machines, it will have accomplished all that is possible. I think I can throw the most light on the subject by pointing out some of the differences between the natural and the artificial electric machines.

The three cardinal principles of a natural machine are carbon, air, and globular electro-magnets; and of an artificial one, metal (zinc), acid (sulphuric), and a horse-shoe, or cylindrical electro-magnets. By a beautiful, but I confess by me not fully understood, economy of nature, the carbon is so prepared that it very readily combines with the oxygen of the air, and the latter, by so combining, parts with its electricity, which is conveyed by means of the brain and the nerves to the muscle (electro-magnets), there producing, at the command of the will, animal motions. It may well challenge the chemist's attention to discover the *modus operandi* of the above-named change which the carbon sustains, brought about by such feeble acid. It is remarkable that carbon, which, with our present chemical knowledge, is acted upon with so much difficulty even with the strongest acids, is by means of the respirative organs and the air, brought to the highest state of oxydation, forming carbonic acid.

Yet, after after all, these important considerations, the globular shaped magnets challenge our greatest admiration, as I have before stated (page 315, Vol. 7, "Sci. Am."), and in addition to what I then said, I may say that Nature, by means of her minute and numerous globular magnets, gives an answer to your correspondent's "more serious reasoning,"—these numerous magnets are instantly brought to complete "saturation," which gives a complete refutation to his assertion that "magnets cannot be increased without disappointment." It makes no difference to Nature whether the machine is large or small, she obtains the same per cent. of power from a given quantity of electricity. I venture to say, that the elephant and the fly are, relatively speaking, of equal strength.

Take 100 common iron beads, and string them on a silk thread in such a manner that they do not touch each other, say the thirty-second part of an inch apart; hang the string thus formed in a convenient position, and you will find that the moment you touch the ends of the silk thread with the conductors of a galvanic battery, that the whole string will contract; separate the thread and the "conductors," and they will fall to their first position. This experiment will be found both amusing and instructive to repeat often. Here we have a specimen of animal electro-magnetism, only that the animal has, instead of our one string and 100 beads, many hundreds of strings (fibers) and millions of beads (globules). and that instead of the globules being strung on a thread, they are incased in hollow tubes (fibers) and connected with spinal flexible electric conductors (nerves.) Who will be the first to reproduce artificially one of these natural electro-magnets?

Yet after all, I may be permitted to ask, will ever electro-maguetism supersede steam? It is my opinion that electro-magnetic power can never be produced cheaper than horse-power, inasmuch as horse-power is in reality nothing else but electro,magnetism. Still I believe that if artificial electro-magnetism ever attains the perfection that we find in nature, that it will be used for purposes for which it would be impossible to employ steam. If it ever attains perfection, it can be employed for navigating the air, for which purpose steam is totally unsuited on account of its weight.

J. F. Mascher.

Philadelphia, 1855.

Artificial Ice---The South.

Messrs. Editors—It would be a great favor to myself, as well as to thousands in the interior of the South, if you, or some other gentleman of science, will, through the columns of your extended journal, make known a practical way of making ice artificially, either through chemical or mechanical means.

What has become of the machine patented about two years ago by D. Gorrie, of New Orleans, which was propelled by a steam engine, and in an experiment tried "froze several bottles of sherry, and produced ice of a cubic foot when the thermometer stood at 80°?"

This information, if imparted and promulgated, would not injure the ice trade of the North, which will always monopolize, with increased prosperity, the commercial marts and thoroughfares of the South, but would prove of vast value only to the interior of the South among the thousands cut off entirely from all commercial facilities, as for instance the interior of Louisiana or Texas, where I expect soon to locate, hence my peculiar personal interest in the matter. S. S. Rembert.

Memphis, Tenn. July 12, 1854.

[We do not know of any feasible plan for producing ice artificially except at an expense so great as to preclude its manufacture for common purposes. If there was any person in our country who could make ice ecomically, he would not be at a loss where to go make his fortune.

