

## ENGINEERING INVENTIONS.

A locomotive engine has been patented by Mr. William J. Tripp, of New York City. It is constructed with large drivers, for high speed, and with the preponderance of weight below the main axle and near the track, in connection with various novel combinations of detail and arrangement of parts.

A railroad crossing gate has been patented by Messrs. Nicholas Thelen, of Schenectady, and Henry Cluever, of Albany, N. Y. This invention provides a novel construction and combination of parts for gates upon each side of a track, which may be readily raised and lowered simultaneously by one person.

A grip for cables has been patented by Mr. Patrick Kelly, of Poughkeepsie, N. Y. It consists of a fixed and a movable jaw, the latter with an eccentric clamping arm, and the latter rigidly connected to a guide arm, with a hook adapted to fit over the cable and hold the jaws in lines parallel with the general line of the cable, the device being especially applicable for tightening derrick cables or guys.

A rotary engine has been patented by Messrs. Louis A. Perrot and Harry W. Warrington, of Richmond, Va. A wheel with buckets and central shaft is fitted in a cylinder, an extension being formed on the cylinder with channels leading in opposite directions to the buckets, while a valve is held in the extension provided with a steam inlet opening and an exhaust opening connecting with the channels.

A car coupling has been patented by Mr. Charles W. Chisholm, of Winnipeg, Manitoba, Canada. It is an automatic coupling of that class wherein a pivoted pin, hook, or dog is employed to engage the coupling link and hold it in position within the drawhead, and it may be set to allow for the uncoupling of the cars, and, when the link is withdrawn from the drawhead, the coupling hook or dog will be returned to a position for automatic coupling.

## AGRICULTURAL INVENTION.

A combined cultivator and pulverizer has been patented by Mr. Joseph Ashenfelter, of Liberty, Neb. It has two connected runners, each carrying an outwardly extending platform crusher, and sets of disks held at an angle to the runners at their rear, adapted for cutting the weeds and hilling rows of listed corn with earth.

## MISCELLANEOUS INVENTIONS.

A band for paper, currency, etc., has been patented by Mr. Oscar S. Matthews, of Dallas, Texas. The band is of paper or like material, with a stiffened back and flexible flaps, on which are secured clips of sheet metal with clamping ends and a tongue, for use in connection with an elastic band.

A book holder has been patented by Mr. William Simmonds, of Yonkers, N. Y. It consists principally of a spring clamp adapted to span the back of the book and grasp the leaves upon either side of the back and hold them firmly upon the covers in convenient position for reading or copying.

A pocket rule has been patented by Mr. Edward R. Billings, of New York City. It is provided with a pivoted plate connecting two sections of the rule, whereby it may be used as a protractor of angles, the invention consisting of the special construction of the rule and the connections of the sliding end of the pivoted plate with the rule.

A rein guide has been patented by Mr. Noah D. Noble, of Carroll, Iowa. It has two arms pivoted to a staple for connecting the rein to the harness, in combination with a roller held at the free ends of the arms, and a fastening device, the object being to reduce the friction of the rein in the guide to the minimum.

A metallic printing block has been patented by Mr. John M. Hawkes, of New York City. It is of novel form and construction, and provided with fixed and movable clamps, whereby electrotype and stereotype plates can be firmly locked in position or released at will, the invention being an improvement on a former patented invention of the same inventor.

A berry box has been patented by Mr. William Henry Moser, of East Portland, Oregon. It is a box made of veneer, made without the use of tacks, having a flap or tongue lock for adjacent ends shaped in a novel form, and in such way that the shaping, cutting, and scoring of the blank may all be done by machine at one operation.

A dry goods exhibitor has been patented by Mr. Andrew J. Nichols, of Ozark, Ark. It consists of a case in which are arranged guide rollers and carrier rollers, so that goods on adjacent rollers will not interfere with each other, and the goods on the several carrier rollers may be fully displayed, and can be readily drawn out for cutting, measuring, etc.

A medicine case or satchel has been patented by Mr. David L. De Myers, of Pierce Station, Tenn. The invention consists principally of a bag or satchel having a central support to which holding devices or clasps are attached for holding bottles, etc., in connection with a special construction of satchel, especially fitted for the use of physicians, surgeons, etc.

A shade exhibitor has been patented by Mr. Robert K. Slaughter, of Brooklyn, N. Y. It is a double-faced revolvable cabinet with swinging frames, either one or both of which may be swung outward, to be placed in a convenient position on the floor of an apartment, and so arranged that either line of shades may be readily exhibited and returned within the case.

A straw rope machine has been patented by Messrs. Cyrus Stephens and Charles A. Carter, of Lewis Creek, Ind. It is for making straw ropes for grain-binding harvesters, the feed being designed so that one or two straws will be fed to the rollers of the machine so as to add them to the rope every two or three inches, to form ropes rapidly of nearly uniform size.

