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RAIL-ROAD NEWS.

The Panama Railroad.

The charter granted by the Granadian Government to this road is for 49 years, and 30 thousand acres of land are given to assist in its construction. The only privilege of reserve is that of carrying men and munitions of war.

The Mexican Government have refused to grant a complete charter for a road through the Isthmus of Tehuantepec. This route, if obtained by a United States company, would be shorter than by the Isthmus of Panama, for passengers going to California. In our opinion, this route is only delayed for a few years in coming under the control of the United States; in the course of events, this may be calculated upon, we think, with certainty. The progress of Anglo-Saxon sway is towards the west, and is like a stream of lava, steady and resistless.

Philadelphia and Oswego Railroad.

At a meeting of the Philadelphia Board of Trade, held lately, a report was made by a committee previously appointed to examine the subject, in favor of establishing and completing a continuous line of railroad from that city to Oswego. The object is to procure a share of the Lake trade, as well as that of central and western New York. The intention is probably to connect at Binghampton or Syracuse. A portion of the road being built, it is proposed to contribute $200,000 in stock subscriptions for the completion of the remainder.—By this line of communication to Oswego and the Lake, the committee claim that it will bring Philadelphia nearer those commercial points than the city of New York is by the present route. A resolution approving of the project was adopted by the Board, and recommended to the favorable consideration of Philadelphians.

Railway from St. Petersburgh to Warsaw.

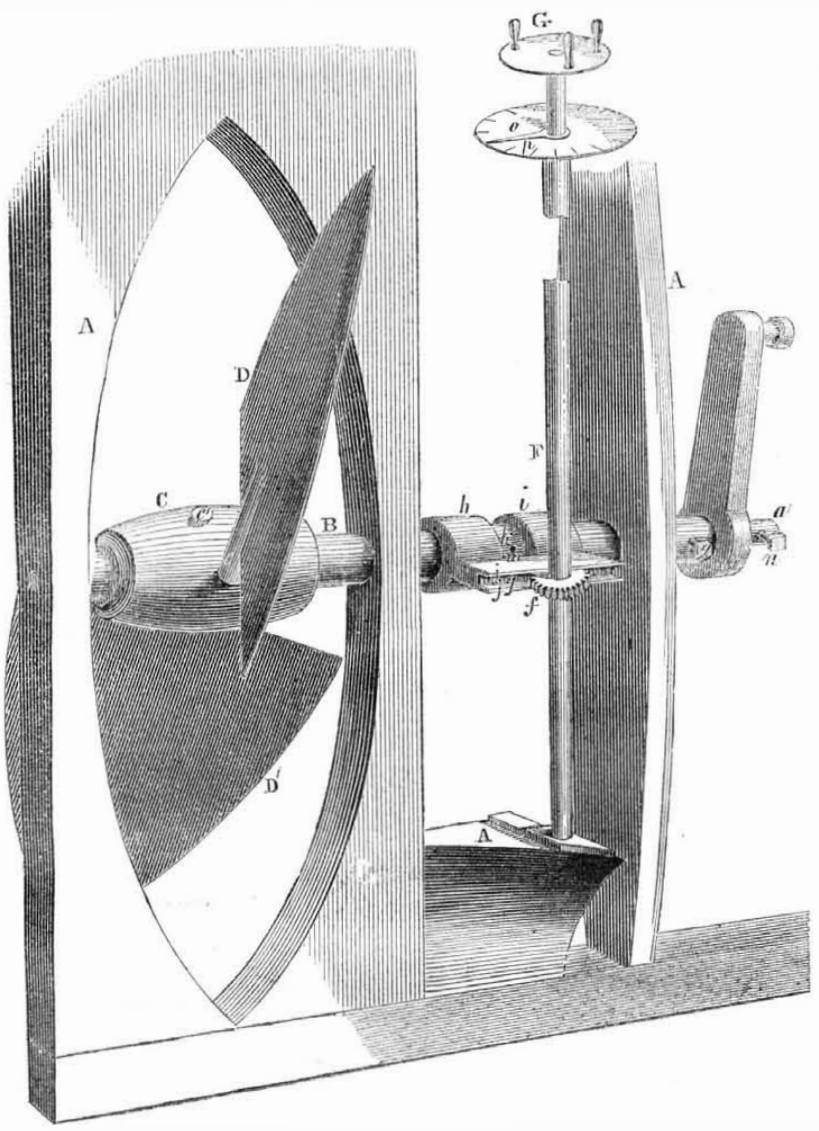
The works of the railway from St. Petersburgh, Russia, to Warsaw, Poland, are being carried on with extraordinary activity. The number of workmen at present exceeds 10,000, and they work during part of the night. All the rails necessary for this immense line are to be delivered by the end of July, and the contracts for the supply of locomotives have just been signed.

The Prussian Government contemplate making a great reduction in the present duties on British iron, steel, and machinery of every description, either for railways, steamboats, or manufactories, which at present nearly prohibited by the high tariff imposed upon their entry.

Silver in Bohemia.

The silver mines discovered in 1850, in Bohemia, are reported to be so productive that the government has ordered the other mines, eleven in number, which have been abahdoned for half a century, to be again worked, in hopes to find them similarly rich.

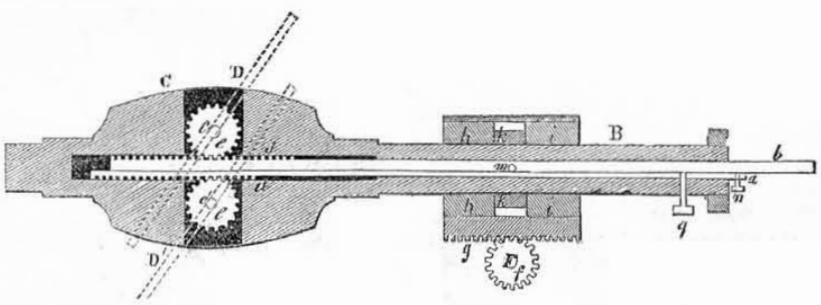
IMPROVEMENT IN SCREW PROPELLERS.---Fig. 1.



The accompanying engravings are views of improvements in Screw Propellers, invented by Charles F. Brown, of Warren, Bristol Co., R. I., who has taken measures to secure a patent for the same. Figure 1 is a perspective view, showing the propeller, rudder, and part of the frame of a vessel at the stern. Fig. 2 is a horizontal section taken through the axis of the propeller. The same letters of reference indicate like parts. This invention relates more particularly to that description of screw propellers which has its blades adjustable in the hub, for the purpose of altering the pitch of the screw, and for bringing the blades to a position to offer no material resistance to the progress of the vessel when under sail. Another principle of the improvement consists in so operating one of the blades, that, when brought into a proper position, and the revolutions of the propeller stopped, it will act as a rudder, in case of the vessel's rudder being disabled, and it will therefore serve to steer the vessel when under sail.

A A is the framing of the vessel, in which are the bearings of the propeller shaft, B. C is a hub on the shaft; this shaft is bored from the front end nearly to the back end—the bored part extending through the hub; in this bore is fitted a rod, *a b*, whith is furnished at that part passing through the hub with a rack, *d*. The hub is also bored transversely to receive the pivots, *c c'*, of the propeller blades, D D'; these pivots are not radial to the hub, but pass through it at equal distances from the axis on opposite sides of it. Each one of the pivots carries a small toothed pinion, *e e*, gearing into the rack, *d*, on the rod, *a b*. The hub is solid except where it is bored to receive the rod and the pivots, and where it is slotted from the outside to the centre bore, to allow the pinions to be inserted. The pinions are secured to the pivots, and the pivots are confined in the hub by the pinions or by other suitable means. If the rod, *a b*, be moved longitudinally, the rack, *d*, turns the pinions, *e e*, and by this means the blades, D D', are brought to any position either in line with or parallel to the axis of the screw, or at any pitch or inclination in either direction, so as to make a right or left hand screw; the pinions are geared with the rack so as to make each blade occupy the same position in relation to the axis of the shaft.

Figure 2.



The rod, *a b*, is moved by a person on the deck of the vessel, as follows:—A vertical shaft, F, is placed in suitable bearings near one side of the propeller shaft—its upper end reaching above the deck and carrying a wheel, G. Opposite the propeller shaft it carries a toothed pinion, *f*, which gears into a rack, *g*; this rack is attached to a collar, *h i*, which fits to, but is capable of moving longitudinally on the propeller shaft. This collar is prevented from turning on the shaft by flanges, *j j*, above and below the rack, which embrace the pinion and keep the rack in gear. There is a recess in the collar, *h i*, which divides it into two parts, and in this recess is fitted another collar, *k*, fitting to the shaft, B, so as to be capable of sliding on it, but this collar is made to turn with the shaft by a pin, *m* passing through it and the shaft, and through the rod, *a b*; a slot in the shaft allows the pin to move longitudinally. By turning the wheel, G, the pinion, *f*, is made to move the rack, *g*, longitudinally; and the collar, *h i*, moving with the rack, actuates the collar, *k*, while the pin, *m*, moving with the said collar, actuates the rod, *a b*, and causes the rack to turn the pinions, *e e*; this can be done either while the propeller is revolving or while it is stationary. A dial, O, is placed upon deck, and a pointer, *p*, on the shaft, F, indicates the position of the blades. This is seen on deck, and is a very convenient arrangement for setting the blades.

The rod, *a b*, so far as it has been described in its relation to the adjustment of the blades of the propeller, may be considered a single rod, but for the purpose of using the blade of the propeller as a rudder, it (the rod) is divided longitudinally into the two parts, *a* and *b*, which are held together by a screw bolt, *n*, at the front end, when the propeller is in use. The part *a* of the rod carries that part of the rack which gears with the pinion, which is on pivot *c* of the blade, D, and the part *b* carries that part of the rack gearing with the pinion on the pivot, *c'*, of blade D'. The blade, D, is the one which is intended to serve for a rudder; and, for that reason, that portion, *a*, of the rod is made larger than the other, and for another reason, viz., when the other blade is not in use, it is necessary for the pin, *m*, to work clear of the other part, *b*. The first thing to be done to use the blade, D, for a rudder, is to bring the said blade, D, to a vertical position downwards, and this is done by stopping the engine in proper position. The blade, D' is then secured in its place above the other one by a set screw, *q*, which passes through the shaft, B, into a recess in the part, *b*, of the rod. The screw bolt, *n*, is then loosened from that part, *a*, of the rod, which is thus left free to be moved independently of the other part, *b*, of the rod, thus enabling one of the blades to be used for a rudder in an emergency.

The superiority of this mode of arranging and adjusting the blades, consists chiefly in the depth of bearing, or socket obtained for the pivots of the blades, by fitting them through the hub. The common arrangement is to make the pivots, *c c*, radial, and to turn them by bevel gearing—that is, in arrangements of adjustable blades; this prevents their being carried through, and requires the hub to be hollow to receive the gearing. This arrangement is therefore more compact, and far stronger, according to the dimensions of the parts. The steering improvement, in many cases, may be the means of saving a vessel, such as in a case like the Helena Sloman.

The workmen commenced laying the track of the Central Railroad on the 28th ult., and it was expected that it would be laid 20 miles in ten days, and thus allow the cars to come into Chicago.

MISCELLANEOUS.

To Dye Hats Green or any other Color.

A patent was granted to Robert Gouldingof London, hat dyer, for his method of dyeing, staining, and coloring beaver hats green or any other color. The inventor directs the nap of the hat to be raised by means of a card, on the side intended to be dyed, and then boiled in alum argol. A thin paste should be made of flour or clay, which is spread over every part that is not to be dyed and then closed; or the hat may be previously pasted, and instead of being boiled, it should only be simmered in the same liquor. As soon as the paste is spread, plates of copper, or other metal, shaped like a common funnel, are fixed over the paste to prevent the dye from penetrating through. In this state the hat is immersed in the dye till the color is sufficiently fixed, when it is taken out, opened and cleansed from the paste; but if any coloring particles have penetrated through the felt, they may be removed by rubbing them with a small quantity of spirit of salt, aquafortis, &c. The compounds employed in dyeing, are fustic, turmeric, ebony, saffron, alum, argol, indigo, and vitrol, with urine or pearlash, at the option of the dyer; all which are used separately, or together, according to the color required.

