

Business and Personal.

The Charge for Insertion under this head is One Dollar a line for each insertion; about eight words to a line.

The first steel pens that were made were sold at an English shilling each.

Send for illustrated catalogue of Electrical Instruments, Supplies, and Books for Electricians and Amateurs.

Books for Engineers. Catalogues free. E. & F. N. Spon.

A Draughtsman and Patternmaker desires a permanent place. Can furnish good references.

Carbon Plates. P. Bowe, 48 R. R. Av., Jersey City, N. J.

Automatic Planer, Knife Grinders, best Solid Emery Wheels, Machinery to run Emery Belts, etc.

See Bentel, Mergedant & Co.'s adv., page 93.

Steam Hammers, Improved Hydraulic Jacks, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York.

The Berryman Feed Water Heater and Purifier and Feed Pump. I. B. Davis' Patent.

50,000 Sawyers wanted. Your full address for Emerson's Hand Book of Saws (free).

For Pat. Safety Elevators, Hoisting Engines, Friction Clutch Pulleys, Cut-off Coupling, see Frisbie's ad. p. 94.

Bostwick's Giant Riding Saw Machine, adv., page 93.

Gould & Eberhardt's Machinists' Tools. See adv., p. 92.

Centrifugal Pumps, 100 to 35,000 gals. per min. See p. 92.

Barrel, Key, Hoghead, Stave Mach'y. See adv. p. 94.

For Heavy Punches, etc., see illustrated advertisement of Hilles & Jones, on page 93.

Red Jacket Adjustable Force Pump. See adv., p. 94.

Vertical Engines, varied capacity. See adv., p. 93.

Renshaw's Ratchet for Square and Taper Shank Drills. The Pratt & Whitney Co., Hartford, Conn.

Mineral Lands Prospected, Artesian Wells Bored, by Pa Diamond Drill Co. Box 423, Pottsville, Pa. See p. 94.

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

Woodwork'g Mach'y. Rollstone Mach. Co. Adv., p. 92.

The only economical and practical Gas Engine in the market is the new "Otto" Silent, built by Schleicher, Schumm & Co., Philadelphia, Pa. Send for circular.

The Porter-Allen High Speed Steam Engine. Southwork Foundry & Mach. Co., 40 Washington Ave., Phil. Pa.

4 to 40 H. P. Steam Engines. See adv. p. 94.

Mr. T. D. Locking, Can., U. S. Consul, Panama, U. S. Colombia, will sell the whole or a portion of his patent for umbrellas, illustrated in last issue.

For second-hand engines and boilers, address Young & Locke, Titusville, Pa.

Drop Forgings. Billings & Spencer Co. See adv., p. 77.

Cope & Maxwell M'fg Co.'s Pump adv., page 77.

C. B. Rogers & Co., Norwich, Conn., Wood Working Machinery of every kind. See adv., page 14.

Common Sense Dry Kiln. Adapted to drying of all material where kiln, etc., drying houses are used. See p. 405.

Wanted Immediately—A first-class Steel Letter Cutter. H. W. Gordon, Lynn, Mass.

Small articles in sheet or cast brass made on contract. Send models for estimates to H. C. Goodrich, 66 to 72 Ogden Place, Chicago, Ill.

The Sweetland Chuck. See illus. adv., p. 62.

Improved Skinner Portable Engines. Erie, Pa.

Machine Knives for Wood-working Machinery, Book Binders, and Paper Mills. Also manufacturers of Solomon's Parallel Vise, Taylor, Stiles & Co., Riegelsville, N. J.

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

Electric Lights.—Thomson Houston System of the Arc type. Estimates given and contracts made. 631 Arch, Phil.

Lightning Screw Plates, Labor-saving Tools. p. 62.

Combination Roll and Rubber Co., 68 Warren street, N. Y. Wringer Rolls and Moulded Goods Specialties.

Pure Water furnished Cities, Paper Mills, Laundries, Steam Boilers, etc., by the Multifold System of the Newark Filtering Co., 177 Commerce St., Newark, N. J.

