

Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

VOLUME 5.]

NEW YORK SEPTEMBER 22, 1849.

[NUMBER 1.

THE Scientific American,

THE

BEST MECHANICAL PAPER IN THE WORLD.

CIRCULATION 12,000.

PUBLISHED WEEKLY.

At 128 Fulton Street, New York, (Sun Building,) and
13 Court Street, Boston, Mass.

BY MUNN & COMPANY.

The Principal Office being at New York.

Barlow & Payne, Agents, 59 Chancery Lane, London.

TERMS—\$2 a year—\$1 in advance, and
the remainder in 6 months.

Rail Road News

New Jersey Railroads.

We have received the letters in pamphlet form, which appeared in the Burlington Gazette, N. J. under the signature of "A, citizen of Burlington," exposing the Railroad monopoly of that state. We read the majority of these letters before, and became convinced of the necessity of the reforms he advocated, "the abolition of the monopoly." If there is anything more pointed than another, to prove the mighty influence of an honest public press, and the power of one able man with truth on his side, it is these letters. They have already destroyed the monopoly. The public have been enlightened—a convention of respectable citizens of New Jersey, have met and deliberated on the evils of the Railroad system of that state, which used to levy on passengers from other states, a poll tax for travelling by Railroad through it. The fare between this city and Philadelphia, has been reduced \$1 already, and the evils of management, so effectually exposed by Mr. Carey the "citizen," will be reformed, and the whole household of abuses will no doubt, be soon swept clean and garnished:

Foreign Railroad Iron.

English Railroad iron which has been bought for some of the Pennsylvania roads has been found to be very poor stuff—dearer than ours at \$50 per ton, although purchased for \$40. It is not the lowest priced article, that is the cheapest. Some people purchase iron, as if its value was in its name—that iron is iron, no one doubts, but an egg is an egg, be it fresh or rotten, and many of our companies, may find out that their cheap railroad iron, like eggs, has the qualities with the price of their far-fetched profits.

Great Tunnel.

Proposals are solicited for the construction of the great tunnel through the Blue Ridge, by which the Louisiana Railroad will be prolonged into the great valley of Virginia, near Staunton. The tunnel will be 4260 feet long, 16 feet wide and 20 feet high, with a ditch on each side; it will slope eastwardly, at the rate of 66 feet to the mile, and pass 700 feet below the top of the mountain.

