

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. The publishers of this paper guarantee to advertisers a circulation of not less than 50,000 copies every weekly issue.

Wanted—A good second-hand lathe to swing eight feet. Address Stephen W. Baldwin, 96 Liberty St., New York, giving general dimensions, weight, price, and other particulars.

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

Surveying Instruments. G. S. Woolman, 116 Fulton St., N. Y.

The New Domestic Bible, with its 2,000 illustrations, is said to be a marvel of beauty and usefulness. A beautiful present for a friend or relative. Subscribers desiring a copy of the Holy Bible should consult the advertiser's special offer in this issue.

See Staples & Co.'s advertisement of Non-Congelable Lubricating Oils on inside page.

Nellis' Cast Tool Steel, Castings from which our specialty is Flow Shafts. Also all kinds agricultural steels and ornamental forgings. Nellis, Shriver & Co., Pittsburg, Pa.

Metallic Articles Colored in Single or Rainbow Colors. New Process. High cost metals imported in cheaper metals. Gardiner M'fg Co., Newburyport, Mass.

Hearing Restored.—Great invention by one who was deaf for 20 years. Send stamp for particulars. Jno. Garmore, 60 E. Sixth St., Cincinnati, O.

The Paragon School Desk and Garretson's Extension Table Slide manufactured by Buffalo Hardware Co.

For Superior Steam Heat. Appar., see adv., page 334.

Frank Miller's Leather Preservative and Waterproof Oil Blacking has no equal for softening, preserving, and rendering impervious to water, all kinds of leather.

Frank Miller's Original and Genuine Prepared Harness Oil Blacking contains no coal or mineral oils.

Shafting, etc.; specialty. P. Prybil, 467 W. 40th, N. Y.

Perfection at last! Who will buy a Rotary Shuttle Sewing Machine? J. J. Green, Boonton, N. J.

Large Stock New and Second-hand Engines, Boilers, and Wood-working Machinery. Specify what is required. Belcher & Bagnall, 40 Cortlandt St., New York.

Power Hammers. P. S. Justice, Philadelphia, Pa.

Steel Castings, solid; act same as bar steel; Plov Shafts; Crank Shafts; Dies; Hammer Heads; Pinions; Wheels; Cross Heads. All articles difficult to forge. Agricultural Wrought Steels. Read, McKee & Co., limited, Pittsburg, Pa.

For best Fixtures to run Sewing Machines by Power, address Jos. A. Sawyer & Son, Worcester, Mass.

Thomas D. Stetson, 23 Murray St., New York, serves as Expert in Patent Suits.

The Baker Blower ventilates silver mines 2,000 feet deep. Wilbraham Bros., 2318 Frankford Ave., Phila., Pa.

Wheelbarrows.—The "A. B. C. bolted" will outlast five ordinary barrows. \$24 per doz. A. B. Cohn, 197 Water St., N. Y.

Park Benjamin's Expert Office, Box 1009, N. Y. Recipes and information on all industrial processes.

To stop leaks in boiler tubes, use Quinn's Patent Ferrules. Address S. M. Co., So. Newmarket, N. H.

To Capitalists, Steam Fitters, Founders, etc.—Patent right for sale of new Steam Heat Radiator. Address, for particulars, J. N. Farnham, Waltham, Mass.

Steam Traps; best and cheapest in use. No blowing through to start. T. Sault, New Haven, Conn.

Nickel Plating.—Sole manufacturers cast nickel anodes, pure nickel salts, importers Vienna lime, crocus, etc. Condit, Hanson & Van Winkle, Newark, N. J., and 92 and 94 Liberty St., New York.

The Secret Key to Health.—The Science of Life, or Self-Preservation 300 pages. Price, only \$1. Contains fifty valuable prescriptions, either one of which is worth more than ten times the price of the book. Illustrated sample sent on receipt of 6 cents for postage. Address Dr. W. H. Parker, 4 Bulfinch St., Boston, Mass.

Brass or Iron Gears; list free. G. B. Grant, Boston.

The Friction Clutch that is doing work in many places satisfactorily, that has never been done by any other, can be seen at Institute Fair, New York. D. Frisbie & Co., New Haven, Conn.

Wright's Patent Steam Engine, with automatic cut-off. The best engine made. For prices, address William Wright, Manufacturer, Newburgh, N. Y.

For Solid Wrought Iron Beams, etc., see advertisement. Address Union Iron Mills, Pittsburg, Pa., for lithograph, etc.

Wood-Working Mach'y. P. Prybil, 467 W. 40th, N. Y.

Presses, Dies, and Tools for working Sheet Metal, etc. Fruit & other can tools. Bliss & Williams, B'klyn, N. Y.

Hydraulic Presses and Jacks, new and second hand. Lathes and Machinery for Polishing and Buffing Metals. E. Lyon & Co., 470 Grand St., N. Y.

Steam Excavators. J. Souther & Co., 12 P.O. Sq. Boston.

Bradley's cushioned helve hammers. See illus. ad. p. 332.

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

Telephones repaired, parts of same for sale. Send stamp for circulars. P. O. Box 205, Jersey City, N. J.

