

RECENTLY PATENTED INVENTIONS.

Engineering.

ELECTRIC STOP VALVE.—Robert Wellens, Pittsburg, Pa. This is an oscillating valve, whose stem has a weighted arm to drop and close the valve, with a catch and electro-magnets for operating it, the magnets being in the circuit of a battery whose wires extend throughout the building, with push buttons for closing contact and operating the valve.

Mechanical.

SEWING MACHINE SHUTTLE.—Charles H. Benoit, San Jose, Cal. The shuttle is enlarged at special points to receive a large bobbin and a large quantity of thread, and is of a form to pass readily through the loop, while in connection therewith a novel form of tension spring is employed.

HOISTING MACHINE.—Volney W. Mason, Providence, R. I. The hoisting drum is mounted upon eccentrics, which are operated by a lever to throw the drum alternately in and out of contact with the driving pulley and the brake shoe, the invention covering novel parts, details, and combinations, making a simple and durable machine designed to be very effective in operation.

STONE SAWING.—Ludwig Melchior and Friedrich Meyer, Wilmington, Del. This invention covers an attachment with cross bar, guides, and clamps of novel form, for machines in which a gang of saws is secured in a reciprocating frame, whereby the saws will be braced and may be operated rapidly and under considerable weight, while causing the saws to make a cleaner cut.

RASP CUTTING MACHINE.—Philip S. Stokes, Tennent, N. J. In this machine springs and cams operate upon two hammers, one preceding the other, in combination with a punch stock and punch held in the anvil frame and pivoted at or about its center, one of the hammers delivering a light blow preceding the heavy blow of the other, whereby the point of each tooth is made perfect and sharp, the invention also covering various other novel details.

LACING DRIVING BELTS.—Geo. W. Southwick, Stamford, Conn. This invention covers an eyelet or re-enforce for the lace holes, consisting of a flat U-shaped metal piece, with prongs formed on its two branches to penetrate the leather back of the eyelet, and a flange on the inner side of the bend, to form a flat bearing at one side of the eyelet hole, to prevent the lacing cord from pulling out the leather.

PRINTERS' GALLEY.—J. Hatfield Youmans, Asbury Park, N. J. This galley has a movable bar or stick therein, in combination with disks or plates pivoted eccentrically to the frame, and with curved slots and pins, whereby the bar or stick will be automatically locked against a standard measurement of type, the device being adaptable by thumb screws for different measurements.

Railway Appliances.

RAIL JOINT.—Ives and Walter T. Lynd, Troy, N. Y. A key plate is constructed to lie lengthwise between the abutting ends of a pair of rails held in a bed plate and an inclined flange of the bed plate, the key plate being wedge-shaped laterally and vertically, whereby the rails may be tightly clamped and held in their bed plate by a lateral and downward pressure of the key plate.

COUPLER ATTACHMENT.—William L. Dwyre, Albany, N. Y. This is a simple device for attachment to the ordinary pin and link car coupler, by which it can be easily set for coupling and uncoupling without the operator going between the cars, and by which it will then couple automatically, the invention covering various novel features of construction and combinations of parts.

Agricultural.

COTTON PICKER.—James W. Wallis, Birmingham, Ala. This machine is an improvement in that class of cotton harvesters in which the pickers or devices for removing the cotton from the bolls have a reciprocating movement, whereby they are caused to swing into and out of the cotton plants, the invention covering various novel features and combinations of parts.

Miscellaneous.

DISINTEGRATING FIBERS.—Sidney S. Boyce, New York City. This invention covers a process of disintegrating fibrous substances, to separate the natural fiber of the straw from gummy and resinous matters, etc., the straw being first broken and subjected to a boiling neutral soapy solution, after which the fibers are dried, rolled, and finished.

BEE HIVE.—Jonathan Beeson and John H. Hirschfeld, Saline City, Ind. This hive is made with a comb chamber having a hopper shaped bottom, formed of inclined boards having a space between them, below which is a section with sirup trough from which the bees may feed, and a reversible section with screen doors for closing the chambers formed by the bottoms, so that rain or snow cannot beat into the hive.

STOPPER FASTENER.—Charles P. Maier, Allegheny, Pa. This fastener is also designed to serve as a guard to protect the upper edge of a bottle or jar to which it is applied, and consists of a wire ball with eyes or loops, and a cross bar to protect one side of the bottle neck, while a lever, in connection with the stopper and eyes and loops, protects the opposite side.

BOOK SHELF.—John M. D. France, St. Joseph, Mo. This invention covers a casing with metallic horizontal mortises therein, in combination with a sliding board having metallic tongues on its ends, whereby the board will slide in the casing, making an improved shelf for the protection of record books.

TOOTH BRUSH.—William H. Smith, Florence, Mass. This brush is made with a hollow handle, in two parts hinged together and adapted to receive the brush, which is pivoted in one half the handle, whereby the brush may be inclosed when not in use and rendered readily portable.