[We cut the above from an exchange, and it shows how curiously fond some people are of wearing certain colors. The way of producing the color is certainly a fine subject of composition. The compounds employed for dyeing are fustic, turmeric, ebony, saffron, alum, argol, indigo, and vitriol, with urine or pearlash, all of which are used separately or together, according to the color required. Well, what color would they dye altogether, and what one separately? This is a fair question. Now, it would be exceedingly difficult to tell, for if used altogether, the one stuff would be neutralizing the effect of the other, and none of the stuffs separately would dye a color of any consequence. The fustic, turmeric, ebony, and saffron, are used for dyeing yellow, with a mordaunt of alum and a little argol (brown tartar); the sulphate of indigo will dye a blue on wool, but what kind of color would vitriol or alum dye, if used separately? No color at all. The sulphate of indigo and fustic dye a green color on woolen goods, but pearlash and urine strip off or discharge the blue, consequently the man who should attempt to dye a green hat with the above ingredients, collectively or separately, would have a pretty green time of it. So much for the chemistry of this compound green hat dye.

Baths for the People.

"A People's Bathing and Washing Association" has been opened in this city, in Mott street near Grand. The building is two stories high, and is 44 by 100 feet. Its object is to promote cleanliness, health, and comfort among the poorer classes.

The first floor is principally occupied by ranges of bathing apartments, and the second chiefly by a spacious wash-room. Seventy persons can be engaged in washing at one time, and this number can be extended to ninety. The bathing tubs are fifty-four in number, besides three vapor baths. There are two large swimming baths, in which twenty or thirty persons can be accommodated at one time. The water in the latter varies in depth from three feet at one end, to four at the opposite—the basin being formed of cemented brick walls, with an obliquely built bottom. The charges are as follows:—For plunge baths, two cents; for warm baths, five cents, and for a few first-class baths, ten cents. For washing, ironing, &c., there is every convenience. Ranges of stalls extend longitudinally through the building.—Each is numbered, and provided with a kind of trough formed into two partitions. Close by is a table for ironing, and overhead is an apparatus for drying clothes, arranged after the plan of a window sash, with weights and pulleys, so as to rise or fall at pleasure. This sliding apparatus, when elevated, is brought in contact with confined heated air, where the clothes are heated with great rapidity. A current of fresh air, heated, is forced through all the drying closets by blowers. This is a capital feature in it. By a contrivance, the flat-irons are brought from a common heating place, on a miniature railroad, and are at once placed at the disposal of the washer. The heat used in warming the flat-irons, is also used in drying the clothes. The building is effectually ventilated in every part. Five cents per hour is charged, and everything furnished by the Association, but soap. The length of time occupied by each person in washing, is noted at the door, and charges made accordingly.

There are to be two large heating boilers, when the whole is completed. But one is now in use. There is also a steam engine of seven horse power, used for pumping water into the boilers and for driving the blowers used for ventilation.

We heartily and hopingly rejoice at the establishment of this enterprise in our city. We hope it will be eminently successful. It should be the means of doing a great deal of real good. The arrangements are complete and ingenious, and do credit to its designers. The president of the Association is Robert Minturn.

Recent Foreign Inventions.

TREATING OILS AND OTHER SUBSTANCES.—E. A. Armand, of Paris, recently took out a patent for treating oils, &c., which is briefly described as follows:—

It is well known that when organic substances, such as wood, coal, fats, gum resins, horns, hides, and animal waste of all sorts, are heated in a closed vessel, decomposition ensues with the production of volatile bodies, which are sublimed and of a solid residium, which remains in the vessel; the same also occurs when bituminous ore is used—the residium in this case, however, being the sandy or earthy substance which served as the basis of the ore, while, in the former case, it is charcoal more or less pure. The other products of this distillation are of various kinds; namely gas and vapors, which are condensed into vinegar, water, essences, coal-tar, &c., and the proportions in which they are obtained will, of course, vary with the nature of the substances operated on.

Attention has been directed, in different trades, to the best mode of collecting increased proportions of certain of these products at the expense of the others; thus the vinegar manufacturers use wood, which they distil at a low temperature, while gas-makers use coal at a high temperature, in order to obtain as large a proportion of gas as possible without producing ammonia or coal-tar. Sometimes it is an object to produce oil and bituminous matters, and for this purpose bituminous ores, resinous substances, and the inferior descriptions of coal-tar, are used. The invention relates to the distilling of these substances, and is founded on the consideration that the elements of the gas and tar being the same, it is possible to obtain one from the other; that is, gas from tar, and from gas in contact with tar a liquid product rich in hydrogen, which, by dissolving in the tar, modifies its character. In this new system of working, the volatilized gases, instead of being condensed as usual, are made to pass through boiling tar, or hydrocarbonaceous matter, so as to obtain a reduced quantity of gas, and a new product by the absorption of part of the gas in the tar or tar-oil used.

The distillation of the bituminous matters is conducted as follows:—The matters are placed in cases, which are introduced into two or more open-ended retorts placed side by side in the same furnace. At both ends of the retorts are provided condensing apparatus, divided into three compartments, each containing pyrogenic oil of a specific gravity 0·90 to 9·96, which, during the working of the apparatus, is raised to different degrees of heat, and through which successively the gases, on escaping from the retorts, are caused to pass, so that portions are condensed therein, while the uncondensable gases are carried away to a gasometer for being burnt or otherwise used. The condensing apparatus being so contrived that it shall be of different degrees of heat in the different compartments, the products contained in them will be found to be of various densities—the lighter and most volatile being in that part of the condensing apparatus where the temperature is lowest, and the heavier products being in that where the heat is more directly applied. When the nature of the working will not admit of the above apparatus being used—as, for instance, in manufacturing coke—the gases may be caused to traverse a vertical shaft full of pebbles, through or among which the hot oil is caused to trickle. The products obtained by this operation would be treated the same as those from the process just described.

For the purpose of purifying and decolorizing the light oils thus obtained, the patentee adds to them about 1 per cent. of nitrous sulphuric acid, which is poured gradually in, so as to prevent heating of the mixture, the oil being kept the while in a state of agitation. After a short time the oil clears itself, and the coloring matter is deposited; the oil is then decanted, and washed, first with lime-water, and afterwards with water alone, after which it is distilled in combination with a concentrated saline solution (composed of equal weights of an alkaline chloride and nitrate, such as sea salt and saltpetre), in order to absorb any sulphurous acid that may still remain in it, and to produce steam, by which the distilling operation is found to be facilitated. For the purpose of conducting this process, the patentee makes use of a modification of the calcining apparatus before mentioned. Instead of using nitrous sulphuric acid for rectifying the light oil, concentrated sulphuric acid, with peroxide of manganese, may be employed, or acid and permanganate, or chromate of potash, or any suitable oxidizing body. Instead also of the above-mentioned saline solution, a melted mixture of anhydrous lime and potash may be substituted, and the oil caused to come in contact with the same, which is well adapted for combining with any sulphurous acid and clearing the oils.

The heavy oils are treated by mixing them with about 1 per cent. of nitrous sulphuric acid, or of the above oxidizing mixtures, and allowing them to stand for a short time. The liquor is then decanted, and washed repeatedly with lime-water, after which the oil is mixed with about 3-7ths by weight of fixed oil, such as rape, oil, &c., with the addition of about 2 per cent. of the oxidizing mixture. The whole is then agitated until it becomes of a rich violet color. The patentee now again uses weak lime solution or steam, which precipitates the sulphurous acid, and he filters the liquid, when the oil will be found to have become of a yellow color, and perfectly transparent. The separation of the acid is a slow process, and to effect it perfectly it is necessary to wash repeatedly, and to allow the mixture to stand two or three days after each washing. Another process for treating these heavy oils is as follows:—The patentee mixes the fixed oils after the second addition of oxidizing matter, and he then decants the liquor, washes it with slightly alkalized water, and places it in a sand bath heated to about 390° Fah. for about six hours.

The heaviest oil may, without any preparation, be used as a grease for machinery and carriages, or it may be distilled to any required concentration. A solid grease may be produced by mixing the heaviest oil with about 10 per cent. of resin or of a fixed oil or fat, and treating the mixture with a solution of lime and soda, at a heat of 212° Fah., and agitating continually until the mixture becomes mixed. When cold, the compound grease is of a compound color.—[London Mechanics' Mag.

Another Tubular Suspension Bridge.

Brunnel, the eminent engineer, is now erecting a tubular bridge on the plan designed by Fairbairn and adopted by Stephenson, only he suspends his main tube with chains—a plan not adopted by Stephenson, who was dissuaded from so doing by Fairbairn. The new bridge is erected over the river Wye, in England, and when completed it will be 610 feet in length from bank to bank. It will be of four spans, three of a little over 100 feet each, and one of 309 feet. The three small ones rest upon iron piers, filled with concrete, supporting cast-iron girders. The large one, which is 9 feet diameter, is to be suspended on chains. This huge tube is built on iron cylinders which have been sunk by the exhausting process of Dr. Potts, which was illustrated and described on page 181, Vol. 5, Sci. Am.

What is the reason this process has been so little used in America? Can any of our civil engineers tell?

The Great India Rubber Case Again.

This great case, according to our description of its perambulating character, has travelled from Trenton to this city—that is, it is out of court into newspaper chancery. On Saturday, the 1st inst., Mr. Goodyear, or some one associated with him, published Daniel Webster's speech on the case, as delivered at the March Term of the U. S. Circuit Court, before Judge Grier, at Trenton, N. J. It is a great speech, there can be no doubt about that, but what was the object of its publication at this time? It was no doubt, for what is vulgarly termed "Buncombe." There are two sides to all questions, and this was presenting one side of it to the public, *for an effect.*

On last Wednesday Horace H. Day came out with a long article in the Tribune, and other papers, in which he states that the said speech, as printed, had many parts which Mr. Webster did not utter, "and probably never conceived." He calls it a *spurious* publication.

On Thursday Goodyear, or some of his associates, attacked Day for his remarks concerning the Webster speech, as printed. Here, then, we have the controversy about India Rubber, both in Court and out of it. India rubber is great stuff for drawing out,—but, it is our opinion, law is as tough, and a newspaper controversy as elastic. We also believe that the public have had quite enough of this case; and we cannot look with any degree of favor upon the bad taste and bad spirit which is displayed, in continually thrusting this question before the noses of the people, while so much is done, otherwise, to hinder it from being promptly decided at law. Such a case as this gives those who are opposed to patents something of a *handle* to handle. We must be excused for the tautology, as we are talking about an elastic substance which has got into a *law case*—a kind of case which is exceedingly tough, elastic, and durable; in fact we do not know of any casing so elastic as that of a well-managed law suit.

Composition of Water---Paine's Light.

We find in the "Year Book of Facts," page 192, an extract taken from the London Athenæum, which discusses the assertion made by Mr. Paine, that water was not a compound of hydrogen and oxygen, and it uses this language,—"if any scientific fact is established, it is the composition of water. Oxygen and hydrogen, in combination, give us that valuable fluid. The conditions of oxygen and its broad distinctions from hydrogen have been determined by the most able investigators the world ever produced—Lavoisier, Watt, Cavendish, Davy, and Faraday are not to be treated lightly, because a pseudo-scientific American press proclaims to the world its new views." There are no men so fond of calling others by the names which distinguish themselves as those who conduct a pseudo-scientific press: Not a single scientific paper in America proclaimed any such *new views;* the Athenæum took up the subject on hearsay.

Steamboat Disasters on the Western Waters.

The Charleston Mercury says:—"Since the first of January last, twenty-four steamboats have been lost on the Western rivers. Ten of the accidents were caused by sinking, nine by explosion, nine by burning, two by collapsing flues. Six of the boats have either been raised or did not prove a total loss. The whole number of lives lost is estimated at two hundred and fifty."

When the Russians desire to keep fish perfectly fresh, to be carried a long journey in a hot climate, they dip them in hot beeswax, which acts like an air-tight covering. In this way they are taken to Malta, sweet even in summer, when surrounded in ice.

A Poison Spring

We saw, says the Louisville Courier, a package on the steamer Logan, yesterday, addressed to Prof. Silliman and Dr. Yandell, and which we learned contained a quantity of water taken from a spring near Logansport, Ky., which is said to be a deadly poison. The water is certain death to whoever drinks it, and it has been sent here to be analyzed.