Noise-Quelling Nozzles for Locomotives and Steam-boats. 50 different varieties, adapted to every class of engine. T. Shaw, 915 Ridge Avenue, Philadelphia, Pa.

Stave, Barrel, Keg, and Hoghead Machinery a specialty, by E. & B. Holmes, Buffalo, N. Y.

Solid Emery Vulcanite Wheels—The Solid Original Emery Wheel—other kinds imitations and inferior. Caution.—Our name is stamped in full on all our best Standard Belting, Packing, and Hose. Buy that only. The best is the cheapest. New York Belting and Packing Company, 37 and 38 Park Row, N. Y.

For best low price Planer and Matcher, and latest improved Sash, Door, and Blind Machinery. Send for descriptive catalogue to Rowley & Hermance, Williamsport, Pa.

Portable Railroad Sugar Mills, Engines and Boilers Atlantic Steam Engine Works, Brooklyn, N. Y.

Silent Injector, Blower, and Exhauster. See adv. p. 334.

Planing and Matching Machines, Band and Scroll Saws, Universal Wood-workers, Universal Hand Jointers, Shaping, Sand-papering Machines, etc., manuf'd by Bentel, Margedant & Co., Hamilton, Ohio. "Illustrated History of Progress made in Wood-working Machinery," sent free.

Diamond Drills, J. Dickinson, 64 Nassau St., N. Y.

Eclipse Portable Engine. See illustrated adv., p. 318.

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

All makes and sizes of Steam Hammers bored out. L. B. Flanders Machine Works, Philadelphia, Pa.

Cut Gears for Models, etc. (list free). Models, working machinery, experimental work, tools, etc., to order. D. Gilbert & Son, 212 Chester St., Philadelphia, Pa.

Valve Refitting Machine. See adv., page 269.

Blake's Belt Studs. The strongest, cheapest, and best fastening for all belts. Greene, Tweed & Co., New York.

Holly System of Water Supply and Fire Protection for Cities and Villages. See advertisement in SCIENTIFIC AMERICAN of this week.

The E. Horton & Son Co., Windsor Locks, Conn., manufacture the Sweetland Improved Horton Chuck.

Special Wood-Working Machinery of every variety. Levi Houston, Montgomery, Pa. See ad. page 269.

For Shafts, Pulleys, or Hangers, call and see stock kept at 79 Liberty St., N. Y. Wm. Sellers & Co.

For Reliable Emery Wheels and Machines, address The Lehigh Valley Emery Wheel Co., Weissport, Pa.

Pays well on small investments; Magic Lanterns and Stereopticons of all kinds and prices; views illustrating every subject for public exhibition and parlor entertainments. Send stamp for 80 page illustrated Catalogue. Centennial medal. McAllister, 49 Nassau St., New York.

Rubber Belting, Packing, Hose, and all kinds of manufacturers' supplies. Greene, Tweed & Co., 18 Park Pl., N. Y.

Patent Steam Boiler Damper Regulator; most reliable and sensitive made. National Iron Works, New Brunswick, N. J.

Deoxidized Bronze. Patent for machine and engine journals. Philadelphia Smelting Co., Phila., Pa.

Sheet Metal Presses, Ferracute Co., Bridgeton, N. J.

Wheels and Pinions, heavy and light, remarkably strong and durable. Especially suited for sugar mills and similar work. Circulars on application. Pittsburg Steel Casting Company, Pittsburg, Pa.

The New Economizer, the only Agricultural Engine with return flue boiler in use. See adv. of Porter Mfg. Co., page 270.

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

For Pulley Blocks, write Block Works, Lockport, N. Y.

NEW BOOKS AND PUBLICATIONS.

A PRACTICAL TREATISE ON NATURAL AND ARTIFICIAL CONCRETE. By Henry Reid. New York: E. & F. N. Spon. 8vo, cl., pp. 384.

A third and enlarged edition of Mr. Reid's well-known work. The author traces historically the uses of concrete in architecture, discusses the nature of concrete, matrices, aggregates, stone breakers, and other machinery for reducing the aggregates, the treatment of aggregates, the silicating process, the established processes of concrete manufacture, English concrete industries, constructive concrete applications, important engineering concrete works, German Portland cement, the character of building materials, bastard mortar, a great variety of original experiments on concretes, etc. In the chapter on important engineering concrete works, it appears that the huge 70-ton blocks used on the Mississippi jetties are far from being the largest yet employed. In the works of the river Liffey improvement at Dublin, Ireland, concrete blocks weighing 350 tons each were successfully handled.

LECTURES ON ELECTRICITY IN ITS RELATIONS TO MEDICINE AND SURGERY. By A. D. Rockwell, A.M., M.D. New York: Wm. Wood & Co. 8vo, cl., pp. 99. Price \$1.00.

Seven lectures on the theory and practice of electro-therapeutics, reprinted from the Virginia Medical Monthly. The ground covered embraces electro-physics, electro-physiology, electro-diagnosis, methods of application, apparatus for electro-therapeutics, the treatment of special diseases, and electro-surgery. The value of Dr. Rockwell's investigations in this department have been widely recognized by the profession, not only for their effect in extending the bounds of scientific knowledge, but in helping to reclaim from quackery an important department of medical study and practice.

