The Electric Telegraph.

No. 4.

In our last we promised to treat of what a "patent covered and what it did not." There are many conflicting opinions respecting what is termed a *result*, that is a certain article made that never was made before. Some believe that a patent for such a result as a *new* shoe or a *new* alphabet, or *new* cloth, is not legally the subject of a patent and that the means only to obtain the same result is valid as the subject of a patent. Our laws however and those of all other civilized countries protect by patent the result as well as the means to obtain it, but this cannot be legally covered in one patent. The result must be a subject of itself and so must the means to obtain it A result however is very easily obviated for the least change in combination essentially alters the features of a result. Thus the telegraphic alphabet of Morse is the legal subject of a patent, but another person dropping his dash and using the dot, produces a totally different result. We make this remark, because tbat many have supposed, and it was contended for at the recent trial at Frankfort, Ky. that Prof. Morse could not legally hold his alphabet (*result*) under a patent, Patents are granted for a new principle, and a new combination, to produce certain results. The combination patent is easily avoided, but if the combination is the limit of improvement, a patent for the said combination is just as good as if it was for a principle, for the changes of combination must produce an inferior result, (an inferior article.)

The patent for a principle might be the subject (to no purpose) of a volume. Every patent should clearly specify the principle of invention and for want of this clearness, we have had many law suits. Nothing suits lawyers better than vaguely specified patents—therefore the impropriety of employing that class as agents to make specifications—those murky productions for the honest trade of the gentlemen of the bar.

In respect to different principles of telegraphing we have already specified four that are perfectly distinct, that might legally be held and operated in one country without any just confliction. It is the great fault with many inventors, those that have money, that they are too jealous of inventors in the same field with themselves. This should not be. It is perfectly possible that one might invent something this year, and another invent something in the same line next year that would be altogether superior. Let every one make the most of their invention while it lasts and not be too jealous of being superseded. We express no sympathy for the plunderers of principles by a simple equivalent alteration—these men should be rewarded with a just legal infliction. But inventions essentially different in character to produce like results (results not patented) should not be subjects of angry litigation between different parties.

Prof. Wheatstone in England, and Prof. Morse of America, have been blamed for grasping too much in their claims—claiming in opposition that which they never conceived (*invented*) Prof. Wheatstone has made himself notorious for opposing every electric telegraph for which a patent was requested in England. When Prof. Morse applied for one in London, Wheatstone opposed him—the two Professors were regularly pitted against one another, but Wheatstone the plunderer of poor men's inventions, was victorious and the Professor of painting came off with *flying colors*. We hope that Mr. Morse will not be actuated towards other telegraph inventors, with the same spirit which he justly condemned in Lord Campbell and *Puffer* Wheatstone—that he will in the righteous spirit of equal and exact justice, give sea room to those telegraph inventors which he has calmly declared to be *different* from the *Electro Magnet Telegraph*. Some have endeavoured to detract from the merit of Prof. Morse as the inventor of the Electro Magnet Telegraph, and make him indebted to Dr. Jackson of Boston for all his information, he being a passenger in the Sully with Prof. Morse in 1832, and used to converse with him on the subject. It would have looked more candid if Prof. Morse had mentioned the name of the *passenger* with whom he used to converse on the subject while on his voyage from France in 1832. Yet what of all this, we have no evidence that Dr. Jackson ever constructed an electric telegraph, and although Prof. Henry gives tardy praise to Mr. Morse, the names of great scientific men should not be allowed to weigh as a feather in the balance against a successful inventor but a less distinguished man of science. For more than 30 years Sir Humphrey Davy had the world wide honor of being the first inventor of the Safety Lamp, and it was not till the summer of 1848, that the inventor, Geo. Stevenson the mechanic, was acknowledged before a high Scientific Association. There is another kind of telegraph which we have not yet described, viz. the printing telegraph.—We see that House's has lately occupied much attention—but this is a borrowed invention—essentially so, as we shall prove in another article.

Levelling.