Medical.

SALT.—We do not know but salt, (chloride of sodium) will soon become as famous for cures among our physicians, as it is among old salts (sailors), who apply it to cure a wonderful number of the ills of this life. The following is what the "Charleston Medical Journal and Review" says about it as a substitute for the sulphate of quinine in intermittent fever:—

"Our readers doubtless remember that this substance was proposed some time ago by Dr. Piorry, of Paris, as a remedy in intermittent fever, in evidence of the utility of which, numerous cases were adduced by him. He administers it in doses of two table-spoonsful once or twice daily, and asserts that it not only promptly arrests the paroxysms, but also exerts on the spleen as marked an influence as quinine doses.

Professor Herrick, of the Rush Medical College, has also reported in the September number of the N. W. Medical and Surgical Journal, the results of several trials made with it, which go to corroborate the success obtained by M. Piorry. Prof. Herrick suggests that it acts by preventing the destruction of the blood globules, (which takes place to a considerable extent in this disease), and at the same time by furnishing the materials for the manufacture of a fresh supply of this constituent. Chloride of sodium is known to possess the property of preserving the blood globules; it is an alterative and tonic, and is also claimed to possess a specific influence in arresting the exacerbations of intermittents.

He prescribes it in the dose of three to four drachms twice daily in mucilage. After the fever is checked he gives it in smaller doses, say ten grains, with the same quantity of corb. ferri, twice or three times daily, as a tonic or corrective of the secretions of the alimentary tube."

SALT AS A LAXATIVE.—Here is what the "Western Journal of Medicine and Surgery" says about common salt as a useful and mild laxative:—

Without any experience in regard to the febrifuge powers of the chloride of sodium, we can speak with great confidence of its efficacy, in habitual constipation. Of all the laxatives we have ever tried, we have found this to act most pleasantly, uniformly, and naturally. Where the only object is to dislodge the contents of the bowels, it is all that physician or patient could desire. Dyspeptics, sedentary persons, the subjects of hemorrhoids, all, in a word, who are troubled with costiveness, will find the remedy a mild and sure ecphratic, emptying the bowels freely without nausea, irritation, or exhaustion.—We direct it to be taken before breakfast, from two to three drachms, dissolved in two or three tumblers of cold water. The same dose continues to act from year to year, without diminution of effect.

ITCH CURED IN THREE HOURS.—Dr. Hardy, who has charge of one of the hospitals of Paris, has succeeded in curing the itch in three hours. His method of treatment is as follows:—

The patient is first put into a warm bath and rubbed for one hour with yellow soap. He then passes into a clean bath, where for another hour he continues to cleanse his skin. After this he is taken to a particular room and rubbed over for half an hour with an ointment made up of lard 8 parts, fine sulphur 2 parts, carbonate of potash 1 part, by weight. After this the patient is sent away cured.

A SUBSTITUTE FOR MERCURY IN SYPHILITIC DISEASES.—M. E. Robin has read a paper before the Academy, of Sciences of Paris, with the following title:—"On Certain new Agents calculated as Substitutes for Mercury when used as an Anti-Syphilitic Remedy." In former papers, M. Robin has maintained these propositions:—"Mercurial preparations do not act in a peculiar manner when administered in syphilitic diseases; they merely combine with virus and change it into a new or inert compound. Now there are a great many substances which form analogous combinations with organized matter, which substances probably have, like mercury, anti-syphilitic virtues; and it will be found that the agents of this class, which have thus been successfully employed, belong to the antiseptic division of remedies, which act by combining with the noxious principles. In this manner we can understand whence arise the anti-syphilitic properties of arsenical, gold, silver, steel, and antimonial preparations. Hence arises the likelihood of success, if attempts be made to use such organic substances as the bichromate of potash, or sesquichloride of iron, instead of mercurials."

PHOSPHATE OF LIME.—Dr. Warren Stone thus speaks of his experience in the use of phosphate of lime in an article in the New Orleans Monthly Register:—

"My experience is, that the cod liver oil is much better tolerated by the stomach when taken with the phosphate of lime; and I feel confident that it is better appropriated. It is well understood that cod liver oil, to be useful, must be digested and furnish to the blood certain essential principles known to be deficient in phthisical cases. The phosphate of lime undoubtedly corrects the acidity, and experience goes strongly to favor the theory of Beneke, that it assists in the formation of healthy nuclei, capable of development into cells. When the oil is not tolerated, great benefit is derived from the use of the lime in connection with nitrogenous diet, or animal oil, in the form of diet. Several cases have been reported to me, where the good effects of the cod liver oil were not manifest until the lime was added. In urging strongly the use of the lime in connection with cod liver oil and animal oil, I do not wish to be understood as undervaluing other agents, which the various conditions of the fluids and nervous system often require. In this section, and in the whole valley of the Mississippi, there is a tendency to intermittents, engorgement of the spleen, and consequent deficiency of coloring matter in the blood, in which the preparations of iron are highly useful. The carbonate of iron, prussiate of iron, iodide of iron, and in decidedly intermittent cases, the citrate of quinine and iron, are highly useful. Exercise, particularly such as is calculated to increase the capacity of the chest, and favor free decarbonization of the blood, should not be overlooked. The chief difficulty in private practice, in the use of the main remedies in phthisis, is in the want of confidence, and consequently, perseverance in their use. The patient derives temporary relief from some one of the thousand quack specifics, which merely disguise symptoms, but have no curative virtues. But few can comprehend that a transformation of tissues, dependent upon vice of nutrition, can only be overcome by long perseverance in a course calculated to correct it. Cod liver oil was used—and with a confidence equal to any modern physician—seventy-five years ago; but it went into disuse, probably from ignorance of its action, and consequently want of confidence in its use. The effect of the phosphate of lime in aid of the proper appropriation of the nutriment, is now manifest in certain cases of marasmus, not dependent upon organic disease, but equally destructive. The food, at times, appears to be digested, and by the use of gentle means, stayed upon the bowels; but nutrition does not go on; there is no appropriation of food. In such cases, I have seen the lime, in conjunction with animal juices, and even with animal fat, produce the most happy effects. I will not pretend that the theory of the action of the lime is entirely correct, but I am sure I am not mistaken in its effects in favoring the healthy appropriation of nutriment, and even in favoring digestion."

American Ingenuity.

An English paper publishes a series of lectures on American ingenuity recently delivered in England by a Captain McKinnon, of the British Navy. The following is an extract:

"He thought there was something original in the American mind, and that as far as invention went, they were the first in the world. This was to be attributed to various causes, and they were more inventive than the English for the following reasons:—If a man invented any thing in this country, he was looked upon as a projector, and his efforts did not meet with encouragement; but there, if he invented anything, ever so little, he was considered a great man, taken in hand by influential men, and made a fortune. He knew several who had amassed large sums, from £1,000 to £20,000. He should like to see an Englishmen do that—he would be laughed at if he expected it, (Applause). The first invention he could speak of, was one that amused him very much. He saw a large ship which was coming to Europe with wheat, and alongside was a very curious thing, like a mud machine, and several barges full of grain. He was very much astonished, and went on board to examine the machine, which he found to be a grain elevator, which was intended to pump the grain from the barges into the big ship. He at first laughed at it, and thought it a Yankee invention and a fib, but when he got on board, he found that it pumped the grain at such an awful pace, that it almost drowned him before he got up the hatchway. (Laughter and applause). He found it delivered 20,000 bushels per hour. 'Suppose,' said the speaker, pointing to the ceiling, 'there was a great hole up there, it would send the grain in at such an awful pace. that we shouldn't all get out—for we should be drowned, quite half of us.'" (Great laughter.)

"The next thing that struck him as an ingenious matter, was at Cincinnati, where the hgos killed in the Western States last year for exportation were 953,000. There was a man there who had discovered a method of making gas out of hog's lard. (Great Laughter). It seemed a funny thing, but it was a fact, The Mayor of Milwaukie city, in Wisconsin. who was a great friend of his, actually told him that he was making a bargain with the man to light the town with gas out of hog's lard. He certainly did not live there long enough to see it himself, but he was told it was true, and he believed it. (Cheers).—Another invention was a zinc paint, which he described as being most beautiful and worth a trial by all present. Another very ingenious thing he had witnessed at the Patent Office in Washington. It was pointed out to him by a gentleman, but he could not describe it. It had a large handle to it, and he asked what it was, when he said it was a sewing machine, (great laughter), which could make seventeen pairs of pantaloons a day, but it was then out of order and would not work, and he did not see it himself, and he could not, therefore, vouch for its accuracy, but he believed it to be true.

Another invention was made by a man who had a large dairy, containing upwards of one hundred cows, and finding it very expensive to get them milked, he set his wits to work, and, by Jove! he invented a milking machine. India rubber, gutta percha, and springs, he milked them all out, as dry as possible.—(Much laughter). The captain amused his audience by relating the effects of the milking machine upon the cows, and declared that the down East Yankees were the most inventive people possible, and were monstrously clever fellows. They had a good story there which was too good to be lost, and it was an astonishing matter. The yankee babies when not eating or sleeping, were still doing something, and this was what they were thinking about—the Yankee asserted that the baby was rolling its eyes round and thinking how to improve the cradle. (Uncontrollable laughter). He thought that was sufficient of Yankee ingenuity for the present, but he would give them more specimens by-and-bye.—(Laughter)."

Improvements of the Hudson River.

We learn by the Albany Knickerbocker that Mons. Maillefert is up at Castleton surveying the river bottom, for the purpose of removing the bar at that place. If the city of Albany would invest as much in improving the river below that city for some miles, as it has done in railroads, it would derive more direct benefit for the outlay. But the improving spirit which was pursued in that city a few years ago by excavating mud out of one part of the river, and dumping it in another, must yield to more enlightened and watchful measures before any real good can be effected. There is as much water in the Hudson at Albany, at all seasons of the year, as would float a 74 gun ship, and the river can easily be improved to do this; Mr. McAlpine, the State Engineer knows how it can be done, but it would not be safe to undertake the task with those excavating machines now used; they are excellent ground hogs, but poor excavators. Mons. Maillefert, we suppose, will adopt the same means to remove any concrete shoal which may be found at Castleton or the old overslaw, as have been successfully adopted in removing the hard beds in the Thames, viz., the same as that adopted by M. Maillefert in removing the obstructions in the East River, New York.

A Terror to Milk Dealers.

A Londoner has invented an ingenious little instrument for testing the purity of milk, which is said to be simple, portable, cheap, and certain. The tester has only to be dipped into the milk and its exact richness (or poverty) is ascertained by the rise or fall of the "bob." It is thought that if the tester comes into general use, the quality of London milk will undergo a decided improvement, as every one will be able at once to detect the undue admixture of chalk and water. If the milk-tester is what it is said to be, we should probably soon hear of it on this side of the water, and our milk-men should take warning in time.—[Home Journal.

[What is there new about this, we should like to know? The lactometer, for testing the strength of milk is old and well known. How some editors are gulled with things they know nothing about—these *ingenious* little instruments which this Londoner has invented can be purchased at any of our philosophical instrument-makers' stores.

Ten Hour Law in Ohio.

The Legislature of Ohio has passed a "Ten Hour Law." It provides that in all manufactories, workshops, &c., where children under 18 years of age and women are employed, their hours of labor shall not exceed ten hours per day. Any foreman who compels persons to violate the ten hour rule, shall be subject to a fine of not less than $5, and not over $50. The second section of the Bill says:—

"That in all engagements to labor in mechanical or manufacturing business, a day's work, when the contract of labor is silent upon the subject, or where there is no express contract, shall consist of ten hours; and all agreements, contracts, or engagements, in reference to such labor, shall be so constructed."

The fines are to go to the school fund. It is our opinion that such laws are wise and good, and should, as far as practicable, be generally adopted.

Important Invention.

The Washington Telegraph States that "Mr. De Bibery has invented one of the most important life-saving and swimming apparatuses we have ever seen. Application has been made by Mr. De B. for a patent. It is a kind of frock or doublet, interlaid with small metallic boxes, inflated. This doublet may be worn as an over-all on shipboard, and it is impossible for the wearer to sink below the shoulders, and Mr. De B. asserts that a person may remain in the water any length of time, and the water has no effect whatever on the buoyancy of the dress."