COPYRIGHT AND PATENTS FOR INVENTIONS. Compiled by R. A. Macfie. Edinburgh: T. & T. Clark. Vol. I. 8vo, paper, pp. 406.

Contains an essay on the origin and progress of literary property written by Lord Droughorn, nearly a century ago; evidence given to the late royal commission on copyright in favor of royalty republishing; and a large quantity of extracts, notes, and tables intended to further the national and international adoption of the royalty copyright system. The compiler is one of those zealous but belated individuals to whom the inevitable tendencies of civilization are a perpetual grievance. The increasing recognition of property-right in ideas, more particularly in invention, is Mr. Macfie's especial bugbear; and his persistent efforts to stay the course of modern thought and practice in this direction forcibly remind one of Mrs. Partington's attempts to sweep back the tide. His book contains much interesting though undigested matter, and is copiously indexed.

KING'S POCKET BOOK OF CINCINNATI. Edited and published by Moses King. Harvard College, Cambridge, Mass. Cloth, 35 cents; paper, 15 cents.

A particularly well made, handy, and useful account of Ohio's chief city. The information is well chosen and well put; and it is abundant.

Notes & Queries

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.

We renew 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.

(1) D. A.—The use of phosphorus alone in any form will not serve to stimulate memory, and we cannot advise its use in the way suggested. An active life in the open air in an occupation requiring the constant employment of the mental faculties, a temperate diet, and the avoidance of excess of any kind are among the best remedies.

(2) W. H. R. asks: 1. What is meant by a battery polarizing? A. When liquids are brought into direct contact with metals, and included in a galvanic circuit, they become decomposed by the action of the current, and this effect takes place even when the action is no longer visible to the eye. The component parts of the liquids, or, in other words, the products of decomposition, collect upon and cover the metallic surfaces which border the stratum of liquid, and thus a new electric difference or electromotive force arises between the metals, which tends to oppose the original electromotive force of the battery. Metals which are thus affected in respect to their electromotive force are said to be polarized, and the process is called galvanic polarization. 2. Will common sheet zinc melted and cast into a thick plate do for use in batteries? A. Yes, but the pure article is much better. Pure zinc may be obtained from metal dealers in this city. 3. What is the cartridge paper used in making an induction coil? A. It is tough manila paper well calendered. Any smooth, strong paper will answer the same purpose. 4. Where can carbon be obtained? A. From electricians who advertise in our columns.

(3) D. J. E. writes. Please be good enough to decide a question by answering the following question: What is a miter? One party holds that the intersection of parallel lines at any angle is termed a miter. The other party claims the term miter can be only properly applied to the intersection of parallel lines at an angle of 45 degrees. A. Webster's dictionary says a miter "in architecture is an angle of 45°," and also that anything mitered is "cut or joined at an angle of 45°."

(4) J. B. B. asks for directions for polishing a horn to be used as a powder horn. A. Scrape the horn with a glass or steel scraper, then smooth with pumice stone and water applied with a piece of leather; then use rotten stone and water applied with a piece of canton flannel; finally apply whiting and water with a piece of canton flannel.

(5) A. G. asks how to silver plaster casts. A. Ordinary plaster models are covered with a thin coat of mica powder, which perfectly replaces the ordinary metallic substances. The mica plates are first cleaned and bleached by fire, boiled in hydrochloric acid, and washed and dried. The material is then finely powdered, sifted, and mingled with collodion, which serves as a vehicle for applying the compound with a paint brush. The objects thus prepared can be washed in water, and are not liable to be injured by sulphureted acids or dust. The collodion adheres perfectly to glass, porcelain, wood, metal, or papier mache.

(6) C. E. asks how to enamel iron hollow ware. A. The enamel of iron hollow ware is made of powdered flints ground with calcined borax, fine clay, and a little felspar. This mixture is made into a paste with water, and brushed over the pots after they have been scoured with diluted sulphuric acid and rinsed clean with water. While still moist they are dusted over with a glaze composed of felspar, carbonate of sodium, borax, and a little oxide of tin. Thus prepared, the pots are gradually dried, and then the glaze is fired or fused under a muffle at a bright red heat. Oxide of lead, although increasing the fusibility of the glaze, impairs its efficiency, as it will not resist the action of acids in cooking.

[OFFICIAL.]

INDEX OF INVENTIONS

FOR WHICH Letters Patent of the United States were Granted in the Week Ending October 28, 1879, AND EACH BEARING THAT DATE.

[Those marked (r) are reissued patents.] Addressing attachment for printing machines, J. M. Kennard, 220,977. Air compressing apparatus, J. Treat, 221,126. Amalgamator, A. T. Ladd, 220,978. Anchor power, E. S. Webster, 221,131. Asphaltum pipe, T. H. Watsch, 221,130. Axle box, car, Robinson & Rusk, 220,990. Axle box lid, railway, Susemihl & Hewitt (r), 8,947. Bale tie, R. H. Goldsmith, 221,051.