A pole about 10 feet long must be procured and also a staff about 5 feet long, on the top of which is fixed a spirit level, with small sight holes at the ends, so that when the spirit level is perfectly horizontal the eye may view any object before it through the sights in a perfectly horizontal line. If you have to measure the perpendicular distance between the bottom and top of a hill for instance; place the level staff on the side of the hill in such a way that when the level is truly set the top of the hill may be seen through the sights; keep the level in this position and look the contrary way; then cause some person to place the 10 feet staff before the sight further down the hill and looking through the sights to the staff cause the person to move his finger up or down the staff until the finger be seen through the sights and mark the position of the finger on the staff. Keep your 10 feet staff in the same place and carry your level staff down the hill to a convenient distance, then fix it in the same way as before; and looking through the sights at the 10 feet staff, cause the person to bring his finger towards the bottom of the staff and move his finger up or down the staff in the same way until it be seen through the sights and mark the place of the finger. Then the distance between the two fingers' marks, added to the height of the level staff will be the perpendicular distance between the place where the level staff now stands and the top of the hill. The process is perfectly simple, and it will not be difficult to repeat it ottener, if the height of the hill requires it.

This process will give what is called the apparent level, which, however, is not the true level. Two stations are on the same true level when they are equally distant from the centre of the earth. The apparent level gives the objects in the same straight line but the true level gives the line which joins them as a part of a circle whose centre is the centre of the earth. In small distances there is no sensible difference between the true and apparent level of any two objects. When the distance is one mile the true level will be about 8 inches different from the apparent level. This will serve well enough to remember, but more correctly speaking it is 7. 962 inches for 1 mile, and for other distances the difference of the two levels will be as the square of the distance. Thus at the distance of two miles it will be 1+1=2X2=4X8=32 inches.

These circumstances must be strictly observed in the formation of canals, and railways.

Baths in Russia.

In Russia they have Sweating or Vapor Baths which are resorted to by persons of all classes, rich and poor free of expense because these baths are supported and kept up by the government. Here mingle together the beggar, the artisan, the peasant and the nobleman to enjoy the luxuries of a steam or sweating bath in both sickness and health. The method as pursued by them to produce the vapor bath is simply by throwing water on red hot stones in a close room, which raises the heat from 150 to 168 degrees; making when at 168 degrees, above a heat capable of melting wax and only twelve degrees below that for boiling spirit of wine. In this tremendous and excessive heat which on an American would produce suffocation, the Russian enjoys what to him is a comfortable luxury of the vapor-bath, which shows clearly the wonderful force of habit among mankind. In these bath-houses are constructed benches on which they lie naked and continue in a profuse sweat for the lapse of one, and sometimes two hours, occasionally washing or pouring over their bodies warm or cold water. During the sweating stage the body is well rubbed or gently whipped with leafy branches of the birch tree to promote perspiration by opening the pores of the skin. A Russian thinks nothing of rushing from the bath room dissolved in sweat and jumping into the cold and chilling waters of an adjacent river; or, during the most piercing cold to which his country is liable in winter, to roll himself in the snow; and this without the slightest injury. On the contrary he derives many advantages from these sudden changes and abrupt exposures; because by them he always hardens his constitution to all the severities of a climate whose colds and snows seems to paralyze the face of nature. Rheumatisms are seldom known in Russia; which is certainly owing to their habit of thus taking the vapor bath. The great and sudden transition from heat to cold seems to us very dangerous and unnatural; but we have no doubt the Russians owe their longevity their healthy and robust constitutions, their exemption from certain mortal diseases and their cheerful and vivacious tempers, to these baths and their general temperate mode of living.

Oxidation of the Diamond the Liquid in Way.

Professors R. E. and W. B. Rogers, of Virginia, lately published some of the processes by which the diamond may be converted into carbonic acid with only a moderate heat, by the use of simple chemical agents. The processes for oxidizing the diamond hitherto practised was by burning this gem, either in the air or in oxygen gas, or in some substance rich in oxygen, as nitrate of potasa. In all these experimenrs a great heat is required. It is therefore interesting to discover that the diamond may be converted into carbonic acid in the liquid way and at a moderate heat by the reaction of a mixture of bichromate of potassa and sulphuric acid—in other words, by the oxidating power of chromic acid. To succeed in this experiment, it is necessary to reduce the diamond to the most minute state of division A single grain of the gem will suffice for many experiments. In repeated trials more than half a grain has never been used—and clear evidence of the oxidation has been obtained by the evolution of carbonic acid. The bichromate of potash when heated is always found to afford some carbonic acid, —but error is avoided by first heating the acid alone in the retort to above 350°, then adding the bichromate by degrees, and stirring the mixture so as to effect a complete separation of chromic acid A very brisk reaction takes place—much oxygen is disengaged and with it any carbonic acid which the materials themselves are capable of evolving. When no more carbonic acid can be detected by lime water tests, the powdered diamond is carefully added. The evolution of carbonic acid, continues the Professors R., is soon evinced by the growing milkiness of lime water, and this continues slowly to increase as long as there is any free chromic acid in the retort. The chief point of interest in the subject however, is the fact—now published for the first time—that the diamond is capable of being oxidated in the liquid way and at a comparatively moderate temperature—varying between 250 and 440 degrees.

