

## RECENTLY PATENTED INVENTIONS.

## Engineering.

**THROTTLE AND SLIDE VALVE.**—John P. Devoissaud, Sherman, Texas. This inventor has devised a novel throttle valve in plate form, sliding between the main valve seat of a steam engine and a cylinder head closing the front ends of twin cylinders. It is actuated by a governor device operated by the main shaft, thus controlling the steam supply. Operating in combination with this valve is a peculiarly constructed main slide valve, affording a complete and superior valve mechanism for a quick speed steam engine.

**FEED WATER HEATER AND CIRCULATOR.**—Edward Jones, New York City. According to this improvement a feed pipe extends through the fire box, in the bottom portion of which are circulating pipes in communication with the water legs, while side tubes extend upward from the circulating tubes and connect with upper tubes and the feed pipe. The improvement is adapted for a stationary or locomotive engine, the amount of water forced into the boiler is thoroughly under control, and when the pressure in the tubes becomes too great it may be conveniently relieved, while if the water in the boiler reaches too high a level, the supply is automatically reduced. In case of leakage in the fire box tubes, they may be closed from the exterior and the tanks readily reached for repair.

## Electrical.

**BATTERY CONNECTION.**—Walter S. Doe, Brooklyn, N. Y. This invention relates to lead plate storage batteries, providing therefor a positive contact and separation of the plates, while the acid vapors are prevented from affecting the contacting surfaces. The improvement consists of a contacting disk surrounded by an elastic ring for hermetically sealing the joint between the face of the disk and the lead plate, so that the joint is covered and hermetically sealed by the elastic ring or compressed composition, whatever contacting surface may be employed.

**BILGE WATER ALARM.**—Colcord Upton, Salem, Mass. This inventor has devised a float-operated circuit closer for marine vessels, to give an alarm when the water rises above a certain limit, insuring a more efficient contact on the rise of the water than has heretofore been effected. The case has terminals for the line wires, and vertically through the case extends a guide rod on which is a float, there being on the float a vertical spiral spring supporting yieldingly a contact plate.

**BURGLAR ALARM.**—John H. Lowe, Neosho, Mo. This alarm is particularly adapted for use in connection with a safe, which is inclosed in a movable case provided with electrical contacts, the electric circuit including an alarm and a connection with an electrically operated mechanism for opening a fluid-containing case, whereby the room in which the safe is located will be filled with noxious vapors, in which a person cannot live.

## Mining, Etc.

**FILTER BARREL.**—Norris H. Cone, Leadville, Col. This is a machine for use in mining operations, for treating any pulp composed of liquids and solids. It is composed of a revoluble cylinder in which are a series of independent removable sections, each comprising a filter bed, a grating on the cloth, with devices attached to the cylinder between adjacent filter sections to hold the latter in place on the inner surface of the cylinder. The heads of the cylinder have channeled heads and ports which open into recessed runnings. The interior parts of the machine are plated with silver and lead, or other suitable plating, for protection against chlorine and sulphuric acid.

## Railway Appliances.

**CAR COUPLING.**—Ludwig Grunwald, Norwalk, Ohio. The drawhead of this coupling is vertically slotted near the front end, a draught lug on top being curved rearwardly in front of the slot, in which is adapted to rock a curved drawbar having its upper end forked to embrace the draught lug, while a draught link is pivoted on these forked limbs and means are provided to rock the drawbar from the front of the drawhead. The device is of simple construction and the coupling is automatically made, the uncoupling being readily effected from the side of the car.

**SWITCH.**—Charles H. Eimke, Brooklyn, N. Y. This improvement is more especially adapted for use on street railways, especially those employing cable or electric cars. The mechanism is simple, and includes contact pins to be struck by a moving car to throw the switch point to either side, these pins being normally below the roadway, but being automatically raised by the passage of a car over the rails. The car is provided with a mechanism adapted to strike the pins and throw the switch.

**TRAIN TIME INDICATOR.**—William M. Six, Westfield, Ind. This is a register for stations by which trains can be bulletined by the operator without leaving his seat. The register is contained in a suitable casing, from which operating cords lead to a keyboard in the operator's room, and in the casing, mounted on top and bottom spring rollers, are indicating bands or canvases, on which are marked "due time," etc., of trains, these bands being moved by the keyboard connection to bring the proper announcements in front of sight openings in the opaque glass door of the register case.

