Scientific American

NEW-YORK, JULY 10, 1852.

Iron Structures.

Widely extended as the uses and application of iron has become within a few years, we must say that its superiority as a material for buildings does not yet seem to be publicly appreciated. A few iron buildings in this city, some in Baltimore, Philadelphia, and other places, have been erected, but when we take into consideration the advantages, beauty, and durability of such structures, we are not a little surprised that so few of them have been erected in our country. That so few iron structures have been erected in New York city, says but little for public sagacity, and is not a little mortifying to that progressive, pushing, utilitarian fame of which New Yorkers seem to be so proud. There is no city in the world where so many buildings are constantly being erected as in New York. There is a continual tearing down and building up going on from March until December, every year. On every hand in every street, are to be seen pile upon pile of mortar, stone, and brick. The number of houses undergoing renovation every day, reminds one of a field previous to a battle, when from each busy camp there comes the hurried sound of armorers driving rivets up. Strangers visiting our city every few years say, "well, you are building a new city here all the time;" it is really so. We presume that, owing to obstructions in our streets, caused by pulling down old buildings and putting up new ones, the dust, dirt, and trouble connected therewith, costs the public a tax of some millions every year. The tax is not levied by law, but it is not the less certainly exacted for all that. Let any citizen imagine the benefits that would be conferred upon the public by substituting cast-iron buildings for those of brick. The piles of brick and mortar, and the clouds of dust, which now obstruct our streets, and cause such general annoyance, would all disappear. Here, as at present, where there has been accumulating for days and perhaps weeks, a mountain of materials blocking up the street and annoying everybody, all would be clear, and the pathway unobstructed. There would appear the space for the building, and all clean and quiet around it on Monday morning. In a few minutes some carts would arrive with beautiful cast-iron blocks, and a few men with derrick, block, and tackle would be seen quietly hoisting these blocks and fitting them into their places, and perhaps by evening—in a few days at most—a building which will endure for ages, will be seen standing erect, in dignity and beauty, where at morn there was nothing but an empty space. This can be done,—this has been done; and we should like to see it done oftener. There would be no falling of walls, either, owing to miserable mortar; nor would there be any fears for the freezing of cement. It would be well for every city and village in our country, if there were less danger from fires, consequently if there were more buildings erected of fire-proof materials, there would be fewer fires. The fire engines and the fire departments of cities and villages, are exceedingly burdensome systems of taxation. It is also well known that the conduct of many firemen is very disreputable, and exceedingly dangerous to young men. During the past week a fearful riot took place among the firemen of Williamsburgh (the scene was more like an engagement of contending fiends than human beings), and another riot of a like nature in Brooklyn. More iron buildings would be the means of preventing fires, and if cheap rural cast-iron cottages could be erected in our villages, there would be fewer fears of fire raising, less to pay for insurance, and less for fire companies. The public could afford to pay good high prices for iron structures at first, for they are the cheapest in the end. All the cast-iron buildings which have been constructed in our country, have been erected by the inventor, Mr. Bogardus, of this city, whose taste and constructive skill are of the very highest order. We hope that more attention will be devoted to the utility of cast-iron structures by the men of capital in our city.

What is Man?

