Scientific American.

NEW YORK, FRBRUARY 24, 1855.

Improvements in Steam Navigation.

During the past week, we have been led to examine a new system of steam propulsion, devised by Capt. H. Whittaker, of Buffalo, N. Y., which is at once bold and original. It consists in applying one or more screw propellers to both sides of vessels, and driving them with short stroke, high pressure engines, with direct application to the cranks on the shafts of the screws. The models which we examined were mounted with locomotive cylinders, set inclined, and transversely to the length of the propeller shafts, to which their rods were connected by straps exactly as those of locomotives are connected to their driving wheels. By employing strong and capacious cylinders of short stroke, and connecting their piston rods directly to the cranks of the propeller shafts, a high velocity can thus be obtained,without intermediate gearing. Two or more cylinders may be yoked to one propeller shaft, and the number of engines and propellers (three or four sometimes on one side) are designed to be increased according to the size of the vessel. The plan is simply the applying to steam propellers in water, the same principle that is now employed on railroads. No one will dispute the simplicity of the method over that of the complex and massive marine engines in common use. That the machinery can be made strong and solid enough to accomplish the object, no one will dispute. Capt. Whittaker also designs to exhaust his steam into a large fresh water tank in the lower part of the vessel, which will thus be converted into a huge surface condenser. The object sought to be accomplished by this, is to use fresh water for ocean navigation, and to save as much heat as possible; there is, no doubt, a great loss of heat in common marine boilers, caused by repeated blowing out of the brine water, also by scale accumulating on the plates.—Any safe plan for obviating such losses deserves attention. Capt. Whittaker is an old and experienced commander on our upper lakes, and during the past year his improvements have been applied, on Lake Erie, to the steamboat *Baltic*, which had run for six years previously with paddle wheels. The old engines were taken out, and two short stroke, high pressure engines put in, and the screw propellers placed where the paddle wheels had been—the shafts and upper lobes of the propellers being above the water.—This new plan of propulsion enabled the *Baltic* to carry two hundred tuns more cargo, and to run with an increased speed of four miles an hour, and all this with a great saving of fuel. As the only way of proving the economy of any invention is by fair and continued trials, here we have this new plan of steam propulsion already submitted to this test, and with success. It has always appeared to us that the stern of a vessel was the wrong place for the screw. No good reason can be given why it should be placed there any more than a paddle wheel, and we cannot but believe, that a screw placed on each side of a vessel, with the same power applied, will propel a vessel with greater steadiness, and much faster than with one screw in the stern,—the common method of serew propulsion. We are aware that it is no new proposition to apply screw propellers to the sides of vessels, but this in combination with the method of driving them, as has been done by Capt. Whittaker, is original. It would be a strange thing if a revolution in ocean propulsion were effected by our inland navigators. We understand that semi-submerged propellers, on account of their economy and speed, have driven off, within the past four years, nearly all the paddle wheel steamers from our upper lakes. This is something which should arrest the attention of our marine engineers, and they should investigate the causes.

We are among the number of those who believe that we are far from having arrived at perfection in steam navigation, and this new plan, we must say, has made a favorable impression on our mind. We, however, dislike the noisy, puffing, high pressure engine, on a steamboat, and have a partiality for the low pressure condensing engine for ocean navigation. The simplicity of the former, however, as applied by this new method of steam navigation, has much to recommend it, and we would really like to see it, as proposed, applied to some of our steamships.

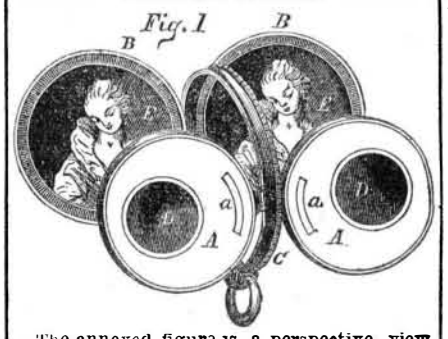
Combustion and Fires.