"Abbe" Bolt Forging Machines and "Palmer" Power Hammers a specialty. Forsaith & Co., Manchester, N. H.

List 28, describing 3,600 new and second-hand Machines, now ready for distribution. Send stamp for same. S. C. Forsaith & Co., Manchester, N. H., and N. Y. city.

Nickel Plating.—Sole manufacturers cast nickel anodes, pure nickel salts, polishing compositions, etc. Complete outfit for plating, etc. Hanson & Van Winkle, Newark, N. J., and 92 and 94 Liberty St., New York.

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

First Class Engine Lathes, 20 inch swing, 8 foot bed, now ready. F. C. & A. E. Rowland, New Haven, Conn.

Ice Making Machines and Machines for Cooling Breweries, etc. Pietet Artificial Ice Co. (Limited), 142 Greenwich Street. P. O. Box 3083, New York city.

Jas. F. Hotchkiss, 84 John St., N. Y.: Send me your free book entitled "How to Keep Boilers Clean," containing useful information for steam users & engineers. (Forward above by postal or letter; mention this paper.)

Steel Stamps and Pattern Letters. The best made. J. F. W. Dorman, 21 German St., Baltimore. Catalogue free.

Machinery for Light Manufacturing, on hand and built to order. E. E. Garvin & Co., 139 Center St., N. Y.

For Power & Economy, Alcott's Turbine, Mt. Holly, N. J.

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

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

Presses, Dies, Tools for working Sheet Metals, etc. Fruit and other Can Tools. E. W. Bliss, Brooklyn, N. Y.

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.

Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J. Presses & Dies (fruit cans) Ayar Mach. Wks., Salem, N. J.

NEW BOOKS AND PUBLICATIONS.

HOUSE DRAINAGE AND SANITARY PLUMBING. By Wm. Paul Gerhard. Providence: E. L. Freeman, State Printer.

This report, prepared for the Rhode Island State Board of Health, presents in an eminently straightforward practical way the principles of a perfect system of house drainage as developed by the best sanitary engineering, and reviews in detail the best results of recent invention in the production of sanitary plumbing apparatus and appliances.

A TREATISE ON RIVERS AND CANALS, RELATING TO THE CONTROL AND IMPROVEMENT OF RIVERS, AND THE DESIGN, CONSTRUCTION, AND DEVELOPMENT OF CANALS. By L. T. Vernon-Harcourt. Oxford: The Clarendon Press.

The specially valuable feature of this treatise lies in the score of plates of part II, which carry numerous figures illustrating the plans and more important characteristics of the principal works for the improvement of European and American rivers, the principal inland and ship canals of the world, and the various engineering devices employed in this class of works.

PROGRESS REPORT OF THE MISSISSIPPI RIVER COMMISSION FOR 1881, WITH MINORITY REPORT. Washington: Government Printing Office.

Contains reports of surveys and examinations of the Mississippi and its channel during the year 1881, with statement of the work of the same character laid out for the current year; works of improvement contemplated and the preparations made therefor; remarks on levees and outlets; discussions of the Red and Atchafalaya rivers, and of the flood of April and May, 1881; remarks on borings made and deductions therefrom; upon the mutual relations of river sections under varying conditions of discharge and curvature; remarks on Vicksburg Harbor and Bonnet Carré Crèveasse; description of improvement works between Cairo and the mouth of the Missouri; legislation needed; communication from Jas. B. Eads relative to the effects of levees, etc.; also voluminous appendices relative to the works of improvement in progress, with many illustrative plates and diagrams. Is a pity the volume lacks an index to make the information it carries readily accessible.

THE GATES OF THE RIVERS. A Supplement to the World's Navigation.

In this privately circulated pamphlet Mr. W. T. Stackpole, of Fairbury, Ill., says a good many things that are true and a good many others that are not intelligible in the absence of the pamphlet to which this is supplementary. The drift of it all would appear to be that everything done hitherto by engineers for the improvement of river navigation is wrong, and that the right thing is to be done only with Mr. Stackpole's (undescribed) steam channel sweeper.