Inventors and Inventions.

Messrs. Editors.—Wishing to open a short correspondence with you, I will do so by following your instructions—to be brief and come right to the point without an apology.

I am an inventor—theoretically at least—and I think a very successful one. But want of means has prevented me from getting any of my numerous inventions patented, and also from putting them in practice.

Now the question is, how shall I, (in indigent circumstances, and not much acquainted with business matters,) dispose of my valuable stock of patentable ideas, and useful inventions, so as to turn them into cash, or its equivalent.

Yours, N. C.

W———, N. Y., July 12, 1854.

[We have received, from time to time a great number of letters similar in import to the above, and an answer to this one will save much trouble to those who might hereafter—like the present correspondent—seek our advice. We advise him to concentrate his ideas, and perfect one of his inventions, patent it, then devote his energies to introduce it, and thereby realize means to complete his other inventions, so as to obtain a justly deserved remuneration from them. If his inventions are really useful, a favorable result may reasonably be anticipated if he follows our advice. It is scarcely possible to find any person who will advance means to assist an inventor in perfecting his improvements.

The public are suspicious of unpatented inventions, therefore the most wise course for any inventor to pursue, is to secure his invention by patent, and thus obtain something tangible for sale, and full protection for its use. Every effort of industry and economy should be made for this purpose; it is the only rational plan to pursue—the best advice we can give. No inventor can pursue a more unwise course for himself than to study over an indefinite number of improvements without perfecting a single one of them. He never will accomplish any good for himself or for others by such conduct. Let every inventor finish one invention before he commences another, and by so doing he may be sure of success.

Indian Relics.

We have received from Henry F. Baker, of Centerville, Ind., drawings of four peculiarly-shaped stones which were recently found in an Indian mound on the banks of the White Water, near where he resides. They are finely polished, he says, and resemble petrified wood. One of them is shaped like a double hatchet, and another like a single hatchet, but the other two have no resemblance to any tool or trinket within the scope of our knowledge. Two of the stones are perforated with a single hole each, and the others with two tapering holes. A number of human bones were found along with them, thus showing that the mound was a warrior's cairn. An old gentleman living in the above-named place—a Free Mason—and high advanced in the Order, claims them as jewels of the craft worn not less than five thousand years ago. This is pretty good; he knows, at least, better than we do, to what uses they were applied, and he no doubt would be excellent authority to consult on the ancient races of our continent.

Improvement in Rolling Railroad Bars.

We learn by our cotemporary, the "Miner's Journal," Pottsville, Pa., that Mr. Harris of that place, has recently made some very valuable improvements in rolling railroad iron; which are thus described:

"By the (present) plan, each pair of rolls has nine separate grooves, through which the heated mass from the furnace is successively passed, until it is delivered from the last in the shape of a railroad bar.

Now, instead of the one set of rolls containing the nine grooves; by the new process, there are nine separate pairs of rolls, each having but one groove—arranged in one continuous line, with close ducts or boxes between; so that the "pile" (the hot ball of metal) is fed in at one end, and comes out at the other a railroad bar!"

This new arrangement of the rolls, is exactly like those of the drawing rollers in cotton spinning each succeeding pair, moving with an increased velocity. The advantages of these improvements are appreciable at a glance, and we believe are entirely new, although we have read that Arkwright received his first idea of spinning by rollers from machinery employed in the manufacture of iron bars, but which, so far as we have seen, was not arranged like that of Mr. Harris.

New Plating Apparatus.

Robert G. Pine, of Newark, N. J., has applied for a patent for an apparatus for plating which is worthy of attention. He places the article to be plated upon an elastic bed and within a female die, constructed of sheet metal, and corresponding in its form to that of the article in hand. Directly above the bed is a male die. This is forced down, while heated, upon the article, so as to fuse the solder. The foil is placed directly over the female die, and is united to the surface intended to be plated by the male die's pressure, facilitated by the heat, which is an indispensable agency in this important and profitable process of the art of embellishment.