bins, and a stop motion for each, so that the break of a thread at once stops it. It is a most ingenious loom, and will knit 50 yards in one day.

A stocking loom occupies no more space than a common sewing machine; but one is required for knitting the legs and another the feet. The work of the former is taken off in the form of a long tube; this is cut in proper lengths, put on the footing machine, which weaves a single square piece to the leg, and this is closed by crotchet work by hand to form the foot. One girl can attend eight looms, and produce 100 dozen pair of stockings in a factory every day. They are the most perfect machines for this purpose we have yet examined, and no less than five patent are embraced in their operation and construction. The cost of a machine to knit ribbed stocking legs, is $200; one for feet, $100; a family machine for plain work, $50.

SEWING MACHINES.

The interest manifested in these machines seems to continue unabated, and the competion among the makers and sellers of them is maintained with unflagging zeal and energy. No less than nine different classes of these iron stitchers are on exhibition by as many different parties, and each, it is stated, possesses peculiar and valuable features. Such a variety appears to countenance the prevailing opinion that the sewing machine business has become an important American institution. The names of the parties exhibiting are Bartholf, Grover & Baker, Wheeler & Wilson, Ladd & Webster, Fincle, Weed, and the National Sewing Machine Company. All these hold out their shingles in that important thoroughfare, Broadway. The other two are W. B. Bishop, of Brooklyn, N. Y., and J. M. Willcox, Philadelphia.

GLASS STEAM ENGINE.

The lovers of unique and novel art applied to engineering, cannot but be surprised with the exhibition of a glass beam-steam engine, working away with the utmost precision and beauty of movement. This curiosity is on exhibition in the South gallery, and is the first working steam engine made of glass ever brought before the public, we believe. The different parts are of various colored glass, and the ornaments and finish, would paralyze all the workers of iron to imitate. The very crank pin, and every journal in it is of glass, and the ingenuity and skill displayed in its production, are of no ordinary character. All the parts, we were informed, were spun by hand, by the blowpipe and a spirit lamp. There are several glass spinners conducting their operations ajacent to this engine. This business seems to be on the increase, as one of the ornamental *and curious arts*.

The Machine Department is not in full operation, nor are the arrangements all completed.

The Refreshment Department, which has hitherto been much neglected, is this year very admirably provided with all the necessary eatables and drinkables, under the competent management of Mr. Treadwell.

Something for our Railroad Companies to Think About.

Between the 7th of September, 1835, and the 31st of December, 1836, the number of railroad passengers in France was 224,345,-769. Of this number 1,979 were injured, and 999 killed—in all, 2,978. It is worthy of remark, that of these accidents 1,134 only—334 killed and 800 wounded—arose from defects in the working of the railroads; while 1,844—665 killed, and 1,179 wounded—resulted from individual imprudences, which were not attributable in any degree to the railroad companies. Taking away the agents and servants of the companies, the number of passengers killed by the working of the trains is but 111, that is, 1 in 2,021,133; and of passengers wounded, 402—1 in 558,074. Unfortunately for English management, this is a more favorable return than can be shown by any railroad company in England, and it behooves the Board of Trade to direct their attention to these French facts. So says a British journal, and so say we, in reference to the railroads of this country.

From a personal scamper through Belgium in 1855, we can state that the railroads of that country are admirably managed. The guards have a semi-military uniform, and the cars are started by the blast of a musical trumpet. In a long train there are two trumpet calls, one of which says, "All right at my end," and another, "All right at mine; so off we go." Sometimes the engine starts off with a clumsy attempt at a laughing chorus, but generally breaks into a wrong note, and is too glad to smother its blunder in the puff puff of its steam and the whirr of its wheels. Then there is another peculiarity of the Belgian and German trains, namely, that by means of a strong bar fixed to the side of the carriages, the guard is enabled to make his way along the wooden step from one to the other of the train; he does this repeatedly, collecting tickets where they are due, and ascertaining the destination of each of his passengers, so that, after a few visits, he knows them all by heart, and gives them the instructions they may chance to require. "You get down at the next station," he says to one; "You change cars when we stop," he says to another; and then, if there be any questions to be asked, the traveler obtains every information, most civilly bestowed, from the guard of the train. The guard commences his visits the moment the train is in motion, which enables him to see that all is right.