NOTES 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 50 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.

(1) J. B. E. asks: What is the best plan for renovating feathers? A. Feathers are now generally renovated by exposing them in a tight wooden or iron vessel to the action of live steam for an hour or more.

(2) G. F. P. writes: 1. How can I color white feathers black for artificial fly making; also the same red, brown, and yellow? A. For black, dissolve half an ounce logwood extract in a quart of water and boil in this for half an hour; then put into a little water with two pounds of iron sulphate. Finally rinse in running water. Repeat if necessary. For the other colors

use the appropriate soluble aniline or coal tar dyes in hot water.

(3) N. K. W. asks: 1. What is the contents of the Babcock fire extinguisher, and how is it made? A. A strong aqueous solution of bicarbonate of soda, and a leaden cup full of oil of vitriol (sulphuric acid). When this cup of acid is inverted into the soda solution sulphate of soda is formed and carbonic acid (gas) is liberated in large quantities. The reaction is represented as follows: (HNaCO3)2 + H2SO4 = Na2SO4 + 2H2O + 2CO2.

(4) M. A. S. asks: Will you kindly answer, in your Answers to Correspondents column, what shall I use for a cheap good hard solder for German silver; it must stand some hammering? Also, what proportion must I use for a silver solder for above? In a recent issue you had, under the head of alloys, a solder for German silver: German silver, 5 parts; tin, 4 parts. I tried it, but it is as brittle as glass, also varied the proportions with same results.

(5) L. C. asks: How many Atlantic cables are there and between what points are they laid? A. Between Heart's Content and Valentia, 3; between Torbay and Ballinskillick, 1; between Duxbury, Mass., and Brest, 1; between Cape Cod and Brest, 1; between Canso and Penzance, 2; total, 8.

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

M. M. S.—The ore is of little value in its crude state. If roasted slightly, ground, bolted, and barreled properly it might bring fifteen dollars a ton in New York. Unlabeled samples in spool cotton box are argillaceous lime carbonate selvaige, with an incrustation of iron sulphide, possibly containing a little gold. An assay would be advisable.—W. M. E.—It is an impure hornblende rock, and probably contains nothing of value.—A. E. N.—Sample of "fiber" received but no letter.—H. Z.—Hematitic argillite, containing a small quantity of molybdenite.—S. F. P.—It is an antimonial silver sulphide. If the small sample in any way represents the body of ore the property will prove very valuable.—G. M. M.—The imperfect mixture is probably due to an over burden of carbon in part of the charge, a cold pot and overquick tap, otherwise the metal would be of uniform texture.—E. J. F.—Both are impure silicious earth, useful for some polishing purposes and glass and enamel making.—J. B. W.—It is galena—lead sulphide—the principal ore of lead.—C. M. C.—1. Chiefly hornblende. 3. An argillaceous rock interspersed with hornblende. 2. Chiefly hornblende.—P. P.—It is copper containing a small per cent of iron—not native. The ore from which this was produced may be found in the vicinity. As an ore of copper it is valuable.—W. M. R.—It is a partially altered iron sulphide—possibly contains traces of silver. An assay would be necessary to determine this.—R. S.—It is a kaolin containing a small per cent of calciferous matter. We would advise an analysis.

[OFFICIAL.]

INDEX OF INVENTIONS

FOR WHICH

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

July 18, 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.

