We continue our abstract of the proceedings of this association.

Mr. G. W. R. Bayley, of New Orleans, La., followed, with an exhaustive communication on the subject of

#### THE TEREDO

or ship worm, well known for its ravages upon timber under water. It belongs to the first subclass of mollusca, known as acephala. Although having no head, the animal feeds itself and reproduces its kind. The body is surrounded by folds of the mantle, and it has a shell consisting of two valves. The animal secretes calcareous matter and deposits it upon the extreme edge of the shell, when the secretion hardens and becomes converted into a layer of solid testaceous substance. Every newly formed layer enlarges the diameter of the shell. The ship worm moves by means of an extensive fleshy organ cailed a foot. It is a muscular mass, capable of being pushed out from between the mantle lobes and the valves, and of adhering, by the exhaustion of the air and water under it, firmly to the front end of the tube, when the teredo is engaged in excavating or boring.

The long bridges across Bay St. Louis, 10,055 feet, and Bay Biloxi,6,136 feet, built (on heavy, yellow pine piles from 15 to 20 inches and more in diameter) in 1869 and 1870, had to be reconstructed in the winter and spring of 1871 by driving an entire new set of piles in the place of those destroyed by the teredo. The Bay St. Louis bridge piles-the new ones-were covered with felt and copper, and the Beloxi bridge piles with felt and zinc, from the water line to the bottom, the depth of Bay St. Louis being from 10 to 12 generally, and at Biloxi Bay from 10 to 15 feet. In 1872 the writer found that many of the piles in the Bay St. Louis bridge had been damaged by the teredo below the coppering. To remedy the evil, sand and clay were hauled and dumped round the new piles in sufficient quantities to cover the exposed posts, thus cutting off the teredos' connection with the aerated salt water, and killing them in a few days. The piles much injured were replaced with new ones, previously charred, with coal of tar poured on them, washed with clear oil, and coated with coal tar varnish; and all loose or broken sheets of copper were renailed under water. It was estimated that this coppering, already considerably thinned by decomposition, was good for perhaps three or four years.

The teredo, cannot penetrate any soft, fibrous, or spongy substance, as felting, thick paper, or the bark of pine timber, and this is the reason wby the spongy, fibrous wood of the cabbage tree palm is never attacked. The action of salt water upon copper or zinc sheets is very destructive, and tarred felt is even a better protection than metal for submerged timber; with metal only, the sea water can penetrate under the sheets, especially when loose or broken; and when sea water ebbs and flows with the tides, so can the ship worm enter and work. If felt, saturated with the dead oil of coal tar and well coated with thickened coal tar, can be secured to and maintained on the outside of submerged timber, it may be considered safe from the ravages of the teredo.

## The partial report of the committee on the

## MANUFACTURE OF RAILS

was next submitted. The English system of rails is not applicable to this country, as it requires strength, while the American system demands endurance and wear. Where there is the most wear of rail, strength should be the first consideration, and the rails should contain the greatest amount of metal; but where there is less wear, the rails should be as light as experience shows to be safe. As there is the most wear on the head of the rail, there should also be at that point the greatest amount of metal. There was no theory more erroneous than that a head of 21 inches wide was more endurable than one three inches wide. With the present heavy machinery, the narrow high rails will not last as long as the low wide rails. An inflexible or rigid rail is more sure to break than one moderately flexible. If the rails were laid on a better foundation, and there were no frost, the rails might be made stiffer. In answer to the question why rails should not be made square, the committee believed that it would be too flexible, especially when of iron, and that rails with stem and base were much better. It would be even advisable to place 60 per cent of the metal in the head; but a double headed rail wears out faster than a single. The average wear of an iron rail is equal to a pressure of 4,000,000 tuns of dead weight, or 10,000,000 tuns of gross weight. The stone ballast of the American roads has

cessfully. The steam has evidently created a great amount pany and the Lehigh Zinc Company at Bethlehem, Pa. of carbonic acid gas; but as yet there have been no means of ascertaining the quantity thus created, or whether it was aiding the steam in doing the work of extinguishing the fire. The mines are at least 600 feet below the surface, and therefore very difficult to reach.