A step ladder has been patented by Mr. William R. Allan, of Pittston, Pa. The supporting legs can be swung toward and from each other, in addition to having a hinged connection with the ladder, thus making a wider support in proportion to the width of the ladder than is possible with rigid supporting legs, and the ladder can be folded to occupy but little space.

A washing machine has been patented by Mr. Henry Bauerfeind, of Shawano, Wis. It has a drum with parallel straight ribs journaled in a tub, vertically grooved plates on opposite sides of the tub, and a rocking frame with parallel rollers journaled in its sides, the washing being done by an alternate backward and forward passing of the clothes between the drum and the rollers by operating a crank.

An apparatus for producing malleable iron or steel direct from the ores has been patented by Mr. Christian Husgafvel, of Pikkasamaki, Finland. The invention covers a novel construction and combination of parts for a system of charging the ore with less coal and reducing the working temperature of the furnace, to thus furnish a completed product without the ordinary intermediate processes.

A method of constructing wagon seats has been patented by Mr. John Q. Flint, of Wilton, N. H. It consists in securing the back piece to a suitable form, bending the parts of the rail over the form and along the edge of the back piece, clamping or otherwise securing the rail to the edge of the back piece, and finally removing the back piece and rail together from the form.

An automatic grain-weighing machine has been patented by Messrs. Valentin Weber and James R. Harrison, of Princeville, Ill. The invention covers a novel construction and arrangement of various parts and details of an improved machine for automatically weighing grain as it is received from the thrashing machine, in connection with a device for registering the quantities weighed.

SCIENTIFIC AMERICAN  
BUILDING EDITION.

SEPTEMBER NUMBER.

## TABLE OF CONTENTS.

1. Elegant Plate in Colors of a Twelve Hundred Dollar Cottage, with floor plans, specifications, sheet of details, bills of estimate, etc.
2. Plate in Colors, with specifications, estimate, and bill of materials, for a Southern Residence of moderate cost. An elegant design.
3. Handsome design for a Library Building.
4. Perspective view, with floor plans, for a Dwelling costing Five Thousand Dollars.
5. Drawing in perspective, with floor plans, for a Cottage costing Thirty-five Hundred Dollars.
6. Floor plans and perspective for a Country Store costing Two Thousand Dollars.
7. Perspective view and floor plans for a Residence costing Four Thousand Dollars.
8. A handsome Dwelling costing Four Thousand Two Hundred Dollars. Perspective and floor plans.
9. Perspective and floor plans for an Eighteen Hundred Dollar Cottage.
10. Perspective view and floor plans of Grace Memorial House, Providence, R. I., a School House, and Nursery. Cost, Four Thousand Dollars.
11. Suggestions in Decorative Art.
12. Sketch for a Seashore or Beach Dwelling.
13. Illustrations of Tenement Houses of moderate cost at Kansas City, Mo.
14. Examples of Suburban Houses at Hamilton Heights, Fort Hamilton, N. Y.
15. Floor plans, elevations, and perspective view of an Eight-room Ohio Dwelling, costing about Five Thousand Dollars.
16. Elegant design for a Bank Building at Knoxville, Tenn.
17. Design of the Yankee Cottage now at the American Exhibition, London.
18. Design for Elegant Residence of C. C. Bloomfield, Esq., Jackson, Mich. Two half page drawings, showing view in stair hall, perspective, and floor plans.
19. Interior view of Stable with horizontal floors and hygienic drainage. Three illustrations.
20. Design for Grant Monument, Riverside Park, New York. By H. A. Male.
21. Examples of Small City Houses at Paris.
22. Miscellaneous Contents: Removal of a Dividing Wall.—Plate Glass.—How to Remove Grease from Boilers.—Practical Use of Marble.—A New Composition.—The Ideal House of the Future.—Exhibition of Building Materials, Brussels.—Chimneys of the Ancients.—Preservation of Wood by Lime.—Vermont Marble.—Snow Sheds on the Cascade Mountains.—The Corner Finish.—Granite.—Brick Dust Cement.—The Pietsch House Trap, illustrated.—Excavating in Frozen Ground.—Caen Stone.—To Obtain One's Bearings with a Watch.—Wood Carpet.—The Chimney Top.—Love Lies Bleeding.—Industries and Handicrafts in Central Africa.—Winter Palaces.—Silo Building, with four illustrations.—Pedestal Tenoner, illustrated.—The Pyramids.—Moulders' Sand.—Measurement of Masonry.—Failure of Concrete Dock Works.—Minute Writing.—Improved Ventilating Fan, illustrated.—Iron Frame Bell.—Old Method Roofing Plates.—Gladstone Bricks.—Cement Testing Machine, illustrated.—Food Economy before the American Association.

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.

