

## RECENTLY PATENTED INVENTIONS.

## Engineering.

**THROWING ENGINES OFF DEAD CENTERS.**—James B. Rauch and Thomas Kennedy, Galena, Kansas. An apparatus devised by these inventors consists of a pivotally supported jointed arm carrying a shoe at its outer end, the shoe departing from the pivotal center as the sections are straightened, and then binding against the wheel rim. The arm may be connected by a lever with a pitman or other operating mechanism, and when the engine is on the dead center the shoe is put in binding contact with the wheel rim by straightening the arm, the further movement of which then carries the wheel off the center, the contact being broken and the friction shoe freed from the wheel when the arm comes in contact with a stop. The shoe section of the arm is adjustable lengthwise for adaptation to different sizes of wheels.

**PIPE BOILER.**—Alexander M. Lenke and Rowland Weston, Saginaw, Mich. According to this improvement two lengthwise water drums, mounted on suitable legs, are connected at their ends by vertical water legs with two upper separating drums, the latter being connected by pipes with each other and with a central steam drum at the top. Coils of pipe are arranged between the sets of water legs at the sides, the upper ends of the coils discharging into diagonally opposite drums, and the lower runs of the coils are at a suitable distance above the grate to form a fire box, the rear end of which is also closed by a coil of pipe. The construction is designed to insure perfect circulation and the quick generation of dry steam.

**MOTOR.**—Samter B. Battey, New York City. A fluid pressure and hydraulic motor, patented by this inventor, is designed to utilize the motive agent with the highest efficiency. A wheel has in its periphery conduits or buckets into which water under pressure is discharged from nozzles in a surrounding pipe to rotate the wheel. The surrounding pipe is connected with a vessel from which the water is forced out by a pressure pipe. From the motor casing the water flows to a tank within which is a vessel connected with the supply pipe for the motor, and a pressure pipe opening into the tank forces the water into the vessel, whereby the motor may be operated without waste or loss of water.

## Electrical.

**SECONDARY BATTERY PLATE.**—William P. Patton, Jersey City, N. J. The rectangular body of this plate is hollow, but is intact at all its edges, and one or more thin metal partitions are held within the cavity of the plate by engagement at the edges, forming a light and strong plate with great surface for the formation of an active coating. The partitions are clamped at all the edges between two sections of a mould wherein the side walls and edges of the battery plate are cast into form from molten metal that passes through perforations in the partitions near their edges, whereby the cast sides of the battery plate are integrally joined. The construction affords great internal area for a battery plate of moderate dimensions, and when the active coating on the inner and exterior surfaces is formed by electrolysis a compact and powerful electric accumulator is thus afforded.

**TELEPHONE TRANSMITTER.**—Horace C. Alexander, Bonham, Texas. To transmit the greatest possible volume of sound without grating or rattling, the diaphragm and shell, according to this invention, are formed from one piece of metal, the diaphragm being secured to a block of insulating material to which is secured a carbon block attached to a metal plate. A vibrating nipple on the diaphragm extends into a cell formed in the carbon block, a granulated electrode surrounding the nipple in the cell, and a yielding material being placed between the inner end of the carbon block and the diaphragm.

**LIGHTNING ARRESTER AND FUSE BLOCK.**—Gustave X. Gast, New Orleans, La. An instrument having a multiple automatic fuse block, for automatically closing or restoring an electric circuit when broken by the fusion of the conducting wire by lightning or by a heavy current, has been devised by this inventor. The invention comprises more especially a shunt circuit of variable or graduated resistance through which the current is directed as a spring arm moves from one trip arm, when its fusible connection is broken, to the next, whose fusible connection is intact, so that a sudden shock is not thrown upon the second fusible connection, and it is enabled to resist and hold the spring arm.