Table listing inventions with names and page numbers, including Abdominal bandage, Anchor, mushroom, Auger, earth, S. H. Horn, Automatic brake, N. W. Bissell, Awning, J. H. Parker, Axle, vehicle, H. M. Keller, Bag and sail tie, J. L. Vandermark, Bag holder, J. Holekamp, Ballot box, S. T. Bacon, Bath, See Electric bath, Battery, See Secondary battery, Bed bottom, T. P. Glody, Bed, cot, A. H. Frost, Bedstead, folding, S. S. Burr, Bell, electric, H. B. Porter, Bending machine, J. Christiansen, Bicycle, B. F. Cooley, Billiard cue tip, G. M. Hammond, Binder, temporary, C. P. Cody, Blacking box, C. W. Hart, Blank clip, W. W. Prichard, Blind, inside window, R. Pisak

Table listing inventions with names and page numbers, including Blower, fan, E. F. Schneider, Blower for fireplaces and stoves, adjustable, G. W. Geissenhainer, Board, See Electrical switch board, Boat, See Life boat, Boiler, See Steam boiler, Boiler cleaner, J. E. Mendenhall, Bolt casing, H. B. Ives, Book, manifold order, J. S. McDonald, Boot or shoe heel, Christensen & Lund, Boot or shoe heel, M. B. Wood, Boot strap, J. B. Belcher, Boots and shoes, apparatus for cleaning and polishing, G. H. Ellis, Bottle pouring and dropping attachment, G. H. Freeman, Bottlestand and reflector, B. Ockelmann, Bottles, applying wire cork fastenings to, E. A. F. Moses, Box, See Ballot box, Blacking box, Journal box, Locomotive fire box, Brace, See Chair brace, Bracket, See Galley bracket, Brake, See Automatic brake, Carbrake, Vehicle brake, Wagon brake, Brick or tile and mould for its manufacture, S. E. Loring, Bridle hit, J. & C. Taylor, Brush bunching machine, L. Strickel, Bucket, dinner, S. Winkler, Buggy spring, W. D. Ament, Burner, See Vapor burner, Button and method of attachment, J. Cadbury, Button fastener, J. C. F. Dick, Calendar, H. S. Hack, Camera, See Photographic camera, Can, See Sheet metal can, Cane shredder, sugar, J. Parker, Canister, measure, and bucket, C. F. Stites, Car brake and starter, street, R. F. Bridewell, Car coupling, F. W. Brooks, Car coupling, R. H. Dowling, Car coupling, W. L. Fisher, Car coupling, Gowans & MacMillan, Car coupling, J. A. Porter, Car coupling, E. L. Tilton, Car coupling, C. Troup, Car starter, W. S. Dwinell, Car starter, G. A. & H. T. Evans, Car starter, H. C. E. Stihof, Car wheel, F. D. Torre, Car wheel, N. Washburn, Cars, cooling and ventilating, Johnson & McMillan, Cars, pinch bar for moving, S. F. Seely, Card for chain swivels, C. A. Kenney, Carpet sweeper, A. G. Champlin, Carriage bow, F. A. Wittich et al., Carriage, child's, W. E. Crandall (r), Case, See Violin