## Mechanical.

**SUPPORT FOR CUTTER HEADS.**—Andrew Kendig, Texarkana, Texas. In tools for wood-working machinery, this invention provides a support for cutter heads of planers and other machines whereby the bits or cutters may be conveniently sharpened or dressed. A spindle supporting the head is mounted to turn and slide in a bearing, a transverse pin in the spindle being seated in grooves in the bearing, while a spring-pressed bolt connected with the rear end of the

spindle holds it in an innermost position and with the pin in engagement with one of the grooves.

**WRENCH.**—James Fatkin, Aspen, Col. This is an improved pipe wrench, with but few parts, quickly assembled or separated, and any one part replaced when injured. In its sliding jaw on the inner face of the shank of the fixed jaw is fitted a sliding and slotted block whose upper end comprises the movable jaw, pivoted by a pivot nut in the slot, while an adjusting screw loosely carried by the block has threaded connection with the pivot nut, the adjustment of one jaw to the other being thus effected with a rocking action of the movable jaw, one motion not interfering in the least with the other.

**WATER POWER.**—William E. Vernon, San Angelo, Texas. Adjoining a dam in a stream is a power house, according to this invention, in which are inlet openings of the height of the dam, and controlled by gates under the manipulation of the operator on the roof of the power house. In this house is a raceway leading downward to an undershot wheel adapted to operate pumps in separate boxes at the sides of the lower part of the power house. An apron in the bottom of the raceway guides the water upon the wheel.

## Miscellaneous.

**OXYGEN GENERATOR AND HOLDER.**—George R. Prowse, Montreal, Canada. This is an improvement upon a formerly patented invention of the same inventor, providing an automatic device for moving the generating burner by a step-by-step movement, bringing the flame on one after another of the pockets of the retort, the movement being controlled by the descent of the top of the gasometer. A slide on a ratchet bar at one side of the gasometer casing carries a burner under the oxygen generating retort, a plate having a series of hooks attached to the top of the gasometer engaging a spring-pressed bolt carried by the slide, while an adjustable spring-actuated arm moves the burner forward as it is released.

**COTTON PICKING MACHINE.**—George C. Phillips, Manchac, La. Arranged in connection with a wheeled frame or truck, according to this invention, are toothed rotating rollers or cylinders, to travel on both sides of a row of cotton plants and extract the cotton from the bolls. These toothed rollers are mounted in a swinging frame in rear of the truck, and are enabled to move laterally as required, that the picking rollers may work in contact with the cotton plants, the cotton being removed from the teeth by a brush and deposited in a suitable receptacle.

**OIL WELL PUMP.**—Adam Rosenkranz, Allegheny, Pa. This improvement is designed to prevent grit or other impurities from passing between the plunger and the parts in which it works, thus reducing the wear to a minimum. The plunger reciprocates in a packing cylinder at one end of the pump barrel, there being outwardly projecting stuffing boxes at each end of the packing cylinder, while a spring is arranged in the cylinder between the packings to press them into contact with the plunger.

**ROTARY BOLT.**—Thomas Stevens, Vigo, Ohio. This bolt is mounted to revolve on a feed cylinder at one end and a tailings discharge cylinder at the other end, spiders revolving with the bolt and having their spokes connected by longitudinal bars, and an elevator bucket and pitch board being secured to each bar. Both heads are made solid and absolutely tight, doing away with "speck boxes" and securing the entire use of the cloth in bolting, the feed and discharge being central, and the bolt being designed to produce flour of a very high grade.

**PURIFIER AND AERATOR.**—James and Thomas F. Newby, Harrisburg, Pa. This is an improved apparatus for separating dust, fluff, etc., from middlings and break stock and for aerating flour and flour stock. It takes air from outside the building, strains it through a cloth, and, by means of a fan, passes it through purifying cells to the lower portion of a main case where the stock is delivered, and thrown off in a sort of spray through which the pure air passes, every particle of the stock being thus thoroughly dried, cooled, and freed from dust, causing it to bolt more freely in the mill, and making the flour pack better, keep better, and absorb more water in baking. The apparatus acts on a continuous stream of stock passed through it.