The fire which burns in a grate or stove, and which spreads its cheerful and life-sustaining warmth around, affords a subject for deep reflection and scientific study.—It has been said by one philosopher that "a knowledge of fire—to generate and maintain it—makes all the differencc between man and brute." This thesis, curious though it be, contains a great deal of truth. Just let us ask the question, "what would man be without fire?" and we will at once perceive in searching for an answer, that it lies at the foundation of all art. Without it there would be no instruments forged, consequently no houses built, and man would be no better off than the wild beast of the jungle. With fire, metals are smelted, and instruments for agriculture, architecture, and the arts fabricated, and upon these are based all that is useful and ornamental in physical science. And what is fire? Simple though the question is, it is not so easy to answer it, and like all other propositions in philosophy, we must be content to describe its *operations*, for that is all which we call *laws*. Fire or combustion is produced by a change of state, or condition of two or more bodies, during which period heat is produced by the substances undergoing change. There are three kinds of combustion, viz., instantaneous, high, and low. The former is witnessed in explosions; the second in common fires, and the third in the human body, the oxydation of metals, &c. Everything capable of combining with oxygen is called combustible, and according to the rapidity with which it combines with oxygen, so is the combustion quick or slow. Common gas which we use in cities, burns with a high heat, but not very fast, and will not explode when a light is applied to it, but if a certain quantity of it be mixed with seven times its volume of the atmosphere, it will explode instantaneously when touched with a match. In gunpowder we have the same elements as gas—for instantaneous combustion—but in a solid state. Iron, when rusting,—oxydizing—developes heat, but this is not noticed, the action being slow, and the heat dissipated as fast as it is formed. But if *pure* iron be reduced to fine powder, and thrown into the atmosphere, it will fall down in sparks and burn at a glowing heat. If it were not for this quality of iron—its readiness to combine with oxygen, and thus burn slowly away, by the action called rusting—it would be more valuable in the arts. It is no doubt the most valuable of all metals as it is, but could it be improved as not to rust and still maintain its qualities of forging and tempering, its value would be greatly enhanced. The amount of heat produced in any body by combustion, depends on the relative quantity of oxygen absorbed in a given time. Boiled linseed oil absorbs oxygen with great rapidity—about eight times its bulk in twelve hours, hence articles saturated with this oil are liable to spontaneous combustion. A substance which, by its nature, is known to be combustible, that is, has a great affinity for oxygen, combines with it fast or slow according to the heat of one or both of the substances. Thus with anthracite coal, although it is a combustible substance, it will not produce combustion in contact with oxygen until it is exposed to a high heat, and every person knows that the higher the heat to which it is exposed, so much more rapidly does combustion go on. Ships containing bituminous coal have been consumed by spontaneous combustion in warm climates, but seldom, if ever, in cold. Cotton waste, saturated with boiled oil, will undergo spontaneous combustion at 120°, in about forty minutes, and from this cause, many factories have taken fire. Wood, in contact with hot water pipes, at 160°, has taken fire. Watchfulness against fires, therefore, is more imperative in warm than in cold apartments. A difference between 50° and 110°, trebles the tendency of painters' oil to ignite spontaneously. A piece of phosphorus, if placed on a plate of iron, will oxydize, without burning, because the iron conveys the heat away as fast as it is formed, while on the other hand, if it be put among some cotton wool, it will very soon ignite, because the cotton does not dissipate, but accumulates the heat, and produces an increasingly energetic action.

For spontaneous combustion, the following conditions are necessary:—1. A substance capable of uniting with oxygen with considerable vivacity, (or others capable of uniting together.) 2. A supply of oxygen. 3. A comparatively large absorbing surface. 4. Sufficient mass to prevent the heat formed from being readily dissipated; or a constantly sustained heat from 70° to 212°. The various things known to be liable to spontaneous combustion are sulphur and iron, iron pyrites, coal which contains the above, carbon, when in powder and mass, whether lampblack or bituminous coal, especially when heated and moist. Compounds of phosphorus, lucifer matches, sawdust moistened and heated, all oils, and things in which oil is much used, seeds containing much oil are all liable to ignite.

It is our opinion that many fires take place in our cities every winter from a want of knowledge relating to combustion. We hope this information may be the means of preventing their frequency.

Stereoscopic Medallion.