VEHICLE WHEEL.—Horatio F. Hicks, Ashland, Oregon. Combined with the hub and rim of the wheel are two sections of curved spring spokes, the curves of the two series being oppositely arranged with respect to each other, whereby the spokes will have elasticity enough to yield when the wheel passes over a rough, uneven road.

SLEIGH BRAKE.—William R. Wilcox, Portland, Col. This is a brake which may be put on or taken off by throwing the shaft lever either forward or back with the foot or hand, while it is light and durable, and designed to yield to any obstruction encountered, but yet return to its gripping position, without communicating strain or shock to the operator.

TRICYCLE.—Francis W. Pool, Norwich, Conn. This vehicle has a right and left hand spirally grooved axle, at right angles to which is a rock shaft, while a sleeve loosely holding rings travels upon the axle, the rings having lugs entering the grooves, and a link connects the rock shaft and sleeve, whereby it is designed that the machine may be propelled at a high speed with but little exertion.

NAPHTHALINE PAPER.—Adolph Tschepp, New York City. This is a paper having a coating of naphthaline in two or more superposed layers, the first presenting a rough appearance, while the second fills up the interstices, presenting a hard, compact, smooth surface, made by immersing paper in melted naphthaline of different temperatures.

FIBER FROM PINE NEEDLES.—William Latimer, Wilmington, N. C. The process of making the fiber is by first briefly boiling in an alkaline solution, then lowering the temperature and slowly digesting the mass for a number of hours, after which the solution is drawn off and the mass washed with pure water by successive steepings and soakings.

SCIENTIFIC AMERICAN BUILDING EDITION.

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- Elegant plate in colors showing elevation in perspective of a suburban club house, with floor plans, sketch of entrance, etc. Munn & Co., architects, New York.
- Plate in colors showing perspective and plans, with details, for a comfortable country dwelling. Cost three thousand five hundred dollars. Designed by Munn & Co., architects, New York.
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- A carriage house for one thousand dollars, lately built at Flatbush, Long Island. Perspective and floor plan.
- A house for three thousand dollars lately erected at Bridgeport, Conn. Perspective elevation and floor plans.
- A residence at Orange, N. J. Cost fourteen thousand dollars. Plans and perspective.
- A block of eighteen hundred dollar frame dwellings at Syracuse, N. Y. Floor plans and perspective.
- The Galliera Museum, Paris. Half page engraving.
- Sketches from the Architectural League Exhibition: Proposed memorial campanile for plaza of Prospect Park, Brooklyn, N. Y., Henry O. Avery, architect—The Washington Hotel, Kansas City, Mo., Bruce Price, architect, N. Y.—Towers of hotel at Big Stone Gap, Va., Brunner & Tryon, architects—District school house at Washington, Conn., Rosser & Wright, architects.
- Design for a boat house of moderate cost, by Munn & Co., architects, New York.
- Page of engravings of country residences.
- Miscellaneous Contents: Restoration of the Doge's Palace.—The broken timber raft.—Raising columns of St. Isaac's Cathedral, St. Petersburg.—Tared bricks.—Pompeian houses.—Repairing of a well.—Finish for pine.—Architecture as a profession.—Paintwork.—The National Association of Builders.—How best to light our country homes and resorts, illustrations.—Larch lumber.—The Thomson-Houston motor for street cars.—Hints on plumbing and cellars.—The fatal climate of Panama.—Improved hoist for passenger or freight elevators, illustrated.—Clark's new anti-friction caster, illustrated.—Tool cabinet, illustrated.—Universal bevel protractor, illustrated.—California slate.—Pipe wrench, illustrated.—The "Gorton" boiler, 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.

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Minerals sent for examination should be distinctly marked or labeled.

(368) T. H. T. writes: Two years ago I had a present of a very fine cane with a buck-horn handle. From constant use, the white part of the handle became dirty, and after trying several methods to clean it, scraped it with a knife, which of course made it look worse than ever in a few weeks. A very perfect surface is given by scraping; the scraper may be of a razor blade, the edge of which should be rubbed upon an oil stone, holding the blade nearly upright, so as to form an edge like that of a carrier's knife, and which, like it, may be sharpened by burnishing. Work, when properly scraped, is prepared for polishing. To effect this, it is first to be rubbed with a buff made of woolen cloth perfectly free from grease; the cloth may be fixed upon a stick, to be used by hand; but what the workmen call a *dob*, which is a wheel running in the lathe, and covered with the cloth, is much to be preferred, on account of the rapidity of the operation. The buff is to be covered either with powdered charcoal and water, or fine brick dust and water; after the work has been made as smooth as possible with this, it is followed by another buff, or *dob*, on which washed chalk or dry whiting is rubbed; the article to be polished is moistened slightly with vinegar, and the buff and whiting will produce a fine gloss, which may be completed by rubbing it with the palm of the hand and a small portion of dry whiting or rotten stone.

(369) P. H. W. asks: If the compact battery described in SCIENTIFIC AMERICAN of September 3, 1881, would be suitable for the simple electric motor, and if so, please designate the number of couples or cells that would be required? A. Yes. Use ten to twenty cells.

