

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.

AN INQUIRY ANSWERED.

H. W. Johns Mfg Co., 87 Maiden Lane, New York. MY DEAR SIRS. I have replied to inclosed letter from Mr. Good as follows, and perhaps you would be interested to know it: "I have had Johns' Asbestos Paint upon the outside work of my house in exposed positions for four years, and after that time there is no chalky appearance, it does not rub off, has not worn or lost its color or brightness, and is in no need as yet of renewing. The paint is yet in good order. Some lead and oil paint on other parts of the house no more exposed than the Asbestos Paint, has been renewed twice, and the last coat is now worse looking than the four-year-old Asbestos Paint. The roof of my piazza, painted in stripes of red and green of Johns' paints three years ago, is still bright and fresh and in good order." HENRY STEWART, Formerly Editor American Agriculturist.

Elm Boards Wanted.—C. Ledig, 13 Peck Slip, N. Y. Attention, Patentees.—A Good, Practical Invention Wanted for Introduction. Address C. M. H., Room 31, 157 Broadway, New York.

For Belt Studs, Belt Hooks, Belt Couplers, Belt Punches, Baxter Wrenches, write Greene, Tweed & Co., N. Y. Type Writer Wanted; good and cheap. Penfield Block Co., Lockport, N. Y.

Wanted.—Manufacturers of Lubricants addresses. Box 777, Bradford, Pa. Wm. J. McDougall.

List of 3,000 responsible Farmers in Penn., New Jersey Md., and Va., selected. Mailed on receipt of \$2. Farmers Register, 2623 Warnock St., Philadelphia, Pa.

"Little Giant" Engines and Boilers, users say, are "the best ever made." Madison Machine Co., 406, 408 Broadway, New York.

Valuable Patent for Sale; price low. Address A. B., Post Office Box 2032, Philadelphia, Pa.

Our goods rank first for quality, safety, and durability. Please compare them with any other make, and if not found better and cheaper, quality considered, we will bear the expenses of the trial. Lehigh Valley Emery Wheel Co., Lehigh, Pa.

Granville Hydraulic Elevator Co., 1193 B'way, N. Y. The Mining Record, devoted to mining, contains the latest reliable reports from all the mines, with perfect reports of the Mining Stock Market. Subscription, \$4 yearly. Sample copies free. A. R. Chisolm, Proprietor, 61 Broadway, New York.

For Leather, Rubber, or Cotton Belting, Linen Hose or Rubber Hose, write Greene, Tweed & Co., New York.

To Stop Leaks in Boiler Tubes, use Quinn's Pat. Ferrules. Address S. M. Co., So. Newark, N. H.

Light and Fine Machinery and Tools to Order. Lathes catalogue for stamp. Edward O. Chase, Newark, N. J.

Malleable and Gray Iron Castings to order, by Capital City Malleable Iron Co., Albany, N. Y.

For Power & Economy, Alcott's Turbine, Mt. Holly, N. J. Combination Roll and Rubber Co., 27 Barclay St., N. Y. Wringer Rolls and Moulded Goods Specialties.

Send for Pamphlet of Compilation of Tests of Turbine Water Wheels. Barber, Keiser & Co., Allentown, Pa. Presses & Dies (fruit cans) Ayar Mach. Wks., Salem, N. J.

Latest Improved Diamond Drills. Send for circular to M. C. Bullock, 80 to 88 Market St., Chicago, Ill.

Wood-Working Machinery of Improved Design and Workmanship. Cordesman, Egan & Co., Cincinnati, O.

"How to Keep Boilers Clean," and other valuable information for steam users and engineers. Book of sixty-four pages, published by Jas. F. Hotchkiss, 84 John St., New York, mailed free to any address.

Supplement Catalogue.—Persons in pursuit of information on 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.

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

Malleable and Gray Iron Castings, all descriptions, by Erie Malleable Iron Company, limited, Erie, Pa.

Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J. Corrugated Wrought Iron for Tires on Traction Engines, etc. Sole mfrs., H. Lloyd, Son & Co., Pittsbg., Pa.

