

RECENTLY PATENTED INVENTIONS.

Electrical.

ELECTRODE AND INCANDESCENT ELECTRICAL CONDUCTOR.—Lewis L. Jones, Brooklyn, N. Y. Arc light pencils and filamentary conductors for incandescent lights are, by this invention, designed to be formed of a paste composed of a refractory or non-conducting oxide, a metallic or conducting oxide, and a fluid binder consisting of the acid solution of two oxides, one refractory or non-conducting, the other metallic and conducting, then drying the article and subjecting it to a high heat. Or the mixture may be made by stirring together powdered ingredients of refractory earthy substances with metallic conducting substances, or in other ways, it being designed to form a substance which, for either arc or incandescent lighting, will have longer life than the carbons, and give greater intensity and steadiness of light.

Railway Appliances.

SWITCH OPERATING DEVICE.—Benjamin Bartelme, Brooklyn, N. Y. This invention provides an attachment for a cable railway car to set a platform switch in advance of the car, if the switch has been left open by a car ahead leaving the track. Combined with a forward extension of the car platform is a vibratable weighted arm with a wheel at its outer end, a flexible connection extending from the arm over a pulley and thence to the car platform, the device being adapted for detachable connection with the platform dashboard.

Mechanical.

SHAPER AND CUTTER HEAD.—John J. Quinn, Rochester, N. Y. The shaper head provided by this inventor has its body made up of a series of collars, each of which has a central bore enabling the head to be secured to a mandrel, while the knives have dovetail tongues fitting in keyways in the collars, each keyway being partly in two collars, so that the body portion of the head and the knives are rabbeted together. A sectional head is thus formed which may be easily put together or taken apart, one which will cut effectively, and in which the knives may be quickly and firmly fastened in place. Heads of this class are especially adapted for use in cutting raised panels, mouldings, and similar work.

BUILDERS' SCAFFOLD.—John E. Ennis, Duluth, Minn. Portable scaffolds of great strength and simple construction, and easy to handle, are described in this patent. The main support consists of a shaft formed of a tubular rod, with a collar reversibly mounted near one end, a bracket and clutch mechanism being also mounted on the shaft, the mechanism including reversible clutch members, whereby the mechanism is adapted to move the shaft and the bracket, or be movable on the shaft to raise the bracket. The parts of the device may be systematically assembled, and can be bodily transferred from one floor to the other, the workman and material supporting platforms being raised while the work is going on, to keep the material and the wall at substantially the same levels.

Agricultural.

PLOW.—John P. Couch, Henrietta, Texas. This is a cheap and simple cultivator plow for barring and dirting cotton and other plants, and has a mould board to turn the dirt away from the plant, and a land side extending above and below the mould board to steady the plow and prevent the dirt from falling back upon the plant. A shovel plow is arranged to the rear of the mould board plow to break up the dirt turned back by the latter and immediately throw it back toward the plants, thus avoiding delay and preventing any damage from storm or other circumstances. The auxiliary standard, carrying the shovel plow, may be arranged upon the same side of the beam as the main standard or upon the opposite side.

Miscellaneous.

BICYCLE SADDLE.—Charles Stein, Meadville Pa. The saddle and springs are of the usual construction, and the parallel members of each spring terminate in a yoke, with a threaded bore receiving a screw, one end of which has a right thread and the other a left, while centrally is a wrench head or nut by which the screw may be turned, and the springs be thereby drawn together or forced apart. The seat being connected with the upper members of the springs, the saddle may, by this improvement, be instantly adjusted to bring the seat to the desired inclination or angle in relation to the machine.

FAUCET.—William W. Riner, Los Angeles, Cal. This is a faucet more especially designed for use on sheet metal cans and similar vessels, being easily operated, very effective, and of simple and durable construction. In one side of the bottom of the can is a recess, in the vertical wall of which, inside the can, is the seat, having a tapering bore, of the faucet. The inner end of the spout is tapered to fit the bore, and has a lateral opening corresponding with one in the bore, the openings aligning when the outer end of the spout is turned downward to discharge the contents of the can, but the apertures being disconnected when the end of the spout is turned up in the recess.

LOBSTER SHIPPING APPARATUS.—Arthur McGray, Yarmouth, Canada. A tank with shelves and having a detachable door, feed pipes at the sides discharging upon the shelves, exhaust valves opening from the tank, in connection with a pumping apparatus, form the principal features of this improvement, the tank being designed to be carried on a vessel and afford the means of carrying lobsters long distances alive. The device is portable, and can be readily removed from and placed in position on a vessel, or the tanks may be built in the vessel, and the removable

door allows for giving the lobsters air without disturbing the pipes or cocks.