[We see nothing new about this except the *metal boxes*, which, in our opinion, are rather a defect than an advantage.

The Engineers' Strike.

By the last news from Europe, many hundreds of the Engineers of England who had been out on strike, had gone to work, and the employers compelled them to sign an agreement that they would "have nothing to do with their Trades Association." The employers have not conceded any thing. The majority of the engineers, however, still hold out. A great meeting of the trades had been held at St. Martin's Hall, London, in order to consider this great question.

It was resolved that all the trades should be appealed to in aid of the operative engineers, and that a petition should be presented to the House of Commons, praying for inquiry into the conduct of employers, and for such steps as may be necessary to secure to the working classes the right of union granted by act of Parliament. Such a petition would bring the merits of this strike fully before the public, and no doubt elicit sympathy and subscriptions for the operatives, but Parliament will not probably be able to discuss the subject this session.

NEW INVENTIONS.

Improvement in Lifting Pumps,

Zebulon Hunt, of Hudson, N. Y., has taken measures to secure a patent for an improvement in Lifting Pumps. The object of the improvement is to prevent the inconvenience of the pump losing its water when at rest, by the valve of the suction tube becoming leaky. The end of the suction pipe is simply carried some distance up through the bottom of and into the barrel, so as to leave an annular space in which a quantity of water is always left, from which it cannot escape. The bucket or piston is made of such a form that it will enter the said annular space and expel the water upwards through its valve to its upper side, and where it will have the effect of making it tight and enabling it to produce a vacuum in the suction pipe.

Machine for Making Pills.

Erasmus A. Pond, of Rutland, Vt., has invented an improvement on pill machines, which consists in employing two cylinders, with a number of recesses in their peripheries, the said recesses in each cylinder being of the form of a half pill. The cylinders are placed parallel to one another, and with their peripheries nearly touching. They are geared to revolve in opposite directions. The mass to make the pills from, is fed in between the cylinders by feed rolls, and being pressed into the recesses, is formed into pills. A band of india rubber is made to act like a spring to discharge the pills from the cylinders after they are formed.

Gold Seeker.

Abram Bronson, of North Fairfield, Huron Co., Ohio, has taken measures to apply for a patent for an improvement in machinery for digging or searching in the beds of streams for gold. The nature of this invention consists in displacing water within a tube or chamber by means of atmospheric air, forced and compressed within the tube by air pumps, by which arrangement, in connection with a draught tube, workmen may descend the tube to the bottom of a river and send up matter from below, to be examined for the golden treasure. The compressed air is not permitted to escape while the workmen are below.

Improvement in Knobs.

W. G. Beach, of New Haven, Conn., has taken measures to secure a patent for improvements in knobs for doors and furniture of every description. The invention has been assigned to J. L. Allen, of the same place. The improvement consists in producing a knob with a bright face by closing a piece of thin polished metal plate over the face of a common cast-iron knob; the knob thus produced is very beautiful, and looks like a silver-plated one, while it can be manufactured at but a fraction of the price. These improvements which equalize the luxuries of life have a hopeful upward levelling tendency. Inventions in science and art have done much for the elevation of our race.

Improved Tool for Boot and Shoemakers.

D. D. Allen, of Adams, Mass., has taken measures to secure a patent for a valuable improvement in what is denominated "a self-adjusting peg cutter." This peg cutter is capable of adjusting itself to any position desired so as to allow of its accommodating itself to the heel or toe of the boot, thereby effectually taking off the sharp ends of the pegs at the heel, toe, and every part of the inside of a boot, so as to leave no peg protruding, as is now done by all common peg rasps.

Brake for Railroad Cars.

John S. Miller, of St. Johnsbury, Vt., has taken measures to secure a patent for applying a spring attached to the frame of the truck, for applying power by it to the brakes.

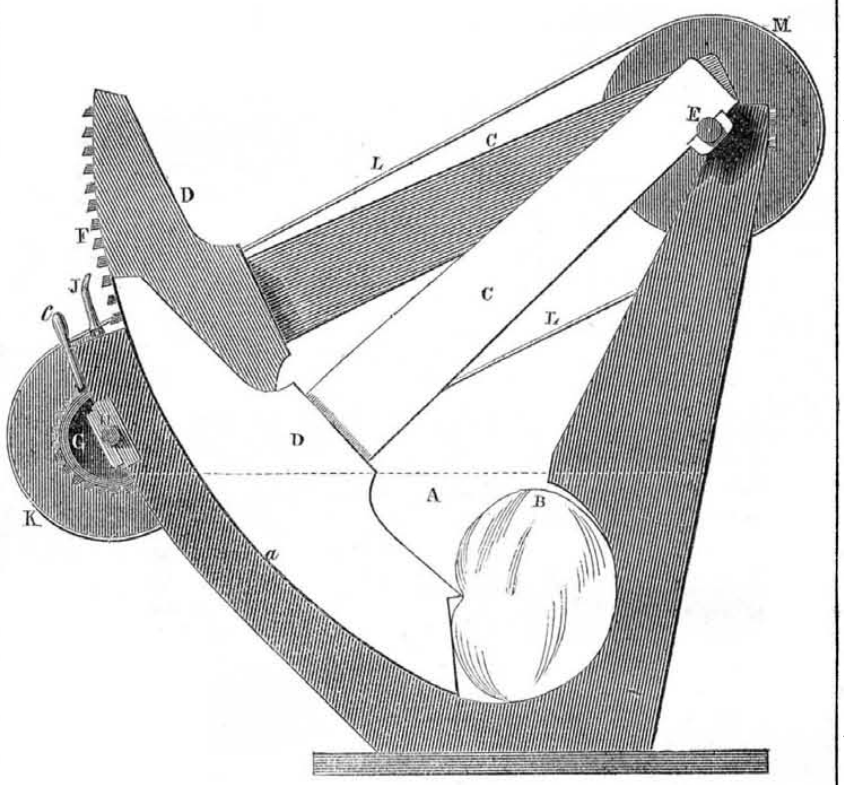
Prescription Scales.

James P. Duffey, of Philadelphia, has made an improvement on "Prescription Scales." By the improvement, the scales can be kept in a box secluded from dirt. For chemists and druggists the improvement is a good one, as the weights and articles to be weighed are placed on the top of suspended arms and above the box.

IMPROVEMENT IN FULLING MILLS.

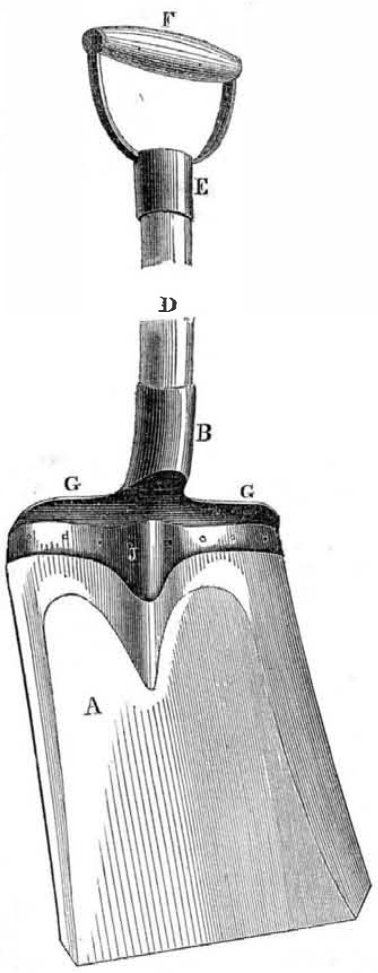
The accompanying engraving is a side elevation, with part of the frame removed, of an improvement made in Fulling Mills, by Volney E. Rusco, of Chicago, Ill., who has taken measures to secure a patent for the same.

A is a fulling box or trough; B is a web of cloth or other material to be fulled; C C are the arms of the two stocks or beaters, D D. E is the shaft on which the stocks are hung; M is a pulley, which, by a belt, L, passing over another pulley, K, drives two half-cogged pinions, G (one shown). H is the shaft on which these cog wheels are hung. Each stock has a number of cogs, F, on its face. The cogged pinions mesh into the cogs, P, of the stocks, and lift them as the shaft, H, is revolved. There is a pawl, J, on the frames for each cogged face of the stocks to hold up each stock when required, for putting in or taking cloth out of the mill; *c* is a handle for working a clutch, which gears the cog pinions, G, with the stocks; these pinions are hung loose on shaft, H. Each cog pinion has only one half of its periphery cogged; therefore, when one lifts the stock up to its proper height, it (the stock) falls down on the cloth with its full weight while the pinion is still revolving. The pinions are set to lift and let fall one stock after another. Any number of stocks may be employed and thus operated. It makes a splendid washing machine where there is power to drive it. Many farmers, with small streams of water on their property, could erect re-action water wheels for performing many operations, one of which should be to wash clothes with such a mill as this. *a* is a recess in the front part of the frame, in which the cogs of the nigh stock move. The engraving represents the parts so distinctly, and they are so simple, that all will understand its operation by the description we have given.



More information may be obtained by letter addressed to Mr. Rusco, who requests the attention of cloth manufacturers to his improvement.

Patent Shovel.



The accompanying engraving is a perspective view of the improved Shovel, for which a patent was granted on the 6th of last January to the inventor, Hiram Kimball, of Worcester, Mass.

A represents the front side of the blade of the shovel, to be made of sheet-iron or other material. B G G J represent the front side of the attachment for connecting the handle with the blade, consisting of the lip, J, the flange, G G, and the socket, B. The attachment is a casting made of strong malleable iron or other metal, and is fastened to the blade by eight or more screws or rivets, passing through both the lip and the upper end of the blade. The heads of the rivets or screws are more prominent upon the back side of the blade, and their position is indicated by the corresponding dots on the front side of the lip, J. The heads of the rivets or screws so formed upon the back of the blade, are at points where the same is depressed, and particularly in the middle thereof, so that those heads are not liable to be worn off, or if they be, the rivets or screws may be easily removed, and the shovel thus restored to its original strength; and when the blade of the shovel is worn out, it may readily be detached from the handle by knocking out the old rivets or screws, and a new blade may then be put on as before described; thus at small expense the shovel may be restored to be as good as when new. G G represents the flange of the attachment at the bottom of the socket, B, and projecting along the top of the blade from one side to the other. This flange answers a three-fold purpose, forming the upper part of the tray or scoop of the shovel; a convenient stirrup for the foot of the operative when he desires to press down the shovel, and two lateral braces, extending from the centre of the top of the blade to the point where the failure of the old kind of shovel has demonstrated that such strength is most needed. B represents the socket that receives the lower end of the stock of the handle, and this, together with the lip and the flange, constitute what is called the attachment. G represents an iron strap passing under the lower end of the stock of the handle, with the ends brought up on the front and back sides of it. After this strap is so applied to the lower end of the stock, the stock is driven through an iron tunnel, the lower orifice of which is just the size of the stock, so that by this process the iron strap bedded in it is then driven into the socket, which is nicely fitted to receive it, and by means of three or more rivets or screws passing quite through the stock, and embracing both ends of the strap and the socket, the attachment of the handle to the blade is made perfect. D represents the stock of the handle, and may be made of any good suitable wood. The stock is a cylindrical piece of wood, slightly tapering upwards, without any enlargement at the top, for the hand, as in the old kind of shovels—and thus at least four hundred per cent. of timber is saved in making this part of the shovel. E represents the socket that receives the upper end of the stock, and this socket, together with the ribs extending upwards from each side of it, is a casting made of malleable iron or other metal; the upper end of the stock is firmly fitted to this socket, and is further secured by a rivet or screw passing through them both. The ribs extending upwards from this socket form a curve suitable to receive the hand of the operative. F represents a small cylinder made of iron, wood, or other hard material. This cylinder being perforated longitudinally through its centre, receives a strong metallic rivet, which also passes through the perforated swell of the ribs, and thus forms a strong and perfect handle, without liability to split and break.

The improvements made on this shovel does for the operator what the improved snaths for scythes have done for our farmers. A man will do more work with one of them than with any of the old shovels now used. It also has advantages of durability and ease of renovation—something not possessed by any other shovel.

More information may be obtained by letter addressed to Daniel Wyman, President of the Massachusetts Shovel Co., Worcester, Mass.

Sharp's Rifle.

