ferro manganese will become quite in large demand, and hence give ample employ to any company undertaking the special manufacture and application of it. The following is what this French company proposes to undertake:

1. The sale and manufacture of alloys 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 MAUI.

Mr. T. M. Alexander, in a letter to the *Hawaiian Gazette*, gives an 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 within 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 masonry. 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 immersion 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 increasing in size after several days. By using a neutral solution of sulphate of quinine, applied by the nasal douche, Professor Binz found that the animalcuæ 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 carbonate 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.

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 circumstance 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 receptacle, white deposits were noticed upon the lining, and the owners, fearing that the water might be rendered deleterious, sent specimens of the powder and of the water to Mr. Sharples for analysis. The white powder proved to be oxide of tin with a mere trace of iron, and the water, which was led to the tank through 100 feet of lead pipe, was entirely 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 become perfectly riddled by corrosion, and this although there had been a free and constant circulation of fresh water, an analysis of which showed even better results than before. 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 unalterability of tin under similar circumstances.

Sir Charles Fox.

Sir Charles Fox, the distinguished civil engineer, died recently in England, aged 64 years. He was an assistant to the celebrated Robert Stephenson, by whom he was appointed assistant engineer of the London and Birmingham railway when that work was begun. Mr. Fox's greatest engineering work was the construction of the building 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.

Hospital 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 completely 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.* ABRAHAM G. JENNINGS.
[In equity.—Before Blatchford, Judge.—Decided May 21, 1874.]

Blatchford, *Judge*:

This suit is brought on letters patent granted to the plaintiff March 5 1872, for an "Improvement in Ladies' Hair Nets." The specification says:

The claim is a head or hair net, composed of a main set of meshes fabricated of coarse thread, combined with an auxiliary set or sets of meshes fabricated of fine thread, substantially as described.

The tenor of the specification and claim show that the intention was to have the claim cover broadly a head or hair net composed of a main set of meshes fabricated of coarse thread, combined with an auxiliary set or sets of meshes fabricated of fine thread, without reference to the degree of fineness of the finer threads, and without reference to the manner of tying the finer threads to the coarse threads. The history of the steps which led to the making, by the inventor, of the net described in the patent shows that he started with a net of 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 resulted if he had taken a net of small squares, sufficiently small to keep short hairs from protruding, such small squares being formed by fine threads, and all the threads of the net being of uniform size, and had substituted for each alternate fine thread, in both directions, a coarse thread, so as to arrive at a net like the patented net. Now such a head or hair net, of small squares sufficiently small to keep short hairs from protruding such small squares being formed by threads which were so small as to be entitled to be called fine threads, and were at a certain and reasonable distance away invisible, all the threads of the net being of uniform size, existed prior to the plaintiff's invention. It is defendant's exhibit No. 10. In such a net, to substitute for each alternate fine thread, in both directions, a coarse thread, cannot be the production of a new article of manufacture. Such substitution produces the patented net. It may be new as a design, and may be entitled to be patented as a design; but it is not a new article of manufacture. The specification sets forth, as the advantages of the patented net, only the preventing of the protruding of short hairs and the invisibility of the fine threads. But any person has a right to make defendant's exhibit No. 10 of as fine threads as should be desirable, and to make it of uniform finer threads or of uniform coarser threads would involve no invention. As it stands, it will prevent short hairs from protruding. The substitution of alternate coarse threads in it for the fine threads has no effect one way or the other on the protruding of short hairs or on the invisibility of the fine threads. No point of advantage as between the patented net and defendant's exhibit No. 10 is or can be suggested, except as to mere ornament or taste or outline in pleasing the eye. The fabrics, as to utility, structure, inherent qualities, and mode of operation in use, are the same. The patented net, in view of the former net, has no patentability, if the claim of the patent is to be construed in the broad manner before suggested.

If the claim, to sustain it in view of the former net, is to be limited to a claim to the combination of two sets of threads when they are so connected with each other that either set can be entirely broken away without destroying the other, then the defendant has not infringed. The defendant's net although it has a series of finer threads crossing each other between the coarse threads, so as to prevent short hairs from protruding, does not have its threads so connected that either set can be entirely broken away without destroying the other.