Table of inventions with patent numbers and names of inventors. Includes items like Bark mill, Barrel holding clamp, Bed spring, Beer cooler, Bell door, Bookmark, Bottle stopper, Bran cleaner, Brick drying car, Brush, Buckle, Building fireproof, Bushes in holes, Buttons, Badger, Cabinet provision, Car spring, Car step, Carriage shackles, Carriage top, Cartridge capping, Celluloid, Chains, Check hook, Chimney top, Churn dasher, Cigarette machine, Clay pipe, Clevis, Clutch, Clutch, safety, Collar and cuff, Collar support, Coloring matter, Coloring matter obtained from cresol, Coloring matter obtained from diamido-naphthaline, Coloring matter obtained from naphthylamine, Coloring matter obtained from salicylic acid, Colors from diazo-benzole nitrate, Colors from picric acid, Corset clasp, Cotton chopper, Cultivator, Currycomb, Curtain fixture, Cutter head, Damper and ventilator, Distilling petroleum, Egg beater, Electric conductor, Electrical conductor, Electrical conductor, Electrical conductors, Electrical envelope, Electricity, process and apparatus, Elevator, Elevator and hatch, Embroidering the tops of stockings, Feathers, chenille, Fence, Fence post, Fences, indicator for barbed wire, Firearm, revolving, Fire escape, Flue cleaner, Folding chair, Fruit drier, Fruit picker, Furnace, Furnace grate, Gas tubing, Gate, Gate, P. E. Heck, Gates, swinging, Gem setting, Glass moulds, cleaning, Glass moulds, cleaning, Globe and machinery, Grain drill, Grain meter, Grain separator, Grate and fire chamber, Grate bar, shaking and dumping, Grinder, Gun, magazine, Handle, Hair cutting machine, Harvester rake, Head dress, Heel trimming machine, Heel trimming machine, Hinge for double doors, Hog cholera, medical compound, Hop drying kiln, Horse detaching apparatus, Horse rakes and tedders, Horse toe weight, Horseshoe, Hose nozzle, Hub attaching device, Hub, vehicle wheel, Injector, Invalid chair, Journal box, Journal, car axle, Journal, car wheel, Knitting machine, Knitting machine needles, Knitting machine needles, Lamp, T. G. Goodfellow, Lamp, W. O. Lincoln, Lamp, electric, Lath bunching machine, Leather skiving machine, Leather skiving machine, Letter box, Lifting jack, Loom, Frinke, L. J. McDonald.