Much as is known of anatomy and the organic structures of creation, the most learned physiologist is exceedingly ignorant of the primary organism of man. Throughout creation there prevails a common structure of recognized organization—the element of which is denominated "the simple cell." Here nature remains still wrapped in mystery, and we believe will ever remain so. The cell of one organism appears exactly like another, but as the cell developes itself, how different are the final productions—that of man and the inferior animals. Yet all follow after their kind, and there is no variation. Every seed bringeth forth after its kind, and so do all the races of animated nature. The great Creator who impressed the simple cell with a property for the production of a man, can surely impress upon man the property of that developement which will enable him to live forever as a glorified being. No man can detect in the human machine, by its construction, that it is made to run for only 70 years, but it moves by a command or law over which it has no control creatively, and then ceases to move by the same fiat. Why this should be, no one can tell; we know it is so, and that is all, and we have no more reason to suppose that this is the final state of man, than a simple organic cell, would have to suppose it was *its* final state. So uniform is the simple cell in its structure, the microscope cannot detect the least variation wherever examined; everywhere is to be seen the same wonderful identity, from the humblest plant to the highest state of animal organization, but when it developes itself and becomes humanity, we behold an intelligent being, shaping out, as it were, a destiny for himself, which endureth beyond mere physical organizations and results—which affects his own and future generations. How fearfully and wonderfully made is man; how often he resembles an angel,—how often a demon. With a lofty intellect he counts the stars, measures their distances from one another, and even weigheth them in his balance, and yet at one time he could not be distinguished from the cell of a plant. Man is endowed with great wisdom, and yet how often is he to be seen more degraded and less wise than the brutes which perish. Although he can send his thoughts thousands of miles distant in a few minutes, he is continually reminded of his humble origin—that from dust he came and to dust he must return, until the final resurrection, when the nature of all things shall be changed—when mortality shall be swallowed up of life.

The Art of Bleaching Cotton.

Snowy linen and cotton are beautiful articles of apparel, but their whiteness is the result of art. Linen is of a dirty yellow appearance in its raw state, and although cotton is whiter, still, as compared with the bleached fabric, it is a dingy color indeed. In connection with cotton in its natural state, there exists substances which have a tendency to operate along with certain atmospheric influences, and aid in the decomposition of cotton cloth. One of these is an earthy salt, taken up from the soil with the fibre, the other is mucilaginous matter. The object of the bleacher is to get rid of these. The original method by which the separation of these matters from the cloth fibre took place, was such as to give rise to the opinion that the process interfered very much with the quality of the cloth. The process was at first rude. It was the custom to subject the woven fabric to the action of some alkaline lye, or some acidulated element. Lemon juice was very extensively employed. In England, which was the last country in Europe to take up the question of the cotton trade, and to devote its attention to the manufacture of that article, the practice was this:—The persons engaged in bleaching a piece of woven cloth composed of vegetable substances, burnt some wood to ashes till they got the usual result of a white, powder ash. This was suspended in a coarse cloth, tied at the ends, something in the form of a hammock; and water being poured upon the surface, it took up a substance now known by the name of potash. This was carried through by the water, and deposited beneath; the goods were then subjected to the action of this substance for different periods, varying from three to four days to as many weeks. They were then spread upon the grass, where they were allowed to remain for some weeks. Being again taken in, they were submitted to the action of the alkaline lye, and afterwards, if any appearance of color remained, to sour milk; then to the fields again, and again, perhaps, to the ash lye, till at length they managed to get a piece of goods white. Thus the cloth was half worn out before it came to be made up for use, and it was no wonder if a shirt of such material did not last so long as one formed from cotton which had undergone no such destructive process. People were quite right, therefore, in giving the preference to unbleached calico, once, and they are yet, where the bleaching is not well understood The practical bleacher, of the present day, is a practical chemist, and knows exactly what materials to employ, and in what proportions to take up the substances he desires to remove from the cloth. Calico is now more durable after bleaching than it would be without it.

The reform accomplished in the art of bleaching was made by the discovery of chlorine as a bleaching agent. Before its application to bleaching, it took upon six months, amid sunshine, rain, and wind, to bleach a linen handkerchief; now this feat can be accomplished in a few hours, and at most a few days. The properties of chlorine, as a bleaching agent were first discovered by a Swedish philosopher, from the effects produced upon the cork of a phial containing muriatic acid. It was first employed in France. The first bleach-works in Britain were established near Glasgow, by Mr. Macgregor, the father-in-law of James Watt, who, having heard of the discovery of chlorine from a learned correspondent in Paris, at once communicated it to his relative, by whom it was turned to good account.

