

Special.

AN OPINION CHEERFULLY GIVEN.

From their relation to society, the clergyman of a growing denomination, the minister of a congregation, the pastor of a flock, naturally feel great sympathy for the afflicted. Hence, when the truly pious priest finds a certain remedy is no humbug, but does afford genuine, reliable relief, he does not hesitate to give to the world an honest opinion of it.

The following is from one of the most faithful missionaries ever sent to Siam:

"DRS. STARKEY & PALEN: I cheerfully give you my name as a reference for inquirers as to the merits of the Compound Oxygen Treatment. After having been so greatly benefited by the use of this Treatment, I should deem it an act of the deepest ingratitude to withhold my name from a remedy which is so effectual in healing and removing the pains, diseases, and infirmities which our fellow creatures are suffering, or are liable to. With the deepest gratitude for all your kindness, I remain your true Oxygen friend, J. H. CHANDLER."

"CAMDEN, N. J., 573 Lime Street, 29th Oct., 1885." A Treatise on Compound Oxygen, containing a history of the discovery and mode of action of this remarkable curative agent, and a large record of surprising cures in consumption, catarrh, neuralgia, bronchitis, asthma, etc., and a wide range of diseases will be sent free. Address DRS. STARKEY & PALEN, 1529 Arch Street, Philadelphia, Pa.

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.

Graphite Lubricating Co., Jersey City, N. J. Graphite bushings and bearing, requiring no grease or oil. Hartford drill chucks. 3 sizes. Hold to 1/4 in., 1/2 in., and 3/4 in. Cushman Chuck Co., Hartford, Conn.

Accurate Counting Machines for all kinds of machinery. 10,000 and 100,000 sizes. Send for circulars. G. R. D. Hubbard, New Haven, Conn.

Had ten years' experience handling agents, and wish exclusive control of articles of merit for U. S. Address Mr. Hull, 381 Canal St., N. Y.

Second-hand engine and boiler for sale cheap. One non-condensing walking beam engine, cylinders 20 x 36 inches, in good condition; also a drop flue boiler, 8 ft. x 28 ft., 16 riveted flues (14-12 inch and 2-20 inch). For further particulars address P. M. Wise, Superintendent Willard Asylum for the Insane, Willard, N. Y.

Press for Sale—Quick acting. Hole in bed 8x5; punches to center of 13 in. sheet; 2 1/2 in. shaft; also four spindle Drill. A few second-hand engines in first-class condition. B. W. Payne & Sons, Elmira, N. Y.

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

Graphite Bushings.—Put them on all loose pulleys.

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 93 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 Bental & 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.

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

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.

Timber Gaining Machine. All kinds Wood Working Machinery. C. B. Rogers & Co., Norwich, Conn.

Curtis Pressure Regulator and Steam Trap. See p. 253.

Power, 113 Liberty St., N. Y. \$1 per yr. Samples free. Billings' Drop Forged Machinists' Clamp and Steel Clamp. Billings & Spencer Co., Hartford, Conn.

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

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

Band saws, with tipping table. All kinds woodworking machinery. Rollstone Machine Co., Fitchburg, Mass.

Iron and Steel Wire, Wire Rope, Wire Rope Tramways. Trenton Iron Company, Trenton, N. J.

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

NEW BOOKS AND PUBLICATIONS.

THE AMERICAN GLOSSARY OF ARCHITECTURAL TERMS.

The Clark & Longley Co., of Chicago, have issued a useful dictionary for architects, builders, and others. Mr. George O. Garnsey is the author and compiler, and the work contains the definition of over 3,000 terms used in the building trade, some of which are accompanied with well executed engravings. This work is furnished in a substantial and ornamental leather binding, and will no doubt meet with a large sale among architects,

TRANSACTIONS OF THE WAGNER FREE INSTITUTE OF SCIENCE. VOL. I. EXPLORATIONS ON THE WEST COAST OF FLORIDA AND IN THE OKEECHOBEE WILDERNESS. By Angelo Heilprin. Philadelphia, 1887. Wagner Free Institute of Science. Pp. vi., 134.