## Special.

## OH! THAT HEADACHE.

"How I am tormented with this continual headache! It is ache! ache! morning, noon, and night. It is the last feeling and thought before restless slumber and the first sensation at return of consciousness. It is the terror and torment of my life, and there seems no promise of an end to it while the lamp of life continues to burn. I feel at times as if I must go mad. I move about in my anguish, or must lie prostrate and helpless in my agony, with the sole pity, 'Oh, no! not sick; only has the headache.' But neither insanity nor death comes to my relief. On, on, must I pursue this path of persistent pain. No help, no comfort, no relief. The toothache may be ended by extracting the tooth, but where is the good surgeon that can extract the brain to stop the pain?"

The safe and best way is to reach the fountain of life, put it in as healthy condition as possible, strengthen and revitalize it, so that it may correct the disordered member and give nature the chance to reassert itself. This plan has been tried very successfully in hundreds of cases and found to be of permanent relief. One of the good virtues of the Compound Oxygen Treatment is that it does not go into the stomach for the pretended purpose of attacking a specific disease, but increases the vital powers, so that nature may repel the invader.

For full information, write to Drs. Starkey & Palen, 1529 Arch Street, Philadelphia, Pa., for one of their little books called "Compound Oxygen: Its Mode of Action and Results," which they will send free upon application, also their monograph on headache.

## 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 next issue.

Wanted—A person with some capital, conversant with the lobster canning business. Address R. M. Munroe, Great Kills, Staten Island, N. Y.

I wish to arrange with some responsible manufacturing concern to manufacture and introduce my improved door pull and latch, patented July 19, 1887, No. 306,808. Manufacturers looking for a promising specialty in this line will do well to investigate. Address E. Bason, 6641 Atlantic Street, Englewood, Ill.

Graphite Lubricating Co., Jersey City, N. J. Graphite bushings and bearings, requiring no grease or oil.

For Sale—The one-half interest in two different patents on running gear for vehicles. Two efficient inventions, which are simple, practical, and serviceable. Approved by all who have examined them. Containing correct principles and all the required elements upon which to build a lucrative business. For particulars address lock box H, Rosendale, N. Y.

Catarrah Cured. A clergyman, after years of suffering from that loathsome disease, catarrh, and vainly trying every known remedy, at last found a prescription which completely cured and saved him from death. Any sufferer from this dreadful disease sending a self-addressed stamped envelope to Prof. J. A. Lawrence, 212 East 9th St., New York, will receive the recipe free of charge.

Patent Rights for Sale. Apparatus for building Concrete Buildings and Walls. County rights, \$50. State rights, \$500. See descriptive notice in SCI. AMERICAN, May 22, 1886. Send for circulars. Ransome, 402 Montgomery St., San Francisco, Cal.

Pedestal tenoner. All kinds woodworking machinery. C. B. Rogers & Co., Norwich, Conn.

Stationary and boat engines, boilers. Best and cheapest. 1 to 10 H. P. Washburn Engine Co., Medina, Ohio.

Graphite Bushings.—Put them on all loose pulleys.

For the latest improved diamond prospecting drills, address the M. C. Bullock Mfg. Co., 138 Jackson St., Chicago, Ill.

The Railroad Gazette, handsomely illustrated, published weekly, at 73 Broadway, New York. Specimen copies free. Send for catalogue of railroad books.

The Knowles Steam Pump Works, 113 Federal St., Boston, and 98 Liberty St., New York, have just issued a new catalogue, in which are many new and improved forms of Pumping Machinery of the single and duplex, steam and power type. This catalogue will be mailed free of charge on application.

Link Belting and Wheels. Link Belt M. Co., Chicago.

Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J.

Woodworking Machinery of all kinds. The Bentel & Margedant Co., 116 Fourth St., Hamilton, O.

Nickel Plating.—Sole manufacturers cast nickel anodes, pure nickel salts, polishing compositions, etc. \$100 "Little Wonder." A perfect Electro Plating Machine. Sole manufacturers of the new Dip Lacquer Kristaline. Complete outfit for plating, etc. Hanson, Van Winkle & Co., Newark, N. J., and 92 and 94 Liberty St., New York.

Supplement Catalogue.—Persons in pursuit of information of any special engineering, mechanical, or scientific subject, can have catalogue of contents of the SCIENTIFIC AMERICAN SUPPLEMENT sent to them free. The SUPPLEMENT contains lengthy articles embracing the whole range of engineering, mechanics, and physical science. Address Munn & Co., Publishers, New York.

Iron Planer, Lathe, Drill, and other machine tools of modern design. New Haven Mfg. Co., New Haven, Conn.

Curtis Pressure Regulator and Steam Trap. See p. 157.

Power, 113 Liberty St., N. Y. \$1 per yr. Samples free.

Beach's Improved Pat. Thread Cutting and Diamond Point Lathe Tool. Billings & Spencer Co., Hartford, Ct.