An interesting history of the

#### DOCK SYSTEM OF NEW YORK CITY

was given by Mr. John D. Van Buren. The speaker, after eketching the past dock facilities of the port and pointing out the advantages as a harbor, referred to the operations at present in progress.

The river wall, recommended by General McClellan and adopted by the present department, is composed of béton blocks weighing from 25 to 50 tuns each, extending from the foundation to within two feet of low water mark, and, above this level, concrete laid in mass, faced with ashlar granite masonry. The idea of using beton blocks for this arch is due, he said, entirely to General McClellan, and the late operations of the department show that the plan is an exceedingly expeditious and cheap one. On the Christopher street sec tion, now being built by the department, 14 blocks, weighing about 450 tuns, were laid in one day, and 109 blocks, weighing 3,560 tuns, were loaded, transported, and laid in 18 days of from 10 to 12 hours each. The crew consists of 10 men, including captain and engineer. The total cost of loading, transporting, and laying, in 14 feet of water, will til health is restored. If after eight days' treatment the panot exceed \$1.50 per cubic yard. The cost of the blocks, ex clusive of the rent of yards, is about \$12.50 with cement at \$5 per barrel, this material alone costing about \$8 50 per cubic yard. It does not cost the city, considering all expenses, over \$16 per cubic yard laid. This wall is being built considerably within the estimate, made by General Mc-Clellan, of \$2,500,000 per mile, including the cost of filling.

The departments are now building four large wharves of wood on the Christopher street section, of an improved quality, and have nearly completed three of them. Another is built at Canal street, North river. In these structures they have not found it possible to allow the engineers to intro duce any artificial preservatives, except external coatings of fish oil and paint; but in the general character and strength to make them complete and of the very best quality. The pile heads are the only novel features of these piers; they are constructed of built-up columns 20x20 in section and 75 feet length, placed in rows 121 feet apart, and about 91 feet apart in rows. The rows are sheathed for low water up to the girders on both sides with 5 inch planking, the ends of which are protected with boiler plates. The heads of the columns are securely passed into the caps and girders. The piles used in the pier, some of which are 94 feet long, are driven in rows 8 feet apart, and 5 feet apart in the row. The square timber is 12x12 in section.

The plan of construction, then, which seems to commend itself as the proper one for the improvement of the water front of New York is: To construct a quay wall along the main street of granite masonry, increasing the width of the street considerably, and from the wall to throw out piers of the very best quality of wood, preserved against decay by all possible means, and at once establish a broad main street and have good piers built and taken care of according to a settled plan; and it will shortly follow that all known means of facilitating the handling and transportation of freight will be introduced by the interested persons then under certain general restrictions.

These public works should go slowly on, sayat the rate of half a mile per annum. If in 10 years the wall could be completed on the East river and to West 11th street on the North river, its progress would be all that could be desired. The city would then possess the finest dock facilities in the world.

## THE EDUCATION OF CIVIL ENGINEERS

was the topic of a paper by Mr. Thomas C. Clarke, of Clarke, Reeves & Co., the well known iron bridge constructors. Mr. Clarke contrasted the English and Continental systems of professional education, and pointed out that the former was mainly practical, while the latter required the student to be work. He believed in combining the advantages of both systems, and advocated a thorough training in the natural sciences. Too much time, the speaker said, was now wasted in studying the higher mathematics, which rarely are brought into practical use. The student should be limited to ordicary analysis, and the time thus gained devoted to the study of Nature. After graduating from college, practice in the field should be immediately begun, and then, after an insight had been obtained into the actual labor of the profession, the young engineer might profitably attend a technological school for the purpose of devoting himself to some specialty. In conclusion, reference was made to the late John Edgar Thompson, and his life was held up as an example of the value of concentration of energies upon business and of thorough training, by which the possessor was enabled to conduct the great operations under his control.