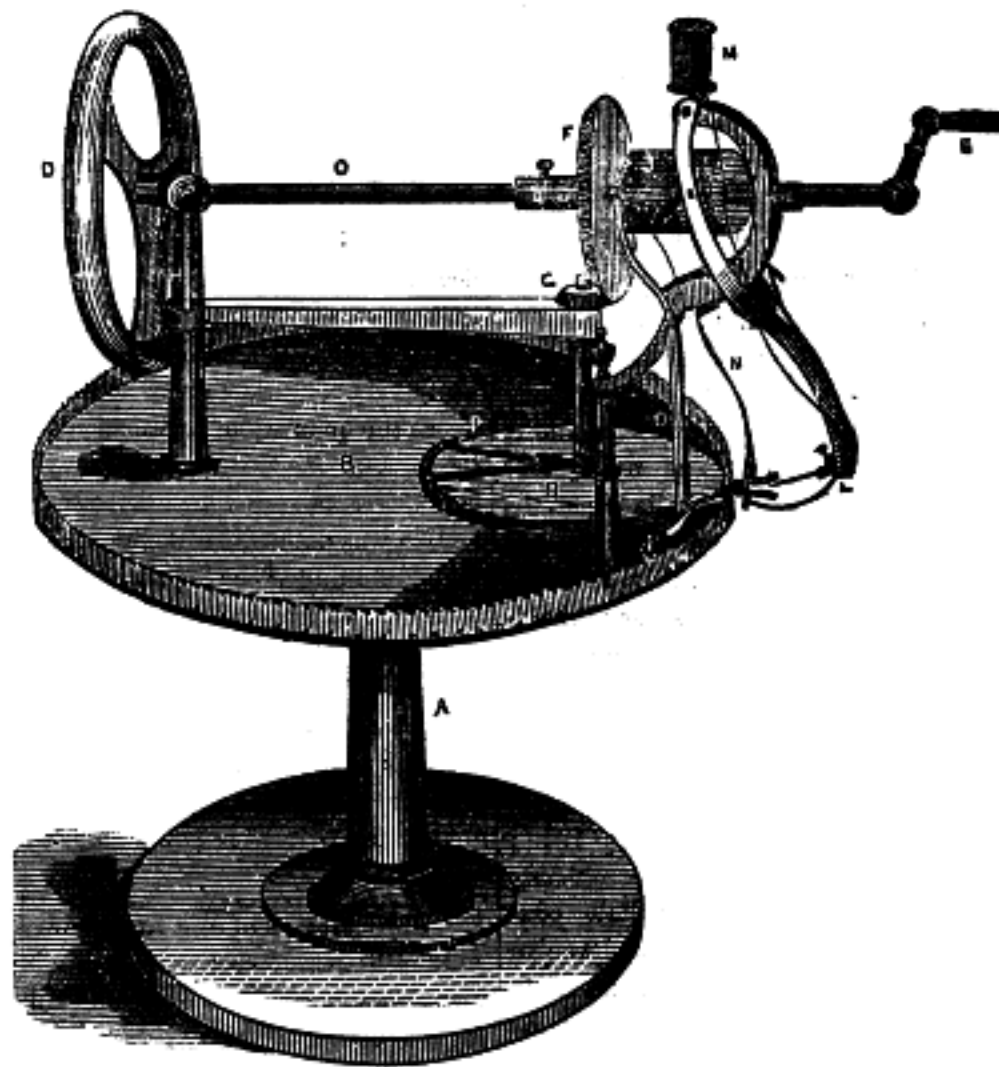
New York and Hudson Railroad.

The prospects of this road are brightening, and there is every appearance of its pleasingly disappointing many who were doubtful of its success. The stock has improved 4 per cent. In one week, a locomotive will be thundering over it to Peekskill.

The Michigan Central Railroad has engineers between New-Buffalo and Michigan city, surveying a route for the extension of that road—an arrangement having been completed by which the Michigan Central Railroad Company have contracted to extend and construct that road to Michigan city, by the 1st of November, 1850.

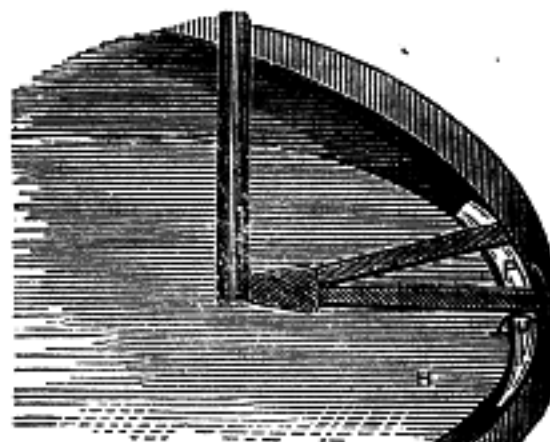
LEROW & BLODGETT'S ROTARY SEWING MACHINE.

Figure 1.



Every sewing machine that has yet been brought before the public, both at home and abroad, has been described in our columns; and two of those machines—Johnson & Morey's, American one, and Mangin's French one, were illustrated in our last volume. We commence this volume with the illustration of the most perfect of these machines—one which has unquestionable merit, because every stitch in it is self-bound, and the seam will not rip out, if one stitch is missed or broken, which is the great evil of the loop stitch sewing machines. The patent for this machine will soon be issued, and a number of rights have already been sold. It is a simple machine, yet its action will not be easily understood. The reader will therefore have to be attentive and studious while perusing this description. Figure 1, is a perspective view, figure 2, is a section of the shuttle traversing its circular path, and figure 3, is a view of the interior of the shuttle.