A New Cave Explored.

Professor Carroll, with thirteen pupils of Mercer University explored a second mammoth cave in August last which is entered through Raccoon mountain on the dividing line between Tennessee and Georgia; and which is called the Student's Cave. A communication in the Savannah Republican gives these descriptions:

"The peculiar feature in the cave is that it consists of an irregular passage or entry, with rooms and in some cases suites of rooms, opening at irregular distances on each side. The width of the entry is about twenty feet and the roof varies from five to sixty feet in height. The floor is in some places even though generally it is covered with masses of fallen rock and disfigured by yawning caverns which it required much care to pass over in safety.—The ceiling is in no place smooth, but there hang from it short stalactites, which can be compared to nothing better than a washer-woman's smoothing-irons fastened by the handles to the roof and hanging an inch or two apart.

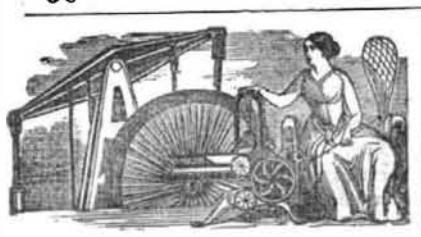
Down this entry this party passed for half a mile until they came to where it swells out to large dimensions and descends very abruptly for quite a hundred feet forming a huge and unsightly chamber. Terminating their exploration in this direction here they retraced their steps. About four hundred yards from the entrance however is to be found the most attractive part of the cave through which they passed. Here a noble and lofty dome with all its proportions perfect spanned the entire passage. On the right to our coming from the entrance and immediately under the dome, about ten feet from the floor, there is a deep recess formed by a bold curve of the wall, on each side. The back ground of this recess is filled up by the appearance of a splendid Grecian temple which would not suffer in comparison with the Parthenon in its best days Aided a little by the excitement of the visiter and by the shadows cast by the lights the facade is perfect. A little back of the regular line of the wall extends a row of massive fluted columns pediment and all, while in the rear still appears the body of the temple: the door in the right place and of the right dimensions and all the proportions perfect.

On the left of the passage and under the same dome, ascends a regular winding stairway about five feet in width. The walls are of stalactite formation in some places as smooth as glass, in others grooved and in others still plastered, and they glittered in the torchlight light like polished diamonds. When they had ascended this stairway some thirty five feet they came to a wall which closed it up at right angles. In the middle of this wall, and about three feet from the floor, there is an opening about a foot and a half in diameter, through which they crawled. And here they entered into a suite of rooms gorgeous beyond description. The first was a small antechamber about twelve feet in diameter; the walls of stalactite and the floor of stalagmite, and the ceiling so high that with all three of their torches together they could not get a glimpse at it.

On the farther side of the chamber near the entrance to the next room were two splendid columns each about two feet and a half in diameter,—that on the right side seemed to be made of large translucent shell, (resembling those beautiful shells that ornament the mantles of the rich) and so high as to be lost in the darkness above—the one on the left appeared as perfect a Corinthian column, gorgeous capital and all, as art could fashion.—Passing between these and through an arched doorway they entered into another large room; here was almost every variety of stalagmite formation that can be imagined Statues, pyramids and shafts studded the floor in splendid profusion. Gorgeous columns extended up to the ceiling and heavy stalactites terminating below in their curled leaves reached down to within three feet of the floor. One of these when struck sounded like the tolling of a large bell, another gave forth the deep tones of the largest pipes of the organ, not faintly but filling with its loud peal the whole compass of the cavern while its rich note swelled and reverberated in the arches below.

The next chamber seemed to be a regular wardrobe with ladies dresses hanging all around the walls, every fold in the garments being as distinctly marked as if they were veritable dresses. In the fourth room on a smooth place on the wall the party wrote their names and the date of their visit with charcoal, which has doubtless long before this been obliterated. To this suite of rooms they gave the name of Cathedral."

A person describing the absurdity of a man dancing the Polka, appropriately said, that it appeared as if the individual had a hole in his pocket, and was vainly endeavoring to shake a shilling down the leg of his trowsers.



New Inventions.

A New Telegraph.