The bill must be dismissed with costs.

[*J. Van Santvoord* for the plaintiff.
A. V. Briesen for the defendant.]

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 engravings 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 Hoffmann. New York: E. Steiger, 22 & 24 Frankfort street.

This book contains full explanations of the *kindergarten* apparatus, which, on account of its simplicity, gradual progressiveness, and accuracy, is the most effectual method of imparting instruction to very young children, and has the especial merit of being thoroughly 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.

THE AMERICAN YACHT LIST FOR 1874, containing a Complete Register of the Yacht Clubs of the United States and Canada. Compiled by Niels Olsen, Steward of the New York Yacht Club. Price $1. New York: L. H. Biglow & Co., 13 William street.

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.

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 & Co.

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 unknown He briefly touches upon the course of reasoning which detects analogies leading to a great discovery, or upsetting, in the end, pre-existing and accepted theories; but he necessarily does not conduct us into the details, or trace, step by step, the general logical and systematic operation of the mind by which certain and absolute results 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 those whose object is that cardinal aspiration of the modern scientist—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 things are alone infallible.

A UNIVERSAL TABLE FOR EXCAVATIONS AND EMBANKMENTS, 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 cuttings and embankments. It is well illustrated with diagrams, 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 CYCLOPÆDIA, published by Messrs. D. Appleton & Co., of this city, has recently appeared. 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 has been written upon almost every conceivable subject. The volume 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, Kneeland and others. Count Pourtalés, 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 and 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 children'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 they will read and reread until the very paper becomes worn and limp with innumerable fingermarks. 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 this world, and whose existence is mainly spent in "getting licked" and thereupon tearfully forgiving his aggressor. The issue of ST. NICHOLAS before us has an excellent story, by Bret Harte, about a juvenile 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 Messrs. Scribner & Co., at 654 Broadway, 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. Professor Hartt contributes a valuable article on "The Shakespeare 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 fanciful 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 an excellent variety of contents, 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 bridge 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.

CARBURETTING AIR, ETC.—J. M. Cayce, Franklin, Tenn.
CAR COUPLING.—W. Todd, Portland, Me.
IRON AND STEEL MANUFACTURE.—E. Peckham, Antwerp, N. Y.
MOWER AND REAPER.—W. A. Wood, Albany, N. Y.
REDUCING IRON ORES, ETC.—N. W. Wheeler, New York city.
SPINNING AND WINDING FIBERS, ETC.—G. Draper *et al.*, Hopedale, Mass
STEEL SHOVELS, ETC.—T. J. Blake, Pittsburgh, Pa.
STRAW 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.

Recent American and Foreign Patents.

Improved Building Block.

Thomas B. Rhodes, Leetonia, 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 sufficiently 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 connected are arranged sufficiently distant from the ends to form grooves 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 iron, 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 arranged so that hot air admitted to them may circulate throughout the spaces in all outside walls, and in partitions, if preferred, for heating the rooms. In laying up a wall, it is proposed to enclose each layer temporarily in a casing of wood, and pour in hot cement to flow into the interstices and fill them up and unite the blocks.

Improved Electrical Condenser.

Charles A. Browne and Isaac S. Browne, North Adams, Mass.—This invention relates to the construction of Leyden jars or condensers, composed of india rubber plates with embedded tin foil sheets; and it consists in so constructing the condenser in sections that, in case a rubber plate is ruptured by a spark, the damage can be repaired by simply readjusting 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.

Improved Trunk.

William J. Large, South Brooklyn, N. Y.—To the till of the trunk are attached bars, which slide up and down in ways in the trunk body. By suitable mechanism, by raising the lid to open the trunk, the till will also be raised, giving convenient access to the interior. When the lid is raised, a slotted bar drops over a screw to support the said lid and the till. Arrangements are connected with the till to adapt the same for use as a writing desk.

Improved Street Car Awning.