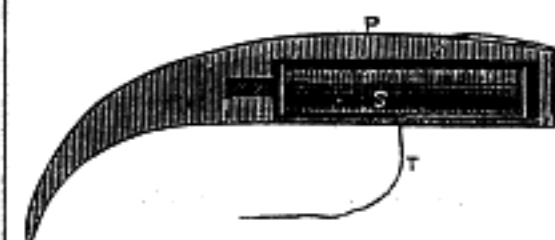
FIG. 2.



A, is a small pillar fixed on a base which may be screwed to any table, B, is a top plate fixed on the pillar and turned up at the rim like a frying pan. Around this rim is a circular or hoop ratchet, which moves round on a small recess in the rim. In this ratchet hoop, there are a series of pins or needles, indicated by the round dots. On these, the cloth is secured to be sewed. C, is an axle to drive all the machinery. It is secured on a post at one end at the small fly wheel, D, and at the other end on a frame extending up from two small side posts at the right hand side, one of these small posts, is not seen; F, is a bevel wheel on the shaft C, and G, is a bevel pinion on a small vertical axis in the middle of the circular shut-

tle path. This vertical axis has two spring arms, H, extending from it and pressing upon the shuttle, P; J, is a cam cylinder. It is formed with an eccentric waving groove, which gives the quick reciprocating motion to the needle, L, by the needle being secured by a screw in the lower end of a bent arm, the upper end of which is secured on an axis pin below the spool, M, and it is of a fork shape around the cam cylinder, J, having two knobs or pins projecting into the eccentric groove of the said cylinder; therefore when the cylinder is revolved by the handle, E, the needle is forced in and out, by its arm above, in the dark groove represented in the cylinder, J. While the needle sews, the cloth must be moved in unison. This is done by a ratchet rod, O, secured on an axis pin on the small arm of the frame spoken of, the upper end of which, leans against the edge of the cylinder, J, on which are projections that vibrate the ratchet rod re-

FIG. 3.



gularly, and operate ratchet, O, which takes into the teeth on the rim, moving it and the cloth regularly around. It now remains to be explained how the stitch is formed and the cloth sewed.

Fig. 3 shows the thread, T, upon a spool, S, inside of the shuttle, P. This thread passes out of the side of the shuttle, trailing close to the rim inside. There is also a thread from the spool, M, which comes down and passes through an eye near the point of the needle. The needle passes through the cloth to the inside, below the track of the shuttle by a small orifice in the rim. When it has passed in the full length of the stroke, the eccentric groove in J is so made as to give, at that moment, a short stroke to the needle, the thread of which is then held back by spring lips, on the lower end of N, through which the needle must pass outside, and the thread is doubled up above the shuttle's track; at that moment the shut-

tle comes along, (its bevel pinion being made to revolve the shuttle in correct time) and passes under the needle thread loop u, as faithfully represented in fig. 2, forming a double chain loop with the two threads crossing one another in the hole formed by the needle. There is therefore a fair stitch formed on both sides of the cloth, in appearance, like a saddlers stitch, and which makes a stronger seam than can be formed by hand work. While the shuttle is passing through the loop, there is a cam inside of the rim, which lifts one of the spring arms, H, off the shuttle (one after the other) to allow the thread to pass under it. All the details of this machine are very perfect. We believe that with the foregoing description, any person, will be able to understand its action. The price of a single machine is \$100, with the right to use it. Orders may be left for the owners at this office.

Useful Receipts.

Marine Glue.

Dissolve 4 parts of India rubber in 34 parts of coal tar naphtha—aiding the solution with heat and agitation. The solution is then thick as cream, and it should be added to 64 parts of powdered shellac, which must be heated in the mixture till all is dissolved. While the mixture is hot, it is poured on plates of metal in sheets like leather. It can be kept in that state, and when it is required to be used it is put into a pot and heated till it is soft, and then applied with a brush to the surfaces to be joined. Two pieces of wood joined with this cement can scarcely be sundered—it is about as easy to break the wood as the joint.