The Baltimore Clipper says: "Mr. George Mathiot of this city, has made an improvement on the receiving magnet invented by Professor Morse, by two independent and distinct engines or machines at a distant station, using at the same time but a single wire between the places—a result which has been hitherto been supposed impossible to be obtained except by the use of two wires. One of the applications which Mr. Mathiot has made of his invention is the working of two pens on Morse's instrument, by which it is enabled to write nearly twice as fast as with one pen: and instead of the alphabet used by Professor Morse, a symbolical alphabet is formed, quite as distinct and varied as the common English alphabet."

From the above description we would be led to infer that two different messages could be sent upon one wire at the same time, which is an imposibility. Two or three pens can be used with Morse's telegraph and his alphabet is a good one—yet we do not think that his telegraphic invention is the climax, but we would like to know the improvement on the *magnet* spoken of above, which at once doubles the value of Morse's invention.

Improvement in the Manufacture of Iron

Mr. Lorenzo Peibert, of Shenandoah Co. Pennsylvania, has invented a new smelting furnace, which the Winchester Republican says "will make malleable iron from the ore and be a saving of $40 per ton." We are glad to see the attention that is now being paid to improve our iron manufacture. It is time that we were rivalling Europe, if not in the quantity at least in the quality of our iron.

At Harlem in this city, there is an establishment for making steel from iron by a short process—making first good iron from the ore and then converting it into steel. It is said that steel is made cheaper there than in England. We hope this is true, and also that it is better, for it is a fact well known to our mechanics, that the English steel which now is imported here, is not so good as the kind that used to be imported a few years ago Mr. S. Broadmeadow is the gentleman who conducts, and that in a superior manner, the steel establishment at Harlem and he has lately discovered a superlative method of distilling zinc, which must be of great benefit to our country at large.

Improvement in the Deflective Telegraph.

Mr. Holmes, of the Electric Telegraph Co. London, has made an improvement in that kind of Telegraph, which from its extraordinary simplicity connected with its results, is really deserving of notice.

The improvement consists in the substitution of a single small steel lozenge three quarters of an inch long for the two five inch astatic magnetic needles heretofore used and then placing the lozenge between two diamond coils. This form, says the Civil Engineer and Architect's Journal, has the advantage of giving a signal free from the constant vibration of the needle, which is the great fault of the old needle telegraph, and at the same time the battery is reduced to one tenth the number of plates for a circuit of two hundred and fifty miles.

Improved Water Faucet.

George and William Gee, two very enterprising young mechanics of this city have recently invented a Self stopping Faucet, which from its simplicity and cheapness will doubtless come into general use. It can also be applied to Hydrants and is so arranged that no water can remain in the discharge pipe thereby preventing all danger of freezing. Application has been made for a Patent.

THE HYDRAULATOR.

This apparatus is for drawing water from some distance out of a well and bringing it to the dwelling. It is the invention of J. I. & S. P. Cox, Shippinsburg, Pa, and its extreme usefulness will warrant it yet a general employment. By it water can be taken by a female into a house without coming out of doors, and an apparatus of the same kind could as well be used for conveying water from the upper part of a building. Although it looks to be a little complicated in this engraving, yet it is very simple and we believe that after reading the following description any one of our readers will be enabled to make one himself. It can be made very cheap, all the out of the way materials is three pullies, and the rest is a few pieces of wood and some wire.

Figure 1.