The art of bleaching has been the means of bringing millions upon millions of wealth into the lap of Great Britain and it may well be said, when we take Watt's great improvements of the steam engine into consideration, that he has done more for the mechanic and practical chemical arts of that country, and perhaps the world, than any other man.

Without bleaching, it would not be possible to apply so many beautiful colors to the surface of cotton cloth, as are now applied. Unless the ground of the cloth were clear, the colors would be dull and indistinct, and many would not take hold of the fibre of the cloth at all. The mucilage, for instance, would prevent the introduction of mordants, without which it is impossible to get a fast color. The art of bleaching consists, at present, in first boiling green cotton goods, as they are called, in lime water, in large keers, for some hours, then washing and afterwards steeping them in chlorine liquors for some hours, then washing and steeping them in a weak sulphuric acid liquor; and repeating these two latter processes until the goods are perfectly white, when they are thoroughly washed and then finished. The chlorine used is obtained by stirring some of the chlorate of lime in cold water, in hogsheads, and using the clear. The chlorate of lime was the discovery of Charles Tennant, in Glasgow, and a great deal of the chlorate of lime used in America is made at Tennant's works. When the art of bleaching by chlorine was, and by whom introduced into our country, we cannot tell.

The Scotch are the most famous for bleaching in Europe. At one time Holland was the most distinguished country for bleaching, and the finer qualities of linen made in Scotland and Ireland used to be sent to Holland to be bleached. An Irish bleacher who learned the art in Holland, introduced it into Scotland, but then it required a whole summer to bleach a fine sheet. The first bleach-fields were erected on small clear streams; the cloth was first steeped in cow's urine—which was the only alkali then in use by cottars—it was then washed in a tub, a woman trampling it with her feet, and changing the water till it came off pretty clear. It was then beat on a stone, and spread out on the grass for some days, where it was well watered. These operations were repeated till the color pleased the owner.

When we look back and see what progress was made in this art in a century, we have reason to feel grateful. There are plenty of bleached goods of a very tender character, owing to their not being well washed. It is positively necessary that all the lime should done be removed from the cloth: this cannot be unless enough of sulphuric acid is employed to render the lime a sulphate, when it can be easily removed by washing—it will flow off in fine solid particles. It would be well if bleachers would finish their last washing of bleached goods before drying, in clear water of at least 160° Fah. The warm water would remove every particle of acid, and would drive off all the chlorine if any were left in the cloth. This practice would involve more expense to our bleachers, but it would be a good plan for the wearers of the cloth.

Independence Day.

Last Sabbath was the 75th anniversary of the day on which the Declaration of American Independence was adopted and signed. The day was kept in a more becoming manner than if it fell upon any other day, still our people wish to shoot and make considerable noise on such occasions, consequently Monday was the day which was observed as Independence Day.

When we take into consideration that free institutions cannot exist but among a virtuous population, we should be very careful, as a people, to inculcate virtuous deeds, and nurture the rising generation in sound morality. Freedom consists in obedience to good laws, and of the protection of all in their just rights. In our cities and villages the rising generation seems to be growing up without virtuous restraint, and with great contempt for good and wholesome law. We must depend upon our rural population to counteract this evil tendency—to be a good leaven, or we may bid farewell to the blessings conferred upon our country by the Revolution. We consider that those men who never tell the people of their faults, in the fine Orations made on the Fourth of July, do not do their duty to their God, their fellow men, and their country.

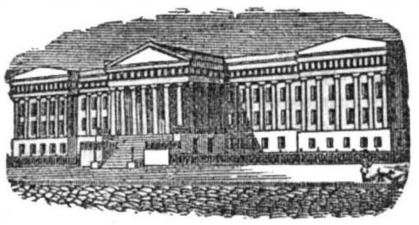
New Light House.