Joseph T. Craw, Jersey City, N. J.—This invention has for its object to provide an improved awning for the end platforms of street cars, which may be extended to a greater or less extent as conditions require. The invention consists in an apron or curtain attached to a roller and to an adjustable or extensible frame, which are so connected by rack, bar, and pinion that the curtain is unwound from the roller when the frame is extended, and rewound thereon when the frame is retracted or drawn back to adapt the awning for varying conditions of the weather.

Improved Folding Chair.

Ephraim Tucker, Worcester, Mass.—This invention consists in combining angular plates and pivoted connecting straps with the posts, seat, and back of a folding chair.

Improved Base Burning Stove.

Howard Greentree, Baltimore, Md.—This invention consists in a firebox hearth made of two imperforate parts, the lower made in sliding sections, and in a correspondingly perforated flange and ring to admit air to the fuel for supporting combustion between the firebox and the shell of fire chamber.

Improved Egg Carrier.

William O. Strong, Ypsilanti, Mich.—This invention relates to forming the carrier of a slitted paper strip in such a manner that it is rendered more durable than other carriers of its class, the ends of the several interlocked parts or sections of the strip being joined together on the sides of the body of the carrier to prevent wear and protect the eggs from being broken by concussion.

Improved Upright Drilling Machine.

Frederick E. Reed, Worcester, Mass.—This invention is an improvement in the class of upright drilling machines in which a weight is employed to balance the spindle and its attached drill. The invention relates to prevention of backlash by means, chiefly, of a chain, a roll or cylinder, and adjusting screws; also to the arrangement for enabling the drill spindle to be quickly removed from or reinserted in the hole made by it, part of the same devices being employed for the purpose as are used for ordinary slow feeding of the drill.

Improved Hay and Cotton Press.

Micheal Mickelson, Ashland, Oregon, assignor to Orson A. Davis, same place. This invention relates to the combination of locking and releasing devices with the toothed bars and stirrups or pawls by which the follower is operated. To one of the side arms of the stirrups is pivoted a short lever, the inner end of which strikes against the other stirrup, raising said stirrup away from the teeth of the bar. As the stirrup is raised it strikes against the stop attached to the follow beam, and is stopped, which causes the said lever to raise the other stirrup, in which position the lever, stirrup, and stop lock themselves so that the follower may be raised freely. As the follower rises, a pin attached to the inner end of the lever strikes against a stop attached to the framework of the press, which disengages the lever and allows the stirrups to drop, ready to take hold of the teeth of the bars when the lever is again operated.

Improved Stove Pipe Elbow.

Samuel Smith, Brooklyn, N.Y.—This invention is an adjustable stovepipe elbow constructed of central and outermost rectangular sections, with overlapping intermediate sections, of which the outer sections are riveted to slotted connecting strips, and adjustable by a thumb screw to the central strip.

Improved Girder for Iron Bridges.

Cyrus W. Wheeler, Brownsville, Neb.—The object of this invention is to construct girders for arch and truss bridges which require less riveting. The invention consists of a tubular girder produced of two quadrantal flanged sections, riveted to a longitudinal strengthening piece and connected by a stiffening chord, and a quadrantal lower section of wrought iron.

Improved Preserving Apparatus.

John Peter Schmitz, San Francisco, Cal.—This invention comprises an improved tank having a transverse vertical slotted partition which may be readily closed after the vacuum has been created by the consumption of oxygen in the other or contiguous department, thus permanently excluding air. The burner to which the fluid is supplied is ignited by a taper or electric wire which is inserted through a slot in the end wall of the tank.

Improved Car Coupling.