PENDENT SET SCREW DRIVER.—David Mendelson, New York City. This invention relates to a tool used for adjusting the setting stem in stem-winding watches, and provides a single tool which may be instantly adjusted to fit a stem and sleeve of any size, so as to be equally useful in adjusting two-slotted and four-slotted stems. The stem of the handle is provided with four spring arms which stand normally apart at their free ends, each arm having a terminal blade adapted to enter a slot in the watch stem sleeve, while a clamping ring slides on the divided stem.

MOTOR.—John C. Lueneburg, Lakefield, Minn. This is a simple and durable motor designed to drive machinery such as is employed for propelling vessels and vehicles. A slide having foot rests is connected with the machinery to be driven, a lever being pivotally connected with the slide, and a frame pivotally connected with the lever, there being handle bars on the frame to be taken hold of by the operator as he presses with his foot on the foot rests on the slide. The sliding motion thus effected by the feet and hands is by proper gearing converted into the rotating of a propeller shaft, novel steering devices being also provided.

BURNISHER.—Thomas Lloyd, Boston, Mass. This is a tool designed to facilitate the burnishing of boots and shoes, stoves, and hot articles of various kinds, and all kinds of metallic ware, a convenient means of tightening the rubbing surface of the burnisher being provided, so that it may always do the most efficient work. The burnisher tube is of flexible material and has a separate head in each of its ends, a central rod connecting the ends, and there being a screw tension mechanism for forcing the heads apart and stretching the tube. The nature of the body or rubbing surface depends upon the use to which the implement is to be put.

ROAD CART.—Charles H. Kallbreier, Tell City, Ind. The body of this vehicle is suspended upon its springs in a manner designed to insure its riding easily and being kept perfectly level, while a person may easily get into and out of it by means of a rear step, the seat swinging to one side. Combined with the cart body and its supporting gear is a transverse front end spring supported by the shafts, and a hinged connection between the middle of the spring and the middle of the front of the body. When two or more persons are in the cart the spring is compressed, and the plate supporting it may be adjusted so that the body and spring will assume the correct relative position.

GRATE.—Frederick Carel and Wayland F. Davidson, Charleston, West Va. This is a grate which may be used to heat a single room, or for two, three, or four adjoining rooms, forming a recessed grate in one room and a projecting grate in another. It is journaled on a base, with a socket which turns on a pin, and plates fitting in grooves in the base plates fit at their outer edges closely to the walls of the fireplace, lap plates lapping against the sides of these plates. A partition may be employed to divide the grate into compartments, the partition being hollow, and open at its upper and lower ends. In using the grate for different rooms the passage of light or sound between the rooms is prevented.

A ROCKING AND INVALID CHAIR.—Harris W. Stern, La Salle, Ill. This is a combination construction, designed to be used as a reclining chair, a rocking chair, or a chair for use in nursing the sick, means being provided for carrying the foot rest up to a level with the seat, or placing it at any desired angle but a slight distance above the floor. Combined with a platform rocker is a sliding frame, swinging vertically at its outer end when slid outward, a rest being pivoted to the frame, and secured in folded position by latches, while folding legs are pivoted to the forward end of the rest.

PEN OR PENCIL CARRIER.—Herbert E. Thornhill, Lyons, N. Y. This is a device made of wire in the form of a V-shaped loop, its arms having eyes to receive the pencil or penholder, and one of the arms having also an eye to receive the fourth finger, while an offset or loop is made to cover the position of the first finger. The device is designed to fit comfortably over and around the fingers, and carry and guide the pencil or pen in writing.

AUTOMATIC BOTTLE STOPPER.—Richard G. Williams, L'Anse, Mich. Upon an adjustable band around the bottle neck is hinged a swinging lid, a sliding rod moving in keepers on the side of the bottle being connected with the lid, which is closed by upward pressure upon the rod. The rod extends below the bottom of the bottle, so that when the latter is at rest on a shelf or table, the lid is closed, but the moment the bottle is raised the lid flies open.

FENCE WEAVING MACHINE.—William Lowden, Middleville, Mich. This is a simple machine adapted to run upon and spread the stretched fence wires and weave with them a series of fence pickets, the device obviating the necessity of separate tracks, while being easily and rapidly operated to make a very substantial fence. A main feature of the improvement is a sprocket wheel having a hollow hub with channels within and on opposite sides, and rollers journaled at one end of the hub, the strands of each pair of wires being passed through the wheel and held in the opposite channels, the wheels being revolved to twist the wires after each picket is dropped in place.

