

RECENTLY PATENTED INVENTIONS.

Engineering.

STEAM GENERATOR.—Charles W. Van-derburgh, Seattle, Wash. This generator has at its base two drums on three sides, one of them having the feed water inlet, and upwardly extending pipes from all the drums connecting with a steam pipe from which steam is conveyed to the place of use. Transverse coils are arranged low down in the furnace, and connect with the vertical pipes at the sides, while other pipes, above these, are centrally located and designed to contain dry steam. The generator is designed to make steam rapidly, and so dry steam will always be ready for use, with comparatively little fuel, while the blowing off of deposits is readily effected.

COAL DUMP.—Joseph J. Lane, Nelsonville, Ohio. This device is especially designed for unloading coal or ore cars, holding the car on the tippie during the operation of unloading, and automatically releasing the loaded car as soon as a second loaded car comes on the tippie. The invention also provides for spreading the rails adjacent to the end of the tippie, avoiding the danger of clogging, etc. Vertically movable spring-actuated stop pieces project in the path of the car wheels and hold the car on the tippie during the unloading, the stop pieces being connected with track levers actuated by the weight of the cars.

DUMPING SCOW.—William Fallon, New York City. This is an improvement on a formerly patented invention of the same inventor, for a dumping apparatus adapted for use on a scow or car, whereby the entire bottom and sides of the car may be thrown quickly into inclined position, dumping the load on two sides of the car, its upper central portion also moving outward to insure perfect dumping. The apparatus is of simple and substantial construction, and simple and convenient means are provided for throwing the car back to normal position, latches holding the sides upright when the car is loaded.

BRAKE.—Francis D. Verran, Republic, Mich. For cars used in mines working on inclined planes this brake is especially adapted. It may be applied to cars of ordinary construction or skips carrying men or material on slopes, to arrest a car or train in case the draught rope or chain breaks, the brake mechanism being brought into operation automatically by the reverse motion of the car caused by its gravity.

Railway Appliances.

TIE PLATE.—Walter H. Wilson, New York City. This plate has longitudinal ribs on its upper surface, and guards for the rail-securing spikes, the guards being separate from the plate, and fitting between the ribs, and having spike-like shanks entering the tie. It is designed to aid in preserving the ties, and effectually prevent shearing and grinding of the spikes by the rails.

SWITCH.—William C. Dillman, Brooklyn, N. Y. Two patents have been granted this inventor for an extremely simple switch and switch-working mechanism which may be readily applied to an ordinary railway, and to the usual swinging switch rail or point. It is particularly adapted for use on street railways, its operative parts being arranged beneath the roadbed and protected from snow, dirt, etc. It has but few parts, is not likely to get out of order, and may be conveniently worked from a moving car.

RAIL JOINT.—Dr. Miles O. Perkins, Galveston, Texas. According to this improvement the base plate, seated under the meeting ends of two rails, is made with inwardly projecting flanges, which reach over the base of the rail toward its web, but without touching either. These flanges of the chair afford seats for the engagement of spring side plates, in the nature of levers, their lower edges bearing upon and against the base of the rails, while a short arm bears in grooves or seats in the under side of the flanges. The side plates do not reach quite to the under side of the rail tread and are fastened together and to the web of the rail by bolts, thus clamping the rails by a spring action adapted to recover all wear. The patent is numbered 521,667, and the improvement was described in our issue of July 7.

Electrical.

ELECTROLYTICAL APPARATUS.—Oscar Knofler, Charlottenburg, Germany. According to this invention a series of electrodes consist of an insulating frame and of separate conducting plates set therein after the fashion of window panes, separate apartments being arranged between the electrodes for the reception of the electrolyte, and electrical connections to the end electrodes. By alternately arranged electrodes and frames special compartments are formed in each frame for the liquid to pass through, so that the electric current passes from one electrode through the liquid to the next following electrode, and so on, in each compartment the face of one electrode forming the anode and the opposite face of the other electrode the cathode. Very high tension currents may be used.

ELECTRIC BELT.—William E. J. Lawlor, Portland, Oregon. This belt is tubular, inclosing a series of batteries linked together, webbing being secured to the inner surface of the belt at the rear, and electrodes secured to the webbing being connected by a wire with one end of the chain of batteries, while an electrode on the front portion of the belt is connected by a wire with the other end of the chain of batteries. An auxiliary belt in the form of a loop has electrodes connected by a wire with one end of the chain of batteries. The batteries are readily removable from the belt for cleansing, and are recharged by simply dipping in a cup or bowl of the electrolyte.

Agricultural.