Henry D. Goldsmith, New York city.—The adjacent drawheads of two contiguous cars have long transverse notches formed in them to receive the cross bars which are bolted to the framework of the cars, and with which the said drawheads are connected by rods which pass through the said bars, so as to support the drawheads and allow them to have a longitudinal play. One drawhead is slotted longitudinally to receive a pivoted coupling bar, the outer end of which is beveled off, and has a notch formed in its upper side to catch upon the catch plate of the other drawhead. The inner end of the coupling bar is made the heavier, so as to hold its outer end raised. The hight to which the outer end of the coupling bar rises is regulated by a set screw. The rear end of a lever is pivoted to the drawhead, and to its middle part is attached a chain which passes up through the platform and around guide pulleys. Its upper end is attached to the lower end of a pin attached to said platform. The chain is made of such a length as to prevent the forward end of the lever from dropping too low. The forward end of the lever is supported below the inner end of the coupling bar, so that, by pulling upon the chain, the said coupling bar is lowered to detach it from the catch plate of the drawhead. The chain is connected with a rod, that slides in keepers attached to the forward edge of the platform, so that, by pulling upon the rod, the cars may be uncoupled from the side of the track. The forward end of the second drawhead is beveled, and upon its lower side is formed a recess to receive the notched outer end of the coupling bar. To the inclined forward end of the same drawhead is secured a steel plate, the lower end of which is notched to receive the notched end of the coupling bar. A spring projects beneath the end of the coupling bar to prevent it from jarring off the catch plate.

Improved Beer Cooler.

Wenzel Toepfer, Milwaukee, Wis.—The floor and ends of the cooling pan are composed of metal plates with beveled edges and other plates with a beveled strip. The strips are arranged with their beveled edges reversely to the edges of the first plates, so that, when the latter are placed on the upper side of the second plates and pressed against the strips, they lock together and make tight joints. The plates and strips are bent up at the ends, where they extend the whole length of the pan to form the two sides. They are clamped together by a cleat fastened at one end to one plate, passing under the other plate to the other side, and entering a clip attached to the first plate, which holds it from springing away, while a key is driven in between its shoulder and a cleat riveted fast to the first plate.

Improved Car Coupling.

James Leith, Ridgway, Pa., assignor to himself and William T. Burdett, same place.—The drawheads are made U-shaped, and are secured to the cars in the ordinary way. To the inner surface of one side of each of the bumper heads is attached a bar which enters the mouth of the opposite bumper head. The forward ends of the bars are beveled off, and have hooks which catch upon square pins held out by springs. The pins pass down between two pairs of short cross bars formed upon the drawheads. To the pins are attached chains which pass through holes in the opposite sides of the drawheads, and with the middle part of which is connected the end of a lever. The latter is pivoted to the side of said drawhead, and its free end projects so as to pass along the side of the opposite drawhead as the cars are run together. Other levers are pivoted to the drawheads opposite the hooks, and are so arranged that, as the cars are run together, the first levers may pass between them and the sides of the drawheads. To the second levers are attached arms which, as the said levers are drawn inward, strike against the loops, the arms of which pass in through holes in the sides of the drawheads, so that the pins may be forced away from the hooks, uncoupling the cars. The same inward movement of the second lever of either drawhead also operates the first lever of the other drawhead, to withdraw the pin of said other drawhead, so that the coupling may be uncoupled by operating the second lever of either drawhead.

Improved Feed Pump for Steam Boilers.

Thomas Warswick, Guelph, Can.—This invention relates to means of connection between a rotary horizontal shaft and vertical reciprocating shaft or plunger, whereby the length of stroke of the latter may be varied with convenience and dispatch.

Improved Bridle Bit.

Andrew Jackson Slaughter, Okolona, Miss.—This invention relates to constructing a bridle bit with lever, so that great pressure can be exerted on the tongue and jaw of the animal without the power on his part of evading the pressure by opening his mouth. The invention consists in making the mouthpiece with a crook, so that it will always remain on the tongue, and the upright levers of such a shape that a great advantage of leverage is secured.

Improved Wheelwright Machine.

William R. Perry, Gaines, Pa. An eccentric lever is connected with the wheel by means of two straps, a central bolt, and a fulcrum pin. The straps are provided with a series of holes, so that the device may be applied to wheels of different diameters. The straps turn on the pivot bolt, and the lever is carried around from one spoke to another. The felly is thus pressed to the spokes without bruising or battering it with a hammer, and a rapid and permanent manner.

Improved Mode of and Tool for Capping Cans.