The Hartford (Conn.) Excelsior of May 1st has an article on Sharp's Rifle, in answer to some of our remarks on the subject. It thinks we gave the cold shoulder to its veracity, because we doubted the statement made about the rifle of Mr. Sharp, viz., that with 55 grains of powder, it had sent a ball of one ounce weight, the distance of one mile and a quarter. The "Excelsior" should not speak in this way, for we believe the rifle is an excellent one, as a simple breech-loading fire-arm. We own one ourselves, and we would be very much obliged to Mr. Sharp to send us his directions for its use, when he has got through with the experiments to which our cotemporary refers. We still have to plead ignorance in respect to the carrying power of this rifle; we do not see how it can be superior to others. There may be a reason, however, unknown to us.

We see it stated, in some foreign papers that the Minie rifle, which is being introduced into the British army, is deadly at 1000 and 1400 yards distance. Its powers are surely exaggerated.

Improved Locomotives.

Two large and powerful locomotives, with seven feet driving-wheels, says the "Reading Gazette and Democrat," are now being constructed at the machine shops of the Reading Railroad Company, after plans by Mr. Millholland, and under his immediate superintendence. They will embrace his new and important improvement for burning anthracite coal, which we believe has been tested so as to render its practicability beyond doubt. The locomotives are designed for drawing the passenger trains, and it is intended as soon as they are placed upon the road, which will be in two or three weeks, to run the train through from Pottsville to Philadelphia in 3¼ to 3½ hours, including stoppages, which will be an average speed of nearly 36 miles an hour.

Great Fire Engine Performance.

On the 6th inst., in Philadelphia, the independent Fire Engine Co., of Baltimore, tried the power of their engine in front of Jayne's building, and threw the water 45 feet above the cupola, being a total height of 184 feet, and beating any engine ever tested here.

Scientific American

NEW-YORK, MAY 15, 1852.

The Fire Annihilator, and Scientific American.

Two weeks ago, on page 261, we published a short notice of some experiments which had been made with the Fire Annihilator at Newark, N. J. On Thursday last week, Dr. Colton called upon us to remonstrate about the said notice, saying it conveyed an untruth, and requested us to make the correction, or he would take measures to publish something which would show to the world we circulated statements unworthy of credit. We told him we were always willing to correct errors, and asked him to point them out. In the article referred to, it is stated, "the building burned down, water was not handy." Water, it appears, was handy, for the building was erected on the banks of the canal, but it was not used.

This is the only error in the notice that the Doctor could point out,—and what does it amount to? Dr. Colton made two successful experiments, as we stated, but when the door was opened for him to apply the Annihilator during the third experiment, he was driven away, by a volume of flame, from his post and apparatus. There were a number of reserve annihilators—five we believe—but unfortunately their pins were mislaid; the crowd, however, threw them into the building, but they did not prevent it from being burned down. Dr. Colton called this an *accident*; very well, he has a perfect right to call it what he likes, and so has any other person or persons, but we call it a failure—the building burned down, which was the consummation of the experiments. We have been threatened many times with this and that kind of action, by various persons, because we have spoken plainly and unreservedly upon certain questions on which our opinion had been solicited as journalists. Those who know us, never would do so a foolish thing. From principle we conduct the Scientific American in the light of a conscientious public duty, and we contend we have the same right to criticise any new invention that comes before the public for patronage, as a literary critic has a new book, or an artist a painting; and what we say upon any question is entirely free from personal private feeling.

The experiments of Dr. Colton, as noticed by us, were made on the 17th ult., since that time he has made other experiments in the same place, which he stated to us were successful. He also informed us that the Newark papers had stated they were successful, and that a number of respectable citizens in that place had signed a certificate to that effect. Well, what is that to us; we claim to be as capable of judging of the merit of the Annihilator as any person whatever,—we care not who he is. We have stated before, and make the statement again, it is an *inefficient invention* for the prevention and extinguishment of fires. The gases which it generates, although asserted by some of the friends of the Annihilator to be innoxious, are not so, they are dangerous to inhale. They are steam combined with carbonic acid gas, and hyponitrous acid. When we published the patent of the Fire Annihilator on pages 1 and 2 this Vol., we stated, "we hoped it would prove to be all that was claimed for it, that we should watch its progress, and if convinced by occular demonstration that it was a good invention we would say so, if not, we would make a note of the matter." We have watched its progress; we witnessed the failure of the experiment at 83rd street, this city; we attended Dr. Colton's lecture at Metropolitan Hall, which failed to satisfy us as to the efficacy of the Annihilator; and we also were witnesses of the experiments made at Melrose on the 9th of last Feb. The Melrose experiments were kept somewhat secret; free passes were given to some other papers; none to us, but we were there and saw. The experiments were said to be successful, and a certificate to this effect was signed by probably as many and as respectable gentlemen as those who signed the Newark certificate; but we never accept the opinions of any man or body of men for correctness against our own convictions. In noticing the experiments at Melrose, on page 179, we used this language,—"Ninety-nine fires out of every hundred originate from carelessness or incendiarism, and are too far advanced when discovered to be vanquished by any other force than our *fire brigades*." Now for the proof of this statement, and for testimony to the inefficiency of the Annihilator as a fire extinguisher. Some time ago the Fire Annihilator Company furnished Fire Engine Co. No. 38, of this city, with a cart and number of Annihilators, to run to fires and give them (the Annihilators) a fair trial, before other engines arrived. On the 10th of last month the said company tried one of the Annihilators on the brig S. P. Lord, as noticed by us on page 253; the trial of it did no good. On the evening of the very day on which Dr. C. called upon us (Thursday week), a fire broke out in Fulton street, near Greenwich, this city, and Engine Co. No. 38 was there first with the Annihilators. One was taken off the cart, carried into the building, but the men could not get it to operate; this might be called an *accident*, but it will not do to depend for the extinguishment of fires upon such accidents. Water put out this fire. When the Annihilator was taken to the engine house, it was discovered that there was no vitriol in the vial which is lodged in the charge. On the next morning, (Friday week), a fire broke out in the upper story of the Tract House, Nassau street, and Engine Co. No. 38 was there first with the Annihilators again. Three of them were promptly taken up stairs and the men burst in the door, rushed into the room, and set off two annihilators; they operated well, but did no good whatever; the third one would not go off!—another *accident*. The fire engines soon arrived and put out the fire with water. Those who witnessed this fair trial at an accidental, (very different from a prepared) fire, said, there never could have been a better opportunity for testing the merits of the Annihilator, but it totally failed of success. Out of six Annihilators two could not be made to operate. The said company was almost determined not to try the Annihilator any more, for it afforded a subject of ridicule, and their confidence in them was nearly annihilated, —but the Annihilator Company replenished the Annihilators with new charges during the day, and the company was a second time armed and equipped, to fulfill the declaration of the secret circular of the Annihilator Co., namely, "an end must at once be put to every serious conflagration in our country." On the next morning (Saturday), a fire broke out in Catharine street, and the Fire Annihilators were on hand again. Five of the largest size were discharged in the building, one would not operate:—another *accident*. They did no good; the building was burned down, and, sad to relate, five of our fellow creatures were consumed in the flames. Oh, what a glorious opportunity was presented here to test the good qualities of the Annihilator, if it had any.

In view of these facts—these fair experiments with the Annihilator at accidental fires, the public will judge between us and Dr. Colton, or any other person interested in the Annihilator.

A pint of water will put out a fire if applied in time,—and so may an Annihilator,—but the majority of our fires occur at night, in rooms and stores filled with curtains, cloths, goods, and combustible materials, and are generally far advanced before being discovered. Annihilators might be kept in a building, and the fire might take place in a quarter that would prevent approach to them, or they might, if found, not operate, like three of those furnished to Engine Company No. 38. We wish to inculcate the necessity of constant vigilance to prevent fires, without trusting such an apparatus as the "Fire Annihilator" for an extinguisher.

Telegraph Case.

The owners and assignees of Morse's Patent are now engaged in sueing one another at law. F. O. J Smith, of Boston, was assigned some part of the patent—the New England Districts, we believe—wherein he could sell rights, &c. Messrs. Morse & Vail, displeased with him for not being sharp enough with Henry O'Reilly, and some other cases, have applied for an injunction to restrain said Mr. Smith from selling and dealing in the patent rights of Morse's Telegraph. It is a queer case, take it all-in-all, and we regret it a great deal. We are always sorry to see parties interested in patents engaged in sueing one another. That there is a necessity for so doing we do not doubt, but we regret the necessity.

Are Patents Monopolies?

The correspondent of the New York Tribune, signing himself "Anti-Monopoly," had another article in that paper of May 1st, to back up his former one, which we noticed two weeks ago on page 253. The object of all discussion should be *truth*; therefore, when any person writes for the press, he should never suppress a fact, nor make a fact appear a falsehood—"nothing extenuate, nor aught set down in malice," should be the guide of all men who come before the public professedly to impart information. He takes the ground more stubbornly than ever, that the principle of assigning patents, in our Patent Code, has been the cause of all patent evils—a tax upon the community—and he uses this language, "the question of allowing an assignment of a patent, from 1790 down to a later period, was regarded as impolitic." We say, once and again, this is not true—but the very reverse of the fact. The question of assigning a patent was so far deemed impolitic, in 1790, and to a *later* period, that the very Act of 1790 recognizes assignees, and the Act of 1793 (that late period which he mentions) provides for the assigning of a patent to the fullest extent.—(See the laws as published on pages 4, 5, 7, 8, and 9, and 462–3 of the Appendix of Curtis on Patents.)

We state the plain fact, nothing more nor less. The said correspondent speaks about the people of the United States being taxed $3,000,000 yearly for the Woodworth Planing Machine; also of their being taxed so much for Ross Winan's patent, and Goodyear's india rubber patent. He attributes all this to the patent law allowing an inventor to assign his patent. How he comes to this conclusion is no argument against the principle, for this alone is his reason, viz., "valuable inventions get into the hands of rich speculating men and men of influence, like the sons-in-law of Judges, and men who have influence with *Patent Judges*." He evidently knows considerable about the working of patents, but surely he cannot be a lawyer and exhibit such a want of knowledge of our patent laws. It is true that the assignees of some patents have abused the privilege of our Patent Laws to the injury of many honest citizens, but then many assignees have done right in pursuing willing infringers. He speaks of the patents of Woodworth, and Ross Winans, and Goodyear, being in the hands of rich men, as a great evil; we do not look upon the question in this light, unless the assignees act wrong. Many honest poor inventors have taken out patents for good inventions which were infringed by rich manufacturers with impunity, because the poor patentee could not employ *great* counsel, and pursue for infringement. But it so happened that some of these poor inventors got some rich men to buy their patents, who could look after infringers, and no sooner did they lay the hand of the law upon these wealthy infringers, than up arose a hue and cry—monopoly, oh, monopoly! We know an inventor who had a patent for a good machine, which was infringed with impunity by a manufacturer for fourteen years, just because the poor inventor was not a very *cute* man of business, although an ingenious mechanic; and the infringer knew his failing. Had some rich man bought the patent, and pursued the infringer, it would have made our hearts glad. There are many rich manufacturers who would like nothing better than to infringe patents with impunity. A rich company in this State was called upon some time since, by an inventor and patentee, who exhibited to the active manager his invention—a very good one in their line. It was looked upon somewhat favorably, but when asked if it was patented, and was answered in the affirmative, the manager turned on his heel, and spoke somewhat sneeringly about it. Since that time the said company has been made to pay heavy damages for the infringement of an assigned patent. Who whines at it? None but those who feel the just lash of the law; and those who, like the correspondent referred to, view the question from only one point. If it were not for the principle of assigning patents, which is embraced in our Patent Code, patents would be very little worth to the majority of our inventors. We are opposed to the extension of patents beyond fourteen years, but we deem no patent to be a tax or a monopoly, if carried out in its true principle and spirit. The principle of our Patent Laws have been, and may be again, violated by unjust legal decisions, but that is no argument against the Patent Laws, it only shows a defect somewhere else.

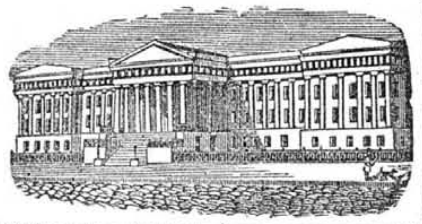
Cooling Air in Hot Climates.