case, Ceiling, J. Budd, Chain, drive, C. H. Low, Chair, See Railway-rail chair, Reclining chair, Chair brace, J. A. Gallagher, Check, baggage, C. O. Lynk, Chimney top, L. C. Smith, Cigarette and mouthpiece, combined, A. L. Munson, Clamp for tank and other hoops, W. H. Wheeler, Cleaner, See Boiler cleaner, Clip, See Blank clip, Hame clip, Clothes pin, W. H. Prouty, Coal, device for separating slate, F. B. Parrish, Cock, stop, F. Johnson, Cookie and seeds from wheat or other grain, apparatus for separating, E. Winchester, Collar, J. W. A. Cluett et al., Coloring matter from naphthylamine, manufacture of, C. Rumpff, Coloring matter, manufacture of blue and violet, Koechin & Witt, Commutator and armature wires, coupling for, J. Wood, Cooking utensil, J. Levy, Cooling apparatus, liquid, G. C. Hodgdon, Cotton gin, J. Van Zandt, Coupling, See Car coupling, Mowing machine knife coupling, Thill coupling, Tongue coupling, Cranial tractor, S. Slater, Cultivator, R. L. Turner, Curtain roller spring, B. I. Hicks (r), Cutter, See Groove cutter, Meat cutter, Straw and stalk cutter, Cutter head, S. J. & G. J. Shimer, Damper, W. Neracher, Dental grinding tool, R. Barton, Desk, reading, M. E. Moore, Digger, See Potato digger, Door balance, W. F., Sr., & W. F. Sexton, Jr., Doubling machines, tension evener for silk, O. Atwood, Draught equalizer, J. C. Jones, Draught equalizer, J. H. Knowles, Drier, See Fruit drier, Drum, heating, D. Orth, Dust arrester, C. M. Hardenbergh, Dwelling, B. R. Hawley, Eccentric, G. T. & D. W. Metcalf, Electric bath, W. W. Karshner, Electric light apparatus, H. A. Seymour, Electric light mast, H. A. Seymour, Electric lighting and power distributing system, Starr & Peyton, Electric lighting systems, thermostatic cut-out for, H. A. Seymour, Electric machine, dynamo, D. A. Schuyler, Electrical illumination, incandescent, J. H. Irwin, Electrical switch board for metallic circuits, T. N. Vail, Electrodes, smoothing and polishing the surfaces of carbon, C. W. Brown, Elevator, See Power elevator, Water elevator, Elevator shaft, S. W. Willard, End gate fastening, L. M. Fitch, Engine, See Rotary engine, Evaporator, See Sap evaporator, Evaporator, J. C. Gunn, Fat from bones, method of and apparatus for extracting, W. Schneider, Fence, D. B. Van Dorn, Fence and post, iron, R. Kennard, Fence, barb wire, A. J. Upham, Fence post, metal Huggill & Smyth, Fence post, metallic, P. Hayden, Fencing barbed, G. Elsey, Filter, water, S. Adams, Fire annihilator, L. Kitsee, Fire escape, F. A. A'Neals, Fire escape, G. J. Cricklair, Fire escape ladder, F. G. Johnson, Fire extinguishing and alarm apparatus, W. Neracher