# New Remedy for Dysentery.

In a recent issue of the Archives de Médicine Navale is published an official note, addressed by Dr. Robert, who is the medical chief of the naval division of China and Japan, to the Inspector General of the Health Service in the French navy, calling attention to a drug used by Chinese physicians in the treatment of dysentery. It consists of the root bark of the ailanthus, very common in China, also cultivated in France and in this country.

The bark of the root is the only part employed. An infusion of the bark, however, exhales a slightly nausecus odor, and possesses an excessive bitterness, resembling that of sulphate of quinia. The Chinese physicians employ the root in the fresh state only; but Dr. Robert, baving been compelled to use some that had become dry, found no sensible difference in its action in the two states.

For administration, 11 ounces weight of the root is cut into very small pieces and triturated with 2 ounces of hot water for a few minutes in a mortar, in order to soften the bark, and then strained. A teaspoonful of this strong infusion is administered as a dose morning and evening, alone or in a cup of tea. Taken in this form, it provokes vomiting. The medicine is administered in this manner during three days, the patient being kept upon full diet. After that time the ailanthus is omitted and the diet is altered to broths untient is not cured, the Chinese physicians recommence the use of the ailanthus; but Dr. Robert states that he has not met with a single case in which this resumption has been necessary, although he had under his notice some where the disease had lasted several months, as well as others of more recent origin.

The principal symptoms which follow the administration of the ailantbus are said to be nausea, and sometimes vomiting, followed by a temporary lowering of the pulse. The disappearance of blood from the evacuations commences on the first day and is completed on the second; the colic ceases a little later. The effect of the drug upon the color of the evacuations is variable. Dr. Robert sums up by expressing his opinion that the administration of the ailanthus gave superior of the woodwork and fastenings, every care has been taken results to those of ipecacuanha, astringents, alone or combined with opiates, or calomel.

# French Improvements in Manufacturing Steel.

Those who have followed for the last dozen years the progressivesteps in the manufacture of steel know the difficulties which surrounded the first efforts in the Bessemer process. These were not thoroughly surmount d, nor the process rendered thoroughly practical, until the idea was struck of pushing the refining process to complete decarburation, and then adding to the bath a certain proportion of iron rich in manganese, called spiegelesen. The object of this seemed to be to add again to the metal the necessary quantity of carbon to make it steel, and also to give it, at the same time, certain mysterious virtues, which were known as a steely propensity. It was soon recognized that the importance of this addition was more considerable than at first supposed. The best gray irons were not suitable to replace the spiegeleis n. It follows, then, that the manganese must affect the iron in a useful manner. A more minute investigation of the process shows that, under complete reduction of the carbon, the iron becomes oxidized and brittle and the action of the manganese is to destroy this excessive oxidation, and torestore to the metal its original good qualities.

In the Martin Siemens process, also, the addition of a mun. ganesic iron was recognized from the first as practical and necessary. This method answered all requirements for rolled rails and such goods; but a demand arose for a metal milderand softer, for plates and parts of machines. Here this addition of spiegeleisen involved a serious dilemma. For with the necessary quantity of manganese must be introduced so large a quantity of carbon that the hardvess was produced, which was precisely the thing wished to be avoided. There was then no other resource than to push the reduction of the carbon further still, so as to be perfectly sure of total removal of the carbon, and then, by the addition of a quantity of spiegeleisen as rich as possible, to get a minimum of carbon in the resultthoroughly versed in theory before entering upon actual ing steel. This is, at best, but an uncertain and dangerous method, though much in use at present, and is very

been too large; and on a good road a rail would last fully 25 per cent longer than on a bad one. In cold weather, the metal is more brittle than in summer; consequently the breakage of rails in winter is greater in proportion. No definite figures had been received as to the comparative values of iron and steel rails, but the committee were of opinion that a steel rail was 20 per cent better than a good iron rail, 40 per cent better than á fair iron rail, and 100 per cent superior to the ordinary rail used on many railroads.