Loom picker, S. S. Walker 221,006
Measure and funnel, combined liquid, C. T. Wright 221,137
Meats, preserving, C. C. Smith 221,113
Medicated licorice, W. E. Armstrong 221,014
Metals, composition for coating, A. B. & W. P. Brown 221,028
Middlings from grain, process of and apparatus for making, T. Wallace 220,950
Mirror standards, coupling brace for, J. Seiler 221,109
Mowing machine, W. A. Wood 220,953
Necktie fastener, M. B. Scott 220,992
Netting, C. Duboc 220,967
Number plates, die for the manufacture of sheet metal, T. Rue 221,103
Oatmeal machine, A. Scouler 221,108
Oiling harness, can for, A. D. Eble 221,043
Organ, reed, H. W. Smith 220,969
Paper bag machine, W. C. Cross 221,035
Paper bag machine, M. E. Knight 220,925
Paper pulp from wood, machine for making, H. A. Frambach 220,970
Papier mache, etc., converting vegetable fiber into, Ramus & Gregerson 221,100
Pavement, concrete, A. Pelletier 221,096
Paving composition, M. B. Bailey 221,017
Percussion primer, M. Backes 221,015
Permanent way adjuster, J. B. Menciaire 220,983
Pin package, T. Piper 221,098
Pipe coupling, J. Bradley 220,910
Planter, check row corn, J. M. Hart 220,974
Planter, grain, J. W. Rykard 221,104
Planters, check rower for corn, G. W. & F. P. Murphey 221,089
Plow, J. B. Crenshaw 221,034
Plow, R. R. Pedrick 221,095
Plow, L. E. Woodward 221,136
Plow jointer, R. Graves 221,063
Pot cover, W. Hall, Jr. 221,057
Printer's composing stick, C. D. Reppy 220,942
Pump, combination, F. Crocker, Sr. 220,913
Pump for compressing ammonia and other gases, E. G. Wheeler 221,008
Pump, force, A. G. Holland 221,065
Pumping fluids from casks, apparatus for, W. F. Class 220,961
Refrigerator, D. W. Davis 220,915
Rein holder, C. F. Harvey 221,060
Roofing, B. Lohse 221,080
Salt cruet, J. P. Tnam 221,099
Salt dredge, W. E. Hawk's 221,061
Sand paper roll, N. M. Seelye 220,993
Sash balance, S. J. Keim 220,976
Saw cleaner for cotton gins, W. W. Brigg 220,957
Scale weight, R. L. Hassell 220,975
Settee, E. J. Smith 221,141
Sewing machine for sewing sweat linings into hats, C. Widmer 221,134
Sewing machine overseaming attachment, G. H. W. Curtis 220,964
Shaft coupling, J. Walker 221,128
Sheet metal, machine for working, J. F. Ross 220,991
Shirt, C. A. Brown 221,029
Snow plow, R. Payne 221,094
Soap, manufacture of, F. Knapp 221,072
Spark arrester, M. C. W. C. Britton 220,958
Spark arrester, G. D. Hunter 220,922
Spark extinguisher, G. D. Hunter 220,923
Spinning machine, B. Saunders 220,946
Stamp, perforating, Norton & Ramsey, Jr. 220,984
Staple inserting device, G. W. McGill 220,933
Staple inserting machine, G. W. McGill 220,934
Steam boiler, A. Elvin 221,044
Steam boiler, A. Gillitzer 221,049
Steam engine cylinders, lubricating apparatus for, J. Wheelock 221,132
Steam generator, D. Abell 221,011
Steam to buildings, apparatus for supplying, J. Sargent 221,105
Steel, manufacture of, O. Bolton (r) 8,945
Steel, welding together bars of Bessemer, T. J. Deakin 221,038
Stench and other traps, T. G. Knight 221,073
Stove pipe shelf, W. D. Middleton 221,086
Strap cutting and creasing machine, E. J. Blood 221,024
Suspenders, J. B. Brooks 221,027
Target and trap, flying, J. W. Beck 221,021
Telegraph line, underground, T. B. Atterbury 220,954
Telegraph lines, coupling for underground, T. J. McTighe 220,936
Telegraph pole, D. Lathrop 221,076
Telephone, acoustic, Willard & Cheney 221,135
Tire upsetting machine, W. Holdsworth 221,066
Tongue support, vehicle, H. Garrett 220,971
Tramway, wagon, W. Bradford 221,025
Truck, car, E. J. Marsters 220,928
Trunk catch, C. H. Nye 221,032
Tubes, die for welding and reducing, M. L. Ritchie 221,101
Tumbler washer, F. Lautenbach 221,077
Type, curve-bodied printing, R. Smith 220,999
Umbrella tip cup, M. Steib 221,122
Unhairing and scouring machine, J. W. McDonald 220,938
Vapor burner, F. Marq art 220,929
Vehicle shifting back, J. A. McClelland 221,085
Vehicle spring, J. Walsh 221,129
Ventilating and cooling mines, process and apparatus for, Norman & Leonard 220,940
Wagon body, J. M. Perkins 221,097
Water for pitchers, J. W. Boteler 220,956
Washing machine, Sharp & Brandt 220,994
Washing machine, J. W. Smith 221,112
Watch key, stem winding, E. C. Fitch 220,916
Water closet, S. S. Hellyer 221,064
Water closet cistern, H. Houston 221,067
Watering stock, device for, J. S. Campbell 221,031
Whetstone holder, C. M. Currier 220,914
Windmill, R. Lorenzo 221,081
Window screen, Mueller & Weibolt 221,088
Wire, making glass coated, P. Arbogast 220,908
Wire, etc., with glass, coating, P. Arbogast 220,907
Wool press, A. Lowmiller 220,980
Woven fabrics, machine for pressing and finishing, E. Gessner 221,047

TRADE MARKS.

Ammoniated fertilizers, Moses & De Leon 7,753
Chewing and smoking tobacco, C. H. Carruth & Co. 7,758
Chewing and smoking tobacco, W. C. Thomas 7,755
Cigars, J. B. Wilson & Co. 7,763
Cigars and cigarettes, Fitzpatrick & Draper 7,751
Cigarettes and cigars, J. R. Sutton 7,757
Fire hose, H. F. Herkner 7,761
Fruit jars, Consolidated Fruit Jar Company 7,752
Medicine for coughs, colds, etc., D. McNair 7,756
Plows, Cox & Poynter 7,760
Plug chewing tobacco, P. J. Sorg 7,762
Preparation for the hair, J. Nantz 7,754
Spool cotton or cotton thread, J. & P. Coats 7,759

DESIGNS.

Clock dial rims, G. B. Owens 11,474

Hollow, flat, and covered ware, C. E. Haviland 11,477 to 11,479
Mucilage bottle, J. B. Davids 11,476
Spoon and fork handles, J. B. Knowles 11,473
Stoves, J. V. B. Carter 11,472
Umbrella tip cup, F. Washbourne 11,475

English Patents Issued to Americans.

From October 17 to October 21, 1879.
Animal hair, treatment of, G. Hamilton, Brooklyn, N. Y.
Animal hair, treatment of, G. Hamilton, Brooklyn, N. Y.
Carbureting apparatus, J. Weart, Jersey City, N. J.
Feed water heaters, J. A. Brewer, Mineral Point, Iowa
Heel stiffeners, S. L. Bailey, New York City.
Locks, permutation, N. A. Young, San Francisco, Cal.
Paper boxes, manufacture of, Cleveland Paper Box Company, Cleveland, O.
Paper, wrapping, S. Wheeler, Albany, N. Y.
Pumping apparatus for mines, W. P. Barclay, San Francisco, Cal.
Sewing machine, G. Gowing, Oakland, Cal.
Thread spooling machine, J. W. West, Boston, Mass.
Zinc, furnace for manufacture of, E. C. Hegeler, La Salle, Ill.

The Scientific American EXPORT EDITION.