The late William Wagner, a citizen of Philadelphia, is the founder of the institute that bears his name. Since 1855 it has been incorporated. During Mr. Wagner's life his interest in it was personal and unceasing, and dying, he left it well endowed as a permanency, to carry on the work of giving free lectures and carrying on original researches in science. Professor Heilprin, who, by his contributions to recent geological history, notably in the International Science Series, has won considerable reputation, was intrusted with the charge of an expedition to the Florida peninsula. In the present report the account of his work is given, together with illustrations and identifications of the fossil shells. The plates of the shells are produced by autotype, and are beautiful examples of such work. The entire report, on heavy paper with wide margins, has the aspect of an edition de luxe. The general conclusions as to the history of the Florida peninsula are of much interest and novelty. Professor Heilprin pronounces it to belong exclusively to the tertiary and post-tertiary periods, and hence to be the youngest portion of the United States. Its growth he declares to be almost entirely due to sedimentary causes and upheaval. The hypothesis of a coral formation of the entire peninsula is unhesitatingly rejected. The northern half of the State represents a deep-sea formation, while deposition from shallower waters is indicated for the southern territories. Upheaval seems to have been very gradual and even, as little disturbance of the strata can be discerned. A plea for evolution is drawn from the fossils discovered, and relics of ancient man are noted as having been found on Sarasota Bay. In addition to the plates of shells, a few landscape plates of the regions explored give variety to the book. It is altogether, both in matter and form, a credit to Professor Heilprin and to the Wagner Institute.

** Any of the above books may be purchased through this office. Send for new catalogue just published. Address Munn & Co., 361 Broadway, N. Y.

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.

(1) F. E. O.—Enameled writing pads are made by using bleached shellac and borax dissolved in water. Kremnitz white is then rubbed up with a little water glass, and the whole worked into a thin paste, which is spread upon the paper with a stiff brush. The paper is then steamed in a chamber at a temperature of 248°, or a pressure of 15 lb., which fuses the shellac and makes the surface waterproof. To make the surface smooth, it should be passed through a steam calender.

(2) W. N. G. asks: What is the thickness of the metal around the powder chamber of a 15 inch gun? And what pressure per square inch would throw a 100 lb. projectile one mile? Also, what amount of powder would produce the above result? A. The thickness of metal of guns depends largely upon the material used and the power required. In steel guns the thickness is about equal to the diameter of bore. The elevation of the gun and strength of powder, whether quick or slow burning, and the length of the gun are all elements in computing pressure and amount of powder required. We refer you for further information to a valuable table of the weight and power of modern guns, in SCIENTIFIC AMERICAN SUPPLEMENT, No. 583, and on steel guns, gunpowder, etc., in SCIENTIFIC AMERICAN SUPPLEMENT, No. 589; also on the new 110 ton guns, in SCIENTIFIC AMERICAN, April 16, 1887. You will find in Chambers' "Practical Mathematics," under the head of projectiles, simple and easy computations for all conditions of gun practice.

(3) G. O.—There is no satisfactory method of camera or polyopticon projection with objects in same position with image. The double glasses interfere with the field and the brightness of the image. For illustrations of camera lucida, see SCIENTIFIC AMERICAN SUPPLEMENT, Nos. 393, 390, 420.

(4) R. W. S.—A test of 300 lb. pressure on linen hose, determined by plugging a 50 ft. length at one end and applying a gauge, is not high for the best qualities of such hose. You might easily have reached such a pressure in your hose with 190 lb. of steam in the engine, the pump cylinder having a corresponding smaller area than the steam cylinder. We cannot say how far small leaks might have indicated that less pressure was exerted in the hose than that shown by the gauge, without more exact details; but if the leaks were trifling, you probably had substantially the pressure indicated by the gauge.