## FIRE IN THE COAL FIELDS.

Mr. Martin Coryell, of Wilkesbarre, recited the particulars of the conflagration now existing in the coal at the Kidder slope. At first water was pumped out of the mines by locomotives; but subsequently, this proving unsuccessful, a new plan was adopted. Steam boilers were erected at various points, and the work of forcing steam into the mines was begun. This appears to be working with great success. At one time during the hight of the fire the thermometer at the mouth of the air shaft registered 212 degrees. When 50 subsequently to the East river bridge, Hell Gate exca pounds of steam pressure were forced into the mine, the ther-

# EXCURSIONS, ETC., OF THE CONVENTION.

The reading of papers being concluded, on the following day the delegates made visits to the Stevens Institute at Hoboken, where they inspected the Stevens Battery, and vations, and Fourth avenue improvements. An excursion

liable to give a result too hard, or still very oxidized and brit tle.

The company of Terre Noire sets itself to produce alloys of iron and manganese, and claims to be able to make alloys of iron with manganese having forty to seventy per cent of the latter, and that, so to speak, in illimitable quantity. This gives a metal very mild, but with all the tenacity of steel. Another great field for the use of ferro-manganese has been unexpecedly discovered, both by the company at Terre Noise and, independently, elsewhere. A series of experiments had been made, upon ores of inferior quality and with large admixture of phosphorus. In seeking to purify or use these ores in some way, it was found, most unexpectedly, that the phosphorus was no detriment to the laminability and tenacity of the metal, provided that the carbon, combined with the manganese,

was very small indeed. Here is a great field for the use of ferro manganese-to produce mild steel from many second rate brands of iron. This renders the working up of all the old material of wrought iron rails into steel, which opens a most valuable market for the old permanent way of many railways.

mometer fell to 120°; and when 70 pounds pressure was in- was also made to Ashley, Pa., the ascent of Wilksbarre Moun. The above details give sufficient grounds for supposing that

ferro manganese will become quite in large demand, and had been a free and constant circulation of fresh water, an hence give ample employ to any company undertaking the analysis of which showed even better results than before. special manufacture and application of it. The following is what this French company proposes to undertake:

1. The sale and manufacture of alleys of iron and manganese. 2. The application of those alloys to the production of metal with all the properties of mild steel, 3. The application of these alloys to the production of steel more or less phosphoric, either by the Bessemer or the Martin-Siemens process. 4. The fixing and making of all plant suitable for these productions and applications.

# SCIENTIFIC AND PRACTICAL INFORMATION.

#### THE NEWLY DISCOVERED CRATER OF MAUL

Mr. T. M. Alexander, in a letter to the Hawaiian Gazette, gives au interesting account of his discovery of very remarkable volcanic phenomena on West Maui, one of the Sandwich Islands. He found a crater in which were nearly a score of volcanic pits, not cones, from fifteen to fifty feet broad, and ten to twenty feet deep, with shrubbery wi hin concealing the chasms below. From six of the pits columns of steam or smoke were rising, which were destitute of sulphurous fumes and had very little warmth. It is believed that these pits are connected with subterranean chambers heated by volcanic action, and that the air arising from the warm depths on a cold morning becomes changed to fumes of steam. No similar instance is found on any of the islands except Hawaii.

## PROGRESS OF THE EAST RIVER BRIDGE.

Work upon the great suspension bridge between Brooklyn and New York, which has been temporarily suspended, is now resumed. The Brooklyn tower has reached an elevation of 222 feet above high water mark, leaving 40 feet of masonry yet to be laid. The workmen are engaged upon the arches, several courses of which are in position. The keystones will weigh ten tuns each, and constitute the heaviest blocks in the structure, the ordinary stones weighing some three tuns. It is expected that before winter the "saddles" or castings over which the cables will pass will be in position.