PUBLISHED MONTHLY.

THE SCIENTIFIC AMERICAN Export Edition is a large and SPLENDID PERIODICAL, issued once a month, forming a complete and interesting Monthly Record of all Progress in Science and the Useful Arts throughout the World. Each number contains about ONE HUNDRED LARGE QUARTO PAGES, profusely illustrated, embracing:

(1.) Most of the plates and pages of the four preceding weekly issues of the SCIENTIFIC AMERICAN, with its SPLENDID ENGRAVINGS AND VALUABLE INFORMATION.

(2.) Prices Current, Commercial, Trade, and Manufacturing Announcements of Leading Houses. In connection with these Announcements many of the Principal Articles of American Manufacture are exhibited to the eye of the reader by means of SPLENDID ENGRAVINGS.

This is by far the most satisfactory and superior Export Journal ever brought before the public.

Terms for Export Edition, FIVE DOLLARS A YEAR, sent prepaid to any part of the world. Single copies, 50 cents. For sale at this office. To be had at all News and Book Stores throughout the country.

NOW READY.

THE SCIENTIFIC AMERICAN EXPORT EDITION FOR NOVEMBER, 1879, ILLUSTRATED WITH ONE HUNDRED AND TWENTY-FIVE ENGRAVINGS.

GENERAL TABLE OF CONTENTS

Of the SCIENTIFIC AMERICAN Export Edition for November, 1879.

I.—INVENTIONS, DISCOVERIES, AND PATENTS.
Mechanical Inventions.
Miscellaneous Inventions.
Engineering Inventions.
Agricultural Inventions.
A New Fish Way. 3 engravings.
Recent Decisions Relating to Patents, Trade Marks, etc.
How to Discharge Inventors.
New Hydraulic Motor and Meter. 3 engravings.
A New Wrench. 3 engravings.
Coal Tipping Machines and Screens. 1 engraving.
A Novel Barrel Hoop. 1 engraving.
A New Window. 2 engravings.
Combined Corkscrew and Bottle Faucet.
Improved Patent Saws.
Twin Cylinder Car.
Business of the Patent Office.
Steam Pavement Rammer. 1 engraving.
A Mammoth Plow. 1 engraving.
Mysterious Clock. 2 engravings.
Five Thousand Dollars Reward for the Invention of a Stock Car.
Blake's Sectional Cushioned Crusher. 2 engravings.
Improved Sleeping-car Berth. 2 engravings.
New Perspective Drawing Apparatus. 1 engraving.
Steam Fire Engine Improvements.
High and Low Grinding—New Process Flour.
A Few Recent Inventions. 10 engravings.
Friedman's Patent Ejector. 8 engravings.
Importance of Illustrating Inventions.
Blast Engine. 1 engraving.
A New Device for Preventing Journals from Heating. 3 engravings.
Novel Steam Generator. 1 engraving.
How to Work the New Copying Process. 1 engraving.
Improved Cabinet Seat. 1 engraving.
An Improved Spindle. 2 engravings.
New Barrel Lifter. 2 engravings.
Balling the Saccharometer.
Improvement in Silvering Glass.
The Experience of an Early Inventor.
New Musical Instrument. 2 engravings.
New Window Cleaning Chair. 1 engraving.
Another Audiphone.
A New Sweeper. 2 engravings.
New Automatic Fire Lighter. 1 engraving.
Hampton's Muffling Contrivance.
A New Velocipede. 1 engraving.
New Foundation Plate for Elevated Railways. 3 engravings.
Some Recent Inventions.
The Holyoke Turbine Test.

II.—MECHANICS AND ENGINEERING.
Pushing an Iron Bridge Across a River.
The Elevated Railway Extension, Details of Construction.
French Railway Traveling.
To Stop Leaky Boiler Tubes.
The Speed of Ice Yachts.
A Powerful Stamp Mill.
Heating a Planer.
The Torpedo Catcher.
The Locomotive.
The Great Locomotives of the Erie Railway.
A Compressed Air Torpedo.
Machinery for Moving Cleopatra's Needle.
A Small Steamboat.
A Bridge of Old Rails.
Ice Boat Propulsion.
Use of Steel for Bridges.

III.—MINING AND METALLURGY.
To Cast Brass on Iron.
To Plug Broken Coal.
Coal near Hudson's Bay.
A New Stereotype Composition.

IV.—CHEMISTRY AND PHYSICS.
Protection from Lightning.
Freezing in Fire.
Experimental Ballooning.

The Blake Transmitter. 1 eng.
Modification of the Reynier and Werdermann Electric Lamp. By Geo. M. Hopkins. 1 eng.
The Trowbridge Electrical Dynamometer.
Edison's Electric Generator.
The Law of Dust Explosions.
Brilliant Relief Printing.
To Make a Microphone. 1 eng.
Barometer Handkerchiefs.
To Make Phosphureted Hydrogen.
Induction Coil.
Ohm.
The Philosophy of Blowing out a Candle.
Petroleum Fuel in Iron Furnaces.
An Electric Lamp for an English Shilling. 1 eng.
Some Modern Explosives.
On a Resonant Tuning Fork. 1 eng.
Electrical Test for the Mechanical Equivalent of Heat.
Salicylic Acid. Its Uses and Remarkable Cures.
Grenet Battery.
Bells.
Carbon for Batteries.
An Octoplex Printing Telegraph.
The Philosophy of Physical Science.
Attraction.
The Western Union Telegraph.
Copying Architectural Designs.
Incendiary Silk.
Electrical Camphor.
Protection from Lightning. A Note from Prof. Macomber.
A Large Electric Magnet.
Alcohol by Electricity.
The Immensity of the Stars.
The Induction Coil.
How Far can we Hear with a Telephone?