The annexed figure is a perspective view of a very neat and ingenious application of the stereoscope to daguerreotype medallions. A patent for this improvement was granted on the 16th of last month, to J. F. Mascher, of Phila.—who is well known to the readers of the Scientific American—for a number of useful inventions. C is the main central rim of a locket; B B are two lids with daguerreotype pictures, E E, on them; these lids are hinged on each side of the rim, C. A A are two supplementary lids, each containing a lens, D D. These are also hinged to rim C, as shown, but are fitted to fold within the picture lids, B B, and are arranged in such relation to the same, that upon being opened and properly adjusted, the lenses, D D, will stand opposite to the pictures, and convert the medallion into a stereoscope, by which a person looking through the glasses, D D, will see but one picture, solid and life-like. The patentee has applied double convex lenses to these medallions—the sides of which are of unequal convexity (as one to six)—according to Brewster, so that the picture is rendered very clear. A medallion of this character can be used for a microscope and sun glass, and thus it can be carried around in the pocket, both as an ornamental and useful memento of affection.

More information may be obtained by letter addressed to J. F. Mascher, No. 408 North Second street, Philadelphia, Pa.

Manufacture of Stone.

We have seen during the last week a very fine sample of artificial stone, of an ornamental character, manufactured on Coney Island, near this city. The stone is made of sand clay, and common salt, cheap materials, and found in great abundance and purity where the factory has been established. The manufacture is the subject of a patent granted to J. Hornig & L. Seuss, on June 7th, 1853, the claims of which will be found on page 318, Vol. 8, Scientific American. Mr. Seuss, who showed to us the sample of artificial stone, stated that it had been tested by exposure to the atmosphere, in water, and to a crushing force, and had stood all these tests well. It has not only all the appearance of fine sand stone, but it is in reality such, and it appears to us that for ornamental architecture, it must come into extensive use, as it can be manufactured much cheaper than rock stone can be cut.

A Scientific Error Corrected.

In all recent works on comparative physiology, the dogma has been propagated that existing osseous fishes have heterocercal tails in their embryonic state (tails with the upper lobe longer than the lower one while young) which disappear as they are matured, their tails becoming homocercal—that is, the upper and lower lobe of the tail equally developed, the earlier fishes being heterocercal. Agassiz has pointed it out as a law, that the modern fishes, at one part of their existence, are heterocercal, but change in their mature state to the homocercal. This dogma has been seized upon by the developement theorists, and used with some effect. In the last number of the *Westminster Review*, the fallacy of this dogma is pointed out, and Agassiz is severely criticised for carelessness. It is there stated that this theory was adopted from the memoir of M. Vogt—a German physiologist—on the developement of one of the salmon tribe. He, along with Agassiz, jumped to the conclusion without an examination, that all homocercal fishes were developed like the salmon. The reviewer asserts that the anatomical structure of the tail of the perch and mackerel—homocercal fishes—is not the same as the salmonoid tribes, but that they are homocercal from the first, and always remain so. The reviewer also asserts, that the heterocercal tail in fishes is an advance in developement, therefore, as the earlier fishes have heterocercal tails, the argument is a strong one against the progressionists, who insist that the homocercal tail is a developement of the heterocercal.

The Polytechnic Journal Gone.

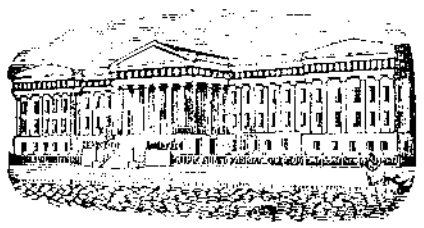
In the last number of the above named Journal, the editor, J. J. Greenough, Esq., informs his patrons that it will be no longer published. This Journal was commenced two years ago in this city, by J. J. Greenough, Dr. C. G. Page, and C. L. Fleischman. High hopes were entertained of its success when first published. Mr. Fleischman is now in Paris, Dr. Page in Washington, and Mr. Greenough has concluded to stop its publication. It is a very difficult task to manage and conduct a periodical devoted to science and the arts. The *Polytechnic Journal* contained much useful information, and we regret to see its light so early extinguished.

Electro-Plating Applied to Cutlery.