In the East Indies, and all tropical climates, Europeans suffer severely with the intense heat. To keep apartments bearable at all, fans are kept going continually, and wet mats are hung in the windows, from which the moisture evaporates and leaves the air somewhat cool. This plan, however, has been found very unhealthy, because rarified air containing moisture, has too little oxygen in it for the healthy action of the lungs. A Dr. Piazza Smith has recently published a pamphlet in England, upon a superior plan for supplying rooms in tropical countries with dry cold air, freed from moisture. His plan is to compress the air by mechanical means, then rob it, while so compressed, of its heat, and when cool, allow it to expand into the rooms, for which the apparatus is intended. If he can take air at 90° of temperature, compress it, and extract 30° of heat, he will have air at 60° to enter a room, which will thus be kept at a pleasant temperature. His cooler is to be formed of a pipe under water, and a pump is to force the air in at one end of it (the pipe) and out at the other, which is to have a weighted valve placed upon it. This plan appears to us simple and rational. If a copper pipe were laid in a stream of cool running water for some distance, and hot air forced through it into apartments, there can be no doubt but it (the air) would be rendered cool and healthy. A gentleman of wealth might employ such means to cool his house in a hot climate. A pipe, like the worm of a *still*, if placed in a deep well, would also answer the purpose of an air cooler, but in every case it would be well to have a valve on the exit end of the pipe. An iron pipe would answer as well as a copper one, only it is not such a good conductor of heat and cold as copper.

The People's College.

A few years ago, a number of active and sterling mechanics, in this State, became impressed with the conviction that if a "People's College," free from sectarian influences and exclusiveness, were established somewhere in the State, it would be productive of great good. The idea soon assumed a practicable shape, as the originators of it were men well acquainted with constructing laws and designing institutions. A meeting has been called by those friendly to such an Institution. The Convention will meet in Rochester on the 20th of this month. The object of the College is a complete and thorough education for the sons and daughters of our working men—men of toil. It is designed to make the college, in part, self-supporting, and to teach science and art in a true and profitable manner. Engineering and machine making will be taught, as far as it is practicable; but it is intended that practical mechanics, in combination with science, shall be thoroughly drilled into the students. This will give it an advantage for real practical life over many colleges in our land. We heartily commend the enterprise to the people of this State; the object is a laudable one, and deserves the countenance and support of rich and poor. We hope the meeting will be well attended on the 20th.

The attention of our readers is called to the advertisement of a gentleman who is about to visit Europe, who will act as agent in selling or purchasing patents in foreign countries. The advertiser is well known to us, and is a gentleman competent for the business which he solicits, and those who have business which they wish transacted there, have a good opportunity offered by him.



Reported Officially for the Scientific American

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING MAY 4, 1852

ROCK DRILLS—By Wm. F. Ash, of Springfield, O.: I claim, in combination with the cam wheel and guide, the hanging of the lever, by which the drill is raised on a jointed arm, so as to give it two sets of motions, viz., up and down, to lower and raise the drill, and a backward and forward motion from and towards the cam wheel, to operate the machine, without noise or jar, the whole being arranged substantially as described.

LEATHER GAUGES—By L. W. Beecher, of Avon, N. Y.—I claim the wheel with its inclined planes or wedges, arranged so as to act upon the roller frame, substantially as set forth.

POTATO WASHERS—By Alonzo Bentley, of Honesdale, Pa.: I claim the screen and cylinder combined, the screen working within the cylinder, and its axis or shaft working within or through the tubular projections or bearings of the same, substantially as set forth.

LEVER JACKS—By L. H. Davis (assignor to J. A. Dugdale), of Kennetts' Square, Pa.: I claim the combination of the lever, the lip, and the cleat, constructed as set forth, with the dog and the spring, so as to act together as stated.

ELECTRO-MAGNETIC ALARM BELLS—By M. G. Farmer, of Salem, Mass.: I claim the combination, substantially as set forth, of the electro-magnet and armature (or its electro-magnetic equivalent), with the falling ball or spring, and the detents and the lifting cam, or its equivalents, so arranged that when the ball is supported by the armature, a slight force, only, of the electro-magnet, is required to trip the ball, which ball, in falling, requires sufficient momentum to produce much greater mechanical effects than the magnet alone—the velocity of the ball, in falling, being still further accelerated by the force of a spring, if desired. The power thus obtained I use in the manner described.

WASHING MACHINES—By Christr. Hollingsworth, of Liberty, Ind., I claim the application, substantially as described, to the process of washing of balls of wood or other buoyant material, in connection with a reciprocating frame, or equivalent device, by means of which a rolling, yielding, or evenly pressing surface is presented to the clothes or other articles to be washed.

ADJUSTABLE WRENCH—Andrew Hotchkiss, of Sharon, Conn.: I claim constructing the collar or eye of the inner jaw with an aperture therein of greater section than the bar on which it slides, in combination with the spring therein and the screw thereto attached—the whole constructed and operating substantially in the manner and for the purpose described.

DIFFERENTIAL SAFETY VALVES—By John McClintic, of Philadelphia, Pa.: I do not claim constructing a valve that shall act upon the differential principle, or one which will not admit of the application of external weight or pressure.

But I claim the peculiar arrangement and combination of the hollow cylinder box, sliding in a case, with the conical valve and the tubular valve rod and escape pipe, constructed and operating substantially as set forth.

RAILROAD CAR BRAKES—By Thos. G. McLaughlin, of Kensington, Pa.: I claim the employment of the radial bar turning loosely on the brake lever shaft of the tender or forward car and spring for enabling the brakeman to operate the brake of the tender or forward car on which he is stationed, without altering the position of the radial bar after being set, as described.

ANVIL—By Chas. Peters, of Trenton, N. J., and Wm. Fetter, of Bucks county, Pa.: We claim a cavity in the body of anvils, for the purpose of cooling the same by the introduction of water or other fluid into the said cavity, while the faces of the said anvils are undergoing the process of tempering.

MACHINERY FOR GRINDING CONICAL EDGED KNIVES—By J. L. Plimpton, of Westfield, Mass.: I claim, first, the combination of the curved way and table thereon, provided with appropriate automatic contrivances for traversing the latter along the former, with the carriage on which they are both supported, and which is provided with axis and screws, or their equivalents, to adjust said carriage to any required angle with the horizon, for the purpose described.

Second, I claim operating the feed motion, or the motion for carrying the edge of the knife across the periphery of the stone, by means of a roller bearing on the periphery of the stone, in the manner and for the purpose set forth.

Third, I claim connecting the carriage and the table which carry the knife, with the roller receiving motion from the stone, by means of the combination of mechanism substantially as described, by which the motion of the roller towards the axis of the stone consequent upon the wear of the stone, will cause the knife or knives being ground, to follow the periphery of the stone, and thereby compensate for its wear, and preserve the required form of the edge or edges of the knives, viz., that of an arc of a circle, as set forth.

CHURNING MACHINES—By Gelston Sanford, of Ellenville, N. Y., (assignor to G. A. Meacham, of Enfield, Ct): I claim the arrangement of dogs or pawls, and pin, with wedges, for the purpose of tripping each other.

FUNNELS—By Christen Schneider, of Washington, D. C.: I claim the measuring funnel, constructed substantially as set forth, with an interior ventilating tube to admit air beneath the valve.

MACHINERY FOR GRINDING OR POLISHING SAW BLADES—By Wm. Southwell, of Kensington, Pa.: I claim, first, the combination of two grindstones, or their equivalents, revolving in the direction made known, for the purpose of grinding or polishing two sides of a saw, or other article, simultaneously, with a reciprocating frame, or its equivalent, for the purpose of holding the article being ground or polished, whereby the tendency of either stone to move the article is counteracted by the action of the other stone, and the same force is thereby required to reciprocate the article in either direction, as described.

Second, the combination of the right and left hand screws, carriers, and nuts for said screws, movable pedestals, or boxes, together with the cross shaft, worms, worm wheels, and handles, substantially as set forth, for the purpose of moving two grindstones, or their equivalents, simultaneously against opposite sides of an article being ground or polished, as described.

Third, I do not claim giving an automatic traverse motion to grindstones; but I claim the arrangement of screws, mitre wheels, handles, eccentrics, eccentric boxes, and movable frame, substantially as described, whereby I am enabled, at any time, to move the grindstones, or their equivalents, entirely across the machine, for the purposes set forth, without interfering with the automatic traversing motion which is given to the said stones, irrespective of their precise position with reference to either saw frame or either saw, or other articles fixed in said frame.

Fourth, the arrangement in the same machine of two sets of reciprocating frames, either of which can be stopped without affecting the other, and a carriage, whereby the grindstones can be caused to move from one frame to the other, by which arrangement one saw can be ground or polished while another is being adjusted into place.

LIGHTNING RODS—By James Spratt, of Cincinnati, Ohio: I claim the formation of the point of a lightning rod of three or more metals, encased one within another, the most fusible to the outside, in order to prevent the destruction of the entire point by melting from an overcharge of the electric fluid.

WINDOW-BLIND MACHINERY—By D. H. Thompson, of Springfield, Mass.: I claim, first, hanging the auger shaft in swinging arms or gates of different lengths, hung on centres, said centres being in line, so that by moving the said swinging arms or gates nearer to or further from from a position at right angles to the line in which the centres are placed, the distance between the said auger shafts, taken in lines parallel to the line of centres, will be increased or decreased, and thereby be adjusted to different widths of slats lying upon each other, as set forth.

Second, I claim the combination of the sliding bar or carriage carrying the stiles and rods, with the reciprocating carriage carrying the mortising augers and wire hole prickers, in the manner substantially as described, for the purpose of boring the mortises in the slats, and pricking the wire holes in the rods, and ensuring the distances between the mortises and points of attachment of the slats being precisely the same throughout.

Third, I claim the reciprocating slat table, or bed, made in three parts, the two end parts of which are adjustable to the middle part, in combination, substantially in the manner described, with the adjustable cutter heads, to wit, the end parts of the table or bed, and the cutter head being adjustable, relatively to each other, for the purpose of tenoning or turning down the pivots on both ends of slats of various lengths.

Fourth, I claim pricking the wire holes in the slats and feeding them at proper intervals from the box in which they are contained, to the bed or table upon which they are tenoned, by means of a vibrating feeder, deriving its motion from the bed or table carrying the slats, the said feeder being provided with suitable horns or their equivalents, and prickers, for the purpose of entering the box, and pricking and pushing out the slats one after the other in succession.

SPEAKING TUBES—By T. J. Woolcocks & Wm. Ostrander, of New York City: We claim the combination of an alarm valve with a speaking tube or pipe in the manner and for the purpose set forth.

Ventilation Lights.

The free circulation of the air is only second in importance to that of the blood, and our apartments of all kinds must first be well ventilated, to well ventilate our lungs. In the open air, our respiration is free, and ventilation is only the same freedom extended to our apartments. To effect a free and full ventilation on a simple plan, at a small expense, and universally applicable, I have invented the "Ventilation Lights." Where light, also, is wanted, they may be made of transparent glass, and where air only, they may be made of colored glass, earthen, china ware or metal. They can be made plain like common panes of glass, or more or less hemispherical and ornamental. In both forms they are to be uniformly or partially perforated with minute air-holes or pores, of a size sufficient for the free passage of the air, and yet to exclude dust and rain. These air-holes may be distributed uniformly or in artistic groups, and bevelled on one or both sides, or they may be left unbevelled. If the lights be plain, they may be fastened in the sash, like common glass; while, if they be hemispherical, they must terminate in a plane base or circular rim, so as to fasten like plain ones. These lights, of either form, can be made of different sizes and patterns, and when broken can be replaced by new ones. The minute air-holes act the same part to our apartments as our pores do to our own system, and are quite as necessary for the free and healthy circulation of the air in our lungs and the blood in our arteries and veins. Like our pores, they must also be kept open and clean. The greater the sphericity of the lights, the more holes there may be, and a greater column of air in capillary currents can pass and repass. In the plain form, this column can not overgo half the area of the light, while in the spherical form it can equal it, owing to the enlarged surface. The greater the spheroidity and thickness of the lights, and the uniform size of the air-holes, the better they will ward out dust and rain. In order to stop the ventilation at pleasure, perforated and fixed lights may be permanently attached to the outside of the sash, and unperforated and opening and closing ones on the inside. The outsiders will act as ventilators, and the insiders as anti-ventilators. These lights may be cast with their air-holes, or they may be first made and then have the holes etched in by fluorine. My plan of universal ventilation in short, is the substitution in part or entirely of plain or hemispherical panes of glass, minutely perforated with capillary air-holes, in place of unperforated ones, which entirely forbid it. Another plan for free ventilation, and universally applicable, by a little alteration in common sash, and the fixed position of the lights without their being perforated, is this,—let the tops of the lights in a sash be all inclined inward, more or less according to the depth of the sash-frame, while their bottoms remain, as usually fastened, near the outside; or whatever may be the depth of the sash frame, let the tops of the inclined lights extend as far to the inside as their bottoms do to the outside. When the lights are thus arranged, a window will appear like a surface formed of glass-wedges. Thus the sash where the lights are attached, and between them, let small air-holes be made or air-tubes inserted for the air to pass and re-pass freely. For lights which are stationary, as in buildings, &c., the inclination is inward at their tops; and for those which are in motion, as in cars, steamboats, &c., the sides which are next to the moving power, are inclined inward towards the inside of the sash. These inclined lights act as shields to ward off dust, &c., while the off-sets they form at their junction in the sash, serve for ventilation when properly perforated. By thus inclining the lights and perforating the sash where they off-set from a common plane, the air can pass and repass freely either way, and thus subserve the interests of health and the prospects of long life.