Presses, Dies, Tools for working Sheet Metals, etc. Fruit and other Can Tools. E. W. Bliss, Brooklyn, N. Y. Improved Skinner Portable Engines. Erie, Pa.

Clark & Heald Machine Co. See adv., p. 62. Ajax Metals for Locomotive Boxes, Journal Bearings, etc. Sold in ingots or castings. See adv., p. 61.

Draughtsman's Sensitive Paper, T. H. McCollin, Phila., Pa. For Mill Mach'y & Mill Furnishing, see illus. adv. p. 60.

Skinner's Chuck. Universal, and Eccentric. Sep. 61. C. B. Rogers & Co., Norwich, Conn., Wood Working Machinery of every kind. See adv., page 77.

The Sweetland Chuck. See illus. adv., p. 78. Electric Lights.—Thomson Houston System of the Arc type. Estimates given and contracts made. 631 Arch, Phil.

Machine Knives for Wood-working Machinery, Book Binders, and Paper Mills. Also manufacturers of Solomon's Parallel Vise, Taylor, Stiles & Co., Riegelsville, N. J. Peck's Patent Drop Press. See adv., page 94.

For best Portable Forges and Blacksmiths' Hand Blowers, address Buffalo Forge Co., Buffalo, N. Y.

The Brown Automatic Cut-off Engine; unexcelled for workmanship, economy, and durability. Write for information. C. H. Brown & Co., Fitchburg, Mass.

Ball's Variable Cut-off Engine. See adv., page 92. The Chester Steel Castings Co., office 407 Library St., Philadelphia, Pa., can prove by 15,000 Crank Shafts, and 10,000 Gear Wheels, now in use, the superiority of their Castings over all others. Circular and price list free.

Diamond Engineer, J. Dickinson, 64 Nassau St., N. Y. The Improved Hydraulic Jacks, Pumps, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York.

Paragon School Desk Extension Slides. See adv. p. 93.

Fire Brick, Tile, and Clay Retorts, all shapes. Borgner & O'Brien, Mfrs, 23d St., above Race, Phila., Pa.

Brass & Copper in sheets, wire & blanks. See adv. p. 94.

Geiser's Patent Grain Thrasher, Peerless, Portable, and Traction Engine. Geiser Mfg. Co., Waynesboro, Pa.

Tight and Slack Barrel machinery a specialty. John Greenwood & Co., Rochester, N. Y. See illus. adv. p. 93.

For the manufacture of metallic shells, cups, ferrules, blanks, and any and all kinds of small press and stamped work in copper, brass, zinc, iron, or tin, address C. J. Godfrey & Son, Union City, Conn. The manufacture of small wares, notions, and novelties in the above line, a specialty. See advertisement on page 93.

Supplee Steam Engine. See adv. p. 93. Magic Lanterns and Stereopticons of all kinds and prices. Views illustrating every subject for public exhibitions, Sunday schools, colleges, and home entertainment. 116 page illustrated catalogue free. McAllister, Manufacturing Optician, 49 Nassau St., New York.

New Economizer Portable Engine. See illus. adv. p. 95. Sewing Machines and Gun Machinery in Variety. The Pratt & Whitney Co., Hartford, Conn.

Saw Mill Machinery. Stearns Mfg. Co. See p. 93. For Shafts, Pulleys, or Hangers, call and see stock kept at 79 Liberty St., N. Y. Wm. Sellers & Co.

Wm. Sellers & Co., Phila., have introduced a new injector, worked by a single motion of a lever.

Lightning Screw Plates and Labor-saving Tools, p. 93.



HINTS TO CORRESPONDENTS.

No attention will be paid to communications unless accompanied with the full name and address of the writer.

Names and addresses of correspondents will not be given to inquirers.

Were new our request that correspondents, in referring to former answers or articles, will be kind enough to name the date of the paper and the page, or the number of the question.

Correspondents whose inquiries do not appear after a reasonable time should repeat them. If not then published, they may conclude that, for good reasons, the Editor declines them.

Persons desiring special information which is purely of a personal character, and not of general interest, should remit from \$1 to \$5, according to the subject, as we cannot be expected to spend time and labor to obtain such information without remuneration.