**ELECTRIC RAILWAY.**—Henry M. Jones, Meriden, Conn. For electric roads where the current is carried in a conduit beneath the track rail, this inventor has devised a simple and inexpensive construction, with a light and strong device for normally closing the slot of the conduit and obviating danger of accident from contact with live wires. The conduit extends longitudinally between the rails, and has a slot normally closed by a tubular cable made of spirally wound wire adapted to open or stretch at points lifted from the slot, a device being carried by the car for raising the cable from the slot. The cable is supported in the conduit by flanges which also serve as tracks upon which travel the rollers of the cable lifter of the car.

## Bicycles, Etc.

**TIRE.**—Charles H. Paschke, Chicago, Ill. The rim is of the usual construction, according to this invention, and is perforated by bolts connected by pairs of chains with an outer rim, the latter being made of a series of four or more wires spaced apart and transversely connected by cross bars to form a slightly oval tread, the cross bars being arranged near the connections of the chains with the outer wires. The end pieces for the wires are connected together by screw rods, by screwing up which the wires may be tightened according to the degree of elasticity desired.

**CHANGEABLE GEAR.**—Thomas S. Drummond, Punksatuney, Pa. According to this invention, the drive shaft has a gear wheel at each end, the gear wheels at opposite sides of the wheel being of

different sizes, and being encircled by runways adapted to receive balls, and each runway having openings for the passage of a gear wheel into and out of engagement with the balls, the gear wheel at either side of the wheel being brought into engagement by the movement of a lever. By this means the rider can quickly change from a high to a low gear, and vice versa, according to the nature of the road upon which he is traveling. The construction is designed to be simple and inexpensive, admitting of the gear being readily repaired in case of damage.

## Mechanical.

**HONING MACHINE.**—Terence F. Curley, Brooklyn, N. Y. For sharpening the blades of razors and other tools, this inventor has devised a simple, easily operated machine which will hold the cutting edge of the blade in proper position to the grinding stone, drawing the blade over the stone and reversing its position automatically. The machine has a reciprocating carriage in which is journaled a blade holder adapted to be turned at the end of the stroke of the carriage to reverse the position of the blade. The operator can give a short stroke to the carriage, to avoid reversing the position of the tool, the latter being then moved forward and backward over the stone with one face only in engagement with the stone.

## Miscellaneous.

**NOZZLE.**—Charles A. Snider, Columbus, Ga. To facilitate the discharge of a large or small stream of water, according to the condition of a fire, or to throw a full or half circle spray of water, this invention provides an easily manipulated nozzle which may be changed to graduate the outlet opening. The discharge pipe has a spherical end on which rotates a cap at an oblique angle to the middle line of the pipe, and having a series of graduated openings adapted to register with the mouth of the pipe.

**POLE TIP.**—Arthur F. M. Brooke, Calgary, Alberta, Canada. A pole tip designed to prevent a neck yoke from being accidentally discharged from the pole consists, according to this invention, of a hollow casing on the outer end of the pole, having an angular flange adapted to be engaged by the ring of the neck yoke, which prevents the latter from sliding further back on the pole. On the lower side of the tip is a slot where a catch or latch is pivoted, adapted to catch the ring and hold it from coming off.

**SEAL FOR PACKAGES.**—Lewis F. Musson, Winona, Minn. A plastic seal, according to this invention, has pieces or particles of paper fabric compressed therein, of predetermined design and delineations and in predetermined order, to be used in connection with a wax seal produced upon a letter or package, so that practically no two seals will be alike. For verifying the genuineness of the seal, it is provided that, while the wax is still warm, certain pieces of particles are removed from the sealing strip and sent to the purpose destination of the letter or package, that the receiver may compare them with the designs on the seal.

**SIGN.**—William N. Ley, Wilbur, Washington. This sign has slat sections connected by loops, the rocking of one of the slats reversing the entire series and presenting their rear faces to the front, while another movement restores the slats to their normal position. As the change takes place the effect is as if the uppermost slat turned moved along the line of slats to the bottom. The invention also provides for constantly rocking the uppermost slat by a motor, producing automatically the continued changes.