A lighthouse has been erected on the Romer Shoal, which is about two miles east of Sandy Hook, and directly in the entrance of the harbor of New York. The engineer was J. W. P. Lewis. It is built in water 13 feet deep; it is 20 feet in base diameter, of an octagon form, and is 50 feet high. The principle of its construction consists in screwing into the sand of the shoal, at each angle of the octagon and in the centre, one of Mitchell's screw-piles; the blade of each screw being two feet in diameter, and entering the sand to a depth of ten feet; attached to the screw are nine wrought-iron shafts or piles, each 6 inches in diameter, and 32½ feet in length, extending to a height of 8½ feet above high-water mark; on the top of these piles heavy cast-iron sockets are keyed, to which are attached also by keys the cast-iron shafts, which, rising from the pile-heads, and uniting in a centre-frame at the tops, form the supporting braces for the basket frame, or distinctive mark of the Beacon, which is secured to a prolongation of the centre pile, at a height from the level of the sand of 63 feet. The whole of the piles and shafts are securely braced, and counter-braced by wrought-iron tie-rods, keyed to the sockets, rings, or pile heads, forming altogether one of the most efficient systems ever erected for such a purpose. The whole weight of the structure is but 75 tons, and it cost the Government but $10,000. Whereas, a stone structure would not cost less than $35,000, at the least estimate—that being the cost of a stone beacon on the same shoal, and but 40 feet in height.

The screw piles is the invention of an Irish engineer, Mr. Mitchell, of Belfast, we believe. It was patented in England some years ago, but found no great public favor for some years, and he did not receive remuneration for the value of his invention before his patent expired. It was renewed to him upon mature consideration of its great importance. A great number of lighthouses or beacons are built upon his piles, in Britain.

Henry Clay.

This great statesman died in the city of Washington on the 29th ult. He was called the Model Senator. He died of old age—the tide of life ebbed slowly and gently away.



Reported Officially for the Scientific American

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING JUNE 29, 1852.

MILL STONE DRESS—By Wilson Ager, of Kohrsburgh, Pa.: I claim the rounding off of what is usually termed the feathered edge of mill stones, for grinding buckwheat, so as to present a round smooth surface, instead of a cutting edge, as set forth; and this I claim, whether said furrows are polished, sharpened, or straightened by rubbing the same with a burr block, after said furrows have been roughed out with a pick or other tool, or by any other means substantially the same.

HULLING BUCKWHEAT—By Wilson Ager, of Kohrsburgh, Pa.: I claim the method described of scouring or hulling buckwheat, by passing it through between horizontal stones, the runner having furrows on its face, substantially as represented, and cut in the direction of the motion of the stone, with the design of keeping the grain from leaving the stone too fast, and for rotating both on their short and long diameters, and the bed stone left without furrows, in the manner and for the purpose set forth.

SAIL HANK—By Samuel Barker, of New York City: I claim the construction of a divided hank, so formed that one part may embrace the stay, and the other part enter the eyelet of the sail, and the parts be connected together by the socket, or one receiving the shank of the other, and be confined by the bolt, for the purpose of securing sails to the stay, substantially in the manner set forth.

APPARATUS FOR PROPELLING VESSELS—By M. A. Crooker, of New York City: I claim the combination of the radius bars, upright lever, cranks, horizontal lever, carrying paddles, and curved slots, arranged with respect to each other, and connected and operating substantially as set forth.

REVOLVING LAST HOLDER—By Henry C. DeWitt, of Napanock, N Y.: I claim, first, the revolving stock, constructed, arranged, and operating in the manner set forth.

Second, the revolving last holder attached to the revolving stock, and having an adjustable rest or arm, the whole being constructed, arranged, and operating in the manner specified.

RAILROAD CAR TRUCKS—By C. B. Disbrow, of Bath, N. Y.: I claim the construction of a truck with independent wheel frames, strengthened by braces, and connected to the opposite side wheel frame, by the bar extending across the truck, upon which said wheel frames may vibrate, substantially as set forth.