Any numbers of the SCIENTIFIC AMERICAN SUPPLEMENT referred to in these columns may be had at this office. Price 10 cents each.

Correspondents sending samples of minerals, etc., for examination, should be careful to distinctly mark or label their specimens so as to avoid error in their identification.

To OUR CORRESPONDENTS.—The destruction of our old offices by fire January 31, 1882, caused the loss of a considerable number of inquiries from correspondents and of our replies thereto, which we had in hand for publication. Those of our friends who find their inquiries neglected will know from the above the reason why; and they will oblige the editor by repeating their inquiries without delay.

(1) J. W. L. asks: Will the result be the same in hardening steel either by a charcoal fire or by illuminating coal gas? Process: 100 twist drills packed close in a 1 1/2 inch wrought iron tube, one end left open to the fire; to be heated exactly the same temperature in both cases, and to be cooled in sperm oil. A. Yes; if heated to the same temperature they can only be uniformly heated with gas by using great care. A better mode of heating is in a metal bath of proper composition, and kept at uniform temperature above the fusing point.

(2) F. P. H. asks: What is the best form of engine for aeronautical experiments? A. Direct acting; working parts light; made of steel or gun metal. It should be accurately balanced, and run at high velocity.

(3) B. C. writes: On burning white (letter) paper on an earthenware dish a dark thick substance is left. Will you please let us know what it is composed of? A. Carbonaceous matters and ash or mineral matters. The latter vary with different papers. Usually this part of the residue consists chiefly of talc or soapstone (silicate of magnesia), clay (silicate of alumina) and sulphate of alumina. By heating the mass to redness for a few minutes in contact with air the black carbonaceous matter burns away, the mineral portion alone remaining. Talc, clay, and alum compositions are used in weighting and sizing the paper, hence their presence in the ash.

(4) G. W. S. asks: Can you give a receipt for plating metals—anything that will change the color of brass to imitate silver? A. You will find direction for plating brass, etc., in SUPPLEMENT, No. 310.

(5) E. M. E. asks why smokestacks of ships are somewhat inclined backward, while it is not so on steamboats, locomotives, etc. I have found no one yet to give me a satisfactory explanation. A. It is a mere fancy of the builders to make the ship look more "rakish."

(6) C. C. asks: Why are oscillating engines not more generally used? A. Because of unequal wear and somewhat complicated valve gear.

(7) J. B. B. asks whether we consider the so-called granite and marbled ware now so commonly sold as a safe article to use for culinary purposes. A. According to recent tests by our health authorities these enamels do not appear to be unwholesome; and are not liable to contaminate food cooked in contact with them.

(8) F. M. L. asks: Has any means been devised of using as fuel the siftings, dust, etc., of coal mines? If so, what is the device? A. Yes; they are

burned successfully on some of the locomotives of the Pennsylvania Railroad, by a patent apparatus or arrangement. We cannot give you the details.

MINERALS, ETC.—Specimens have been received from the following correspondents, and examined, with the results stated:

A. H. J.—It is not meteoric—but consists chiefly of augite and quartz—possibly carrying a little zinc and silver.

[OFFICIAL.]

INDEX OF INVENTIONS

FOR WHICH Letters Patent of the United States were Granted in the Week Ending

January 24, 1882, AND EACH BEARING THAT DATE.

[Those marked (r) are reissued patents.]

A printed copy of the specification and drawing of any patent in the annexed list, also of any patent issued since 1866, will be furnished from this office for 25 cents.

In ordering please state the number and date of the patent desired and remit to Munn & Co., 261 Broadway, corner of Warren Street, New York city. We also furnish copies of patents granted prior to 1866; but at increased cost, as the specifications not being printed, must be copied by hand.

Agitator or egg beater, G. W. Richardson..... 252,800 Amalgamator and concentrator, A. Oliver..... 252,793 Animal trap, F. Winslow..... 252,852 Arch bars, machine for bending and punching, C. G. Cross..... 252,741 Augers, countersink attachment for, C. W. Cutter..... 252,650 Axle box, carriage, F. A. Carnes..... 252,733 Bag fastener, T. Sanford..... 252,804 Bag holder, F. Allen..... 252,640 Ball trap for billiard tables, F. Saunders..... 252,805 Battery. See Voltaic battery.