We would not purposely do injustice to our railroad system, but that there is something radically wrong in its general management is self-evident, and its managers can profitably study European systems.

Weaving by Machinery.

The improved mechanism by which the gigantic cotton mills of the present day are carried on is most varied and ingenious in its construction. There is, for instance, the winding machine, by which the yarn is wound on large bobbins; there is the beaming machine, by which the yarn is transported to large beams or rollers; there is the dressing machine, by which the yarn is drawn out into parallel lines of warp thread, and stiffened with an application of flour paste; and lastly, there are the looms—power looms for the great factories, and Jacquard looms for the more abstruse figured goods. Steam unwinds the warp from the beam, steam raises the alternate thread to form the shed or opening for the shuttle, steam drives the shuttle from side to side, steam drives up or consolidates each thread of weft as it is thrown, steam winds the calico or cloth on a large roller, and steam rings a bell to tell the attendant how the loom is getting on with its work. The attendant really does none of the weaving; she (for it is generally a female) watches a couple of looms alternately, to see that the beam has enough warp, and the shuttle enough weft, to mend any threads which accidentally break, and to make a number of little minor adjustments; but the giant power of steam—that power which will forge an anchor or make the eye of a needle—moves everything, does everything. In short, so far as regards the bulk of cotton goods now produced, steam power is the opener, the scutcher, the corder, the lapper, the drawer, the rover, the spinner, the doubler, the winder, the warper, the dresser, the weaver—he is the master workman, and the several machines actuated by his direct agency are his fingers.

HOOPING COUGH.—Great numbers of children laboring under hooping cough now visit the gas works in Preston, England, for the purpose of breathing the exhalations from the gas lime. It is said that all the little sufferers feel considerably relieved, and many are absolutely cured by this simple remedy.

First Suggestion of an Electric Telegraph.

While it is generally conceded that Professor Morse was the first to bring the application of electricity to telegraphic purposes from the region of speculative theory to that of practical operation, it is not so clear to whom the world is indebted for the first suggestion on this subject. M. Ampere, the celebrated French electrician, did much to give the problem a practical solution, but from the following extract from the London *Mechanics' Magazine*, of as old a date as April 17th, 1830, it would appear the idea of applying this wonderful agent to the transmission of messages was not new with him. The magazine says :—

"M. Ampere, who has acquired so much distinction by his electro-magnetic researches, proposes to establish, by means of voltaic currents, a system of telegraphic communication between distant places, which, if found to answer in practice, will be of unrivaled celerity, and of equal efficacy in all weathers. The idea of applying the electric fluid to this purpose is not new, but its revival by an individual of such high authority in this department of science as M. Ampere, is likely to obtain for it a degree of consideration greater than it has ever before, perhaps, received."

Ampere, who died in 1836, was distinguished above all others of his day for the experiments and extraordinary developments made by him in electro-magnetism, and there is no doubt that from his direct suggestions arose the idea of our present telegraph. How long anterior to the date of the suggestion mentioned, the idea of applying electricity to telegraphing was first proposed in Europe, we do not know, but we have evidence of the fact, on the authority of the Hon. Ellis Lewis, of Pennsylvania, that Professor J. R. Cox, of Philadelphia, as early as 1816, in a letter written to a scientific gentleman in London, expressed the opinion that electricity would in time be used as a means of establishing telegraph communication between distant points. This remarkable letter contains the following :—

"I have contemplated this important agent (electricity) as a probable means of establishing telegraphic communication with as much rapidity, and perhaps less expense, than any hitherto employed. I do not know how far experiment has determined galvanic action to be communicated by means of wires, but there is no reason to suppose it confined as to limits, certainly not as to time. Now, by means of apparatus fixed at certain distances as telegraphic stations, by tubes for the decomposition of water, and of metallic salts, &c., regularly arranged, such a key might be adopted as would be requisite to communicate words, sentences, and figures, from one station to another, and so on to the end of the line. However fanciful and speculative, I have no doubt that, sooner or later, it will be rendered useful in practice. JOHN REDMAN COX."