The improvements which have been made in the art of electrotyping, and the diversity of purposes to which it is now applied, almost surpass belief. It is used to make plates for printing bank notes, maps, common printing cuts, and type; also plated ware and many other things. One of the most useful applications that we have seen of it lately, is its application to table cutlery, by Joseph Hill, Electro-plater, No. 159 Atlantic street, Brooklyn. The utility of silver plating table cutlery, is the prevention of rust; the articles afterwards never requiring to be scoured, and have only to be wiped dry with a towel or buckskin after use, and always look bright and clear. We understand that a number of the leading hotels of our city have had their cutlery electro-plated, and have effected a great saving thereby.

Muntz Metal Tubes in Boilers.

In the last number of the London *Artisan*, a correspondent who had read R. Armstrong's letter on Muntz metal for bolts and sheathing, directs attention to their extensive use in steam boiler tubing. He confirms the statements respecting the brittleness of the brass bolts and sheathing.



[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from he United States Patent Office.

FOR THE WEEK ENDING FEBRUARY 13, 1855.

CLOVER HULLERS—James Allen, of Trease's Store, Ohio: I do not claim adjustable tail-boards, in separators, nor inclined guide boards for receiving and conducting the seeds to their receptacle; nor do I claim a tailing screen, except under an arrangement like that set forth.

But I claim the arrangement of the two tail-boards, d d, in combination with the tailing screen, L, so arranged under the inclined boards, K, that it shall be out of the way of the blast and yet deliver the seed at M, into the main receptacle, and the tailings ont at its side through the apertnre, b, it being understood that the outer and inner tail-boards must be adjusted, respectively, with reference to the screens, I and J, all as set forth.

MACHINES FOR CHOPPING MEAT AND OTHER SUBSTANCES—Wm. H. Allen, of Lowell, Mass.: I do not claim the use of chopping knives on vertical sliding heads playing upon a block or receptacle. Nor do I claim the cam acting upon a circulaa corrugated disk as a means of combining the lifting motion with a gradual rotary one, this having been done before in machines for drilling rocks.

But I claim the forming a machine for chopping meat and other similar substances, by attaching the chopping knives, H H H H, to a central rotary spindle, F, when this is operated by the combination of the cam, M, and corrugated disk, as described.

HOP FRAMES—T. D. Aylsworth, of Frankfort, N. Y.: I do not claim the training of hop or other vines on wires or cords, as this has been done before.

But I claim, in combination with the permanently arranged supporting cord or wire, C, the training cords or wires, D, leading from the ground to said supporting wire and connected thereto by a spring hook, or its equivalent, so as to be readily connected to or detached from the supporting wire, for the purpose and in the manner set forth.

I also claim in combination with the training cord, D, the inverted cup, d, for turning down the top of the wire, and preventing it from entering the supporting wire, substantially as set forth.

LIFE BOAT—Hiram Berdan, of New York City: I do not claim of themselves either the hinged or pivoted ribs, or the hinged gunwale bars.

But I claim the method described of keeping the gunwale bars, E E, in place when the boat is extended for service by means of the notches, e e, which are made in the ribs, F F, to receive the said gunwale bars.

COTTON GINS—Henry Clark, of Newport, Fla.: I do not claim simply rollers for ginning cotton; nor do I claim the spiral grooved roller for that purpose, as it is contemplated to use the large roller without any groove; nor do I claim the comb simply.

But I claim the combination of a large ginning roller, either smooth or grooved, with a very small one, the latter driven and supported, as described, by the friction rollers and the large ginning roller, together with one or more stripping rollers and comb, for the purpose of removing cotton seed from the fiber, substantially as arranged and described.

CHURNS—E. B. Clement, of Barnet, Vt.: I claim the folding dasher, operating as set forth.

THRASHERS AND CLEANERS OF GRAIN—George Daniels, of Philadelphia, Pa.: I do not claim a skeleton cylinder, nor inclined planes, nor a blower case containing a fan attached to thrashers and cleaners, irrespective of the peculiar construction of each, as described; nor do I claim placing a fan upon the shaft of a beating cylinder, as this combination has been known and used before.

But I claim, first, a skeleton cylinder in combination with a cast iron bed plate, constructed as, and for the purposes specified.