H. STRAIT.

Cincinnati, Ohio.

[We are glad to direct attention at all times to the importance of ventilation, and the plan suggested by Mr. Strait, we hope, will meet with public favor. In 1847, Dr. Robert Bowie, of London, registered what was termed "The Glass Ventilating Pane;" it consisted in drilling a number of holes in a pane of glass in an oblique direction, the perforations being inclined upwards towards the ceiling inside.—[ED.

Resemblance of Lords and Savages.

There is often, in fact, no material difference between the enjoyments of the highest ranks and those of the rudest stages of society. If the life of many young English noblemen and an Iroquois in the forest, or an Arab in the desert, are compared, it will be found that their real sources of happiness are nearly the same. The treasures of science, the refinements of taste, the luxuries of wealth, are in many cases disregarded or forgotten, and the excitation of life depends on the destruction of wild animals, or the management of impetuous steeds. This is a fact which is a matter of daily observation; and it furnishes a most instructive lesson as to the proportion established by nature between the active and speculative part of mankind. The great majority in every class of society are incapable of receiving happiness from any source but from physical excitation; and every other plan for human improvement which is founded on any other supposition, will necessarily fail. Nor is it without good reason that nature has established this disproportion between the studious and active parts of the species. The great mass of undertakings essential to the existence and the welfare of mankind, depend on physical exertion; and unless the greater part of our fellow-creatures were disposed to that species of labor, and gratified with the enjoyments that attend it, the race would speedily perish, and the speculations of science disappear with the individuals who formed them.—[Allison.

Grave of an Ancient Sea King.

A remarkable discovery has lately been made in the parish of Borre, near Horten, in Norway. In a shippon (barrow in the shape of a ship) has been discovered the unconsumed part of a vessel, together with the skeletons of three horses, two dogs, a sword-dagger, battle-axe, the foot of a glass goblet, a bell with curious ornaments of bronze, stirrups, the bit of a bridle with silver mountings, the remains of a saddle (a saddle-bow of bronze), and other objects. This cairn has probably held the corpse of King Eystein, or his son, King Halfdan, who, according to Snorro, lie buried here.

For the Scientific American.

Compensation Pendulums.

A great deal has been written on the subject of compensation pendulums by men of acknowledged scientific attainments. Much expense has been incurred in constructing them, with a view to obviate the difficulties arising from the expansion and contraction of the material used, occasioned by the variations of temperature. It is unnecessary to say anything in reference to the merits of the different kinds that have been used, as all who feel any interest in the subject have an opportunity to become familiar with the various plans in use. It is strange, however, that the simplest, the cheapest, and unquestionably the best construction for a compensation pendulum, should remain almost entirely unused. The following is a description of one that a clock-maker in Cadiz, Ohio, made for me, and I will thank any person who will show its imperfection.

Let a wooden support be erected immediately behind and at the same height of the pendulum's ball. Into this support place a rod of the same size, material, and length of the pendulum rod; extend it upwards, say three-quarters of an inch behind the pendulum rod, through a hole in the piece of metal on which the pendulum is usually suspended; bend three-quarters of an inch of the top of the rod at right angles outward, suspend the pendulum in the end of this rod, and let it pass through the usual slit also. Now it is quite obvious that if the wire on which the pendulum is suspended, expands an eighth of an inch, it will raise the upper end of the pendulum rod an eighth of an inch, as it is only permanently fastened at the lower end, and moves easily through the whole above. But the pendulum rod being composed of the same material, expands an eighth of an inch at the same time, and thus keeps the ball at the same distance from the centre of motion. It is probable that this suggestion may be of use.

WM. E. LUKENS.

Putnam, Ohio.

Petition for Extension of a Patent.

On the petition of Abram Van Order, of Ithaca, N. Y., praying for the extension of a patent granted to him, on the 17th of July, 1838, for an improvement in boilers for steam engines, &c., for seven years from the expiration of said patent, which takes place on the seventeenth day of July, eighteen hundred and fifty-two.

It is ordered that the said petition be heard at the Patent Office on Monday the 12th of July, 1852 at 12 o'clock M.; and all persons are notified to appear and show cause, if any they have, why said petition ought not to be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specifically set forth in writing, at least twenty days before the day of hearing; all testimony filed by either party to be used at the said hearing, must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

THOS. EWBANK, Com. of Patents.

Washington, 1852.

Cochineal Raised in Europe.

At a meeting of the British Entomological Society, held at London on the 5th ult., we notice that the President, J. O. Westwood, Esq., presented specimens of the so-called "new cochineal insect, Coccus Fabæ," which, it appears, feeds on the common bean and yields a most brilliant color, in all respects resembling the cochineal of Central America. Mr. W. stated that the cultivation of the insect had been commenced on a large scale in the south of France, where it would supply a new and profitable opening to the labor of the peasantry.

To make grass grow under trees, it is only necessary to water it frequently with a weak solution of the nitrate of soda. This is a most excellent substance to make grass grow in fields. Care must be taken to sow it in small quantities in wet weather.

TO CORRESPONDENTS.

J. G. S., of Ohio—We do not know of any pile driving machinery for sale, and as for the boiler you can obtain one from any manufacturer of steam engines and boilers.

S. E., of Mass.—We think your views are correctly stated, and have no doubt but that the plan will work well. It is not new, however, and no patent can be secured for it.

W. B. C., of Ill.—The pressure of the atmosphere will be obtained where it can act, but nowhere else; a vacuum must have been formed some way for your water to rise.

J. H. D., of N. Y.—We have examined your plan of a steam brake; it will operate. Many plans have been tried before for making all the brakes act at once, and we do not see any new feature in this. R. Stephenson invented a steam-brake four years ago; yours is different, but we do not like it so well.

R. M, of D. C.—It has been our fortune to know, personally, a great deal about the practicability of steam carriages on common roads, and we are convinced they will not answer. The accounts of Gurney's experiments are certainly too highly colored. Your request has been complied with; it is so easy to test a steam carriage on a common road, or plank road, that those who have confidence in them are to blame for not demonstrating their superiority by practical operation.

G. G. H., of Pa.—Fountain pens, constructed to to act upon precisely the same principle as you propose. have been in use for a long time. Brakes constructed as you propose are impracticable, a vehicle would be soon wrecked to pieces by such sudden concussions. Thanks for the remittance.

S. L., of Ill.—In replying to you under the head of correspondence, in No. 32 Sci. Am., we should have said Mr. Spratt has no patent on the form of the point of the rod, but he has a patent on the amalgamated material sometimes used for that purpose.

R. P., of Vt.—If you will address James Ives & Co., at Hamden, Ct., they will give you all the information you need; we cannot.

H. S., of Ohio—You would see, by some of our remarks upon Phillips' Annihilator, before your gun was patented, that we suggested a holster pistol as being a superior Annihilator. Shooting with water is not new. This plan was successfully practiced by Valliant nearly 100 years ago. See his book of travels.

C. P. H., of N. Y.—Your cam wood stain would be rendered more permanent by using a little alum with the alcohol. Use alum and a small portion of the chloride of tin along with strong brazil wood, and you will have a good red stain.

R. H., of Mass.—Your Indicator has long been known and used, but it won't cure the evil—which is willful pressure.

B. B. L., of Ohio—See something about compensation pendulums in another column; yours is new to us.

C. B., of Mo.—We know the assignees of the Woodworth patent, claim that rotary cutters for tonguing and grooving, even if used separate from the planing machine: we do not know of any suit ever instituted for such an infringement.

J. H., of Phila.—See page 213, of Vol. 2, second series, "Glasgow Practical Mechanic," for a smoke preventer, the same exactly as the one sketched in your letter.

G. W. A. S., of La.—There are many places in this city where you can obtain stained glass, but if you wish it made to order, and desire to furnish your own designs, we would recommend you to Samuel West, No. 94 Fourth avenue, this city, as a superior stainer.

J. C., of N. J.—There are no doubt many glass painters in the city who could give you just such information as you solicit, but we are not acquainted with any.

H. H T., of N. C.—We have, in previous volumes (2nd and 3rd), published a complete series of articles on Painting, and if we should take up the subject again it would be but the reiteration of a well-told story, which would be uninteresting to thousands of our readers who possess those first volumes. Your plans for a carriage spring are all in use here; the first is patented.

B. H. W., of Ky.—We think the application of cold water to the gin, in the manner you propose, would be patentable; we have never known of its being done. We have heard before that the Smith cylinder was in use long before it was patented, probably the inventor will never test the validity of his document. Porter's Tuyere has been recommended very highly by those who have used them.

E. F., of N. J.—Duggan's work on bridges was published in numbers at 75c. each, but was never completed in consequence of the decease of the author. We can send you 8 numbers of the work for $1, if you desire it.

Money received on account of Patent Office business or the week ending May 8:

J. L., of N. Y., $30; W. D. A., of O., $2; W. B. L., of N. Y., $52; G. P., of N. Y, $32; J. P. D., of Pa., $10; D. & O., of Pa., $30; A. J., of N. Y., $32; A. C., of N. J., $30; Z. H, of O., $25; J. S., of Ga., $37; S. M., of N. Y., $25; A. M. G., of S. C., $20; W. P., of Mo. $30; J. T., of Pa., $30; J. L. A., of Ct., $42; J. B. C., of N. Y., $30; S. B. T., of Ct., $35.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending May 8:

J. H., of O; D. D. A., of Mass.; J. P., of Pa.; R. S. R., of Ky.; E. M. & Co., Pa.; S. M. B., of Vt.; J. S., of Ga, S. B. T., of Ct.; W. G. B., of Ct.; J. B. C., of N. Y.

An Important Paragraph.

Whenever our friends order numbers they have missed—we always send them if we have them on hand. We make this statement to save time and trouble, to which we are subjected in replying when the numbers called for cannot be supplied.

The Post Office Laws do not allow publishers to enclose receipts; when the paper comes regular subscribers may consider their money as received.

Subscribers ordering books or pamphlets are particularly requested to remit sufficient to pay postage.

Back Numbers and Volumes.

In reply to many interrogatories as to what back numbers and volumes of the Scientific American can be furnished, we make the following statement:

Of Volumes 1, 2 and 3—none.

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SCIENTIFIC MUSEUM.

Nautical Architecture.