The New York tower is now 123 feet high, and will probably reach 200 feet during the present season. The anchorage on the Brooklyn side is 6 feet high, and contains 8,334 cubic feet of mesonry. Its total elevation will be 66 feet. On the New York anchorage, or on the approaches, work has not yet been begun.

# THE GERM THEORY OF DISEASE.

That hay fever, a disease quite prevalent during the present month, is traceable to vegetable organisms, is a curious discovery, tending toward the confirmation of the theory that disease is originated and propagated by independent organic germs, recently made by Professor Binz, of Bonn. The investigator has been himself subject to the malady, and has pursued his researches over a number of years.

On examining the nasal secretions with a powerful im mersion lens, he found the organisms to be absent except when the disease attacked him during spring. Then the parasitical bodies were clearly seen in motion, vibrating on the slide and i creasing in size after several days. By using a neutral solution of sulphate of quinine, applied by the nasal douche, Professor Binz found that the animalcu'æ were completely destroyed, and that subsequent examination failed to show their existence in the secretions.

### A SIMPLE ANALYSIS OF ARABLE EARTH.

M. Schlösing gives the following simple process for separating the clay in soils from other constituents, and consequently for determining the quantity of the former present.

The earth is thrown in water and the calcareous matter is eliminated by means of hydrochloric or other suitable acid. The cerbonate of lime and humic acid, found in nearly all vegetable earth, hinders the clay from remaining in suspension in the water, and it is hence precipitated. By treating the liquor with ammonia, the humic acid is removed. The residue is composed of sandy matter and clay; but the former falls to the bottom, leaving the clay in suspension in the liquid, from which it may be separated by decantation. This method, though almost mechanical, it is said, will prove of much value to agriculturists. M. Schlösing has found that earths, considered argillaceous, in some cases contained little over 2 or 3 per cent of clay, while others, supposed to be composed almost entirely of that substance, contained but 30 per cent.

There were 4:20 parts of inorganic matter and 0:80 parts of organic matter in 100,000, and no nitrates were present.

This extensive corrosion can hardly be accounted for, as the weight of present authority points strongly to the unal terability of tin under similar circumstances.

#### Sir Charles Fox.

Sir Charles Fox, the distinguished civil engineer, died recently in Eogland, aged 64 years. He was an assistant to the celebrated Robert Stephenson, by whom he was sp pointed assistant engineer of the London and Birmingham railway when that work was begun. Mr. Fox's greatest en gineering work was the construction of the bailding for the Great Exhibition in Hyde Park, London, in 1851. He received the honor of knighthood in recognition of the genius and skill exhibited in this magnificent structure. He also re-constructed the same building for the Crystal Palace at Sydenham, and executed many extensive railway and other engineering works. He was the senior partner in the firm of Sir Charles Fox & Sons, civil engineers.

## Hespital Hygiene.

Dr. Alphonse Guérin, an eminent surgeon of the Hotel Dieu in Paris, has recently presented to the French Academy of Sciences a remarkable memoir on the influence of atmospheric germs on surgical maladies, in which he strongly advocates tow dressings for wounds. He states that, when this material is packed upon the injured part, the pus is complete ly preserved from putrid fermentation. He uses the tow in brief as a filter for the air, which circulates freely through it, and in fact produces an arrangement precisely analogous to the cotton wool respirator mentioned by Professor Tyndall in his paper on haze and dust.

# DECISIONS OF THE COURTS.

## United States Circuit Court---Southern District of New York.

PATENT HAIR NET .-- JOSEPH DALTON VS. ABBAHAM G. JENNINGS [ln equity.-Before Blatchford, Judge.-Decided May 21, 1874.] Blatchford, Judge :