Richard H. Smith, Baltimore, Md.—This invention is based in part on the principle of the compound blowpipe, air and gas being conducted to the device in separate tubes and commingled at a point contiguous to the copper. The latter is in the form of a sheet or thin plate, which is readily heated by the flame that impinges on it through a slot in the back of the holder, and it is adjusted downward and clamped as required by means of a screw. The copper holder is secured in a socket which is provided with trunnions, and may be clamped in any desired adjustment to hold the copper inclined at various angles to the center on which the brace revolves. The brace is of the form of that used by carpenters for holding boring bits, and is revolved to carry the copper over the seam or joint in which bits of solder have been previously placed.

Improved Machine for Grinding Lenses.

Frederick R. Sutton and William O. Sutton, Wellington, Ill.—The holder for the lens to be ground revolves in a horizontal plane on a vertical axis, and the grinder revolves in a vertical plane on a horizontal axis. The inner periphery of the grinder works in contact with the face of the lens for grinding convex lenses.

Improved Curtain Fastening.

Aaron T. Rice, Reaville, N. J.—This fastening is formed of annular metallic plates and a slitted elastic disk. Said plates have semi-circular notches in their inner edge to receive or fit the shank of the knob or button, and the disk is slitted diagonally from the lower side so that a triangular tongue is formed which passes behind the head of the knob or button, and assists in preventing the fastening from getting detached.

Improved Railway Car Wheel.

George W. Miltimore, Janesville, Wis.—This invention relates to wheels generally, but mainly car wheels, and consists in means for taking up the shock thereon, and of locking the bushing or journal box and its collar to the hub of the wheel.

Improved Photographic Printing Frame.

Isaac M. Van Wagner, Nyack, N. Y., and Ezra P. Griswold, New York city.—This invention relates to apparatus for printing photographic pictures, and consists in an adjustable vignetting attachment to the ordinary printing frame now in use, by means of which the light opening, by means of longitudinal and transverse or other movable slides, is adjusted to the picture on the negative. It also consists in a device for varying the distance and position of the light opening from the negative. It also consists in a contracting and expanding diaphragm for varying the form and size of the light opening.

Improved Buckle.

George L. Robinson, Waterbury, Conn.—This buckle consists of a staple-shaped wire, having two parallel bars made zigzag, which pass through a cross bar. This cross bar slides back and forth on the bars, and is held in position by the angles, and to it is attached a pin having a loop handle. The pin and handle revolve loosely on the cross bar. The bars are attached to a bail shaped wire. The pin has shoes bends in it, which fit over the wire when the buckle is attached to the fabric.

Improved Lawn Mower.

Sidney D. King, Middletown, N. Y.—This invention relates to a machine especially adapted for cutting high grass, and consists in two sets of revolving cutters, arranged in a frame in such a way that one set severs the upper portion of the high grass, and the second or rear set works close to the ground. The machine is also adapted for cutting short grass, like others of its class.

Improved Loom Picker Stick Check.

Benjamin Bury, Fall River, Mass.—This invention relates to looms for weaving cotton, and consists in a new and improved device for checking and stopping the picker staff. The check bar is passed between two cords, and the cord is twisted to any desired degree of tension, thereby forming a spring, the action of which is imparted to the picker staff by the bar.

Improved Sash Fastener.

Shepherd W. Reed, Waterloo, Iowa.—This consists of a sliding bolt which locks into recesses of the window frame, being operated by a pivoted latch with notches and a projecting pin or lug, and fastened to a slotted guide piece after the bolt is pushed forward.

Improved Fire Alarm.

Percy Albert Blake, Highbury, England.—This invention is an improvement in self-acting fire alarms, in which adjustable fuses are arranged to traverse the various rooms or parts of a building, and connect with an explosive cartridge or alarm bell, which will be exploded or rung to indicate the existence of a fire in any portion of the building. The invention relates specifically to so connecting a series of branch fuses with a main fuse that, while any one of the former may ignite the latter, the latter cannot ignite the former. Hence, when a fire breaks out, the contiguous branch fuses will unite the main fuse, which, while giving the alarm, will not ignite any other branch fuse.

Improved Temporary Binder.

William A. Harwood, Brooklyn, N.Y.—This is a little case of sheet metal for temporarily holding one or more paper fasteners to receive the papers. There is a spring presser on the top, for pressing down and holding the papers on the fasteners. The device is so contrived that the papers to be filed will be secured at the left hand corner only, whereby the separation of the papers for inspection in the file, also in the package when removed from the file and secured together by the fasteners, may be readily effected.