To Destroy the Smell of Musk.

Some years ago, the Emulsion of Bitter Almonds was found to possess the property of annihilating the smell of Musk, and most of the cyanic preparations evinced the same power. According to M. Mertot, a Pharmacien of Bayeux, in Normandy, Ergot of Rye will produce the same effect. "I had," says he "to prepare a number of pills, containing both Musk and Ergot,—hardly were the two substances mixed, than the smell completely went off, so much so, that the patient, who was not aware of the nature of the pills only noticed the Musk by the effects of flatulency.

To make Panada or Bread Jelly.

Cut a wheaten roll or loaf into slices, toast them on both sides, and boil in a quart of water until the whole forms a jelly, adding more water if required; then strain, and flavor with one pound of white sugar, four ounces of red wine, and one ounce of cinnamon. Very nutritious. It may also be made with broth from which the fat has been skimmed instead of water.

Biscuit Jelly.

Take of white biscuit, crushed beneath, the rolling pin, four ounces; cold water, two quarts soak for some hours, boil to one half, evaporate to one pint, and flavor as above. Given in weakness of the stomach, dysentery, and diarrhoea.

Cement for Mending Steam Boilers.

Mix two parts of finely powdered litharge with one part of very fine sand, and one part of quick lime, which has been allowed to slack spontaneously by exposure to the air. This mixture may be kept for any length of time without injury. In using it a portion is mixed into a paste with linsed oil, or still better, beiled linsed oil. In this state it must be quickly applied, as it soon becomes hard.

New Inventions.

A New Foreign Gun and a Home Gun.

Foreign papers state that a Mr. Vandenberg a Flemish gentleman has invented a new gun which can make six and eight charges per minute, carrying the distance of 2000 feet, the ball weighs about one ounce and a quarter, and the powder is one twelfth the weight of the ball. An ordinary gun requires three times more powder, the ball does not weigh half an ounce. The new gun is loaded from the breech. The shape of the ball is round. On the 24th ult., at Utica, N. Y. the new rifle of Mr. Milo M. Cass, formerly noticed by us, discharged 24 balls in two minutes and 30 seconds; then loading with 26 cartridges in 4 minutes, and discharged twenty-four in 2 minutes and 30 seconds,—thus loading once and firing 48 shots in 9 minutes. The shooting was very accurate, considering the rapidity, and the performance of the gun gave great satisfaction to those present. The barrel of the gun was so little heated after the first 24 discharges, that it was immediately loaded and again fired, the same number of times. Considering that this is a rifle it far beats the foreign gun.

Machinery for Manufacturing Sugar.

Messrs. Benson & Gray, of Water street, Brooklyn, have just completed a very beautiful apparatus for evaporating cane juice in the manufacture of sugar, which is about to be erected in the Island of Cuba; letters patent have been granted for the invention, the object of which is to evaporate in much less time and at a lower temperature than by any other apparatus; whereby the sugar produced is very clear and has little or no color; we propose giving a full description, with illustrations, soon.

Patent Safety Bridle.

We take pleasure in calling the attention of our readers to the advertisement of Cyrus S. Haldman, in another column. This bridle is the invention of Henry Seitz, and so far as we have been able to learn, it has given entire satisfaction to all who have used it. Mr. Haldman, the manufacturer, is a very worthy young mechanic, and we wish him success in this enterprise.

Machine for Cutting Screws on Bed Posts.

Mr. A. A. Hall, of Gibson, Susquehanna Co., N. Y., has made some beautiful improvements on machinery for cutting the interior screw or thread, on bed posts, which will do as much work by a small machine as twelve men can in the same time. It is self-feeding and acting, and while one screw is forming, the other bed post is working out after the screw upon it has been formed. Mr. Hall has taken measures to secure a patent.

Submarine Plow.