HAY RAKE AND LOADER.—Peter M. Thompson, Anaconda, Montana. In this machine the teeth accommodate themselves to undulating ground, and may be readily raised and lowered and adjusted to or from the elevator, adapted to carry the hay or straw from the lower to the upper portion of the loader and distribute it. The elevator is quite light, yet durable, and the hay or straw will not drop therefrom while being

carried upward, while a hood over the upper portion of the machine will guide large masses of hay over the top of the elevator. The machine is of simple and comparatively inexpensive construction.

THRASHING MACHINE ATTACHMENT.—William L. Johnson and William L. Hay, Franklin, Tenn. An air blast stacking attachment has been devised by these inventors, one which can be readily connected to any of the modern thrashing machines, affording effective means for stacking the straw without the aid of elevator devices and the hands employed therewith. The blast devices are arranged to discharge a divided blast, to more effectively separate the chaff and straw from the grain at the final separating screen, and force such straw and chaff out with the bulk or heavy straw through a condensing chamber and a stacking tube.

Miscellaneous.

PROCESS OF PURIFYING GLUE.—Peter Cooper Hewitt, New York City. This invention provides a simple, inexpensive and effective method of removing impurities from glue, also easily removing the purifying agent, odor and color, and imparting to the glue high qualities. It consists in mixing casein in solution with the glue solution, the casein uniting with albuminous substances and other impurities and becoming insoluble, that the resulting coagulum may be readily removed. Albumen may also be added with the casein and the mixture heated. The glue may be bleached either before or after clarification, the casein being particularly adapted to remove color from the glue, in connection with other bleaching agents.

DISINFECTING DEVICE.—Salomon and Emil Taussig, New York City. This is a portable device to disinfect places where there are contaminating exhalations. It is compact in form and inexpensive, and continuously supplies a regulated amount of disinfecting fluid to a porous medium of considerable area exposed to air currents passing through the device, whereby the air will be impregnated with the vaporized disinfectant. The invention also provides a liquid dropping device for disinfecting air currents, or for intermittent deposit of a disinfecting fluid in cesspools, water closets, etc.

SAWHORSE.—Charles D. Snell, Oxford, Me. In this horse the log to be sawed is supported by conical rollers of different inclinations, whereby the log may be readily moved endwise with the use of one hand, whether the log be light or heavy, and by means of a clamp operated by the foot of the sawyer the latter is permitted to stand substantially erect, and to use both hands with perfect freedom in the action of sawing.

LUBRICATOR FOR JOURNALS.—Pan-kratiz Knauer, Elizabeth, N. J. This inventor has devised a novel arrangement of spring-supported disks whereby a single series of disks is disposed directly beneath the journal, having sufficient contact therewith to effect a perfect lubrication with a minimum of friction. The journal box is supplied with oil enough to surround the lower portions of the disks at all times.

SALIVA PUMP.—Allison R. Lawshe, Trenton, N. J. This is an apparatus for the use of doctors and dentists, for the removal of saliva from a patient's mouth while undergoing treatment. The invention consists of a receiver connected at its bottom with a pipe carrying on one end a valved mouthpiece and at its other end a discharge valve leading to an outlet pipe, an air bulb being connected by a pipe with the top of the receiver.

CLAMP.—Alta M. Cole, Asheville, N. C. This is a device more especially designed for the use of engravers, to hold plates, brushes, mirrors, and other articles to be engraved, and permit the engraver to work with greater facility. A face plate is mounted to revolve upon a base, and adjustably secured to the plate are clamp bodies with seats on their inner faces, face pieces being secured in the seats of the bodies, and there being screws for adjusting the face pieces.

HEATER.—John McLoughlin, Boston, Mass. This heater is preferably arranged as a fireplace, and is designed to use gas. The fire box in front of a hot air chamber has blocks of clay and asbestos to represent fuel, gas supply pipes opening into the lower end of the box, and from the top of the hot air chamber lead air outlets discharging into the room, or to be connected with passages to another room. The gas for combustion is mixed with air as it passes to the fire box, and the arrangement is such that either one or three flames may be kept burning.

SASH LOCK, LIFT AND BALANCE.—Onslow K. Gardner, Pittsburg, Pa. This invention is an improvement in such locks operating in connection with a rack attached to the side of a window frame. A toothed wheel is journaled in a laterally slotted case, through which projects a toothed locking pawl curved corresponding to the wheel, over which it extends, while a spiral spring bears on the shank of the pawl.

HOOK AND EYE.—Frederick W. Wall, Fort Worth, Tex. Each member of this hook and eye is made of a continuous piece of wire doubled on itself to form a base part and a return part, and upon each member at the rear are opposite side loops to be secured by stitching to a garment, while forwardly, and near the point of the meeting edges of a garment, are larger opposite branches or loops designed to prevent gaping of the dress, these branches forming an unbroken edge or continuation, and preventing the garment from being accidentally unhooked.