V.—NATURAL HISTORY, NATURE, MAN, ETC.
Probable Death of Prof. Wise, the Aeronaut.
The Great Sea Cow of Florida. 4 engs.
Office of the Queen.
A Large Bee Farm.
The Devil's Plant.
Porpoises and their Attending Gulls.
The Oleander.
The Climate of Europe.
A Transparent Fish.
Traveling Rocks.
The Island of Fernando do Noronha.
Crocodile Oil.
Phocena Man in California.
The Aurora Borealis.
The "Conch" Pearl.
James Clerk Maxwell.
Iron as a Fertilizer for Pear Trees.
Curious Facts Concerning the Cochineal Insect in the Canary Islands.
The Otter. 1 eng.
Natural History Notes.
Seeds.
Remarkable Snow Storms in India.
The Deepest Well in the World.
Railway Birds.
The Cause and Prevention of Apple Rot.
Tad Poles. 10 eng.
House Builder Moth. 1 eng.
Injurious Insects Killed by Fungi.
Hog Cholera.

VI.—MEDICINE AND HYGIENE.
Effects of Heat in the Comstock Mines.
An Extensive Beard.
Arrow Poisons.
Medical Uses of the Carrier Pigeon.
Sea Water Gargle in Chronic Catarrh.
The Fat Secreted by the Liver.
Treatment of Colic.
Brain Growth.
How to Medicate a Pig.
The Way to Health.
Aloes as a Dressing for Wounds.
Bamboos as Food.
Changes in Epicurean Tastes.
Air as a Stimulant.
Fever and Ague.
New Method of Testing Milk.

VII.—SCIENTIFIC MEETINGS, EXHIBITIONS, ETC.
Opening of the Exhibition at Sydney, Australia.
The National Academy of Sciences.
Sanitary Conventions in Michigan.
The American Health Association.

VIII.—INDUSTRY AND COMMERCE.
Brown & Sharpe Mfg. Co. 6 engs.
The Egyptian Obelisk for New York.
Wages and Prices in Germany.
Progress of Chicago.
Some Facts about Cotton.
Arabesque Cabinet. 1 eng.
Coloring and Finishing Brasswork.
The National Museum.
Waste of Petroleum.
Origin of Language.
Washing Powders.
Manufacture of Clothing.
Ancient Glass.
American Industries. Reed & Barton's Silver Plated Works at Taunton, Mass. 7 engs.
Some Reasons for American Success.
The Fisheries of the United States.
Waste.
The Largest Flour Mill in the World.
The Skilled Artisans of France.
More Workmen Needed.
The Antiquity of Forks.
The Philadelphia Elevated Railway.
Bessemer Steel.
The Metric System in Philadelphia.
Carriage Building in the United States.
Wages and Prices in Great Britain.
Rock Crystal Lapidary in Japan.
American Industries. Faber's Gold Pen and Pencil Factory. 11 engs.
The Future Water Supply of Philadelphia.
Completion of Cologne Cathedral.
The Abuse of Live Stock on the Way to Market.
Cost and Traffic of the New York Elevated Railways.
Roman Glassware. 12 engs.
Paper from Grass.
Work and Wages in Lowell Cotton Mills.
The Window Glass Trade.
The Elevated Railway Nuisance.
Value of Knowledge.
Openings for Industrial Enterprise in California.
Some Facts about Cotton.
The Chicago Stock Yards.
Adulteration of Geranium Oils.
Women and Girls in English Mines.
The Broker's Agency.
The Foreign Fruit Trade.
Minneapolis (Minn.) as a Milling Center.
How the Pennsylvania Railroad is Inspected.
The Best goods always Pay the Best.
American Industries. B. F. Babbitt's Extensive Soap Manufactory. 5 engs.
Collisions at Sea.
Relation of Masters and Apprentices.

IX.—PRACTICAL RECIPES AND MISCELLANEOUS.
Official Ink.
Good Paste.
To Clean Book Leaves.
To Sweeten Castor Oil.
To Test Castor Oil.
Ink for Copying Pad.
To Fix Crayon Drawings.
To Clean Gilt Frames.
To Harden Leather.
To Harden Plaster of Paris.
To Braze Saw Blades.
Paint for Smoke Stack.
Soft Soap.
To Anneal Steel.
To Clean Upholstery.
Keeping the Boys on the Farm.
Composition for Blackboards.
Chrome on Iron.