**BREAKDOWN GUN.**—Milan S. Barker, Eugene, Oregon. In breech-loading guns having the barrel hinged on the stock this inventor has devised a simple construction whereby the hammer is automatically cocked on opening the barrel for removing the shell. An accidental discharge of the gun is not liable to take place, for when the hammer is set the triggers and sears are automatically locked in place until it is desired to fire the gun, when a safety button is pressed forward, unlocking a bar over the sears.

**DIVING APPARATUS.**—John D. Cooper, Cheboygan, Mich. This inventor has devised a small house, to contain one or several operatives, and adapted to be sunk near a vessel's hull, or wherever desired. It may have boring or other tools, with suitable driving mechanism, readily operated, the tool being so carried that it may be changed without going to the surface, while it may be directed laterally or vertically. This diving car or house is adjustably supported in position, may be moved about, has means of communication with those above the surface, and means for illuminating the space outside the frame in which the work is to be performed.

**RADIATOR TRUCK.**—Thomas B. Mason, Trenton, N. J. For readily moving radiators to their places in finished houses without injuring the woodwork or walls, this inventor has devised a truck whose side legs are adapted to be connected with each other by a cross bar, detachable chains extending from one side leg to the other and engaging the top and the base of the radiator. The truck also has a side leg with slidable caster, and a gravity locking device for locking the extending caster in place.

**SHUTTER MECHANISM FOR CAMERAS.**—Theodor V. Jensen, Copenhagen, Denmark. With this

improvement the operator may set and release the shutter without stepping in front of the camera. It comprises a spring-actuated drum mechanism operated by a clutch mechanism, the drum mechanism being locked when under tension, and a fluid-operated piston rotating the drum against the spring, the locking mechanism being released in the return movement, permitting the drum mechanism to be actuated by its spring.

**ATTACHMENT FOR MUSICAL INSTRUMENTS.**—Lincoln Utt, Lexington, Mo. This is an improvement for harps, zithers and similar instruments to permit a player to play in any desired key and execute any one of the chords to produce all tones and modulations called for by the music. The attachment comprises a frame with vertically sliding and spring-pressed bars, horizontally yielding bars, dampening blocks, etc., the operator pressing the respective bars, according to the music to be played, after the frame has been placed in position, the strings not to be played being rendered mute by the attachment.

**LAMP.**—Ferdinand Doelle and Henry von Glahn, New York City. This is an improvement in the flame extinguisher of burners for Argand lamps, there being in connection with the sliding extinguisher tube two opposite spring supports for the extinguisher, consisting of slidable rods having lateral projections or shoulders, with guide tubes fixed inside the burner, there being springs on the rods, spring catches and releasing levers whose free ends project on one side of the burner. The extinguisher can only be released by simultaneous pressure on both levers.

**CEILING PLATE.**—Joseph W. Chamberlain, Bangor, Me. This inventor has devised a wall or ceiling plate provided with a gripping device to firmly take hold of a pipe, the device expanding and contracting laterally and vertically with the pipe, so that it does not lose its grip with changing temperatures, and the plate does not move in the slightest degree from the position in which it is placed. The device consists of a tapering spring attached to the plate, the contracted end being free and the spring being adapted for clinging engagement with the pipe at its free end.

**BRIDLE FOR PAINT BRUSHES.**—Charles Boeckh, Jr., Toronto, Canada. This is an improvement upon a formerly patented invention of the same inventor providing for the attachment of the bridle to the brush without lacing, the fastening devices being also located at the upper portion of the bridle, which may be cut at the bottom without interfering with the fastening, thus enabling the brush to be advantageously used for the longest possible time. The bridle may also be so applied that the brush will wear to a feather or beveled edge evenly throughout its length.

**LADDER ATTACHMENT.**—Theodore Wilkins, New York City. This is a device to facilitate the raising of long and heavy ladders, the side members of a bail-shaped anchor being hinged to the inner faces of the side beams of the ladder near their lower ends. The anchor has teeth or prongs to engage the ground when swung downward, and when the anchor is swung upward it is engaged by a catch on the inside of the beams, locking it in place out of the way.