Second, I claim the four inclined planes, G, placed in relation to each other, as described, each at an angle of about 45 degs., as described, and so as to leave an oblong opening between them for the passage of the grain and chaff to the receiving box, substantially as and for the purposes described.

Third, I claim the blower case, B, the receiving box, C, with its inclined plane, f, at its end, arranged and combined on the outside of the box, or body of the machine, substantially as and for the purpose specified.

STAYS FOR ARTICLES OF DRESS—John Dick, of New York City: I claim the described improvement in stays, as applied to articles of wearing apparel, consisting of two or more supporting pieces with a spring or springs applied to extend them, substantially as set forth.

WHARF BOATS—H. T. Dexter, of Zanesville, Ohio: I claim so constructing a wharf boat, so that a turn-able may be conveniently located therein, upon which a dray may be driven and turned around, and so that freight may be delivered or received from any part of the boat without much handling, substantially as described.

PLOWS—George Esterly, of Heart Prairie, Wis.: I am aware that a standard has been cast with wings to support the shares and mold board.

But I claim casting the standard, G, with raised portions, A, land side, H, and form lay, K, all in one piece, to be employed either with or without projection B, as set forth.

SMOKE CONSUMING STOVE—James Easterly, of Albany, N. Y.: I do not claim the use of a fuel magazine, nor of a downward draft for the fire, neither being novel arrangements in stoves.

But I claim the constructing a stove, as described, with openings for the admission of air to the burning fuel, at some point or points above the grate, including between said points and the grate sufficient fuel for ignition at any one time.

CRACKER MACHINES—Phineas Emmons, of New York City: I claim the revolving intermittent bed plates, operated by means of an eccentric on a driving shaft, and the connecting rod, lever, pawls, and notched wheel, in combination; and this I claim, whether the said intermittent bed plate be or be not combined with the endless barrel surrounding it, for the purpose of conveying away the crackers, substantially as set forth, it being understood that I do not claim, in general, the making of the machine, so as to convey the dough beneath the cutters, with an intermittent motion, that having been before done in other machines by passing the dough upon an endless band carried with an intermittent motion over a fixed table upon which the cutters work.

SPIRIT LEVELS—Hampton W. Evans, of Philadelphia, Pa.: I do not claim the disk plate or conic center upon which it revolves, as new; but in connection therewith I claim the crescent-shaped sliding or adjustable stops, and spring catch, in combination with the grooved disk and set screws or their mechanical equivalents, the whole being arranged and constructed in the manner and for the purpose described.

STEAM BOILER CHIMNEYS—Asahel Fairchild, of Ashland, Ohio: I claim connecting the chimney of a steam boiler furnace to the flue connecting breeching thereof, by means of a cylindrical joint arranged in such a manner that the chimney can be lowered into a horizontal position without producing openings in said joint, and also without closing the connection between the chimney and the furnace flues, substantially as set forth.

MACHINERY FOR FELTING HAT BODIES—Wm. Fuzzard, of Newark, N. J.: I do not claim the corrugated rollers, C C', separately, for they have been previously used, although differently arranged from those described.

But I claim the employment or use of the corrugated rollers, C C', placed in a swinging frame, B, in combination with the endless apron, G, the above parts constructed, arranged, and operating in the manner and as shown and described.

ROTARY PLOWS—J. W. Haggard & Geo. Bull, of Bloomington, Ill.: We claim the arrangement and combined operation of the plows, I I I I, cutters, J J J J, and semicircular way, K, substantially as and for the purposes described.

WEATHER STRIPS FOR DOORS—Alonzo Hitchcock, of Chicago, Ill.: I do not claim the V-shaped groove, nor the hinged weather strip, nor the listing, as described, as they have been used before.

But I claim the peculiar form of the elevated surface or plane, E, in combination with the V-shaped groove, weather strip, and listing, substantially as set forth.

SEWING MACHINES—G. H. & B. H. Horn, of Brooklyn, N. Y.: We are aware that sewing has been effected by two threads, the one being carried by a shuttle, the other by the needle; therefore we do not claim the same, and we are aware that the stitch has been pulled tight by the motion of the needle and needle carrier.