Scott Russell recently delivered a lecture in London on the Science and Progress of Ship-building, in which he paid the most decided compliment to Brother Jonathan. The following is an extract from the lecture, which will be of great interest to our readers :—

"The subject placed on the list for consideration has been suggested by the assertion which, within a year or two, has been often repeated, that our transatlantic brethren are building better ships than ourselves; that, in short, Brother Jonathan is going ahead, while John Bull is comfortably dozing in his arm chair; and that, if he does not awake speedily and take a sound survey of his true position, he may soon find himself hopelessly astern. Two questions of a practical nature arise out of this alarming assertion. 1st. Whether the Americans are really in any respect superior to the English in nautical matters. 2nd. Whether, in order to equal them, we are to be condemned to descend into mere imitators, or whether we have independent ground from which we can start with certainty and originality on a new career of improvement in naval architecture In the outset, I beg permission to say that I am not one of those who shut their ears to the praises of our young and enterprising brethren over the water, or view their rapid advancement with jealousy. I beg to express my perfect belief in the accounts we have heard of their wonderful achievements in rapid river steam navigation. I am satisfied, as a matter of fact, that twenty-one, twenty-two, and twenty-three miles an hour have been performed, not once, but often, by their river steamboats. To that we cannot in this country offer any parallel. The next point in which they had beaten us was in the construction of the beautiful packet-ships which carried on the passenger trade between Liverpool and America, before the era of ocean steamers. These were the finest ships in the world, and they were mainly owned and sailed by Americans. The next point at which we have come into competition with the Americans has been lately in ocean steam navigation. Three years ago they began. They were immeasurably behind us at starting; they are already nearly equal to us. Their trans-atlantic steam packets equal ours in size, power, and speed; in regularity they are still inferior. If they continue to advance at their present rate of improvement, they will very soon outstrip us. Next I come to the trade which has long been peculiarly our own, the China trade. The clipper-ships which they have recently sent home to this country have astonished the fine ships of our own Smiths and Greens. Our best ship-owners are now trembling for their trade and reputation. Finally, it is true that the Americans have sent over to England a yacht called the America, which has found on this side of the Atlantic no match; and we only escaped the disgrace of her having returned to America, without any of us having had the courage to accept her defiance, through the chivalry of one gentleman, who accepted the challange with a yacht half the size on this principle so worthy of John Bull, 'that the Yankee, although he might say that he had beaten us, should not be able to say that we had all run away.' Such then, at present, is our actual position in the matter of ships, yachts, and steam navigation; a position highly creditable to the Americans, and which deserves our own serious consideration. I propose to examine a little into the physical causes of the naval success of the Americans; but before doing so permit me to point out a moral one, which, later in the evening, you will also find to lie at the bottom of the physical causes. It is this:—John Bull has a prejudice against novelty; Brother Jonathan has a prejudice equally strong in favor of it. We adhere to tradition in trade, manners, customs, professions, humors; Jonathan despises it. I don't say he is right and we are wrong; but this difference becomes very important when a race of competition is to be run.—These preliminary remarks find immediate application in the causes which have led to our loss of character on the sea. The Americans, constantly on the alert, have carried out and applied every new discovery to the advancement of navigation; while, with the English, naval construction and seamanship is exactly that branch of practice in which science has not only been disregarded, but is altogether despised and set aside. The American ships show what can be done by modern science unflinchingly put in practice; the English show what can be done in spite of science and in defiance of its principles. . . . It appeared, from the comparison which was instituted between the construction of American and English vessels, that the American ship-builders have gained over the English chiefly by the ready abandonment of old systems and the adoption of the true principles of science and the most modern discoveries. They have changed their fashion of steamers and ships to meet new circumstances as they arose. For river steamers they at once abandoned all the known sea-going forms, and created an absolutely new form and general arrangement both of ship and machinery. We, on the other hand, subject to the prejudices of a class, invariably attempted to make a river steamer as nearly as possible resemble a sea-going ship propelled by sails. We were even for a long time so much ashamed of our paddle-wheels that we adopted all sorts of inconvenient forms and inapt artifices to conceal them. The fine sharp bows which the wave principle has brought to our knowledge have been adopted in this country with the greatest reluctance; and those who adopt them are often unwilling to allow that they are wave-bows, and would fain assert that 'they always built them so,' were it not that the ships' lines are able to speak for themselves. The Americans, however, adopted the wave bow without reluctance, and avowed it with pleasure the moment they found it give them economy and speed. In like manner, the Americans having found the wave bow or hollow bow good for steamers, were quite ready to believe that it might be equally good for sailing vessels. We, on the other hand, have kept on asserting that, though we could not deny its efficacy for steamers, it would never do for vessels that were meant to carry sail. The Americans, on the contrary, immediately tried it on their pilot-boats, and finding it succeed there, avowed at once, in their latest treatise on naval architecture, the complete success of the principle; not even disclaiming its British origin. To prove to ourselves our insensibility to its advantages, they built the America, carried out the wave principle to the utmost, and, despising the prejudices and antiquated regulations of our clubs, came over and beat us. The diagrams and models which were exhibited showed the water-line of the America to coincide precisely with the theoretical wave line. In one other point the Americans had shown their implicit faith in science, and their disregard of prejudice. Theory says, and has always said, 'sails should sit flat as boards. We have said, 'they should be cut so as to hang in graceful waves. It has always been so; we have always done it.' The Americans believed in principle, and with flat sails went one point nearer to the wind, leaving prejudice and picturesque sails far to leeward. In other points, the Americans beat us by the use of science. They use all the refinements of science in their rigging and tackle; they, it is true, have to employ better educated and more intelligent men; they do so, and, by employing a smaller number of hands, beat us in efficiency as well as in economy."

[Is it true that the wave-line is the discovery of Mr. Russell? We have heard it stated a number of times that it was in practical use on many of our pilot boats and river steamers before Scott Russell published his work on the subject. Some of our naval architects can set the matter in its true light.

Hiccup and Sneezing.

To cure the hiccup, let the person affected hold in his breath as long as possible—the non-oxygenation of the blood deadens the irritability of the nervous system so much, that, in most cases, a single trial will stop it; obstinate cases may require two or three repetitions. To prevent sneezing, let the upper lip be pressed severely, it intercepts the nervous communication so that the proper muscles cannot be called into requisition for the act; pressure will break the circuit of nervous communication as a broken wire will stop the telegraph; it is best to press near the nose. I can confidently recommend both plans from seven years' experience. B. H. W.

On Boilers.---No. 23.

Fig. 46

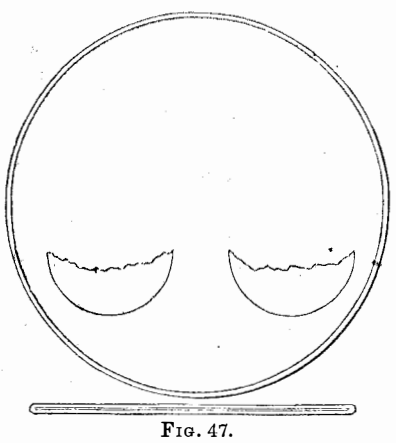
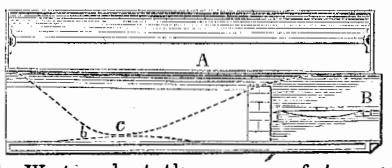


Fig. 47.

Explosions—Alfred Guthrie, Engineer of the Chicago Water Works, Ill., has done much to be gratefully remembered by his countrymen, in examining into the causes of the explosions of boilers on our Western waters. For months did he sail up and down the Mississippi, seeing for himself, on the various steamboats, and gathering information from various engineers about the construction and management of the boilers of the boats. The results of his expensive and arduous philanthropic labors are before us, in a good-sized pamphlet, with illustrations, all of which were exhibited to us by him some time ago, on a large scale. In connection with this, we have a Bill now before us, also, which has been introduced into the Senate by Senator Davis, from the Committee on Commerce, for the prevention of explosions; the pamphlet of Guthrie has been the means of doing this. We like the Bill, and hope it will pass; it does credit to Senator Davis, for it is plain, pointed and exceedingly practical. By the pamphlet before us, it is very plain that the direct causes of so many explosions in the Western waters are, bad construction and arrangement of boilers and their appurtenances; recklessness of captains and engineers, and an over-pressure of steam—the latter might rather be a consequence of a cause, and the explosion a consequence of a secondary cause. On some of

Fig. 48.



the Western boats the pressure of steam on the boiler is very great—over 150 lbs.; the engineer himself, from the defective manner of arranging the safety-valve, often does not know what pressure of steam he carries. The collapsing of flues is very common, owing to the water getting too low in the boiler, and the top of the flues getting red hot.

Figure 46 shows the flues of a Mississippi steamboat boiler, half collapsed, and fig. 47 shows a flue wholly collapsed. The circular flues are the strongest, but there is no doubt in our minds of the improvement which would be effected if the Western steamboat boilers were made with some vertical conical tubes, like the one represented on page 264. In fig. 48, there is represented a defective flue of an oval shape, which was built for obtaining a greater depth of water over the flue, without diminishing the heating surface or amount of steam room, but in order to avoid the risk of a deficiency of water, a greater evil is to build such a flue. This figure shows the collapse of an oval flue belonging to a Cornish boiler in Newton Lancashire, which exploded in 1838. The engine was high pressure—the collapse was the cause of the boiler exploding, which was terrific—the noise was like a clap of thunder, and a number of persons were killed. The boiler, A, was 12 1-2 feet long, 4 3-4 feet in diameter, and the flue 3 feet wide by 2 1-2 deep. The top and bottom of the flue are shown crushed together, by the line *b c*, about midway between the further end of the boiler and the bridge. We hope none of our boiler makers will make any boilers with such a form of flue; we know, however, that some have made boilers even of a worse form than this.

The first sample of the Irish Beet-Root Sugar was recently sold in London at 33s. per cwt., a price far below that of Colonial Sugar, and yet the Beet-Root Sugar will realize a profit to the manufacturers.

LITERARY NOTICES.

Arvine's Anecdotes of Literature and the Fine Arts—This splendid book is just published by Gould & Lincoln, of Boston; it is a Cyclopedia of the choicest anecdotes of the most celebrated characters of all nations. It is a large volume of 700 pages, and is got up in excellent style. It is a book of gems—every anecdote is a polished brilliant. The anecdotes are not of a stale shallow character, merely to make a person laugh; no, some of them reveal the whole characteristics of a celebrated singer, statesman, or poet. In fact it is a series of biographies, showing the salient points of character. Besides this, there are remarks full of wisdom and instruction, delivered by the greatest geniuses, such as Galileo, Bacon, Newton, Raphael, Angelo, Handel, Haydn, Reynolds, Burke, Scott; in short it is one of the most valuable books ever published. In it the man of science and the mechanic will find much that is valuable and useful. The section of anecdotes of authors is as entertaining as any novel. It is the best work of the kind ever published, and should find a place, as it no doubt soon will, not on the shelf of every library, but in the hands of some person in every family of our land. It is for sale in this city (N. Y.), by Chas. Scribner, 145 Nassau st.

Norris's Hand-Book for Locomotive Engineers and Machinists—This is a most important work published by H. C. Baird, Philadelphia; the author is Septimus Norris, the eminent engineer in Philadelphia. Coming from such a source, it is a work which we hail as a boon to the Engineering community. We like the spirit which induced him to get up this work. He says, "I give here the result of my experience, after a study of twenty years, engaged with my senior brother, Wm. Norris, to whom I am indebted for all the information I have received relating to locomotives. He built the first locomotive in this country." In connection with his brother she has built 530 locomotives, 170 of which are now successfully running in England and on the Continent. In this work he has given what are called "the secrets of the business," in the rules to construct locomotives, in order that "the million should be learned in all things." He presents all the rules and calculations in simple arithmetic, so that our mechanics who do not understand algebra will be able to comprehend all the formulæ. There are rules of mensuration in it, and good tables of calculations. The boiler, framing, valves, and the working parts of a locomotive, are all fully described. It is a book which cannot be dispensed with by any of our intelligent engineers. It is for sale in this city by J. S. Taylor, 143 Nassau st.

Chamber's Pocket Miscellany—Gould & Lincoln, of Boston, have commenced to issue this most excellent readable series of works, for the very low price of 20 cents per volume. The series will be issued monthly. We do not know how it is possible to publish so much good reading matter, at such a low price. We speak a good word for the literary excellence of the stories in this Miscellany; we hope our people will introduce it into all their families, in order to drive away the miserable flashy-trashy stuff, so often to be found in the hands of our young people of both sexes. It is also for sale by C. Scribner, 145 Nassau st.

Littell's Living Age—Number 416 of this most excellent weekly magazine, is a very excellent one. It contains articles on Lord Holland's Memoirs of the Whig Party, Anecdotes of Horses, and twelve other most able articles—the cream of European literature. It is for sale by Dewitt & Davenport, this city.