Philadelphia, 1816."

Indian Steel.

The steel made in India is of such good quality that not only are Indian swords made from it, but the best of Persian swords likewise; and it is believed that the vast monuments of ancient Egypt must have been cut with tools made of Indian steel, in respect to the hieroglyphics on the intensely hard porphyry and syenite.

This Indian steel appears to be made from the magnetic oxyd of iron. The ore is stamped to fragments, and the adherent quartz is separated by washing and sifting. The smelting is effected in the most primitive way; the furnace is built of clay, and not more than four or five feet high; the bellows is formed of two goat skins, with a bamboo nozzle, tipped with a clay tube at the end which is to be nearest the fire; the fuel is charcoal. The iron produced by the appliances is such as our manufacturers of steel would treat with but little favor, but the Hindoo manages to obtain most excellent steel from it. The iron is heated to a low red heat, and is beaten for a long time with stone hammers on a stone anvil, the Hindoos having an opinion that iron implements are injurious. To convert this hammered iron into steel, it is broken into small pieces, and put into small crucibles with a little dry wood; the crucibles are stopped up with clay, and are put into a furnace, where they are entirely covered with charcoal. A blast is then applied for two or three hours, the crucibles are removed, allowed to cool, broken, and the metal, in the proper state to be fabricated into any desired form of article, removed.

Complimentary.

We believe that there are few persons who do not rejoice to know that what they undertake to perform for others is appreciated. It is a pleasure to have such services acknowledged to be satisfactorily and properly accomplished; and if such a feeling be indicative of a slight tinge of a business-like vanity, we are not ashamed to confess to the "amiable weakness," and to say that it gives us pleasure when our clients express their gratification to us in such terms as the following :—

Messrs. Cridge, Wadsworth & Co., writing from Pittsburg, Pa., say :—"We are much gratified with your success with our patent business. We cannot conceive how anything could be more efficient and complete for securing the rights of inventors, and bringing them favorably before the public than through the medium of your agency and your valuable journal."

Mr. N. T. Spear, of Boston, Mass., writes to us under date of September 16th, acknowledging the receipt of his Letters Patent, and adds: "I have not time to say all the complimentary things I feel prompted to express this morning. It is a pleasure to do business with your agency, and to recommend it to others."

From Cincinnati, Ohio, Mr. J. C. Macdonald writes to us on September 17th, saying: "I received my Letters Patent yesterday, and return you my sincere thanks for the prompt manner in which you have conducted the business through all its stages. When I have further business with the Patent Office I shall not fail to avail myself of your valuable assistance."

Mr. C. P. Stanford, of Mount Gregory, Cal., says :—"I have just received my Letters Patent. I did not expect it so soon—indeed, I had concluded not to look for it seriously until the 1st of January, so you may judge of my surprise at its coming to hand four months sooner; and the surprise was equaled by the satisfaction I felt, and I could not help shouting "Hurrah for Munn & Co. and Commissioner Holt!"

From Hazelton, Pa., Mr. J. P. Evans writes on September 23d :—"The only tribute I have now to offer you is my heartfelt thanks for the speedy and intelligible manner you brought my case through the Patent Office."

D. R. Knowles, of New London, Conn., on September 24th, acknowledges the receipt of his Letters Patent, and says:—"I embrace this opportunity to thank you for the prompt and satisfactory manner in which you discharged the business of making the application; and should I in future need a like service, I shall not forget your office."

These are but specimens of the many similar ones which we daily receive, and the flattering terms in which our clients speak of our system of transacting their patent business.

Rolling Tapered Steel Springs.

An English patent has been secured by J. B. Howell and J. Shortridge, for an improved mode of rolling steel springs by the employment of a pair of rolls, arranged in the usual relation to each other, one of which is turned eccentrically, and the other plain. By this means the spring is rolled out, bevelled, or tapered at each end at one operation, and a series of springs produced, according to the length of the bar of steel passed between the rolls.

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