Bed bottom, C. H. Fitch..... 252,654 Bed bottom, spring, O. S. & W. S. Foster..... 252,601 Bed bottom, spring, M. A. Hunt..... 252,772 Bed bottom spring, T. A. & W. H. Rhodes..... 252,701 Bed lounge, J. L. Newton..... 252,791 Bicycle, J. E. Richard..... 252,624 Bird cage feed cup, J. Maxheimer..... 252,611 Bitters, alterative and tonic, D. W. Edwards..... 252,652 Blind, inside window, E. W. Bowlsleigh..... 252,833 Boiler. See Steam boiler.

Boiler furnace, J. Gerber..... 252,656 Bolts, manufacture of, C. Hall..... 252,661 Book, manifold copying, J. R. Carter..... 252,646 Box. See Axle box. Letter box. Post office lock box. Toy money box.

Bracket. See Lantern bracket. Brake. See Car brake.

Brick and mould, angle, J. F. Edwards..... 252,747 Brick and tile machine, A. Wehlann..... 252,636 Burner. See Gas burner. Hydrocarbon burner. Vapor burner.

Butter cutter, J. Porsch, Jr..... 252,698 Button hole cutting machine, C. E. Langmaid..... 252,781 Button setting instrument, G. W. Prentice..... 252,699 Calender for cloth and other fabrics, Sarfert & Vollert..... 252,625 Canister or store can, D. F. Goodyear..... 252,759 Car, T. L. Wilson..... 252,830 Car brake, C. Higham..... 252,662 Car coupling, E. P. Goodrich..... 252,602 Car coupling, C. L. Horack..... 252,767 Car coupling, F. Johnson..... 252,775 Car coupling, W. Scott..... 252,809 Car for railways, wrecking and construction, L. K. Jewett..... 252,672 Car, railway, W. P. Prewitt..... 252,855 Car, stock, J. Kitsee..... 252,777 Car wheel, J. V. Dinsmore..... 252,745 Cars, heating and ventilating, M. D. Fitzgerald..... 252,752 Cars, ventilating, M. C. Jones..... 252,678 Carding machine, J. Wall..... 252,821 Carpet fastener and stair rod securer, combined stair, C. D. Stone..... 252,850 Carpet fastener, stair, M. Krickl..... 252,680 Carrier. See Thrashing machine straw carrier.

Case. See Piano case. Chandelier, drop light, J. Trigge..... 252,709 Chain, drive, C. H. Low..... 252,609 Chinoline, preparation of, Pickhardt & Endemann..... 252,846 Cigar holder, W. J. Fitzgerald..... 252,753 Cigarette machine, E. Side..... 252,811 Clamp, A. Kraiss..... 252,779 Clasp. See Corset clasp.

Clay, lawning and cleaning, S. G. Phillips..... 252,796 Clock movement, A. E. Hotchkiss..... 252,668 Coffee, compound for flavoring, F. Broz..... 252,723 Coke crusher J. R. Davis..... 252,743 Comb, V. W. Wilson..... 252,856 Corn sheller B. A. Adams..... 252,594 Corset clasp, W. F. Gilbert..... 252,756 Counter stiffeners, treating hide in the manufacture of, W. H. Metcalf..... 252,688 Coupling. See Car coupling. Cultivator beam coupling. Pipe coupling. Shaft coupling.

Crib and table, interconvertible, S. S. Burr..... 252,730 Crusher. See Coke crusher. Quartz crusher. Crushing sugar, salt, etc., device for, E. P. Chesbro..... 252,738 Cuffholder, false, G. A. McIntire..... 252,789 Cultivator, A. Gump..... 252,837 Cultivator beam coupling, J. T. Hamilton..... 252,763 Cultivator, wheel, T. A. Palm..... 252,794 Cultivator, wheel, P. F. Wells..... 252,637 Cup. See Bird cage feed cup.