PATENT HAIE NET.-JOREPH DALTON US. ABRAHAM G. JENNINGS. [In equity.-Before Blatchford, Judge.-Decided May 21, 1874.] Blatchford, Judge : This suit is brought on letters patent granted to the relaintif March 5 1877, for an "Imorovement in Ladies' Hair Nets." The specification save: The claim is a head or hair net, composed of a main set of meshes fabri-cated of coarse thread, ombitantially as described. Thetenor of the epecification and claim show that the intention was to have the claim for epecification and claim show that the intention was to have the claim for epecification and claim show that the intention was to have the claim for thread, without reference to the degree of finences of the finer threads, and without reference to the degree of meshes fabricated of coarse thread, without reference to the degree of finences of the finer threads, and without reference to the degree of meshes fabricated of the oarse thread, combined with an auxiliary set or sets of meshes fabricated of the oarse thread. The history of the steps which led to the maing, by the inventor, of the met described in the pat-(nt shows that be started with a netof large squares made by large threads and filled up partially the large squares by crossings of finer threads. But the net thus arrived at was not a different net from what would have re-shult diff.e had taken a net of small squares, sufficiently small to keep short have from protruding, such small squares being formed by fine-threads, and all the threads of the net being of unform size. and had sub-situted for each siternate fine threads in both directions, a coarse thread, of anall squares sufficiently small to keep short hairs from protruding such smallsquares being formed by threads which were so small as to be entitled to be called ane threads, and were at a certain and reasonable di-tance away invisible, all the threads of the net boing of unform size. Alwy be new are stude of manufacture. The specification of a new article of manu-lacture

#### NEW BOOKS AND PUBLICATIONS.

THE TUNNELS AND WATER SYSTEM OF CHICAGO--Under the Lake and Under the River. Illustrated. Chicago J. M. Wing & Co.

This handsome volume gives a complete and interesting account of the extensive system of tunnels in Chicago, by which water supply and subaqueous communication is obtained in that enterprising city. It is written throughout in a loquacious, humorous style, and contains several engrav ings that are even more comic than the literature.

KINDERGARTEN TOYS, AND HOW TO USE THEM. A Practical Explanation of the First Six Gifts of Fröbel's Kindergarten. By Heinrich Hoff 22 & 24 Frankfort street. By Heinrich Hoffmann. New York: E. Steiger

This book contains full explanations of the kindergarten apparatus which, on account of its simplicity, gradual progressiveness, and accuraty, is the most effectual method of imparting instruction to very young chil-

original research and discovery. The author describes his book as "a simple and general description of the devices by which exact measurement is effected, errors eliminated, a probable mean result attained, and the probable error of that mean ascertained." He illustrates the conditions and precautions requisite for accurate observation, for successful experiment, and for the sure detection of the quantitative laws of Nature. In a word, he tells us how to question Nature in order to obtain those responses which of all thiogs are alone infallible.

A UNIVERSAL TABLE FOR EXCAVATIONS AND EMBANK-MENTS, applicable to any Base or Slope Whatever; and the Calculations of All Solids to which the Prismoidal

Formula is Applicable. By William Zimmerman, C. E. This is a very elaborately calculated table of the measurement of earthwork, applicable to every possible configuration of cross section of cuttingsand embankments. It is well illustrated with disgrams, showing its universal use for the work for which it is intended, and for which engineers and contractors will find it especially valuable.

The sixth volume of the new edition of the AMERICAN CYCLOPEDIA, oublished by Messrs. D. Appleton & Co , of this city, has recently apceared. We know of no work in which there is a more copious supply of information, brought down to the latest dates, or in which the possessor can be more truly said to have placed at his disposal a digest of everything that nas been written upon almost every conceivable subj ct. before us is particularly rich in its scientific department. There are four astronomical papers by Professor Proctor, and a number of exhaustive chemical articles by Professor Joy: while the treatises on physical and medical topics are from the pens of Drs. Hogeboom, Clarke, Flint, Dalton and Edes, and Professors Abbé. Hunt, Euceland and others. Couut Pourtales, of the Coast Survey, contributes a valuable account of deep sea dredging, in which is contained a resume of the most recent investigations of the ocean bed aud its odd inhabitants. Volume VI., like its predecessors, is copiously illustrated with excellent engravings, a feature of much value, and tending to give additional interest to the subjects treated of in the text.