An invention of a plow, to be operated by machinery, to plow under water, has been exhibiting in our city. It is intended to plow a furrow, draw along, lay down and cover a telegraph wire on the bottom, out of the reach of anchors. It would do very well, if there were neither stones nor stumps to be taken into consideration.

New Calculating Machine.

M. Colmar, a French gentleman who invented a calculating machine, about twenty years ago, has improved it in such a wonderful manner, that it is said to be one of the most astonishing pieces of mechanism that has ever been invented, but to our view its complexity shows its defectability.

Substitute for Tobacco.

By late foreign papers, it is announced that a chemist at Leipsic has discovered a substitute for tobacco, which has received high commendations, and is considered to be very valuable by the smoking Austro-Germans.

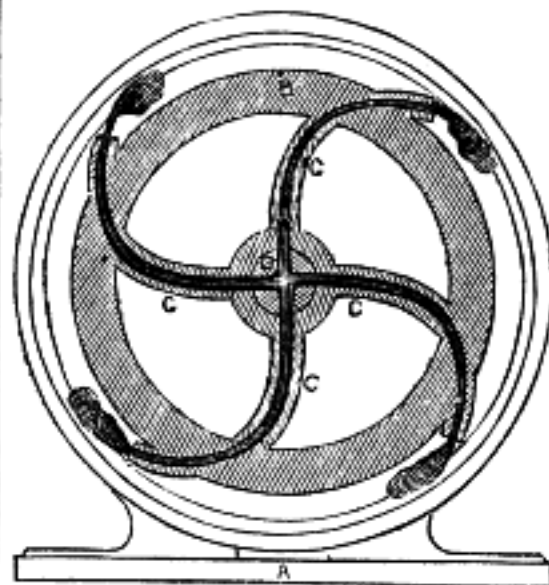
Large Gasometer.

There is a gasometer fitting up in Boston which is 95 feet in diameter, and in it is a pit or cellar 82 feet in diameter, lined on the sides and bottom with brick laid in cement. In the pit, which is partly filled with water, is an immense tub, 80 feet in diameter.

Blowing Machinery.

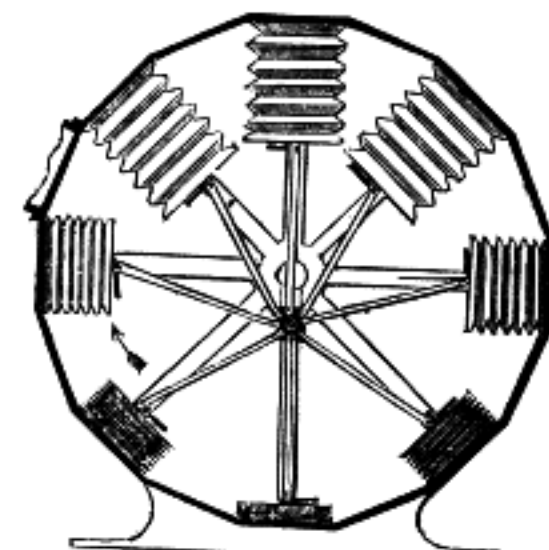
Having had a few enquiries made of us about the Blowing Engine mentioned in the communication in our last number, on "Iron Manufacture," we have received the accompanying as "Novel Blowing Machinery."

FIG. 1.



This is a rotary engine upon the principle of Whitelaw & Stirratt's Water Wheel, to give a direct rotary motion to a fan blast. This cut is an end view and represents a steam wheel with four hollow emission arms, C, and a fly-wheel, B, cast in one piece. The steam enters through its central shaft, D, which is hollow, being conveyed to the shaft by a pipe, bolted up and stuffed at the flange of the steam wheel's shaft neck, which runs on suitable bearings, and allows the steam pipe to project into the neck-steam tight. The object of this steam wheel is to get up the speed on the fan blower, without intermediate gearing, but the loss of power by such an engine is so obvious that no wonder it was mentioned in the article referred to, that it was to be dismissed. Speed and power are two very different things, but great although the speed of a rotary emission engine may be, it moves with too small a velocity to get the power of the steam. A jet of high pressure steam has a great velocity, and the steam should issue from the hollow arm, without any appreciable force to give its impulsive power to the wheel. This would require the jet openings to pass through a space of 160,000 feet per minute—a thing impracticable.