Curtain cord tightener, C. Senwaibold..... 252,807 Curtain fixture, Darling & Griswold..... 252,742 Curtain fixture, M. S. Wing..... 252,851 Cutter. See Butter cutter. Pipe cutter. Vegetable cutter.

Dental articulator, L. & J. W. Manker..... 252,785 Die. See Pipe die.

Digger. See Potato digger. Draught equalizer, J. Horrigan..... 252,667 Draught equalizer, J. Sebastian..... 252,810 Draught equalizer, C. L. Spencer..... 252,813 Drier. See Fruit drier.

Drill and countersink combined, W. H. Southwick..... 252,704 Earring, H. G. Mackinney..... 252,610 Electric cable, R. S. Waring..... 252,634 Electric lighting apparatus, M. G. Farmer..... 252,748 Electric lighting system, M. G. Farmer..... 252,886 Electric machine, short circuiting switch for dynamo, W. Hochhausen..... 252,663

Electric machines, polarity protector for dynamo, W. Hochhausen..... 252,665

Electric signaling apparatus, Pickford & Gregory..... 252,797 Elevator, H. Roberts..... 252,801 Elevator safety attachment, F. T. Ward..... 252,710 Embroidering machine, C. A. v. Gonzenbach..... 252,659 Engine. See Road engine. Rotary steam engine. Steam and air engine.

Evaporating salt brine, McBean & Watson..... 252,612 Explosive compound, C. Dittmar..... 252,600 Fan, C. Strickrodt..... 252,706 Farm engine boilers, fire box attachment for, H. Gillett (r)..... 10,016

Faucet, measuring, J. H. Blum..... 252,644 Fence, electric wire, J. H. Connelly..... 252,599 Fence, portable, S. K. Rahn..... 252,621 Fence, wire, E. Ruane..... 252,702 Filter, water, A. Bell..... 252,718 Fire alarm, automatic, I. Kitsee..... 252,677 Fire annihilator, I. Kitsee..... 252,678 Firearm, breech-loading, H. Scott..... 252,703 Fire escape, G. W. Levi..... 252,839 Fire escape, Williams & Rundle..... 252,829 Fire kindler, E. E. Glaskin..... 252,757 Foot protector, W. Klein..... 252,778

Frame. See Lounge frame. Mosquito bar frame. Fruit drier, domestic, J. B. Sweetland..... 252,815 Fruit jar cover, G. H. Brown..... 252,721 Furnace. See Boiler furnace.

Gauge. See Water gauge. Galvanic pad, L. Hechinger..... 252,765 Gas burner, electrical, J. Redding..... 252,848 Gas for preserving food, preparing, E. R. McCall..... 252,787 Gas lighting, electric, J. Redding..... 252,849 Gate, W. O. Sticker..... 252,639 Gelatine and glue from animal refuse or offal. manufacture of, A. J. Huet..... 252,771 Glove fastening, S. Montgomery..... 252,617 Grain header, J. W. & A. B. Jory..... 252,176 Grain separator and cleaner, D. Salisbury..... 252,803 Grate, J. Kraupa..... 252,606 Grinding and reducing grain, etc., mill for, J. Stevens..... 252,705

Guard. See Spinning machine thread guard. Hame staple, C. Lange..... 252,780 Handle. See Plow handle.

Harrow and seed sower combined, sulky, A. C. Scarr..... 252,806 Harrow evener, H. H. Fischer..... 252,751 Harvester, W. N. Whiteley..... 252,826 Harvesting machine, L. H. Lee..... 252,681 Harvesting machine, C. M. Young..... 252,854 Heel trimming machine, Tyler & Stone..... 252,819 Hinge, spring, H. Howson..... 252,770 Hoisting and conveying apparatus, F. A. Clarkson..... 252,740

Holder. See Bag holder. Cigar holder. Cuff holder. Pin jewel holder. Stereotype plate holder.

Homologues of phenol, naphthol, and resorcin, manufacture of the higher, A. Liebmann..... 252,732 Hoof protector, J. M. Goodman..... 252,758 Hook. See Snap hook.