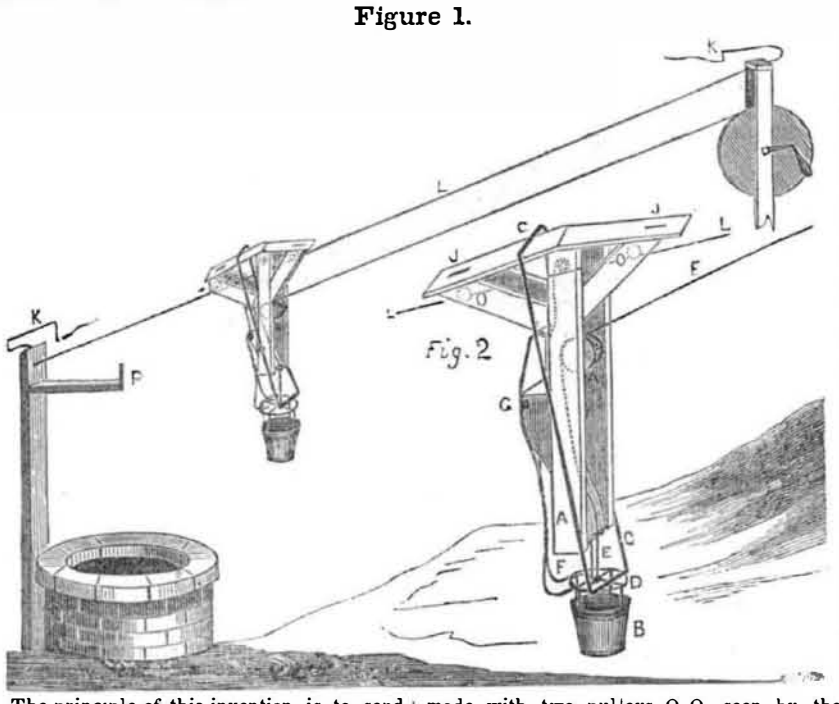
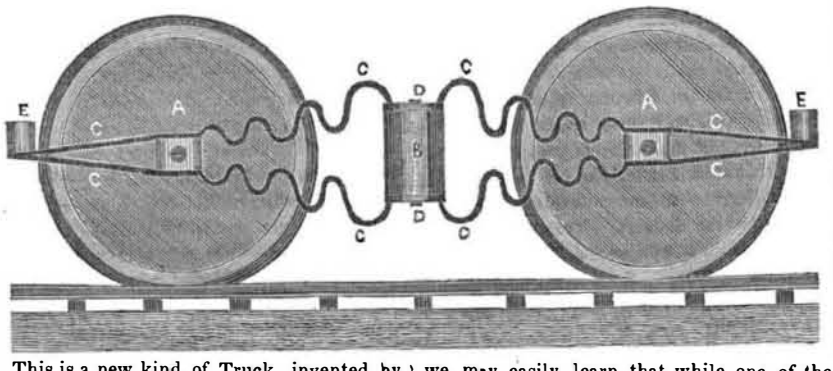


Fig. 2

The principle of this invention is to send the bucket from the house on an inclined rail made of wire or a stout rope, and to have the bucket drop into the well by a cam, and then the bucket to be drawn up to a catch on the sliding frame and the whole apparatus drawn up to the house again by the bucket cord being wound on a pulley. The large pulley and handle to the right above are fixed on a frame placed in any convenient part of the dwelling. Fig. 1 shows the Hydraulator in operation, and fig. 2 is an enlarged view of the moveable carrier parts. L, fig. 1, is a strong wire or rope, fastened into a simple upright pulley frame at the one end and to the top of a post at the back of the well at the lower end. This rope or wire is the inclined rail on which the moveable apparatus travels up and down. K K, are two spring cams, which may be made of wire or wood, to catch into notches J J, see fig. 2, on the top, so as to hold the *carrier* at the top and at the end of L. P, fig. 1, is an upright rod, which throws the bucket catch out of geer with the bucket when the carrier reaches above the well, and the bucket then drops down and is filled with water. A A, is the frame of the carrier. It is made with two pulleys O O, seen by the dotted lines fig. 2. These pulleys run upon L. S, is another pulley for the bucket rope E, B is the bucket over the mouth of which is a slight wicker frame D. C, is a cross rod which moves up and down by the bucket, so as to throw K out of J J, and set the carrier free from the catches. All that is necessary to do this is to turn the pulley above. F, is the bucket catch. It is a prong shaped stick or wire to catch into D, and is fixed on a pivot G, on the frame. This holds the bucket in the carrier, and when it is ungeared by P, the bucket is let down into the well and the carrier held fast by K. When the bucket is lifted up to the bottom of the carrier, one turn more on the pulley lifts C C, throws K out of J, F catches, and away the bucket and carrier comes up the rail. The parts in this engraving are too large drawn in proportion to the size of the apparatus, which can be made slender and neat. The Hydraulator has been used with great satisfaction, and it answers a purpose better than the hydraulic ram.

Measures have been taken to secure a patent.

HYDE'S CURVED SPRING TRUCK.

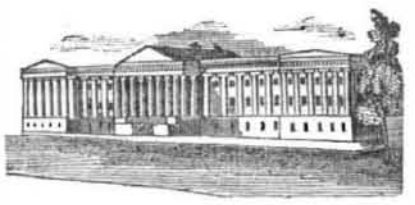


This is a new kind of Truck, invented by Mr. H. T. Hyde, of the city of Troy, N. Y. It presents some new features in principle and construction, well worthy of attention The principle of the invention. is to employ double steel or good iron arch-formed side bearings between the central transverse beam and the journal boxes, so as to accommodate the form of the car itself—the whole body of it—to the turning of narrow curves.