FIG. 2.



In the common rotary fan blast, it is asserted that there is always a partial vacuum formed behind the blades, and into it the condensed air in front rushes over the ends, and by the sides of the blades, to fill up the said vacuum. This is alleged to be a great eater-up of power. This invention was got up as a substitute for the rotary fan, and yet it is a rotary. This arrangement consists of a series of cylindrical bellows placed round the interior of a hollow polygonal case, which forms the receiver for the air. Eight stationary arms radiate from a central boss, and are fastened at their outer extremities to the interior of the case. The outer extremities of these arms carry guides for the moving portions of the bellows, which are worked by a set of connecting rods attached at their inner ends to a metal disc fitting on the pin of a crank, upon the driving-shaft passing through the centre of the case. In this way the revolution of the crank is continually acting upon the pairs of bellows so as to preserve an almost perfect uniformity of blasts. Each pair of bellows is fitted with a valve at its outer extremity, opening inwards for the influx of air, and a corresponding valve at the inner end discharges this air into the interior of the case, which thus acts as a large receiver, the air being discharged at an opening in the periphery. The lowest pair of

bellows is represented as completely collapsed: the next on the revolving side is still blowing inwards, but has nearly completed its stroke. Each pair is contributing air to the case, as far as the top one, which is fully distended, and about to commence discharging; the remaining ones are receiving air, in readiness for acting as the crank approaches each individual one.

Foreign Invention.

Abstract of some English Patents enrolled November 10, 1849:

Messrs. W. Brewer, of Clapham, County of Surrey, John Smith of Southville, and S. Lambeth, for improvement in the manufacture of paper. The inventors claim a new mode of producing water marks by metal plate dies.

Wm. Kilner of Sheffield, in Yorkshire, for improvements in the manufacture of railway wheels. He employs a hollow fire for wheel tyres and rims. The fire is contained in an iron box. The fire is caused to impinge upon the inner surface of the tyre. It is for wrought iron wheels only.

M. Louis, P. N. D. Piron, for improvement in tubes, for pavements, docks, and breakwaters. For a dock, or breakwater, he used sheet iron cylinders placed in vertically, and in rows transversely, and one row to back up the spaces between the cylinders in the first row. They are built around with concrete, which in due time becomes very hard, while the sheet iron corrodes away and leaves a surface to the action of the water, pierced with many apertures to deaden the force of the waves.

Robert Munn of Rochdale, in Lancaster Co., for improvements in Power Looms. The improvement consists in a mode of removing all the mots and "leaf" from the fabric in the loom. The fabric passes between emery rollers which are so adjusted to act upon the fabric and clean it. This improvement makes unbleached factory cloth look beautiful.

Wm. Henry Burke of Tottenham, for making water proof fabrics. He mixes India rubber or gutta percha, with powdered crude antimony mixed with the carbonate of potash, 25 parts of antimony, to 20 parts of the potash. They are dissolved in 300 parts of water and boiled about one hour, when it is run off into a vessel, and weak muriatic acid is added, till an orange red precipitate is deposited, which is the sulphuret of antimony, and is combined with the india rubber to form the waterproof fabric. This is allowed to be far better than Goodyear's process, which is the combination of free sulphur with the india rubber, which always has a very offensive smell, and effloresces. This subject is worthy of attention on this side of the water.

John Busham of Chelmsford, in the County of Essex, for separating the fibre from the husks of cocoa nuts. This is to make a fibrous material for cloth of a very beautiful texture, but by no means we believe so strong as cotton.

Alexander Mankitrick of Manchester, for a new lubricating compound. It is made of 4 pounds of india rubber dissolved in turpentine, 10 lbs. of the carbonate of soda, 1 lb. of glue, 10 gallons of oil and ten of water, the substances are to be heated and mixed, first with the water, and the india rubber mixture added last, and well stirred with the others. The whole is then put up in tight jars. This is stated to make a fine lubricating substance for all kinds of machinery.