Hoop cutting machine, L. Holt..... 252,666 Hopper, feed, J. R. Walsh..... 252,633 Horseshoe, J. B. Finch..... 252,750 Hydrocarbon burner, liquid, A. S. Munger..... 252,618 Insulator for telegraph wires, C. L. Gore..... 252,857 Ironing table and clothes bars combined, H. Keeler..... 252,675 Jug, J. Cook..... 252,649 Knob attachment, B. H. Lockwood..... 252,682 Lamp and generator, combined electric, E. Morey..... 252,691 Lamp, electric, H. S. Maxim..... 252,840 Lamp, gas, C. W. Muchall..... 252,692 Lantern, A. L. Baron et al..... 252,642 Lanternbracket, W. M. Phelps..... 252,697 Lath, engine, G. A. Gray, Jr..... 252,760 Lathing, metallic, A. Knisely..... 252,679 Lead by the old Dutch process, corroding house for the manufacture of white, W. H. Wetherill..... 252,833

Leading staff for bulls, S. M. Wells..... 252,638 Leaf and plant, artificial, C. I. Hahn..... 252,762 Letter box, street, T. McLaughlin..... 252,842 Lever, steam, J. B. Collin..... 252,598 Life preserving garment, C. Williams..... 252,828 Lock. See Nut lock.

Lounge frame, J. F. Komp..... 252,604 Lubricant, W. Parkinson..... 252,656 Magneto-electric machine, W. Hochhausen..... 252,664 Metal articles, machine for bending and shaping, A. R. Woodyatt..... 252,853 Metallic fastener, G. W. McGill..... 252,685 Mill. See Roller mill. Sugar mill. Windmill.

Mosquito bar frame and canopy, combined, C. P. Howe..... 252,769 Motion, device for converting, J. W. Anderson..... 252,831 Motion, mechanism for converting rotary into oscillating, J. Hornig..... 252,768 Motor. See Windmill motor.

Mucilage receptacle, W. Kennish..... 252,603 Musical instrument, automatic, J. McTammany, Jr..... 252,614 Musical instrument, mechanical, Morris & Brott..... 252,834 Nail driving machine, J. J. Burk..... 252,834 Nut lock, Beamer & Richardson..... 252,716 Nut lock, A. Berryhill..... 252,719 Nut lock, B. F. Click..... 252,647 Nut lock, J. Frederick..... 252,655 Ore concentrating and separating apparatus, M. J. Butzel..... 252,731 Ore washer, S. P. Speers..... 252,812 Organ stop action, reed, W. C. Kantner..... 252,674 Overstitching machine, J. E. Richard..... 252,799 Oxidizing lead bullion containing precious metals, apparatus for and process of, J. Tunbridge..... 252,817

Pad. See Galvanic pad. Parer, apple, F. W. Hudson..... 252,670 Pea shelling machine, F. Molint..... 252,616 Piano case, J. & J. P. Becker..... 252,717 Pin jewel holder, F. Gundorph..... 252,660 Pipe coupling, J. C. Githens..... 252,657 Pipe cutter, C. Fenton..... 252,749 Pipe die, drain, W. L. Ogden..... 252,693 Pipe gripe, W. B. Tatro..... 252,632 Planter and fertilizer distributor, corn, W. Cassill..... 252,736 Planter corn, L. Scofield..... 252,808 Planter, cotton, Byers & Dorser..... 252,732 Planter, cotton and corn, J. M. Turley..... 252,818 Planter, seed, J. W. Robertson..... 252,802 Plow attachment, R. Updike..... 252,830 Plow handle, W. P. Brown..... 252,722 Plow handles, bending, G. C. Avery..... 252,712 Plow, sulky, H. Miller..... 252,615 Post office lock box, W. H. Taylor..... 252,708 Potassium, manufacture of carbonate of, C. R. Engel..... 252,653

Potato digger, J. J. Meldericks..... 252,667 Press. See Printing press. Pressure regulator, pneumatic, H. F. Fitzpatrick..... 252,754 Printing press, J. Henry..... 252,838 Protector. See Foot protector. Hoof protector. Sole and heel protector.

Pump, G. S. Bartlett..... 252,643