And we do not claim the shuttle, but we are not aware that forceps have ever been used to pass through the loop of thread, and open the same, thereby insuring the opening of the loop and preventing tangling; nor do we know that the shuttle has been drawn through a loop by means of an eye on the end, thereby avoiding all liability of the shuttle not passing into the loop, and where the shuttle is forced through the loop as the needle draws up, its thread has to pass between the rear end of the shuttle, and the part has forced the shuttle forward, which is liable to break the thread.

We claim, first, a hollow needle with an eye in the side to pass the thread, as specified.

Second, we claim opening the loop by means of forceps, thereby insuring that the loop is properly opened and avoiding tangling of the thread, as specified.

Third, we claim drawing the shuttle through the loop by means of the eye, o, or its equivalent on the end of said shuttle, as specified, thereby avoiding the risk of breaking the loop when the shuttle is forced through the same, as specified.

SHIPS' STANDING RIGGING—Frederic Howes, of Yarmouth Port, Mass.: I claim forming the shroud and back stays or other standing rigging in one continuous piece, and conducting the rope of which they are formed, alternately, through proper guides aloft and guides at the channels or chain plates, as set forth.

METHOD OF TEACHING PENMANSHIP—Wm. S. MacLaurin, of New York City: I claim the employmena of figures such as described, marked on or formed in the surface of a tablet, slate or other surface, for the purpose of aiding the hand in guiding the point of a pen, pencil, or stylus, in retracing therewith the lines of the said figures an indefinite number of times, as described, to train the hands of pupils in teaching them the art of writing.

LEATHER SPLITTING MACHINES—M. H. Merriam, of Chelsea, Mass., and J. B. Crosby, of Stoneham, Mass.: We claim, first, the disk cutter having a simultaneous rotary and reciprocating movement as applied to machines for splitting leather and other analogous purposes.

Second, we do not claim the broad device of constructing a draft roller, so that it shall have a greater circumferential velocity in one part than in another.

But we claim constructing the draft roller, o, so that its increased circumferential velocity may be made to act more or less efficient, as desired, substantially in the manner described.

Third, the combination of the apron, L, bed, K, and draft rollers, i and o, when the roller, o is constructed substantially in the manner and for the purpose set forth.

GRASS HARVESTERS—Robert J. Morrison, of Richmond, Va., Assignor to himself and Edwin A. Morrison, of Lawrenceville, Va.: I claim constructing the cutter teeth or blade and teeth, and the guard fingers, of three several plates of metal, all of similar form, and lying closely upon each other, the middle row of teeth being sharpened and stationary, while the upper and lower ones are vibrated for the purpose of causing whatever slipping there may be in gathering in the stalks to be cut, to come upon the fingers mainly, and thus protect the sharp edges of the cutters, as set forth.

LAMP EXTINGUISHERS—Josiah H. Noyes, of Abington, Mass.: I claim attaching the caps or extinguishers to the wick tubes of a lamp by means of rods secured to the said wick tubes, and in such a manner that the caps may be freely moved up and down the said rods, and applied to or removed from the top of the wick tubes, as set forth.

MACHINES FOR SLAUGHTERING HOGS—Jefferson Parker, of Louisville, Ky.: I claim the arrangement of the elevating fingers, d d, and the chains, e e, with the operating levers, and with the scalding vessel, A, and the scraping bench, B, substantially in the manner and for the purpose set forth.

GARDEN RAKES—S. N. & W. F. Stillman, of Leonardville, N. Y.: We claim the new manufacture of garden rake described, viz.: a rake having curved metal teeth inserted and fastened into the head as set forth.

BRIDLE BITS—Wm. D. Titus, & Robert W. Fenwick, of Brooklyn, N. Y.: We claim the described improvement in bits for stopping runaway horses, consisting in the application of pad so arranged and controlled by a rein, that, at the pleasure of the rider or driver, they may be made to close the horse's nostrils, and thereby check respiration, as set forth.

PLOWS—Ira Reynolds, of Republic, Ohio: I am aware that plow points have been constructed with oblique shoulders, a corner of which was made to bear somewhat like the shoulders in my plow point.

But I claim, first, the laterally extending shoulder, r' r', drawn back against and somewhat between the two shoulders, r r, in order to hold the point securely in place, and prevent the breaking of the shank, t, near the shoulder, in the operation of plowing, substantially as set forth.