Wm. Kenworthy of Blackburne, for improvements in the stop motion of Power Looms.

Charles Isles of Birmingham, for improvements in Inkstands, and picture frames. This invention is to cover gutta percha with silk, floss, or wool, in a finely divided state, and to mould it in dies for ink bottles or picture frames. The articles, no doubt, will have a very beautiful appearance.

By late foreign scientific exchanges, we perceive, that gun cotton and the galvanic battery, are generally used throughout Scotland, for blasting and quarrying.

N. O. papers intimate that their city will claim indemnity from the State, for the \$113,796 expended in closing the Crevasse.

The Author of the Railway System.

The following is a sketch of Thos. Gray, the author of the Railway system.

Thomas Gray was born in Leeds, England, about a half a century, or more ago—and this is all we know of his early history. The Middletown Collier had a railway to carry coal to Leeds, a distance of three miles. The cars moved along at the rate of three and a half miles per hour. It was laughed at—not by Gray—but by the wise public. Gray saw in his little work something that might be augmented into greatness; and he thought upon the subject, and forthwith became a visionary! He talked and wrote upon his project of "A General Iron Railway," the people declared him insane. He petitioned Parliament; sought interviews with the lords and other great men; and thus became the laughing stock of all England. He received nothing but rebuffs wherever he went. All this took place in 1820, or thereabouts.

But he succeeded at last. The railways were laid. The world has benefited by the madness of Thomas Gray.

Well, what became of him, the reader will ask. We do not know; but we believe he still lives, in Exeter, to which place he removed. Up to 1846 he had been neglected.—While thousands have been enriched by the consummation of his brilliant scheme, he remained forgotten—forced by poverty to sell glass on commission for a living. Howitt, in the People's Journal, a few years ago, gave a somewhat lengthy sketch of his career; thus bringing him into public notice. We have seen nothing in print in relation to him lately. Elliot wrote a great truth in these words;

"How many men who lived to bless mankind, Have died unthanked."

How many of the railroad projectors, agitators, stockholders, &c., have ever heard of the subject of this brief sketch.

Great Quilt.

There was exhibited at the late Mechanics' Fair held at Chicago, Ill., by Mr. C. Taylor, of that place, a quilt composed of 9,800 pieces of silk, each of which was about an inch square, and all sewed with exceeding beauty and neatness. Its chief charm, however, was the great skill evinced in the ingenious blending of colors, so as to produce a proper effect in the representation of various figures which ornamented it in every part. A brilliant sun shone in the centre, the moon and stars beamed out from one corner, while in another appeared a storm in the heavens, with lowering clouds and flashes of lightning.

Around the border were various designs illustrative of the season and of the rapid growth of our western country. At one place appeared a barren heath, with the Indians and hunters roaming over it; next, a trading post, as the first entrance of civilization; next, a military station, with the glorious banner of our country streaming from the flag-staff; then a city, and steamboats and vessels gliding in and out of port.

Lap-welded Iron Tubes.

We would direct attention to the advertisement of Mr. Prosser, on another page; we understand that his tubes are employed in Mr. Collins' new line of steam-ships, that are now getting their machinery in at the Novelty Works. Boiler makers who desire to use the best of tubes, should use the lap-welded kind in preference to others that are of an inferior character.

The Supreme Court of Vermont has recently decided that a firm doing business in the city of New York, and who in the State of Vermont made a contract with an inn-keeper to forward him, by common carrier, spirits which he knew he intended to sell in violation of the License Laws of Vermont, cannot recover the price of such spirits in the Courts of Vermont.

Wesson Rifle Factory, at Hartford, has been sold. The patent on the Muzzle Rifle was bought by Ezra Clark, Jr., the son, we suppose of the inventor, the late Mr. Wesson having purchased the patent from Clark, the inventor.