POTATO DIGGERS AND STONE GATHERERS—By J. T. Foster, of New York City: I claim the use of the roller, having a series of rows of pins in the periphery, and secured on an axletree of a cart or other moving apparatus, in combination with an adjustable apron, having teeth in it, and a discharging plate having teeth in it, substantially for the purpose of gathering stone, potatoes, fruit, or other substances, or articles, and depositing them in a box, as set forth.

LOCK—By Francis Garachon, of New York City: I claim the arrangement of the lever, and its accessories, for latching and unlatching the bolt relative to the lever W, or locking the revolving key plate, whereby the auxiliary kev acts upon the former, by being lifted endwise and upon the latter by its bit, when revolving in the usual manner, substantially as set forth.

HANGING STEPS OF MILL SPINDLES—By Gideon Hotchkiss, of Windsor, N. Y.—I claim the manner of connecting the tram-block foundation with the stone bearers, by means of stanchions and screw bolts, as specified, in combination with the method of suspending the lighter lever from the shell, which guides and sustains the pot containing the step of the spindle by means of the shell, the sway bar, and the knife edges of the sway bar and pot, or their equivalents, in the manner and for the purpose substantially as described.

[We are glad to see Mr. Hotchkiss still in the field of invention, after his severe accident on the New York and Erie Railroad last year.

BEDSTEAD FASTENINGS—By Jasper Johnson, of Geneseo, N. Y.: I do not claim a bedstead fastening composed of a stub bolt, drawn tight on an inclined plane, as that is well known; but I claim the combination of the fastening, composed of the stub bolt, and the inclined plane, or their equivalents, drawn tight by the cording of the bedstead, with the endless screw, acting upon the inclined plane by means of cogs, or other equivalent device, in order, by turning the inclined plane under the bolt, to loosen, separate, or tighten again, the fastening, without the necessity of slacking the cording.

MOULDING HOLLOW WARE, Etc.—By J. J. Johnston, of Cincinnati, O.: I claim the moulding hollow ware or other similar castings, with a flaring rim, or its equivalent, such as the lip of a cannon, stove or other tubular castings, by using third patterns, attached to suitable match plates or hollow boards, and so devised that, in connection with the first and second patterns, which form the exterior, I mould therefrom the top edge, a portion of the interior of the desired casting, and a true seat for the core, thus, with the core, forming the entire mould, substantially as described.

METHOD OF HEATING SHEET IRON, WHILE IN THE PROCESS OF MANUFACTURE—By Henry McCarty, of Pittsburg, Pa.: having described my improvement in the manufacture of sheet iron, by which it is made to resemble the imported Russia sheet-iron, and possess that beautiful mottled gloss and smooth hard surface:

I claim heating the sheets of iron in a bath of hot lead, instead of heating them in an oven, by which the surfaces of the sheets are protected from the oxygen in the atmosphere, during the heating process, preparatory to the rolling operation.

COMPOUND ANCHOR—By S. N. Miller, of Roxbury Mass.: I claim the anchor, as described, for holding ships.

MIXING MORTAR—By Isaac Peck, of Buffalo, N. Y.: I claim mixing of the lime and sand together, before straining, substantially as set forth.

LOCOMOTIVE ENGINES—By H. R. Remsen & P. M. Hutton, of Troy, N. Y.: We claim the combination in a locomotive engine, of three cylinders whose cranks are at angles of about 120 degs. to each other, with valves, valve chests, escape pipes and steam pipes, provided with throttle valves, substantially such as are described, whereby the steam acts only on one side of the pistons, when the locomotive is advancing, and upon the other, when it is backing, and the reversal is accomplished by such change in the operation of the steam, without recourse to any of the ordinary means of reversal.

SKATES—By N. C. Sandford, of Meriden, Ct.: I claim making the runner out of a plate of steel, and of the form substantially as specified, the plate being turned or struck, the desired form, by means of discs, or in any other desirable way.