Second, I claim the arrangement of the within described reversible steel share, as secured to the face of the mold board by means of a screw bolt inserted from the lower side of the female screw being formed in the steel share, as set forth.

Third, I claim the reversible self-fastening colter, constructed, secured, and arranged in manner and for the purposes set forth.

STEAM VALVES—John Tremper, of Philadelphia, Pa.: First, I claim the valve composed of a ring without ports or passages in its sides, applied substantially as described, within a casing containing a fixed head or cup, b, and a passage or passages, d, leading from one side to the other of the said fixed head or cup.

Second, The guard ring, C, applied substantially as described, either with or without the lip, i, for the purpose of protecting the inlet side or end of the valve against the percussive effect of the rush of steam, or other fluid, at the commencement of the stroke of the engine.

HEAD SUPPORTERS FOR RAILROAD CARS—J. N. Williams, of Dubuque, Iowa: I claim the arrangement of head supporters in railroad cars in such a manner that each pair of supporters, by reversing their positions, can be adapted equally well to either one of the two seats nearest the said supporters, when the said seat has the rear side of its back turned towards the supporters, substantially as set forth.

I also claim the combination of the head supporters, c c, the plate, b, the bar, a, and the cord, t, or their equivalents, in such a manner that the supporters can be placed in the proper position for supporting the heads of persons riding on either one of the two seats nearest to said supporters, or turned up and secured to the side of a car, substantially as set forth.

The Way to Build up a State.

Governor Grimes, of Iowa, in his inaugural address, thus describes the wants of the thriving State over which he presides:

"She wants educated farmers and mechanics, engineers, architects, metallurgists, and geologists. She needs men engaged in the practical duties of life, who have conquered their professions, and who are able to impart their knowledge to others. She wants farmers who shall be familiar with the principles of chemistry as applied to agriculture; architects and mechanics who will adorn her with edifices worthy of so fair a land; and engineers and geologists who will develope her resources, and thus augment the wealth and happiness of her citizens. This want can only be supplied by the establishment of a school of applied sciences. I have no hesitation, therefore, in recommending that a university fund be appropriated to establish a practical scientific or polytechnic school."

New Petrified Bodies.

The Dayton (Ohio) *Empire*, gives an account of some bodies which were buried some years ago, near that city, having become petrifications. The bodies were the wife and grandchild of G. P. Loy, and were buried on a little knoll on his farm in the Miami Valley. He opened their graves to remove them to his family lot in a new cemetery, when, on coming to the coffin of his first wife, who had been buried twenty-four years before, it was found to be perfect in form, but could not be raised on account of its great weight. It was at last lifted by six men, when its lid was removed, and the body appeared to be perfect. Upon a close examination it was found that the remains would not give way under the pressure of a piece of board which one of the gentlemen placed upon the corpse, and this strange circumstance led to still further investigation.

The shroud, and indeed all the covering which was upon the body at the time of interment, 24 years ago, had disappeared—not a vestige of them remained. The body was perfect, except the right leg, from the knee to the ankle joint, where the flesh seemed to have wasted away, and lay at the bottom of the coffin, in a substance resembling sand. With this exception of decay, the body and limbs exhibited the same perfectness of exterior they did when in life.

The body had become petrified! It was by some quality of the earth turned into stone of a drab, or, more properly speaking, flesh color.

The grave of the grandchild of Mr. Loy was next entered, and the coffin exhumed. It was also found to be heavy, and when opened the corpse presented much the same appearance as that of Mrs. Loy. It was not as perfect, however, although petrified. The most remarkable thing connected with the remains of the child was, that the hair upon the petrified skull was to all appearance the same as life! The other bodies which were exhumed—one or two in number—were only partially petrified.

There is a petrifaction—that of an Indian—in the British Museum, taken from the Island of Guadaloupe, and said to be the oldest of a human being in the world. In the work of Gliddon and Newton, on the diversity of the human race, this Guadaloupe petrification is spoken of as a most wonderful curiosity, and affording evidence of the great length of time—more than forty thousand years—that the human race has lived upon our continent,—the great length of time required to form the petrification being alleged as a reason for this conclusion, but the facts now brought to light in Ohio shows upon what very slender data they have formed their opinions. It appears to us that we have read of bodies having been found petrified, in other places, a few years after interment, but we cannot lay our hands upon the source of information at present.