**MATRESS.**—John Hoffman, New Ulm, Minn. A mattress designed to be inflated by air is provided by this invention, together with a covering which may be removed and cleaned without difficulty, the entire construction precluding the harboring of insects. An inflatable sack fits within a frame adapted to fit in a bedstead, the sack resting on webbing. The covering may be of ticking, with an open end closed by lacings. The construction is simple and inexpensive.

**COOKING APPARATUS.**—William E. Baxter, Frankfort, Ky. This is a portable apparatus for use in camping out, and is designed to be readily packed in small space. When set up the oven adjoins the stove, and the latter may be used for heating purposes alone or for cooking other than baking. The oven is adapted to receive several pans, which form part of the outfit. When folded for transportation, the parts may be secured by a lock and safely carried as freight or baggage.

**STOVE.**—Ernest C. Cole, Council Bluffs, Iowa. This stove has a top draught tube supported by a universal joint, to give it a swinging motion and prevent its being in the way in putting in fuel, or being clogged by the fuel, also enabling the draught to be pointed at any desired angle. The air supplied by this tube is heated in its downward flow, affording a hot blast to be thrown directly on the fire in a manner designed to afford a perfect combustion of the fuel.

**GAME APPARATUS.**—William P. Wetzler, Allegheny, Pa. According to this invention, a box has parallel partitions extending from opposite edges nearly across, while arched strips between pairs of partitions have holes in their central portions, the strips being of different colors corresponding with different colored marbles with which the game is played. The marbles are run back and forth over the strips, the object being to place the different marbles in the holes or depressions of the strips belonging to their several colors.

**GAME APPARATUS.**—Reinhold F. de Grain, Washington, D. C. In a suitable casing, according to this invention, is a series of disks carrying numbers or symbols and fixed to an easily revolvable spindle, the revolving mechanism rotating or stopping them all separately or together for the registering of the symbols with reading points. As the operator pushes a rod in one or the other direction it causes the shaft to turn until coming to a stop by gravity, when the characters show through sight openings, exhibiting the characters to three sides of the box. The characters are preferably ordinary dice spots.

**FLUID PRESSURE REGULATOR.**—Peter Albertine, Jr., Carlstadt, N. J. This is an improved gas regulator which admits of being coupled to various supply and service pipes. It consists of a casing having inlet and outlet, and an annular chamber for containing a liquid into which dips the lower edge of a float carrying a valve stem whose valve moves toward and from a seat in the casing, the seat being arranged between the inlet and outlet. A guide on the stem engages guide-ways in the casing, the guide receiving weights to increase or diminish the weight of the float.

**FIRE ESCAPE.**—Daniel Cronin, Mannington, West Va. A drum carrying a wire or rope adapted for attachment to a window has at its ends wheels for brake straps, and is journaled in a frame from which drops a hanger arm supporting a belt or seat strap. Brake straps are secured to an attached brake setting frame of novel construction, the handle bar of which is grasped by a person seated in the strap, whereby the brake may be applied with the desired force to regulate the speed of descent.

**PURIFYING WATER BY EBULLITION.**—Alfred Dervaux, Brussels, Belgium. An apparatus more especially devised to free water from carbonate of lime has been devised by this inventor, in which a descending column of water is heated to the boiling point by introducing steam at the bottom of the column and then subjecting the steam escaping to a spray or sheet of cold water, forming a vacuum above the column of water and at the same time heating the spray, whereby steam is drawn through the water by suction, and the water is thoroughly boiled and forcibly agitated.

**HUNTING APPARATUS.**—Benedict Ott, La Crosse, Wis. To facilitate forcing wolves, foxes, rabbits, etc., out of their subterranean holes or burrows, this inventor has patented a novel device, comprising a stiffly flexible cable, made of tubing or wire rope, and with a close or compact exterior, having a rotary pilot bulb at one end and a rotating crank at its other end, the bulb being hollow and having ventilating holes to receive cotton waste or other material saturated with some freely burning substance. The cable has sufficient rigidity to enable it to be forced into a burrow and be rotated by the crank, it being designed to force or smoke out the animal.