BELT CLASP—By A. M. Smith, of Rochester, N. Y.: I claim the making clasps to fasten belts or bands together, to run on machinery or around pulleys, by using jaws or plates of metal, constructing and adapting them to that purpose and then confining them together with screws, so as to hold the belts solid, and thereby introducing a new and useful manner of fastening machine belts together.

METHOD OF RINGING BELLS—By T. V. Stran, of New Albany, Ind.: I claim the combination and arrangement of the levers, C and D, and the compound levers, so connected and attached to the axle as to give motion to the bell clapper, in the manner and for the purpose set forth.

BRICK MACHINES.—R. A. Ver Valen, of Haverstraw, N. Y.: What I claim, is, first, the employment or use of the lever, having step projections, on one of its sides, attached to the connecting rod, and arranged and described, by which a greater or less pressure of the plunger or follower, upon the clay in the moulds is obtained, as desired.

Second, I claim the arrangement of the levers rods, vertical lever, and the rod, O, with the levers, and upright shaft, for the purpose of operating the feeder, and vibrating bar, substantially as set forth.

Third, I claim the employment or use of the spring, attached to the vertical lever, and operated upon by the rods, attached to the lever, whereby the working of the machine is prevented, by any obstruction, as described.

Fourth, I claim the attaching together of the feeder and vibrating bar, the vibrating bar having a guide rod working in suitable bearings, or arranged in any other suitable way.

SOFA BEDSTEADS—By Alfred Walker, of New Haven, Ct.: I claim the manner of guiding the seat when it is raised and lowered, and of connecting the seat and bed, when extended, by means of the metallic bearings and the grooves which they traverse when the seat is raised and lowered.

RAILROAD CARS—By Chas. Waterbury, of Bridgeport, Ct.: I claim an enclosed passage or communication from one car to the other, as described, for the purpose of ventilating the train through the ends of the cars, from the forward part of the train, and for the safety of the passengers, while passing from one car to the other, and for the purpose of keeping dust out of the car, when the train is in motion.

CONNECTING COCKS WITH PIPES—By D. A. Webster, of New York City: ante-dated Dec 29, 1851. I claim the manner described, of making a tight joint, viz., by boring the hole in the pipe, as nearly cylindrical as may be, and making that part of the cock which is to be inserted, near the end and near the shoulder, of equal diameter with the holes, and the central part slightly larger, and then driving the cock into its place, the edges of the hole shaving the cock to its proper size and form.

SUGAR BOILING APPARATUS—By Juan Ramos, of the Island of Porto Rico, (assignor to J. C. Gallaher, of Philadelphia, Pa., & Wm. F. Tirado, of Ponce, Island of Porto Rico). Patented in Spain April 29, 1852: I claim the construction of the transverse canal, in combination with the hinged cover, for the double purpose of returning the froth to the receiving pans, and for preventing the syrup from falling into the canal, while being ladled from one part to the other.

I also claim the construction of the lower longitudinal canal, with its hinged board, for the purpose of more effectually removing the feculencies, as described.

I also claim the use of the movable plank in the coolers, which, when removed, leaves a vacancy or channel for the molasses to flow away to the discharge aperture through the bottom of the cooler.

PROCESSES FOR THE MANUFACTURE OF SUGAR—By Juan Ramos, of the Island of Porto Rico, (assignor to J. C. Gallaher, of Philadelphia, Pa., & W. F. Tirado, of Ponce, Island of Porto Rico.) Patented in Spain April 29, 1851: I claim the use of the plantain stalk and quicklime combined, substantially in the manner and for the purpose described, for defecating the cane juice.

I also claim the application of a fresh strike of concentrated syrup, from the battery to the molasses first drained off, for the purpose of crystallizing the sugar yet remaining in the molasses.