**SLIDING DOOR.**—Leander H. Weaver, Hudson, N. Y. This is a collapsible and extensible door which may be used as a substitute for the ordinary swinging or laterally sliding doors, being out of sight when opened, as it is then collapsed and lying in a suitable case above the door opening. The door and its case are so made that they may be put up without the use of nails, and the door is very easily opened and closed.

**WAGON BED LIFTING APPARATUS.**—Orlo H. Drinkwater, Cedar Point, Kansas. For lifting heavy wagon beds or hay racks from the wagon gear onto a frame, from which they may again be placed upon the wagon gear without manual labor, this inventor has devised a simple and inexpensive apparatus in which the lifting is performed by the team drawing the wagon. The improvement comprises front uprights and a rear support to which are pivoted swinging lift members, braces automatically swinging into position to hold the lifter arms to an elevated position when set to be engaged by the wagon body.

**TRIPOD LEG.**—Robert G. McDowell, Ishpeming, Mich. For rock drills and similar machines this is a device of simple construction, permitting a convenient adjustment of the point in the sleeve attached to the tubular leg. A longitudinal keyway extends in one side of the lower end of the sleeve and opens into its bore, the key having a beveled end to prevent disconnection from the sleeve, while the tubular leg has a reduced end fitted into the enlarged bore of the head of the sleeve. A pin connects this head with the reduced end of the tubular leg.

**FISH TRAP.**—William M. McKenzie, New York City. This trap is especially designed for the capture of minnows, eels, etc., and consists essentially of a netting in the form of a bag, in the mouth of which is a funnel, also made of netting, extending into the body of the trap. The netting and funnel are distended by straight or bent rods, the supports being so connected that they may be readily disconnected or folded upon one another, and the trap to be placed in a small casing. Netting wings or fences may be advantageously used in connection with the trap, or it may be employed without such adjuncts.

**BOTTLE.**—George F. Kinney, New York City. A device to prevent the fraudulent refilling of bottles has been devised by this inventor, one not interfering with the filling or emptying of the bottle, but positively indicating whether or not the bottle has been tampered with afterward. It consists of a vertical toothed rod to be placed in the bottle, a float sliding on the rod having recesses in its top and spring teeth in the recesses engaging the rod. The float cannot be removed without breaking the bottle, and as the liquor is removed the float goes down, but will not rise if the bottle is refilled, its presence below the level of the fluid giving notice of such refilling.

**CONFECTIONERY MAKING.**—Leo Hirschfeld, New York City. A machine for depositing confectionery in moulds, designed by this inventor, is so made that the mould is held stationary while a carriage

with the confectionery is moved over the moulds until all are filled. A number of moulds may be placed one on the other, and the carriage adjusted vertically to deposit confectionery as accurately in the upper as in the lower moulds. The carriage has conveniently adjustable valves corresponding to the number of moulds, all of which may be opened or closed simultaneously, and the feed may be changed as desired.

**WINDOW SCREEN.**—John G. Schill, Jersey City, N. J. By means of this screen a window is rendered perfectly insect proof, the screen fitting snugly to the window casing and yet being readily raised and lowered. The invention consists principally of a spring-pressed auxiliary stile, a fabric being attached to this stile and to the screen stile. The device may also be used for an inside blind by making the frame solid.

**MOSQUITO NET FRAME.**—Charles P. Dieco, Owensborough, Ky. This invention provides a supporting frame for detachable connection to a bedstead, the several parts being adjustably connected for securing it to bedsteads of different sizes, and the frame being of a simple and inexpensive nature. The net supporting frame, or its side arms on either side, can be quickly and easily raised by a person lying in bed.

**BUCKLE.**—Alfred Steiner, New York City. In this buckle is a plate with a projecting fixed tongue, a clamping frame provided with a pivot being journaled in the tongue, the frame pressing and clamping with its front end the strap on the front end of the tongue. A locking device is held on the plate to lock the parts of the buckle in place and prevent the untying of the strap by unauthorized persons after the strap has been drawn tight.