The July number of that admirable childreu's magazine, ST. NICHOLAS, is superlatively good. The literature for the youth of this country is. as a general rule, so much of the morbidly mawkish order-we know of no better term to express its nature-treats so much of those intensely well behaved children who are always doing such exasperatingly charitable and aggravatingly good actions-that we feel a genuine satisfaction in turning over the pages of a work that tells the youngsters stories which we know theywill read and reread until the very paper becomes worn and limp with innumerable ingermarks. While none believe in making piety and upright living more attractive to the children than ourselves, we have no patience with the trash which aims to convert a healthy, rosy-cheeked, earthly imp into an incipient theologian or a pocket model of sanctity whose joys are not of thisworld, and whose existence is mainly spent in "getting licked" and thereupon tearfully forgiving his aggressor. The issue of ST. NICHO-LAS before us has an excellent story, by Bret Harte, about a juve nile bear, which will provoke many a hearty laugh, and to which Beard, the artist, contributes a sketch of the hero, drawn as only he can draw bears. Then there is a table of contents and a lot of pictures, which we cannot pretend to describe, but which are sure to delight the young ones, and the old ones for that matter, too. Besides, as if all this were not enough, ST. NICHOLAS proudly announces that, not content with swallowing " Our Young Folks" some time since, he has exercised his cannibalistic propensities on the "Children's Hour." and, in the future, will have a three-fold claim upon the notice of his juvenile readers. If we were a youngster, we think we should tease hard for the necessary three dollars for a year's subscription, and lose not a moment in forwarding the money to Messre. Scrioner & Co., at 654 Broad way, New York.

SCRIBNER'S MONTHLY, for July, opens with a continuation of Edgar King's Papers on the Great South, in which the history, resources, and enterprise of Missouri are described with considerable detail. Pro'essor Hartt contributes a valuable article on "The Shakspeare Death Mask," which is copiously illustrated, and which gives many interesting facts regarding the existing and much disputed likeness of the great poet. More instalments of the serial stories, including Jules Verne's fancitul account of the Mysterious Island, a few choice poems, and other interesting matter, besides the usual Editorial Miscellany, complete a varied and excellent table of contents. Subscription \$4 a year. Published by Scribner & Co., 654 Broadway, New York.

SCRIBNER'S MAGAZINE for July contains au excellent variety of contente, among the millustrations of the Heart of the Republic, which refer especially to the City of St. Louis, and include a view of the new blidge at that place.

GODEY'S MAGAZINE for July is as attractive as ever. This number is the first of the forty-fifth year of the work.

Inventions Patented in England by Americans, [Compiled from the Commissioners of Patents' Journal.] from May 22 to May 28, 1874. inclusive. CABBURETTING AIR, ETC.-J. M. Cayce, Franklin, Tenn. CARCOUPLING .- W. Todd, Portland, Me. IRON AND STREL MANUFACTURE .- E. Peckham, Antwerp, N. Y. MOWER AND REAFER.-W. A. Wood, Albany, N. Y. REDUCING IRON ORES, ETC.-N. W. Wheeler, New York c'ty. SPINNING AND WINDING FIBERS, BTC -G. Draper et al., Hopedale, Mass STEELSHOVELS, ETC.-T. J. B'ake, Pittsburgb, Pa. STBAW FABRICS, ETC.-N. A. Baldwin, Milford, Conn.

TOY.-W. W. Rose, New York city. YEAST POWDER, ETC.-E. P. Eastwick, New York city.

WOOL CARD EVENER.-F. F. Burlock, Birmingham, Coun.