**INSECT TRAP.**—Edward G. Lewis, St. Louis, Mo. A superior fly trap is afforded by this invention, one which may be folded to occupy but little space, as it is made of cardboard or a paper blank to be set up in box form. The meeting edges are separately engaged and an integral top is orificed and is scored from the orifice toward the angles of the body, the orificed portion being depressed when the trap is set up. There is a light orifice and an insect inlet orifice, the two orifices being widely separated.

## Designs.

**SPOON.**—Vincent P. Tommins, Hoboken, N. J. The bowl of this spoon has a representation of the Grant tomb at Riverside Park, on the handle is a flag and eagle, and its wider portion has a foliate wreath margin.

**GAME BOARD.**—James A. Bush, Port Gibson, Miss. This game board affords a puzzle, with endless inclosures or channels contracted or curved inward toward each other and merging into broad rounded ends, the inclosures communicating with each other at points out of registry.

**SPOON HANDLE.**—William A. Jameson, Niagara Falls, N. Y. The front and back face of this handle are of violin shaped outline, with scroll ornaments at the sides of the widest portions and beaklike ornaments at the sides of the narrow portion, extending from the bowl to the scroll.

**NOTE.**—Copies of any of the above patents will be furnished by Munn & Co. for 10 cents each. Please send name of the patentee, title of invention, and date of this paper.

## NEW BOOKS, ETC.

**DER SCHORNSTEINBAU.** Von Gustav Lang. Mit über 120 Abbildungen im Text und 2 Tafeln. Hannover: Helwing'sche Verlags-Buchhandlung. 1896. Pp. 186.

To those who read German and are interested in the building of chimneys, Professor Lang's work on chimney building will be most useful, touching, as it does, upon the many problems of construction arising in that branch of chimney building.

**STEAM HEATING DATA.** By William J. Baldwin, Expert in Heating and Ventilation. Published by the Author, Nos. 106 and 108 Beekman Street, New York. Pp. 28. Price 50 cents.

**THE BRAVEST OF THEM ALL.** By J. Selwin Tait, author of "Who is the Man?" etc. New York: The Eskaale Press. Pp. 68. Price \$1.

This little work may figure as a prolonged Aesop's fable. Rudyard Kipling, in his "Jungle Book," has made animals popular, and here we have a contribution in the same field of literature in an attractive form and one which will meet with a warm reception from many a young reader.

**REAGENTS AND REACTIONS KNOWN BY THE NAMES OF THEIR AUTHORS.** Based on the Original Collection by A. Schneider. Revised and Enlarged by Dr. Julius Altschul. Translated from the German by Richard Fischer. Milwaukee, Wis.: Pharmaceutical Review Publishing Company. 1897. Pp. 82. Price 50 cents.

This pamphlet is very attractive from its interesting subject and from its reasonable approach to completeness. In its pages we find many an old friend, such as Fehling's solution, Herapath's quinine tests, and many others which might be cited as examples of the author's work. It is not, however, restricted to reagents, for we

find tests for zinc given and many others. It is published in pamphlet form, and we cannot imagine that any working chemist would be content to dispense with so useful and valuable a work.

**CALIFORNIA GAME "MARKED DOWN."** Scenic Mountain Woodland Covers and Tide March Resorts for Game; Lakes and Streams for Trout, and the Generous Pacific for all Desirable Marine Contributions to Sporting Life. Illustrated. San Francisco, Cal.: Passenger Department, Southern Pacific Company. 1896. Pp. 64.