We are sole manufacturers of the Fibrous Asbestos Removable Pipe and Boiler Coverings. We make pure asbestos goods of all kinds. The Chalmers-Spence Co., 419 and 421 East 8th Street, New York.

Cushman's Chucks can be found in stock in all large cities. Send for catalogue. Cushman Chuck Co., Hartford, Conn.

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

Veneer Machines, with latest improvements. Farrell Fdry. Mach. Co., Ansonia, Conn. Send for circular.

Tight and Slack Barrel Machinery a specialty. John Greenwood & Co., Rochester, N. Y. See illus. adv., p. 28.

Hodges' universal angle union makes pipe connection at any angle. Rollstone Machine Co., Fitchburg, Mass.

Quints' patent automatic steam engine governor. Correspondence solicited from manufacturers of throttle governor engines. Leonard & McCoy, 118 Liberty Street, New York.

Friction Clutch Pulleys. D. Frisbie & Co., N. Y. city.

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

## Notes &amp; 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.

(1) A. S. S. asks what will remove the stain of iodine from the hair of a horse without injury to the horse or hair? A. Try rectified alcohol.

(2) J. A. asks in what manner chemicals are applied to paper, so as to form crystalline coating. A. Mix a very concentrated cold solution of salt with dextrine, and lay the thinnest possible coating of the fluid on the surface to be covered by means of a broad, soft brush. The following salts also produce beautiful crystalline coatings: sulphate of magnesium, acetate of soda, and sulphate of tin. The paper must first be sized, otherwise it will absorb the fluid and prevent the formation of the crystals on its surface.

(3) A. H. wants formula for making line negatives. A. Volkmer's process as detailed in *Photographic Times Almanac* is good, as follows:

Plain Collodion.  
Ether.....500 grammes.  
Alcohol.....400 "  
Pyroxyline.....16 "

Sensitizer.  
Chloride of calcium.....16 grammes.  
Iodide ammonium.....47 grammes.  
Iodide cadmium.....78 grammes.

Dissolve in 100 grains of absolute alcohol and mix with the collodion.

Silver Bath.  
Nitrate of silver.....1 ounce.  
Distilled water.....10 "  
Iodize, and acidulate with nitric acid.

Intensifier.  
A. Bromide of potassium.....¼ ounce.  
Water.....4 "  
B. Sulphate of copper.....¼ "  
Water.....4 "

Mix equal parts A and B and pour on the film. When perfectly whitened, blacken with nitrate of silver, 36 grains to ounce of water. In place of the above method try a very slow grade of gelatino-bromide plate and develop with an excess of pyro, previously soaking plate for 3 minutes in solution of gallic acid, 3 grains to each ounce of water.

(4) P. H. asks how photographs are enameled. A. The ordinary way is to first prepare a sheet of glass by flowing over it a solution of wax or paraffine in ether, then rubbing it over with a dry cloth, which leaves a thin film of wax on the glass, then, when dry, in coating the glass with a thin, transparent plain collodion. This is allowed to partially set, and is then immersed in water until the greasy lines disappear. The dampened albumen print is then squeegeed face downward on the collodion film. When dry, by cutting around the picture with a knife, the print is pulled up at one corner, bringing with it the collodion film, which gives the fine glossy appearance so much admired. For further details see SCIENTIFIC AMERICAN SUPPLEMENT, No. 78, page 1062.

(5) J. C. asks how magic photographs are made, which appear when the paper or glass supporting the film is blown upon by the breath. A. The picture is printed and fixed in the usual way, but not toned; then it is bleached out with a solution of bichloride of mercury. It may now be made visible again by blowing on it with the breath, especially if the smoke from a cigar is mingled with the breath. The picture may also be reproduced by placing the print upon a pad of blotting paper saturated with hyposulphite of soda.

(6) J. H. and G. W. H.—The mottling of small pieces of iron by the case-hardening process has no peculiarities further than protecting the work from the oxidizing effect of air while in the process of heating and the rapidity of transfer to the water when ready for hardening. The process consists in packing the pieces carefully in animal charcoal (charred leather, scrap hoofs or horn), pulverized so as to allow it to pack closely in contact with the surface of all the articles, in an iron box (cast iron preferred), with a cover to fit closely inside, so that if the box is not full the cover will set in contact with the material. Have no articles touch each other; press the cover down and put a little white sand on top to prevent air passing in between the cover and box. Heat the box in a forge fire or furnace to a bright red heat: keep it at this heat for 15 minutes for small articles like gun lock work. Then take off the cover and seize the box with a pair of tongs; hold it over a tub of water, tip the box, and spill gently the contents (iron and charcoal) into a tub of water. The time of dropping the pieces into the water governs the depth of color. This must be had by practice. Turning the box over slowly and shaking clears the pieces