Improved Culinary Vessel.

Laurence P. Bodkin, Brooklyn, N. Y.—Upon the edge of the vessel is formed a lip, to serve as a spout, in which is a strainer, secured in place by a single screw. The cover has a loose flap which closes the spout aperture, but swings open when the vessel is tilted. The main portion of the cover is held in place by spring catches.

Improved Bed Bottom.

Jonathan V. Taylor, La Cygne, Kan.—This is a flexible bed bottom, which consists in cords attached to head and foot frames, composed of transverse bars connected by longitudinal arms. The end bars of said frames are provided with projecting journals, which are fitted in inclined grooves, so that when the bed bottom is depressed the end frames will turn or oscillate for causing the pressure to bear against the under side of the bottom. The central portion of the latter will thus be elevated, obtaining a taut surface.

Improved Loom Shuttle.

Norman A. Williams, Utica, N. Y.—This is an improved spring mechanism for holding the spindle either in the elevated position for receiving the bobbin or cop, or in the position for delivering the yarn in weaving, and at the same time allowing of moving the spindle readily from one position to the other.

Improved Pitman Connection.

James Timms, Malta, assignor to himself, Hugh M. Cochran, and Joseph F. Sonnastine, McConnellsville, Ohio.—This is an improved device for taking up wear and the consequent lost motion. The invention consists in the combination of the sleeve or bearing and the lock nuts with the head or lug of the sickle bar, and the pitman having a screw thread cut upon it. A sickle bar has a lug to receive a hook on the end of the pitman. Upon the lower part of the latter is placed a sleeve, upon which is formed a toe, which is recessed to fit upon the sickle bar head. The sleeve is held down by lock nuts, placed upon a screw thread cut upon the pitman. By this construction, by turning down the nuts, the wear will be taken up to prevent lost motion caused by the wear, so that the hook can be used until worn out.

Improved Sewing Machine Caster.

William J. C. Gaar, Whitesburgh, Ga.—There is a rock shaft on each end frame of the stand, near the bottom, at right angles to the treadle shaft, carrying a castor in the outer end of an arm near each end. This rock shaft is connected by another arm and a rod with a lever pivoted on the treadle next to the standard, so as to force the casters down and raise the stand upon them when the free end is pressed down by the foot or hand of the operator. When forced down, the lever drops under a stud catch on the standard, which holds down and keeps the standard mounted on the casters.

Improved Vehicle Spring.

Ambrose L. Davis and Levi A. Davis, Port Crane, N. Y.—Springs are attached to the tee of the pole and to the bolster, and receive the blocks and bars, to which the fifth wheel is attached, and upon which the wagon body rests, being confined by the king bolt. The springs act in connection with the other springs of the running gear, and add materially to the elasticity of the wagon body. The clip block, by means of which the ordinary springs are confined to the axle, has a clip which passes around the latter, through the block, and through the spring. The ends of the block extend from this clip in each direction, and each receives a clip for giving additional support to the spring.

Improved Strainer for Milk Pails.

Conrad Schambra, Wheeling, W. Va.—This invention consists of a strainer attachment to milk cans, adapted to serve in combination with a small cap for the cover for the pail, and also adapted for the attachment of a funnel for straining and discharging the milk into a vessel having a small neck. By this device the milk can be strained at the same time that it is received from the cow into the pail.

Improved Combined Blacking Box, Blacker and Polisher.

Anson L. Sonn, Baltimore, Md.—This invention consists in a peculiar mode of covering the blacking box and supporting the blacker upon the polisher, so that the whole may be conveniently carried in their trunks by travelers, and without the possibility of soiling their clothes.

Improved Fruit Box.

Edward Wilkins, Chestertown, Md.—This invention relates to modes of constructing fruit boxes so that they will be sufficiently strong and durable to bear the jars and jolts of transportation, the weight of the fruit, and the various manipulations through which they must necessarily pass, but, at the same time, be sufficiently cheap to admit of their transfer to the consumer with the fruit and without extra charge.