REVOLVING BOOT-HEELS—By Thomas Walker, of Birmingham, England (assignor to B. B. Thayer, of Quincy, Mass.: assignor to W. W. Churchill, of Boston, Mass., & Jos. Baxter, of Quincy, Mass.): patented in England July 18, 1849: I claim the combination of the four separate pieces, that is to say, the metallic ring, the leather or flexible disc, the leather annulus or ring, and the leather disc, the said combination being constructed, arranged, and made to operate together, substantially as described.

DESIGN.

COOKING STOVE—By J. H. Conklin, (assignor to Reuben R. Finch, Senr., and Reuben R. Finch, Jr.,) of Peekskill, N. Y.

[Out of the above number of patents granted, we are happy to say to our friends, that six were obtained through the Agency of this Office.]

To Prepare Yarns for Cord and Rope.

The following process, we have been told, makes improved cord and rope. The yarns, previous to their being made into cord or rope, are steeped in clear lime water, made by stirring one peck of lime in a large hogshead of water, allowing it to settle, and using only the clear liquor. The yarns should be steeped about two hours, then well washed in water, and then steeped in whiting and water, in the proportion of five pounds of whiting to twelve gallons of water. This process, we consider, is too troublesome and expensive for all the benefits it confers, for it merely helps to destroy the natural oil, or the gluten in the yarns. A patent was taken out in England, a few years ago, by a practical man but no chemist, for this process. It would be much better to boil the yarns in clear lime water for four hours, then take them out and wash them but this involves expense and trouble.

New Inductions in Agriculture.

In a number of papers, especially "leading agricultural papers," there have appeared some singular ideas of Dr. Baldwin, of Winchester, Va. He says:—

"It is not true that any plant which the farmer is interested in cultivating, derives its principal nutriment from the carbonic acid gas of the atmosphere. Although air is indispensable to vegetable as well as to animal life."

Nobody doubts this.

"That the only food of plants known to the practical farmer is manure, or the residue of putrefaction. Neither water, oil carbon, phlogiston, nor the sulphates, muriates, silicates, phosphates of soda and potash; nor the alkalies, have ever been proved to be aliment of plants, unconnected with putrefied substances which may contain them."

Some of this is sense, and some not. He talks strangely about phlogiston and putrefaction. What is putrefaction but decomposition? But plants will take up food as liquid manure without the act of decomposition taking place—the act of assimilation operates in the latter case. Again he says:—

"It is not true that different vegetable matters, during their growth, extract different fertilizing salts from the earth. For lands exhausted by continued cultivation in one kind of grain will not produce a more remunerative crop of any other kind."

This part surely contradicts itself, for if lands become exhausted by cultivation, it must be by extracting something from those lands. It is also well known that when some lands become perfectly incapable of bearing one kind of crop by repeated cultivation, they will bear another kind of crop without new manure.

"The residue of the decomposition of vegetable substances, of the 'ash of plants,' is not manure. Nor can manure be made of any substance without the aid of the putrefactive process."

This is not so with respect to clover.—Every farmer knows the advantages derived from *plaster* when sown on clover crops.

"That shade is the great fertilizing agent; the putrefactive fermentation cannot be produced without it; and, consequently, no manures can be made, and no fertility imparted to the earth, in any manner, independent of its influence.

That the earth itself is capable of being converted into the best manures; to effect this, it is only necessary that it should be located favorably for the generation of the putrefactive fermentation.

The difference in the fertility of the soil, in our own native forest lands, arises solely from the circumstance of the surface soil being more or less densely shaded. Pine, which have no leaves, and white and red oak, which part with theirs so reluctantly, never leave the surface soil so fertile as those trees which drop their leaves with the first frosts."