Mildew Proof for Fabrics.
To Preserve Nets.
Paper Stereotyping Process.
Violin Varnish and Stains.
Wash for Brick Walls.
Waterproof Blacking.
What are we Doing?
Vehicles of Intelligence.
Answers to Correspondents, embodying a large quantity of valuable information, practical recipes, and instructions in various arts.
Single numbers of the *Scientific American Export Edition*, 50 cents. To be had at this office and at all news stores. Subscriptions, *Five Dollars a Year*; sent postpaid to all parts of the world.

MUNN & CO., PUBLISHERS,
37 PARK ROW, NEW YORK.

To Advertisers: Manufacturers and others who desire to secure foreign trade may have large and handsomely displayed announcements published in this edition at a very moderate cost.
The *Scientific American Export Edition* has a large guaranteed circulation in all commercial places throughout the world. Regular files of the *Export Edition* are also carried on ALL STEAMSHIPS, foreign and coastwise, leaving the port of New York. Address MUNN & CO., 37 Park Row, New York.

Advertisements.

Inside Page, each insertion --- 75 cents a line.
Back Page, each insertion --- \$1.00 a line.
(About eight words to a line.)
Engravings may be had at the same rate per line, by measurement, as the letter press. Advertisements must be received at publication office as early as Thursday morning to appear in next issue.
The publishers of this paper guarantee to advertisers a circulation of not less than 50,000 copies every weekly issue.

Rare Chance to Advertise.

Next to the SCIENTIFIC AMERICAN, the SCIENTIFIC AMERICAN SUPPLEMENT has the largest circulation of any newspaper devoted to science and the mechanical industries published in this country. The publishers have now decided to admit a few advertisements to the columns of the SUPPLEMENT at very low rates. Contractors, dealers in Railroad Supplies, Bridge Builders, Engine and Pump Manufacturers, Agricultural Implement Makers, and those engaged in all kinds of engineering enterprises, will find the SCIENTIFIC AMERICAN SUPPLEMENT specially adapted for advertising their business. Terms 25 cents a line each insertion. For further particulars, address
MUNN & CO.,
Publishers SCIENTIFIC AMERICAN,
37 Park Row, New York.

PHOTOGRAPH VISITING CARDS. Send 10c. for circular and 80 samples. SEAVY BROS., Northford, Ct.
\$777 A YEAR and upwards to agents. Outfit Free. Address P. O. VICTORY, Augusta, Maine.

\$2 WATCHES. Cheapest in the known world. Agents wanted. Address COULTER & CO., Chicago.

1880. 1880. 1880.

The Scientific American FOR 1880. THIRTY-FIFTH YEAR.

VOLUME XLII. NEW SERIES.

The publishers of the SCIENTIFIC AMERICAN beg to announce that on the Third day of January, 1880, a new volume will be commenced. It will continue to be the aim of the publishers to render the contents of the new volume as attractive and useful as any of its predecessors.
Only \$3.20 a Year including Postage. Weekly. 52 Numbers a Year.

This widely circulated and splendidly illustrated paper is published weekly. Every number contains sixteen pages or useful information, and a large number of original engravings of new inventions and discoveries, representing Engineering Works, Steam Machinery, New Inventions, Novelties in Mechanics, Manufactures, Chemistry, Electricity, Telegraphy, Photography, Architecture, Agriculture, Horticulture, Natural History, etc.
All Classes of Readers find in THE SCIENTIFIC AMERICAN a popular resume of the best scientific information of the day; and it is the aim of the publishers to present it in an attractive form, avoiding as much as possible abstruse terms. To every intelligent mind, this journal affords a constant supply of instructive reading. It is promotive of knowledge and progress in every community where it circulates.

Terms of Subscription.—One copy of THE SCIENTIFIC AMERICAN will be sent for one year—52 numbers—postage prepaid, to any subscriber in the United States or Canada, on receipt of three dollars and twenty cents by the publishers; six months, \$1.60; three months, \$1.00.
Clubs.—One extra copy of THE SCIENTIFIC AMERICAN will be supplied gratis for every club of five subscribers at \$3.20 each; additional copies at same proportionate rate. Postage prepaid.
One copy of THE SCIENTIFIC AMERICAN and one copy of THE SCIENTIFIC AMERICAN SUPPLEMENT will be sent for one year, postage prepaid, to any subscriber in the United States or Canada, on receipt of seven dollars by the publishers.

The safest way to remit is by Postal Order, Draft, or Express. Money carefully placed inside of envelopes, securely sealed, and correctly addressed, seldom goes astray, but is at the sender's risk. Address all letters and make all orders, drafts, etc., payable to

MUNN & CO.,
37 Park Row, New York.

To Foreign Subscribers.—Under the facilities of the Postal Union, the SCIENTIFIC AMERICAN is now sent by post direct from New York, with regularity, to subscribers in Great Britain, India, Australia, and all other British colonies; to France, Austria, Belgium, Germany, Russia, and all other European States; Japan, Brazil, Mexico, and all States of Central and South America. Terms, when sent to foreign countries, Canada excepted, \$4, gold, for SCIENTIFIC AMERICAN, 1 year; \$9, gold, for both SCIENTIFIC AMERICAN and SUPPLEMENT for 1 year. This includes postage, which we pay. Remit by postal order or draft to order of Munn & Co., 37 Park Row, New York.