"VICTOR" WASHING MACHINE.—Thomas Bunker, Weeping Water, Neb. This machine has a corrugated bottom and removable corrugated sides, in connection with a simple collapsible and expandable rack. It is actuated easily by a handle lever, and arranged with pins placed in such a way that they cause the clothes in the tub of the machine to be revolved around and around against the corrugations, the rack being alternately closed and opened, and the clothes being thus thoroughly rubbed and washed without being injured.

HOT WATER BAG THERMOMETER.—Henry Weinhagen, Hoboken, N. J., and Ferdinand King, New York City. According to this invention the hot water bag is made with a tubular projection or

pocket on one side leading into the interior of the bag, a tubular plug with gland fitting in the extension, while a thermometer is so secured to the bag that its bulb extends through the projection into the interior of the bag. The attachment may be made to rubber or other bags or vessels used in the irrigation of wounds, etc., before, during, and after operations.

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.

TRANSACTIONS OF THE AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS. Vol. X. New York City: Published by the Institute. 1893. Pp. x, 719.

This large, closely printed volume, to a certain extent, produces a depressing effect, as showing the immense activity now existing in the electrical field, and as indicating the necessity of constant reading and study for those who desire to keep up with the day. It is very evident that the time has come when the electrical engineer will have to submit to the mood of the day and become a specialist, not in his own science of electricity only, but in some particular branch thereof. Perhaps one of the most valuable features of these transactions, of which this is the tenth volume, are the very full discussions and communications relating to the papers which are printed immediately after each of them.

L'ALUMINUM, LE MANGANESE, LE BARYUM, LE STRONTIUM, LE CALCIUM ET LE MAGNESIUM. A. Lejeal. Introduction par M. U. Le Verrier. Paris: Librairie J. B. Bailliere et Fils. 1894. Pp. 348. Price \$1.

This work is mainly devoted to one metal, aluminum, but the author has gone beyond this subject, and has added to aluminum, its treatment, and metallurgy. He devotes several chapters to manganese, barium, strontium, calcium, and magnesium. The book is illustrated and very excellently printed. It is to be noted that the chemical formulae are all given in the old system—something which should be taken due cognizance of in perusing the book.

SCIENTIFIC AMERICAN BUILDING EDITION.

JULY, 1894.—(No. 105.)

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1. An elegant plate in colors showing a half stone and half frame summer cottage erected at a cost of \$4,500. Perspective views and floor plans. Mr. H. Howard, architect, New York City. An attractive design.
2. Plate in colors showing a Queen Anne dwelling at Melrose, Pa., recently erected for W. H. Miller, Esq. Perspective elevation and floor plans. Cost \$8,500. Mr. A. M. Walkup, architect, Philadelphia, Pa.
3. Full page engraving of Nonsuch Palace.
4. A half-timbered house at Rosemont, Pa., recently erected for John H. Converse, Esq., at a cost of \$11,000. Perspective elevation and floor plans. Mr. T. P. Chandler, Jr., architect, Philadelphia, Pa. A handsome design.
5. Engravings and floor plans of a cottage at Jamaica, L. I., recently completed for B. S. Waters, Esq. A popular design of American style. Cost \$5,800 complete. Messrs. Daus & Osborne, architects, Brooklyn, N. Y.
6. Residence at Yonkers, N. Y., recently erected for Cheever N. Ely, Esq. Perspective elevations and floor plans. Mr. Augustus Howe, architect, New York. A pleasing design.
7. A dwelling at Hackensack, N. J., recently erected for Mrs. Maria Bogart. Perspective elevations and floor plans. Mr. W. L. Stoddard, architect, Tenafly, N. J. A model design.
8. A colonial cottage at Hartford, Conn., erected for W. F. Goody, Esq. An attractive design. Floor plans and perspective elevations. Cost \$4,750 complete. Mr. Henry D. Hooker, architect, New York City.
9. A residence at Edgewater, Ill., recently erected for G. F. Lange, Esq. Perspective elevations and floor plans. A pleasing design.
10. A residence at Bryn Mawr, Pa., recently erected for Prof. Herbert W. Smyth. Three perspective elevations and floor plans. Cost complete, \$6,500. Mr. J. C. Worthington, architect, Philadelphia, Pa.
11. A picturesque country cottage at Greenwich, Conn. Perspective elevations and floor plans. Messrs. A. H. Throp & W. S. Knowles, architects, New York City. An attractive design.
12. Design for a stairway.
13. Miscellaneous Contents: The passing of the carpet, illustrated.—Why not remodel the old home? Illustrated.—Mott's "Sunray" steam boiler, illustrated.—Modern brick machinery.—The "Ideal" sash pulley, illustrated.—Improved wood working machinery, illustrated.—Elevators for the New Commercial building, Philadelphia.—Architectural wood turning, illustrated.—The Beverage cooker, illustrated.—The Variety wood worker, illustrated.—The "Monarch" fireproof partition, illustrated.—View of the Hotel Phoenix, Winston, N. C.