Here, we believe, is the true cause of such views, viz., a mistake in supposing that shade and not the decomposition of the leaves is the cause of the fertility. It would certainly be a clumsy and barbarous method of farming to introduce the shading process as a substitute for manuring and a rotation of crops. The shading of land is a very excellent plan to prevent a too rapid evaporation in warm climates, but shading has nothing to do with the food of plants; it is a mere process or plan to assist in the act of preserving plants or manures from the severe and injurious action of a hot sun. We venture to say that an acre of white sand merely shaded would not become fertile in a thousand years, but let it be manured well, and it will raise good crops. We have noticed only a few of the points set forth as the inductions of Dr. Baldwin. The modern principles of agriculture, viz., rotation of crops and regular manuring, has done more for farmers than Mr. Baldwin seems to be aware of, at least far more than he has given them credit for. Lands which have failed to realize good crops, have become productive when treated with the phosphate of lime without any shade. Plants feed upon that food exactly of which they are themselves composed; the great principles for observation in connection with this fact, is the proper method of their feeding—taking up their food. This is done by the roots drinking up their food in a liquid state, that being its proper state, for which they are adapted upon by their nature and organization.

Patent Cases.

U. S. Circuit Court, New York City. Before Judge Nelson and Betts. The following cases were decided:—The plaintiffs, Tatham and others against Le Roy and Smith, for infringement of a patent for making lead pipe, made an application for a new trial, because the case had been tried before, and a verdict given for the defendants, which the defendants said was not right, as the charge given to the jury in the said case was not correct nor explicit in defining what constituted a new and useful result. The former verdict was set aside and a new trial granted.

Another case was for a similar action—Cornell against Blatchford. A new trial was applied for but denied, and motion for injunction was suspended, until the re-trial of the above.

Brick Machine—Hall against Wilds. A verdict in a former case was given for Hall, and in this case defendant prayed for a new trial. New trial denied.—July 1, 1852.

Substitution of Rosin for Sperm Oil on Machinery.

The running of machinery is attended with immense expense for oil for purposes of lubrication. By a report of a committee appointed by the agents of the Lowell Mills, Mass., to test the relative merits of rosin and sperm oil, that on looms and other machinery of heavy bearings, one-half less power is required with a mixture of rosin with its bulk of pure sperm oil, than with sperm alone, and that its substitution will effect an annual saving of 3-4 of the quantity of sperm oil required in the Lowell Mills. Spinning machinery, or those with light bearings, require more power when rosin and sperm oil is used than sperm alone.

A very good grease for machinery is made by mixing dry quick lime with rosin oil. It makes a kind of soap, very cheap as a lubricating material. Sperm oil seems to maintain its character against all the lubricating compounds which within the past few years have been brought before the public.

Amalgamation of Telegraph Lines

We understand that the New York and Boston Telegraph Line, principally owned by Mr. F. O. J. Smith, and worked under the Morse patent, has been united with the New York and New England Line, better known as the Bain Line, and the united line will hereafter be known as the "New York and New England Union Telegraph Line," and will be managed by John McKinney, who has been long and favorably known as the efficient superintendent of the Bain Line. We also understand that the rates of tariff on despatches between this city and Boston will be raised on and after Monday next, from 10 to 25 cents, for the first 10 words, and 10 cents for each added word.

These lines must look out or there may be some prospects of an independent public line started. There is no patent for a signalling telegraph in this country, and it is totally distinct in principle from all our telegraphs, Prof. Morse has said it is different in principle from his.

High Pressure Steam.

Mr. Perkins, in his experiments on steam, heated a portion of confined steam, not in contact with water, to the temperature of 1400° Fahr., and still the pressure did not exceed five atmospheres (75 lbs. to the square inch); by injecting more water, although the temperature was lowered, the elastic force was gradually increased to one hundred atmospheres (or 1500 lbs. to the square inch), equal to ten times the pressure on any of the boilers of any of the Western steamers, or one hundred times that of any ocean steamer. In the confession of Ryan, the engineer of the ill-fated steamer Glencoe, he states the boiler was dry or nearly so, and as soon as he let in cold water the explosion took place.