How the World was Made.

MESSRS. EDITORS—I would like the privilege of a few remarks on an article headed "Age of the World," on page 165, in which you review an able effort of Rev. John O. Means, to reconcile the Genesis' account of creation with the science of geology, &c. The Reverend gentlemen reasons well, no doubt, but I apprehend, from wrong premises. There seems to be greater difficulties in the way than the length of days, or "periods," and the supply of light. If the earth were created, as he maintains, three long periods before the sun, moon, and stars, the question arises, "did it revolve or remain stationary?" If it revolved, according to the philosophy of motion, it must have flown off in a straight line; if it remained stationary, I can see no other alternative but the "turtle's back" to support it. If reason and philosophy are to be our guides in speculating on these questions, we should apply them thoroughly to every theory or hypothesis, whether physical or metaphysical, and if they do not coincide with this test, they should be received as of very doubtful reliability. It seems to me, therefore, that it is not in keeping with reason and philosophy, to suppose the creation and consequent action of the minor (our earth) before the major and central body (the sun.) Surely the earth is not the principal body for which these great and magnificent systems, which Astronomy reveals to us, were created, and of which our solar system forms but a small part; and then to think our earth forms but an insignificant portion even of that.

In view of these considerations it seems to me contrary to reason, and the laws and philosophy of motion to suppose the earth created before the sun, moon, and stars.

DAVID PALMER.

Batavia, N. Y., Feb. 12, 1855.

[If there were no other planet or body than the earth in the universe, unless it received an impulse, it would neither move off, nor in a straight line, nor require the *turtle's back* to hold it up. Mr. Means is not wrong in his premises here. But as he is a believer in the nebular hypothesis, his conclusions are somewhat contradictory, because it assumes that the matter of which the earth is composed rotated around that of the sun, as a center, with the matter of the moon, planets, and stars, outside. This dogma is positively negative to the sun or the stars being made after the earth. We must also say, as our correspondent has directed our attention to this question, that Mr. Means has endeavored to give a very wrong and unfair exposition of the plain meaning of the word *water*. In the Scriptures, describing the second act of creation, it is stated, "God said let there be a firmament in the midst of the waters, and let it divide the waters from the waters,"—the waters below from the waters above—"and it was so." In reference to this language Mr. Means says, "if the *waters* spoken of were matter in a gaseous state, the separation would be the process by which nebulæ were detached from the mass and formed into worlds. No one can affirm that such was not the character of the *waters*," "the word *water* is not evidence that it was not gaseous matter."

The word *water* used here, he assumes, along with Prof. Guyot, means *gas*—nebula. Now let us take his explanation of the word *water*, and apply it to the third day's acts in Genesis, and see what a wretched exposition he makes of it.

It would read, "Let the gas, or nebula, under the heaven (this gas, be it remembered, is the *water below*, that was separated from the water above) be gathered into one place and let the dry land appear, and it was so; and God called the *dry* land earth, and the gathering together of the gas, or nebula, called He seas." If Mr. Means and Guyot are correct in their way of explaining these descriptions in Genesis, to prove the nebular hypothesis, their logic leads to the absurd scientific conclusion that the moon is a globe of water.

Our correspondent's reasoning with regard to the sun being the major body of the solar system, and could not be created after the earth; and that the latter was not the principal body for which the sun was made—according to the Genesis account, is very natural, but we do not think it profound. Why should not the sun be created for the earth? If the sun contains no living intelligence (and who believes it does) the earth contains far higher and more elevated objects of creation. Man was created after our globe was formed, yet is man not a more noble work of creation than a dead world?

Prizes for Astronomical Discoveries.

At a recent sitting of the Paris Academy of Sciences, the prize for astronomy was divided amongst MM. Luther, belonging to the observatory of Blik, near Dusseldorf; Marth, attached to Bishop's observatory at London; Hind, belonging to the same observatory; Ferguson, attached to the observatory at Washington; Hermann Goldschmidt, historical painter, and Chacornad, attached to the observatory at Paris—each of these persons having discovered a small planet in 1854.