**CHILD'S CARRIAGE AND CRADLE.**—Ora Orr, Westport, Cal. According to this improvement, curved springs are detachably connected with the running gear, the body being mounted on and having a swivel connection with the springs, that it may be turned at right angles when used as a cradle. The invention combines two complete articles in one, its adjustment being readily effected with the child asleep in the body part, or the child may be removed with the carriage body without being disturbed. No material additional expense is involved in the manufacture.

**DESIGN FOR A BADGE.**—William H. Walsh, New York City. The leading feature of this design consists of a Maltese cross surrounded by a circular band and containing at its middle the configuration of a heart.

NOTE.—Copies of any of the above patents will be furnished by Munn & Co., for 25 cents each. Please send name of the patentee, title of invention, and date of this paper.

## NEW BOOKS AND PUBLICATIONS.

**THE GREAT ICE AGE AND ITS RELATION TO THE ANTIQUITY OF MAN.** By James Geikie. Third edition, largely rewritten. With maps and illustrations. London: Edward Stanford. 1894. Pp. xxviii, 850. Price \$10.

This important monograph hardly lends itself to review within anything like the limits at our disposal. In the nearly nine hundred pages of the book, with its exhaustive index, numerous maps and illustrations as required, we have elucidated the glacial phenomena of the earth, their agency in shaping the face of the land, the markings by which they are recognized, and a study of the action of the glaciers as derived from what is left of them on the earth at the present day. In these days it is especially necessary for geologists to be familiar with glacial action, not only with what it can do, but with its limitations. It is to be noted that this is the third edition of the book, largely rewritten, which indicates a success in the past which will, doubtless, attend it in the future.

**THE WATER SUPPLY OF TOWNS AND THE CONSTRUCTION OF WATER WORKS.** By W. K. Burton. To which is appended a paper on the Effects of Earthquakes on Water Works. By John Milne. With numerous plates and other illustrations. London: Crosby Lockwood & Son. 1894. Pp. xvi, 304. Price \$9.

This work is a contribution from an engineer whose functions have been exercised largely in Japan. With its numerous illustrations and its text, it presents a most admirable description of the engineering aspects, in a general sense, of the water supply problem. Japan is the country of earthquakes, and it will be noticed that the title of the work specifies a special paper on the effect of earthquakes on water works, which appears particularly well placed in the work under review. As frontispiece there is a beautiful reproduction of the Lake Vyrnwy reservoir; perhaps the most picturesque structure connected with any city water supply. Throughout the book plates and smaller cuts are employed to illustrate the text, and the view taken of this subject is one of perfectly adequate scope, it not being at all injured by local bias. Several allusions to the work on our own Croton system are contained in the work. It has an excellent index and lists of plates and illustrations.

**ELECTRIC TRANSMISSION OF ENERGY AND ITS TRANSFORMATION, SUBDIVISION, AND DISTRIBUTION.** A practical handbook. By Gisbert Kapp. With 166 illustrations. Fourth edition, thoroughly revised. New York: D. Van Nostrand Company. Pp. xi, 445. Price \$3.50.

This fourth edition of Professor Kapp's work is very elegantly printed, and with its numerous illustrations, tables, and diagrams, as well as its very practical data, offers a very excellent treatment of the subject of the transmission of energy. It is especially to be noted that it is brought up to date, as it treats of alternating currents for long distance transmission. The majority of the book, perhaps, is devoted to direct current work, for it is not yet clear that direct current systems, for some time to come, will not remain the most important of electric installations.

AN ELEMENTARY TREATISE ON THEORETICAL MECHANICS. By Alexander Ziwet. Part III: Kinetics. New York and London: Macmillan & Company, 1894. Pp. 224. Price \$2.25.

We have before now reviewed Professor Ziwet's works, but the present one is so very mathematical that but little can be said of it further than that "about one-half is devoted to the kinetics of a particle, the remainder being given to the kinetics of a rigid body and a brief description of the fundamental principles of the kinetics of a system."

THE ARCHITECT'S DIRECTORY FOR 1894. Containing a list of the architects of the United States and Canada, classified by States and towns, with the architectural associations to which they belong indicated against each name.