Processing Hermetically Sealed Cans of Fruit, etc.

Andrew K. Shriver, Baltimore, Md.—This invention relates to methods of processing hermetically sealed cans of fruit, fish, or vegetables, so as to preserve their peculiar flavors, and consists in immersing the tight vessel in water, and then applying superheated steam to the inside of the vessel.

Improved Bale Tie.

Finis L. Bates, Winona, Miss.—This bale tie is shaped in the form of the letter U, and has legs so arranged in diagonal position to the base that the tie rests thereby on the lower corners of the same. The upper diagonally opposite corner of each leg has a spur. The ends of the hoop band are slipped over the legs of the tie by being placed parallel to the sides of the same, by which no resistance is offered. The end projections keep the bands in position on the tie, and prevent thereby the detaching of the same.

Improved Scraper Attachment to Blacking Brushes.

John M. Stamps, Washington, D. C.—This invention relates to means whereby an ordinary brush for blacking and polishing boots or shoes may be made more useful and desirable to the public. The invention consists in the peculiar shape of the scraper and the mode of applying it to the brushes so as to enable it to conveniently and readily eliminate every particle of dirt, especially between the upper and sole.

Improved Cooking Utensil.

Ira Dunham, Plattsburg, Mo.—This is a cooking utensil for broiling meats, roasting coffee, and other purposes, which is readily thrown open and held tightly closed during use. Two pans of equal size are pivoted together, facing each other, and closed by a longer handle with spring extension, which takes hold of the shorter handle, and holds the same in position by a sliding clasp link.

Improved Car Coupling.

William H. Hopper, Saginaw City, Mich.—This invention consists of a bumper head, to which is pivoted at one side a strong spring dog; at the other side is a vertical loop, with wedge-shaped or pointed front edge which enters between the rounded off side of the bumper head and the spring dog of the adjoining car, so as to be firmly locked between them. For the purpose of coupling with the common drawhead and link, the bumper head is provided with a horizontal slot for admitting the link, while the pivoted clevis is detached and thrown back in sideward position, and its pin fastening made available for coupling the entering link.

Improved Rope Drum for Windlasses.

John Knowlson, Jr., Troy, N. Y.—The drum is provided with a conical friction flange at each end, and arranged loosely on the shaft, so that the latter can turn without it; also so that it can slide lengthwise to some extent. A friction disk is keyed fast to the shaft. For clutching the drum to the shaft, suitable mechanism presses a loose disk against the drum and the latter against the friction disk.

Improved Suspension Lamp.

Riverius Marsh, New York city.—This invention is a plate made in any form to serve as a reflector to throw the rays of light downward. The plate is fastened to the shade by means of screws which pass through a vertical flange and enter a corrugation in the shade. The plate is suspended from lamp chains, so as to serve both as a reflector and connection between the lamp and shade, allowing either to be raised or lowered.

Improved Car Starter.

Carl Ludwig Praeger, Niles, Mich.—The draw rod, when strain is applied, pulls forward a traveling carriage which moves on the drawbar. Friction rollers on the side of the carriage pass under the inclined portion of the horizontal arm of a bell crank lever, to the vertical part of which arms are secured, which are thereby forced at an angle into the ground, so pushing the car ahead.

Improved Molder's Flask.

Isaac Mc Guire, Albany, N. Y.—The upper flask section or cope is provided at the bottom part with slide pieces worked by handles under the cope plates, so as to project when ramming the sand, separating the cope from the nowel, being withdrawn when taking off both flask sections from the molded sand. The bottom flask is rammed and prepared in the usual manner for the pattern. The cope is then placed on it, with the slides pushed forward, so as to project to the inside of the cope. The sand is then rammed in over the cope section, then detached from the bottom section, and turned over for taking the follower board. The molded sand is supported on the projecting part of the slide. The cope is then reset on the nowel, the slides are drawn back, and both sections of the flask are then detached from the mold.

Improved Whiffletree Staple.

Munson Hinman, Hallock, Ill.—The loop and the strap of the staple are cast of malleable iron, in one piece. In the end parts of the strap are holes to receive the bolts by which the staple is secured to the whiffletree