FLOWER HOLDER.—Silvie Lord, New York City. This holder has the form of a circular pan with flaring sides, in which a central cylindrical compartment of greater height, around which are supported by wires outwardly inclined tubes, both the pan and central compartment being supplied with water. By placing flowers in and around the inclined tubes and centrally, great facility is afforded for their artistic and natural grouping, while the flowers will be securely held and abundantly supplied with water.

SLATING COMPOUND.—John B. Coles, Bayonne, N. J. This is a compound of soluble glass, alumina, and other ingredients, to impart to various substances or articles to which it is applied a surface which may be readily written upon, while the marks may be quickly erased with water and a sponge or cloth.

GOPHER TRAP.—George Moor, La Fayette, Oregon. This device has a spring-pressed spear engaged by a pivoted trigger, a swinging bait lever being connected with one end of the trigger, the construction being such that the mechanism will be tripped when the gopher attempts to pass beneath the trap. The device is also designed to be used for killing other small animals.

DESIGN FOR A SPOON.—Thomas H. Bates and Albert O. Quimby, Fresno, Cal. On the handle of this spoon are represented the two hemispheres apparently joined by clasped hands, over which are figures of caravels or small vessels, while in the bowl of the spoon is a bird's-eye view of the Columbian Exposition.

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.

BULLETIN NO. 4, GEOLOGICAL SURVEY OF ALABAMA. Report on the geology of N. E. Alabama and adjacent portions of Georgia and Tennessee. By C. Willard Hayes, Assistant Geologist in Charge. 12mo. Pp. 85. Map.

This pamphlet treats of topography, drainage, stratigraphy and structure of the district. The older method of measuring lines across the country at intervals of ten miles has been dropped and the geological data was at first placed directly upon the topographic map, but this method has been modified by discarding the plane table and plotting all lines in the notebook. The work is accompanied by an excellent map of the district.

SCIENTIFIC AMERICAN

BUILDING EDITION.

NOVEMBER NUMBER.—(No. 85.)

TABLE OF CONTENTS.

1. Elegant plate in colors, showing a very handsome block of residences near Riverside Park, New York City. Floor plans and two perspective elevations. Lamb & Rich, architects, New York.
2. Plate in colors showing a colonial residence at Cranford, N. J. Perspective views and floor plans. Cost \$6,000 complete. Mr. Oscar S. Teale, architect, New York. An excellent design.
3. A summer cottage at Asbury Park, N. J. Perspective view and floor plans. Cost \$3,400 complete. C. M. Dissosway, architect, New York.
4. A pretty cottage erected at Dubuque, Iowa, at a cost of \$1,850. Floor plans, perspective, etc.
5. A double dwelling house erected at Springfield, Mass., at a cost of \$10,495 complete. Mr. B. H. Seabury, architect, Springfield, Mass. A model design. Floor plans and perspective.
6. A "Queen Anne" cottage erected at Cranford, N. J., at a cost of \$5,350 complete. A unique design. Perspective elevation and floor plans. Charles G. Jones, architect, New York City.
7. A residence in the "Old Colonial" style of architecture, erected at Oakwood, Staten Island, N. Y. Two perspective views and floor plans. Cost complete \$4,515.
8. St. James' Lutheran Church, New York City. A striking piece of architecture in Romanesque Gothic, cruciform, pure ecclesiastical style. Cost of building and rectory \$80,000. Mr. William A. Potter, architect, New York City.
9. A residence recently erected at Asbury Park, N. J. Floor plans and perspective elevation. Cost \$6,750 complete. Mr. J. W. Roberts, architect, Newark, N. J. An excellent design.
10. Perspective and plans of Roble Hall, girls' dormitory, lately erected at Stanford University, Cal.
11. Decorative paintings from the Royal Academy, 1892.
12. Miscellaneous contents: Stone arches of large spans.—Aluminum fronts.—The secret of good lime mortar.—Painting the World's Fair Exposition.—A prehistoric temple.—A statue of Columbus in stamped copper, illustrated.—An improved parallel swing saw, illustrated.—A new screw pitch gauge, illustrated.—An improved gang sawmill, illustrated.—An improved spring hinge, illustrated.—Appropriate and beautiful wall paper decorations, with two illustrations.—Special improved band saw guide, illustrated.—Aluminum alloy metal.—Curious foundations.

The Scientific American Architects and Builders Edition is issued monthly. \$2.50 a year. Single copies, 25 cents. Forty large quarto pages, equal to about two hundred ordinary book pages; forming, practically, a large and splendid MAGAZINE OF ARCHITECTURE, richly adorned with elegant plates in colors and with fine engravings, illustrating the most interesting examples of Modern Architectural Construction and allied subjects.