(5) R. J. K. desires: 1. A receipt for making a varnish to be used on a paper check. Something that will dry quickly, and will protect the signature. A. The only satisfactory varnish for your purpose is naturally a shellac varnish; but, judging from the specimen sent, a poor quality has been used. You

can only obtain better results by the purchase of some good white shellac. 2. How to remove mildew and dirt spots from a rattan carriage body. A. Try Labarraque's solution or bleaching fluid for this purpose. 3. What kind of varnish can I use on it to protect it? A. Use a good wearing body varnish, and give it plenty of time to dry.

(6) O. M. H. writes: 1. In drilling a hole in the earth for oil or natural gas, the drill and all irons attached thereto become strong magnets, so that a common pocket knife will adhere and hang suspended. What is the cause? A. It has long been known that striking a steel rod endwise will magnetize it. If it is hard, it will retain its magnetism. The old fashioned fire irons, when constantly handled and thrown into the corner of the fireplace, have been known to become magnetic. The drill point of your boring tool is of steel, hardened. The rod becomes magnetic by the end shock, and the steel end tends to retain it. 2. Can steel cast into tools like the blades of house shears be tempered after they are finished and ready to be put together? If so, how is it done? A. Steel cast into articles of cutlery, if of the proper carbon temper, may be hardened in the usual way. You cannot tell the hardening properties of an otherwise unknown quality of steel without a trial. If the steel is too low in carbon, it can be casehardened.

TO INVENTORS.

An experience of forty years, and the preparation of more than one hundred thousand applications for patents at home and abroad, enable us to understand the laws and practice on both continents, and to possess unequalled facilities for procuring patents everywhere. A synopsis of the patent laws of the United States and all foreign countries may be had on application, and persons contemplating the securing of patents, either at home or abroad, are invited to write to this office for prices, which are low, in accordance with the times and our extensive facilities for conducting the business. Address MUNN & CO., office SCIENTIFIC AMERICAN, 361 Broadway, New York.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

July 12, 1887,

AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]

Table listing inventions and their patent numbers, including Alarm, Ammunition, Ash can, Axle bearing, Axle box, Axle boxes, Axle car, Axle clip, Axle vehicle, Bake pan, Bale tie, Baling press, Baling presses, Barrel skid, Bath, Bed, Bicycle, Bicycle treadle, Bicycles, Binders, Blackboard, Blank feeding device, Blast furnace, Blocker and tablet, Board, Boiler, Bolt, Book, Box, Boxes, Brake, Brick, Brick kiln, Bridles, Brushes, Buggy, Bung, Burglar alarm, Burner, Bustle, Car, Car brake, Car brake and starter, Car brake, automatic, Car, dumping, Car heater, Car lighting apparatus, Car, passenger, Car, platform, Car, railway, Car, railway, C. M. Smith, Car, sleeping, Car wheel, Car wheel replacer, Cars, apparatus for heating railway, Cars, grooved girder rails for street, Cars, lining for railway, Cars, ventilating railway, Cars, washstand for boudoir and other, Cargo discharging apparatus, Carriage bow, Carrier.