THE PRACTICAL APPLICATION OF DYNAMO ELECTRIC MACHINERY. By Carl K. MacFadden and William D. Ray. Second edition (revised). Chicago: Date & Ruggles, 1894. Pp. 167. Price \$1.

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SCIENTIFIC AMERICAN BUILDING EDITION. DECEMBER, 1894.-(No. 110.)

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2. Elegant plate in colors, showing a residence at Chester Hill, Mt. Vernon, N. Y. Two perspective elevations and floor plans. An attractive design in the Colonial style. Messrs. Rossiter & Wright, architects, New York City.
3. A cottage at Mt. Vernon, N. Y., erected at a cost of \$4,500. Perspective elevations and floor plans. Mr. Walter F. Stickles, architect, Mt. Vernon, N. Y. An attractive design.
4. The handsome residence of W. K. Clarkson, Esq., Brooklyn, N. Y., erected at a cost of \$150,000. Two perspective elevations and floor plans. Messrs. J. C. Cadz & Co., architects, New York City.
5. A residence of moderate cost at Bronxwood Park, N. Y. Perspective elevation and floor plans. Mr. A. F. Leicht, architect, New York City. A pleasing design.
6. The residence of W. D. Love, Esq., at Bronxwood Park, N. Y. Two perspective elevations and floor plans. Mr. W. H. Cable, architect, New York City. A neat design treated in the Queen Anne style.
7. A Colonial cottage at Flatbush, L. I., erected at a cost of \$7,500. Two perspective elevations and floor plans. Mr. John J. Petit, architect, Brooklyn, N. Y.
8. A residence at Mt. Vernon, N. Y. Two perspective elevations and floor plans. A pleasing design in the Colonial style. Mr. Chas. E. Miller, architect, New York City.
9. A picturesque and well appointed residence at Belle Haven, Conn., recently erected for E. C. Converse, Esq. Four perspective elevations and floor plans. An excellent design. Mr. Bruce Price, architect, New York City.
10. A Colonial cottage at Bayonne, N. J., recently erected for Joseph Thomas, Esq., at a cost complete \$2,700. Perspective elevation and floor plan. Mr. A. C. Longyear, architect, New York City.
11. Miscellaneous contents.—Hints to readers.—The education of customers.—How to catch contracts.—The latest and best designs for houses.—Diamond cement plaster.—Preserving metals in roofs, bridges, etc.—A perfect roofing material.—Stamped metal ceilings, illustrated.—New wood stains.—Woodwork vs. flame.—Ebonizing wood.—A stove for heating water, illustrated.—Columbian Exposition award for copper and brass goods.—An improved band saw file, illustrated.—How to move large maps.—Value of coverings for steam pipes.—Watering garden plants.—Earthquake effect on brick buildings.—The trouble New York builders have.—Foothold on pavements.—Milwaukee water elevator, illustrated.

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Notes & Queries

HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters, or no attention will be paid thereto. This is for our information and not for publication. References to former articles or answers should give date of paper and page or number of question. Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all either by letter or in this department, each must take his turn. Buyers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same. Special Written Information on matters of personal rather than general interest cannot be expected without remuneration. Scientific American Supplements referred to may be had at the office. Price 10 cents each. Books referred to promptly supplied on receipt of price. Minerals sent for examination should be distinctly marked or labeled.

(6325) F. J. M. asks: What causes the noise in snapping a whip? A. The sudden straightening of the end of the lash or snapper. This involves a velocity of such degree as to start sound waves in the air.

(6326) W. B. H. says: Will you tell me how to etch the designs seen on knives, razors, saws and various tools? The design looks as if it were printed on and then etched with acids? A. For etching brands and marks on polished steel surfaces, such as saws, knife blades, and tools, where there are many pieces to be done alike, procure a rubber stamp with the required design made so that the letters and figure that are to be bitten by the acid shall be depressed in the stamp. Have a plain border around the design, large enough to allow a little border of common putty to be laid around the edge of the stamped design to receive the acid. For ink, use resin, lard oil, turpentine and lampblack. To 1/4 pound of resin put 1 teaspoonful lard oil; melt, and stir in a tablespoonful of lampblack; thoroughly mix and add enough turpentine to make it of the consistency of printer's ink when cold. Use this on the stamp in the same manner as when stamping with ink. When the plate is stamped, place a little border of common putty around and on the edge of the stamped ground. Then pour within the border enough acid mixture to cover the figure, and let it stand a few moments, according to the depth required, then pour the acid off. Rinse the surface with clean water; take off the putty border and clean off the ink with turpentine. Use care not to spill the acid over the polished part of the article. For the acid, 1 part nitric acid, 1 part hydrochloric acid, to 10 parts water by measure. If the effervescence seems too active, add more water.