The Fullness, Richness, Cheapness, and Convenience of this work have won for it the LARGEST CIRCULATION of any Architectural publication in the world. Sold by all newsdealers.

MUNN & CO., PUBLISHERS,
361 Broadway, New York.

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. Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J. G. D. Hiscox, 361 Broadway, N. Y., Consulting Engineer. Best baling presses. Ryther Mfg. Co., Watertown, N. Y. Portable and Stationary Cylinder Boring machines. Pedrick & Ayer, Philadelphia, Pa.

Wm. Jessop & Sons, the celebrated steel makers, observe the centennial of their firm next year.

Tools for sheet metal goods, presses, lathes, dies, etc. Empire Machine and Tool Co., New Brunswick, N. J.

The Improved Hydraulic Jacks, Punches, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York.

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

Centrifugal Pumps. Capacity, 100 to 40,000 gals. per minute. All sizes in stock. Irvin Van Wie, Syracuse, N. Y.

Guild & Garrison, Brooklyn, N. Y., manufacture steam pumps, vacuum pumps, vacuum apparatus, air pumps, acid blowers, filter press pumps, etc.

For mud dredging engines. J. S. Mundy, Newark, N. J.

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

For Sale—Corliss steam engine, 100 h. p., with boilers, shafting, etc. A bargain for some one. Address Orrin E. Jones, 416 High St., Providence, R. I.

Perforated Metals of all kinds and for all purposes, general or special. Address, stating requirements, The Harrington & King Perforating Co., Chicago.

To Let—A suite of desirable offices, adjacent to the Scientific American offices, to let at moderate terms. Apply to Munn & Co., 361 Broadway, New York.

Fine castings in brass, bronze, composition (gun metal), German silver. Unequaled facilities. Jas. J. McKenna & Bro., 424 and 426 East 23d St., New York.

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.

Canning machinery outfits complete, oil burners for soldering, air pumps, can wipers, can testers, labeling machines. Presses and dies. Burt Mfg. Co., Rochester, N. Y.

Competent persons who desire agencies for a new popular book, of ready sale, with handsome profit, may apply to Munn & Co., Scientific American office, 361 Broadway, New York.

New, useful, and valuable patents for sale. Combined clothes washer and bath tub, gas heater and cook stove, and other patents. Inexpensively manufactured. Profits large. Ewins, 20 Ainslie St., Brooklyn, N. Y.

Wanted—By a large establishment in a Western city, a theoretical practical electrician. Must be thoroughly competent. Address, with full particulars, "Competent," P. O. box 773, New York.

Wanted—Manufacturer's agent to handle new typewriter of high grade, ranking with the best makes. One to take whole product preferred. Correspondence solicited. C. Lee Abell, Buffalo, N. Y.

Iron Shipbuilding—Wanted a position as superintendent of an iron shipbuilding department, both theoretical and practical. Highest of testimonials. G. Blanchard, 411 Liberty St., Newburg, N. Y.

Send for new and complete catalogue of Scientific and other Books for sale by Munn & Co., 361 Broadway, New York. Free on application.

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.

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.

(4588) C. W. W. writes: I have two solutions of pig iron, one in H₂O (sp. gr. 1.2) one in HCl (sp. gr. 1.1)

The residue from the H₂O solution contained little if any carbon. Does this indicate that there is little or no graphitic carbon in the sample? In the HCl solution the residue contains considerable carbon. Can this be precipitated combined carbon? 1. Is graphitic carbon in pig iron soluble in H₂O (sp. gr. 1.2)? 2. Is combined carbon in pig iron precipitated by solution of the iron in HCl (sp. gr. 1.1)? 3. What is the peculiar odor emitted when pig iron is acted upon by HCl? A. Undoubtedly, were heat applied in the solution, the nitric acid might dissolve much of the graphitic carbon. By solution in HCl a great part of the combined carbon escapes as hydrocarbons. The peculiar odor you speak of is largely due to these. If gently heated, and if the hydrochloric acid is of sufficient strength, all the combined carbon will escape as hydrocarbons. To obtain all the carbon a perfectly neutral cold solution of cupric chloride may be used. This dissolves the iron and leaves all the carbon.

(4589) A. B. Y. asks how to split paper.

A. Coat both sides of the paper to be split with flour paste, working well into the paper. Take two pieces of stout white muslin and paste one on each side of the paper. Smooth down carefully, remove excess of paste and allow the whole to dry thoroughly. Artificial heat may be used if desired to hasten the drying. When dry, grasp the two pieces of cloth firmly, one in each hand, and pull slowly and evenly. The paper should split in the