# Becent American and Loreign Batents.

#### Improved Building Block.

Thomas B. Rhodes, Lectonia, O .- This invention relates to an improved building block formed of concrete or other material, which in its plastic condition may be molded into the required form, and will become ciently hard and durable for making permanent fireproof walls or structures. Hollow spaces extend through the blocks from bottom to top, to make hollow walls. The parts by which the two sides of the blocks are

CORROSION OF TIN. Tin is generally regarded as the least liable to change of all our common metals; but a case, recently reported to the American Academy of Arts and Sciences by Mr. S. R. Sharples, State Assayer of Massachusetts, cites a circum- stance which appears to be wholly contradictory to such a theory. A tank, belonging to an hotel in Collinsville, Conn., was lined with block tin containing less than 2 per cent of impurities. Some time after the construction of the recep- tacle, white deposits were noticed upon the lining, and the owners, fearing that the water might be rendered deleteri- ous, sent specimens of the powder and of the water to Mr. Sharples for analysis. The white powder proved to be ox- ide of tin with a mere trace of iron, and the water, which was led to the tank through 100 feet of lead pipe, was en- tirely free from the latter metal. During the month of March last, an interval of nearly two years having elapsed since the above examination and the tank lining being some five years old, the proprietors called Mr. Sharples' attention to the fact that the lining had be- come perfectly riddled by corresien, and this although there	<ul> <li>dren, and has the especial merit of being thorougnly amusing to the little pupil. The child's eye is taught to distinguish form, color and number, by playing with such toys as are usually given to the merest infant.</li> <li>THE AMERICAN YACHT LIST FOR 1874, containing a Complete Register of the Yacht Clubs of the United States and Canada. Ccmpiled by Niels Olsen, Steward of the New York Yacht Club. Price \$1. New York : L. H. Biglow &amp; Co., 13 William street.</li> <li>In addition to the information specified in the above title, this well arranged volume contains illustrations of all the ensigns and signals of the various yacht clubs.</li> <li>THE PRINCIPLES OF SCIENCE—A Treatise on Logic and Scientific Method. By W. Stanley Jevons, M.A., F.R.S., etc. Special American Edition. New York : Macmillan &amp; Co.</li> <li>In his "Scientific Use of the Imagination," Professor Tyndall has, in popular language, conveyed a clear idea of the mental processes by which the investigator is enabled to proceed from the known to the uzknown He biefly touches upon the ceurse of reasoning which detects analogies leading to a great dispovery, or upsetting, in the end, pre-existing and accepted theories; but he necessarily does not conduct us into the details, ortrace, step by step, the general logical and systematic operation of the mind by which certain and absoluterenuits are alone reached. This lack-lingneed in our scientific knowledge, Professor Jevons has supplied in the work before us—a volume which should command the careful study of these whose object is that cardinal aspiration of the merian superimeter.</li> </ul>	therein, in which tongues on other blocks will fit to lock the blocks firmly together. A groove may be formed in one end of a block and a tongue in the other. These grooves and tongues may be in dovetail form. Long binders of wood or fron, extending from end to end of a wall at the top, or from bottom to top, are used. The openings in the top blocks may be ar- ranged so that hot air admitted to them may circulate throuxbout the spaces in all outside walls, and in partitions, if preferred, for beating the rooms. In laying up a wall, it is proposed to enclose each layer tempora- rily in a casing of wood, and pour in hot cement to flow into the inter- sices and fill them upand unite the blocks. <b>Improved Electrical Condenser.</b> Charles A. Browne and Isacs S. Browne, North Adams, Mass.—This invention relates to the construction of Leyden jars or condensers, com- posed of indiarubber plates with embedded tin foll sheets; and it consists in so constructing the coudenser in sections that, in case a rubber plate is ruptured by a spark, the damage can be repaired by simply reading the sections, or, at most, by the loss of a section only instead of the whole jar, as when all the plates are vulcanized together. <b>Improved Trank.</b> William J. Large, South Brooklyn, N. T.—To the till of the trunk are at- tached bars, which slide up and down in ways in the trunk body. By suit- able mechauism, by raising the lid to open the trunk, the till will al:o be raised, giving coavenient access to the interior. When the lid is raised, a slotted bar drops over a screw to support the said lid and the till. Arrange ments are coansested with the till to adapt the same for use as a writing <b>eest</b> .
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