Table listing inventions and their patent numbers, including Cart, dumping, Cartridge, shell holder, Cash received, apparatus for checking and recording, Casting car wheels, method of, Casting metal, device for, Catamenial sack, Chain, drive, Chain wrench, Chair, See Railway T-chair, Chair attachment, Chair iron, tilting, Chickens, feed and water tray for, Chuck, G. L. Jones, Cleaner, See Gun cleaner, Window cleaner, Clip, See Axle clip, Clock winding mechanism, Closer, See Door closer, Cloth stretching machine, clip for, Coloring matter formed by the action of parinitrosodiphenylamines on phenols or oxycarbonic acids, blue, E. Ulrich, Coloring matter formed from parinitroso-methyl-diphenylamine on phenols or oxycarbonic acids, blue, E. Ulrich, Combination press, Compound engine, Concrete mixer, Conductor support, Copying bath, Core for electro magnets and method of forming the same, Corn and cane cutter, J. Albertson, Corn popper, A. J. Tyler, Corset, S. M. Warren, Cotton seed oil mills, separator for, Coupling, See Hose coupling, Rope or cable coupling, Thill coupling, Creamer, centrifugal, Howell & Pooler, Cultivator, N. Roggy, Cutter, See Butter or lard cutter, Corn and cane cutter, Stubble cutter, Cyclometer, O. B. Beach, Deadcenters, device for overcoming, S. T. Shortess, Dental engine, A. Jamieson, Diethylmethylthionin blue, production of, E. Ulrich, Digger, See Potato digger, Dimethyldiethylthionin blue, production of, E. Ulrich, Distilling petroleum, process of and apparatus for, J. M. Krieser, Door closer, E. H. Brown, Door fastening, E. A. P. Campbell, Door, storm, W. R. Lyle, Doubling and winding machines, stop motion for, Dronsfield & Gilbody, Draught regulator, duplex automatic, N. M. Mann, Dredging apparatus, Edwards & Kelly, Drilling machine, J. Bailey, Drums, attachment, W. H. Travis, Elastic bandage for varicose veins, etc., L. T. J. Lubin, Electric circuits, circuit controller for, Byllesby & Lange, Electric circuits, safety strip for, O. B. Shallenberger, Electric conductor, G. Westinghouse, Jr., Electric converter, H. M. Byllesby, Electric distribution, automatic regulator for, W. Stanley, Jr., Electric generators, regulator for self-exciting alternate current, O. B. Shallenberger, Electric lights, key socket for incandescent, F. L. Pope et al., Electric lights, mast arm for, F. H. Parker, Electric meter, W. Stanley, Jr., Electric motors, automatic regulator for, W. Stanley, Jr., Electric switch, P. Lange, Electric switch, Macrae & Tavener, Electrical alarm, J. A. Galvin, Electrical conduits, laying continuous, A. C. Chenoweth, Electrical converter, A. Schmid, Electrical converter, G. Westinghouse, Jr., Electrical distribution, system or circuit for, Byllesby & Shallenberger, Electricity, apparatus for measuring, J. Cauderay, Elevator, See Wagon elevator, Elevator gate, A. U. Grummann, Elevator wells, door guard for, O. L. Davis, Engine, See Compound engine, Dental engine, Steam engine, Traction engine, Wind engine, Engines, igniting apparatus for gas and petroleum, Schiltz & Quack, Engravers' tool or scraper, A. Bonniol, Envelopes or other articles, apparatus for applying postage stamps, adhesive labels, and the like to, Ede & De Bondini, Escape, carriage, C. H. Averborg, Explosive compound, C. W. Volney, Eyeglass holder, M. Riggs, Eyeglasses or spectacles, I. Fox, Fan or blower, S. J. Voden, Farrier's tool, I. G. Pollard, Faucet and automatic gas valve, C. C. Morris, Faucet can, J. Marshall, Feed rack, J. R. Logan, Fence guard, T. Dockum, Fence post, W. Gepford, Fiber digester, J. H. Brown, Fiber, treating vulcanized, H. W. Morrow, Fibrous material, disintegrating, J. H. Brown, Fifth wheel, H. C. Shriner, Filtering air, apparatus for, J. C. Christopher, Firearm, magazine, A. Burgess, Fire kindling apparatus, J. F. Hager, Fireplace, W. H. Hutchinson, Fishway, W. J. Rogers, Floor cramp, A. S. Bayer, Floors of theaters and halls, device for raising and lowering, G. G. Adams, Foot rest, J. W. Tilley, Forge, portable, M. Ehrigott, Fork, rake, etc., J. T. Bridges, Frame, See Bed frame, Furnace grate, E. Boutcher, Furniture, upholstered, H. H. Gates, Gauge, See Locomotive tire gauge, Galvanometer, H. B. Cox, Galvanometer, electric, P. Lange, Galvanometer, electric, Lange & Shallenberger, Game, J. M. Hughes, Garments, ornamenting, F. Kopp, Gas burner, hydrocarbon, F. Jarecki, Gas burner tip, Thomas & Phillips, Gas burner tip, E. T. Thomas.