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Business and Personal.

The charge for insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in the following week's issue.

"U. S." metal polish. Indianapolis. Samples free.

Wanted—A sandblast machine for obscuring sheet glass. F. J. Riester, 29 Pearl Street, Buffalo, N. Y.

Distance Reading Thermometers.—See illus. advertisement, page 32. Ward & Doron, Rochester, N. Y.

Screw machines, milling machines, and drill presses. The Garvin Mach. Co., Laight and Canal Sts., New York.

Centrifugal Pumps for paper and pulp mills. Irrigating and sand pumping plants. Irvin Van Wie, Syracuse, N. Y.

Patent for Sale—Wire implement, useful in all fruit and agricultural sections. M. S. Moremen, Switzerland, Florida.

Emerson, Smith & Co., Ltd., Beaver Falls, Pa., will send Sawyer's Hand Book on Circulars and Band Saws free to any address.

Split Pulleys at Low prices, and of same strength and appearance as Whole Pulleys. Yocom & Son's Shafting Works, Drinker St., Philadelphia, Pa.

The Carter Pressure Water Filter and Purifier, for hotels, factories, etc. See illustrated adv., page 47. Field Force Pump Co., Lockport, N. Y.

The best book for electricians and beginners in electricity is "Experimental Science," by Geo. M. Hopkins. By mail, \$4; Munn & Co., publishers, 361 Broadway, N. Y.

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Patent Electric Vice. What is claimed, is time saving. No turning of handle to bring jaws to the work, simply one sliding movement. Capital Mach. Tool Co., Auburn, N. Y.

"Coal Oil Johnny's" petroleum soap removes ink and grease from printers' and mechanics' hands. Unsurpassed also for toilet use. Used by U. S. government. Sold by M. Jenkins, 124 Warren Street, New York.



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.

(6164) E. B. T. asks: What is the best method of annealing toolsteel? A. Slow cooling of tool steel buried in hot ashes or lime from a full red heat is the approved way of annealing for ordinary use. For producing an extra soft steel for die sinkers and punch cutters' use, the steel is taken from the ash or lime bath just as the red heat has disappeared and plunged in water. This is called water annealing and makes the steel soft and suitable for delicate chiseling and engraving.

(6165) A. M. W. says: Will you please tell me how to make an inking pad for a rubber stamp? A. The following is said to be a cushion that will give color permanently. It consists of a box filled with an elastic composition, saturated with a suitable color. The cushion fulfills its purpose for years without being renewed, always contains sufficient moisture, which is drawn from the atmosphere, and continues to act as a color stamp cushion so long as a remnant of the mass or composition remains in the box or receptacle. This cushion or pad is too soft to be self-supporting, but should be held in a low, flat pan, and have a permanent cloth cover. The composition consists preferably of 1 part gelatine, 1 part water, 6 parts glycerine, and 6 parts coloring matter. A suitable black color can be made from the following materials: 1 part gelatine glue, 2 parts lampblack, aniline black, or a suitable quantity of logwood extract, 10 parts of glycerine, 1 part absolute alcohol, 2 parts water, 1 part Venetian soap, 1 part salicylic acid. For red, blue, or violet, 1 part gelatine glue, 2 parts aniline of desired color, 1 part absolute alcohol, 10 parts glycerine, 1 part Venetian soap, and 1 part salicylic acid.

(6166) J. T. V. says: Will you please tell me what kind of paint I can use on old developing trays? A. Use asphaltum varnish, or coat the bottom or sides of the wooden tray with

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| | By weight. |
| Resin | 1 part. |
| Beeswax | 2 " |
| Paraffine | 3 " |

Melt the above first, warm the tray, and while hot apply composition with a brush.

(6167) S. W. R. asks where to get a very sensitive and not too expensive galvanometer. I have several catalogues from dealers, but the instruments are all very expensive. I require an extremely sensitive instrument, that is to say, I need an instrument that will detect extremely weak currents, but not costing more than \$12 to \$15. A. You can procure a galvanometer of this kind from dealers in electrical goods who advertise in our columns, or you can readily make a galvanometer of this kind. You will find directions in the SUPPLEMENT.

(6168) S. J. M. asks: 1. Will a telephone not using a battery work through one wire, having ground connection for return current, say a 1 mile line? A. Yes. 2. How can the zinc in a gravity bat-