(370) J. C. W. asks: What kind, size, and amount of wire should I use in making electro-magnets? A. We refer you for a very full article on electro-magnets to SCIENTIFIC AMERICAN SUPPLEMENT, No. 182. The size and amount of wire depends on your requirements.

(371) D. & H. ask if it would injure a watch in any way to ride on an electric motor street car? A. It may injure it, but probably will not.

(372) G. B. writes: The fishermen of this city are discussing the question, "Does water form ice on the top or on the bottom?" and cannot agree. A. Ice forms on the surface of water. Fine crystals may form and be carried down by currents and eddies, so as to become packed together into a solid mass at or near the bottom, but water forms ice on the top.

(373) W. W. V. writes: 1. In making an electro motor like the one described in SCIENTIFIC AMERICAN SUPPLEMENT, No. 641, but only one-half the dimensions, what size wire should I use on armature and field, when the motor is to be run by gravity battery? A. Use wire three or four numbers smaller than specified for regular size. 2. How many cells of 5 x 7 crow-foot battery will be needed, and how coupled? A. The gravity battery is entirely unsuited for such work, owing to its high resistance. You will find suitable batteries described in the SCIENTIFIC AMERICAN of September 3, 1881; August 20 and December 17, 1887; and a good method of making carbon plates, issue of October 27, 1888. Use six or eight cells of large bichromate battery, or thirty of gravity arranged in five series. 3. Could soft iron wire be used for field magnets instead of sheet iron? A. Yes. 4. Does a person making a patented article for his own use infringe on the patent? And is he liable to prosecution? A. You have no right to do this, and will infringe, and be liable to prosecution if you do. 5. Would ordinary glass fruit jars do to make Leyden jars out of? A. It is doubtful, as some cheap glass is a very poor dielectric. You can determine its quality by testing it roughly for insulation.

(374) "Gold" writes: 1. I tried etching on 14 carat gold, which was rolled on silver, using muriatic acid two parts, nitric one part, and three parts of water. It etched a very little, and then a black skin seemed to spread over the unprotected gold, and it would not etch any farther. Could you explain it? A. The acid dissolved the gold, but refused to dissolve the silver, as the latter metal forms an insoluble chloride in the presence of muriatic acid, or refuses to dissolve at all. After the mixed acids act no longer, wash the metal and treat with nitric acid, when the silver will be dissolved. The acid will probably under-cut the gold. You cannot dissolve gold and silver by the same acid. Cyanide of potassium, especially if assisted by the battery, might answer your purpose. 2. Do you know of any book which treats of the action of different acids and chemicals on metals? A. Manuals of chemistry contain this information scattered through them. We can supply any you desire.

(375) F. W. asks: 1. How can indelible ink be removed from linen? A. Chloride of mercury is the best eradicator of indelible ink. 2. What size wire to wind fields and armature with, of the small dynamo described in SCIENTIFIC AMERICAN SUPPLEMENT, No. 161, so it can be run as a motor from an Edison incandescent circuit, 110 volts; want to run from an Edison lamp socket. A. For motor see SUPPLEMENT, No. 641, which we can send you for 10 cents. Place in shunt; do not attempt to use a full Edison current on it. 3. Would the above motor run a sewing machine? A. The simple motor would run a sewing machine.

(376) A. B. M. writes: Will you inform me of the ingredients used, and how applied to canvas, as prepared by manufacturers for artist's use? A. Size it first with thin glue size, then apply moderately thick white lead paint with a palette knife and allow to dry.

(377) J. P. M. asks for a conductor for an electric current that will stand in cyanide of potassium; he often has articles to spot gold, and has been unable to find anything that would resist corrosion. A. We recommend lead wire; this will be little affected by a true cyanide solution.

(378) C. E. E. says: Will you please tell me what the liquid is that is used with bronze powder? A. Try $\frac{1}{2}$ lb. linseed oil, mixed with 2 oz. gum animi, the latter powdered and gradually added to the heated oil; then boil, strain, and dilute with turpentine.

(379) T. L. C. writes: Please tell us the precise time from new moon to new moon, or is there any regular time? Comstock's Philoepohy says 29 days 12 hours and 44 minutes, but almanacs differ as much as three hours. A. The mean solar revolution of the moon is 29 days 12 hours and 44 minutes. The ellipticity of its orbit makes a variation of nearly one hour. The time of new moon also varies with the geographical distances in longitude from the meridian at the moment of the new moon. For instance, if new moon should take place at the meridian of Washington at noon, all places west would have morning time, and all places east would have afternoon time, according to their difference of longitude, allowing one hour for each 15 degrees; to which a correction must be made for the moon's orbital variation.

(380) L. F. L. asks: 1. How to filter wintergreen, cedar, and like essential oils to effectually cleanse them? And how to reclean the filter without a waste of oil? A. You may use any filtering material, such as cotton wool, and wash it out afterward with benzine. You will inevitably lose some of the oil, unless it is a non-volatile oil, when it can be recovered. If volatile, you may save most of it by forcing steam through the filter. 2. Is there such an oil as laurel oil? If so, is it an expensive oil? And what is it used for?