(6327) C. C. says: Please give me through the Notes and Query column of the SCIENTIFIC AMERICAN the name and a description of the inclosed specimen. A. Answer by Professor C. V. Riley, Honorary Curator of the United States National Museum.—The Three-lined Leaf Bug.—The black, coffin-shaped insect with sundry dull reddish lines, accompanying the letter from Mr. Carl Carlsson, Hanley Falls, Yellow Medicine Co., Minn., of which he desires name and information is Leptocoris trivittatus, Say. This is a true bug belonging to the sub-order Heteroptera and quite common in the West and Northwest, where it is reported,

especially from Utah. An old correspondent, Mr. A. Siler, of Utah, sent it many years ago as doing injury to apples, presumably by puncturing the young fruit, and causing it to become gnarled and withered. But the species attacks many other plants and is found in all stages of development, especially on green ash and box elder. Professor E. A. Popenoe, in the Industrialist for March 19, 1881, records it as being abundant at Manhattan, Kansas, in greenhouses, and as pumping the sap from various succulent plants, such as geraniums, ageratum, lilies, cactuses, etc. It is in the habit of congregating together and may be destroyed with the ordinary kerosene emulsion.

(6328) F. B. asks: 1. I have a laminated core (lamination made of small soft iron wire and placed in iron pipe) 1 1/4 inch in diameter by 5 inches long. What size wire should I use and how many layers should I put on to get the best advantage, most magnetism, when using two Gonka cells? A. No rule can be given for your case. The larger the gauge of the wire, the more of it can be used. The Gonka cells will run down so rapidly that no useful calculation can be based upon them. Use No. 20 wire and try three layers closely wound. 2. Do the laws for winding solid cores apply to winding laminated cores? A. Yes. 3. Having given a core and the current, would you apply the same rules to winding for a magnet as you would to winding for a spark? A. Yes. 4. In a three-pole magnet is the amount of magnetism in the middle pole equal to the sum of the amounts in the two opposite poles? I wound a core with two layers of wire in one direction and the other two layers immediately upon this, but in the opposite direction. I think the magnet was very weak. Did not the last two layers have a neutralizing effect upon the first two? A. Yes; there must be equality. In the winding you describe one winding evidently neutralized the other. 5. Do you know of any one in the United States who manufactures Bell telephone receivers and transmitters? A. Consult our advertising columns.

(6329) F. G. C. asks how to tell the points of the compass by the aid of a watch and the position of the sun. A. The 32 points of the compass correspond with the 24 hours of the day require 3/4 of an hour to each point; and as the sun is approximately east and west at 6 o'clock A. M. and P. M. and due south at 12 M., at 6:45 its azimuth will be E. by S., at 7:30 E. S. E., at 8:15 S. E. by E., at 9:45 S. E. by E., at 10:30 S. S. E., at 11:15 S. by E., at 12 N. S., and so on for the afternoon quadrant.

(6330) Y. M. C. A., Savannah, says: We have a building for a gymnasium, covered with tin, the inside is open up to the rafters, the sheathing being nailed on the rafters on the outside and then tinned. We want to use this hall for lectures, musicales, etc., but during a rain the noise is so great that it kills all else. What is the least expensive way of deadening the sound? A. Cheapness is a stumbling block in work of this kind. Lathing and plastering is the proper thing to do. Common paper boards or straw boards, cut and fitted between the rafters and nailed to the sheathing with large tacks, will materially modify the intensity of the sound of the rain. If this is not sufficient, a match board ceiling can be made on the under side of the rafters with a building paper lining, which will be cheaper than plastering and may be found very satisfactory.

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INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted December 11, 1894, AND EACH BEARING THAT DATE.

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