The above engraving is a side elevation.—A A, are the wheels. B, is the central transverse beam. C C C C, are the spring side bearings, and E E, are the front transverse beams.

It is well known that the form of the arch combines the greatest strength with the apparent slenderness of parts, yet from the above we may easily learn that while one of the bearings might be 8 feet long before it was curved, it may be made to be longitudinally on the truck only 4 feet, thus condensing in a most simple manner the lateral strength of 8 feet of iron or steel into 4 feet. A square inch of malleable iron will bear without permanent alteration a pressure of 17,800 pounds. while the direct cohesion of a bar of tilted steel one inch square is 59 tons, therefore a careful attention should be given to this new truck of Mr. Hyde. The springs are broad in comparison to their thickness, so that in the lateral straining when turning a curve they may combine great strength with flexibility.

Measures were taken some time since to secure a patent.



LIST OF PATENTS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending Oct. 31, 1848.

To John Turner, of St. Alban's, Me., for improvement in Shingle Machines. Patented Oct. 31, 1848.

To W. W. Riley, of Columbus, Ohio, for improvement in Fastenings for Pantaloon Straps. Patented Oct. 31, 1848.

To Isaac W. Ayres, of New York City, for Water Doors for Steam Boilers. Patented Oct. 31, 1848.

To Livingston, Roggin & Adams, of Pittsburg, Pa., for improvement in Insulating supports for Telegraph Wires. Patented Oct. 31, 1848.

To James Stevens, of Middletown, Md., for improvement in Cooking Utensils for cooking and steaming. Patented Oct. 31, 1848.

To James and John Haworth, of Frankford, Pa. for improvement in Looms. Patented Oct 31, 1848.

To Thomas Marquis, of New York City, for improvement in Fliers for roving, &c. Patented Oct. 31, 1848.

To Nathaniel Oakley, of Babylon, N. Y., for improvements in hanging running stones in Mills. Patented Oct. 31, 1848.

To Stephen B. Cram, assignee of John Johnson, Boston, Mass., for improved Hand Drill. Patented Oct. 31, 1848.

To Timothy D. Jackson, of Brooklyn, N. Y. for improvement in Alloys for Sheet Metals. Patented Oct. 31, 1848.

To Joel Robinson, of Methuen, Mass., for improvement in Shoe Pegging Machines — Patented Oct. 31, 1848.

To Richard A. Tilghman, of Philadelphia, Pa., for improvement in the manufacture of Alkaline Chromates. Patented Oct. 31, 1848.

To William Fink, of Williamsport, Md. for improvement in Saw Mills. Patented Oct. 31, 1848.

To David Hinman, of Brunswick, Ohio, for improvement in apparatus for transmitting Power. Patented Oct. 31, 1848.

To John Mills, of Pitt Township, Pa., for improvement in Wagons. Patented Oct. 31, 1848.

INVENTOR'S CLAIMS.

Metallic Grummet.

E. H. Penfield, Middletown, Conn. Improved metallic Grummet. Patented Sept. 19, 1848. Claims the making a Grummet of a metallic cylindrical tube or ferule, having a solid disk or rim on one edge and a similar shaped solid disk with a ferule made with teeth or points, which two together pass through the cloth and lock in such a manner that the teeth or points may turn over and press upon the cloth to prevent it being strained out and torn or injured by the strain on the sail.

Steam Hammer.

Lewis Kirk, Reading, Pa., for Improved Steam Hammer. Patented Sept. 19, 1848.—Claims combining a horizontal steam engine with the helve of a hammer, by means of an arm and jointed link, or its equivalent substantially as herein described.

Refrigerators.

Thomas B. Smith, Philadelphia, Pa., for Improvement in Refrigerators. Patented Sept. 19, 1848. Claims the application to refrigerators of the door-way and non conducting partition, to obtain entrance without affecting the temperature inside, as described, and in combination with said refrigerator, the employment of pipes or valves, to admit cool air into the adjacent rooms.

Railroad Cars.

John F. Randolph, Troy, N. Y. for improvement in Railroad Cars. Patented Sept. 26, 1848. Claims supporting the truck on journals made each side of the wheels on the hubs or short axles, when this is combined with the long axle passing through the hub or short axles substantially as herein described and for the purpose specified.