**POCKET MANUAL OF READY REFERENCE.** For the use of Copy Editors, Proof Readers, Compositors, Type-writers, Copyists, Telegraphers, Students of Law, Newspaper Reporters, etc. Containing a Complete Vocabulary for Double Words from Webster's International Dictionary; over Five Hundred Latin and French Words, Legal Phrases and Colloquial Expressions, with their Definitions; Alphabetical List of Contractions and Abbreviations commonly met with in Writing and Printing; Complete List of County Names in the United States arranged alphabetically by States; Declaration of Independence, with the Names of the Signers; Constitution of the United States, with Amendments and Dates of Ratification; together with a Collection of Miscellaneous Information Handy at all Times for Quick and Reliable Reference. Compiled and arranged by P. J. Haltigan. New York: Excelsior Publishing House. Pp. 160. Price 50 cents.

We have cited at length the somewhat full title page of this useful little work, which will answer instead of a review as showing what it contains. It is nicely bound and well indexed.

**A SYSTEMATIC TREATISE ON ELECTRICAL MEASUREMENTS.** By Herschel C. Parker. New York: Spon & Chamberlain, 12 Cortlandt Street. London: E. & F. N. Spon, Limited, 125 Strand. 1897. Pp. vi, 120. Price \$1.

This work, quite careful in its construction and rather well carried out, is largely a reproduction of a series of articles which have appeared in an electrical monthly. To a certain extent it shows that the articles were of this origin, and the author apologizes for it on that basis. We hardly think it requires apology, and think it will be an acceptable addition to a practical man's electrical library.

**A NEW DAIRY INDUSTRY.** Preparation and Sale of Artificial Mothers' Milk, "Normal Infants' Milk." By James Fred. Sarg, Black Forest Farm, Kempsville, Va. Norfolk: W. T. Barron & Company, Printers. 1896. Pp. 162.

The new dairy industry may be defined to be the application of every precaution in the direction of cleanliness. This little work, devoted more especially to the providing of milk for the feeding of infants, is an excellent plea for cleanliness in the barn, and the author certainly seems, in his plea for small establishments, to lay an excellent ground for cleanliness.

**THE RAILWAY BUILDER.** A Handbook for Estimating the Cost of American Railway Construction and Equipment. By William Jasper Nicolls. Fifth edition, revised and enlarged. Philadelphia: J. B. Lippincott Company. London: 6 Henrietta Street, Covent Garden. 1897. Pp. 283. Price \$2.

This little work, with an excellent index, really attempts to cover, in less than 300 small pages, the entire subject of building railways. The author evidently realizes that he has attempted rather a herculean task, but we believe that this book will be useful for practical railroad men, to give them assistance in estimating the probable cost of construction and equipment of railways. So many works of this kind are devoted to English construction that we are glad to see the American field invaded.

**EASY LESSONS IN MECHANICAL DRAWING AND MACHINE DESIGN.** By J. G. A. Meyer.

The fourth number of this excellent work on draughting room practice is now out. It holds good its first promise, and is largely illustrated with figures of the draughtsman's methods, with formulas worked out in a manner that is a reminder to the regular draughtsman and a teacher to the amateur. The work is to be finished in twenty-four parts, at 50 cents each, at which price we mail the parts as issued.

**BUILDING EDITION OF THE SCIENTIFIC AMERICAN.**

We take pleasure in informing our readers that the semi-annual volume of the Building Edition of the SCIENTIFIC AMERICAN is now on sale. It is tastefully bound in leatherette covers and is sent by mail on receipt of \$2. It contains most charming half-tone engravings of picturesque country houses, and the views are accompanied by floor plans, and interior views are also given. In addition to this most prominent feature of the Building Edition descriptions of large public buildings are given, as St. Luke's Hospital; the new Massachusetts State House with its superb library; the Library of Columbia University, and other architectural works. One of the most interesting engravings in the volume is Helicon Hall, Englewood, N. J., where boys are educated esthetically with the aid of music, flowers, and works of art. Each monthly number of the Building Edition has a finely executed plate in colors which forms the cover, consequently there are six such plates in the book. The present volume surpasses in interest any of its predecessors.