Fishing float, O. G. Wilson... 261,505
Flavoring extract for sirup, and sugar, J. Daily... 261,315
Fog horn, O. C. Hansen... 261,343
Fog signal, W. R. Close... 261,135
Food, desiccated and powdered, W. Ewaldt... 261,214
Frame. See Picture frame.
Fruit drier, A. R. Gayhart... 261,220
Fruit drier tray, G. R. Cheesman... 261,307
Fruit gatherer, T. W. Hentz... 261,153
Furnace. See Smoke consuming furnace.
Furnaces and converters, etc., compound for use in manufacture of linings, plugs, and tuyeres for, Clapp & Griffiths... 261,430
Gauge. See Micrometer gauge.
Galley bracket, R. A. Marvin... 261,368
Gas and water fittings, manufacture of, S. Duffield... 261,320
Gas, apparatus for the manufacture of illuminating, A. Wittamer... 261,507
Gate. See Metallic gate.
Generator. See Steam generator.
Glass. See Jelly glass.
Glass imitation stone for jewelry, Sprague & Kipling... 261,402
Glass, machine for transferring the grain of wood upon, J. Budd... 261,203
Governor for shifting eccentrics, W. A. Clark... 261,432
Grain binder, R. J. Clark... 261,431
Grain meter, R. H. Edmiston... 261,516
Grain meter, C. Reuther... 261,257
Grate, G. B. Mershon... 261,375
Grinding mill feeding device, W. D. Gray... 261,337
Groove cutter, W. F. & J. Barnes... 261,197
Guard. See Hatchway guard.
Hair, bleaching, J. Stein... 261,270
Hair loop, metallic, S. Logan... 261,242
Hame clip, E. D. Cole... 261,311
Hammer, C. J. Greilmer... 261,338
Hammers. See for forming, C. J. Stannard... 261,489
Harness loop, H. Leibe... 261,240
Harrow, sulky, J. W. Rush... 261,386
Harvester, S. D. Maddin... 261,387
Harvester, self-binding, C. Wheeler, Jr... 261,385
Hat bats, perforated plate for forming, S. C. Palmer... 261,380
Hats, manufacture of fur-faced, W. E. Doubleday... 261,437
Hatchway guard, elevator, Byers & Taylor... 261,133
Hay press, G. Briel... 261,328
Hay rake and loader, O. D. Thompson... 261,406
Hay rake and loader, A. Vose (r)... 10,164
Head protector, R. W. Turner... 261,408
Heat generating apparatus, W. E. Prall... 261,480
Heel-shave holder, J. Jaquet... 261,353
Hinge, J. E. Gowen... 261,150
Hitching strap, J. B. & W. A. McMechan... 261,467
Hoe and seed planter, combined garden, J. R. Gilbert... 261,147
Hoos, manufacture of, S. Duffield... 261,321
Holdback iron for carriages, W. P. Gibson... 261,223
Holder. See Bag holder. Heel-shave holder. Lamp holder. Lead and crayon holder. Pillow sham holder.
Hook. See Safety hook.
Horse brushing apparatus, N. L. King... 261,160
Horse power, G. W. McVay... 261,373
Hub attaching device, G. K. Farrington... 261,336
Hydrant, J. Stone... 261,272
Ice conveyor, A. Hunt... 261,231
Inhaler, M. Souville... 261,400
Insect destroyer, J. E. Binkley... 261,127
Iron. See Hotback iron. Whiffletree iron.
Jack. See Pegging jack.
Jelly glass, J. Bonshire... 261,131
Jewel setting, H. Huestis... 261,350
Joint. See Pipe joint. Railway joint. Railway rail joint. Stove pipe joint.
Journal box, F. H. Sweet... 261,274
Kneader, dough, Walker & Durand... 261,283
Knife, A. W. Speery... 261,401
Knitting machine, A. Wrightson... 261,508
Knitting machines, yarn tension device and take-up for, W. H. Abel... 261,415
Ladder, step, G. T. Lapé... 261,339
Lamp, automatic incandescent electric, W. L. Voelker... 261,503
Lamp, electric, J. J. Wood... 261,289
Lamp, electric arc, C. J. Van Depoele... 261,280
Lamp fixture, electric, D. N. Huribut... 261,157
Lamp globes, device for cleaning electric, J. Jameson... 261,234
Lamp holder, A. Roelofs... 261,355
Lamp, incandescent, H. A. Seymour... 261,263
Lamp, multiplex electric, H. J. Miller... 261,472
Lamps, carbon for electric, H. A. Seymour... 261,264
Lamps, carbon for incandescent, H. A. Seymour... 261,261
Lantern, electric, J. H. Irwin... 261,352
Last and jack, metal, S. Mawhinney... 261,165
Latch, gate, I. Joyner... 261,356
Lath, turret, P. W. Reinsbagen... 261,383
Laundry heating and drying apparatus, C. L. Smith... 261,267
Lead and crayon holder, J. Hoffman... 261,454
Lead and crayon holder, R. W. Uhlig... 261,500
Leather cutting machine, J. N. Wake... 261,188
Leather whitening machine, J. E. Clement... 261,309
Letter for signs, raised, W. Neracher... 261,477
Levers, interlocking, H. F. Cox... 261,207
Life boat, D. B. Eddy... 261,143
Lock. See Permutation lock.
Locomotive tire box, P. A. Nepilly... 261,474
Loom web-throw mechanism, T. Isherwood... 261,232
Lubricating and preserving steam engines, A. Temple... 261,180
Lubricating bearings, apparatus for, H. Reiser... 261,256
Lubricator, E. McCoy... 261,166
Magneto electric machine, J. B. Blair... 261,129
Marker, harrow, seeder, and roller, combined, J. C. Ferree... 261,327
Measuring device or apparatus, L. D. Goodpasture... 261,441
Measuring grain, machine for, W. R. Edington... 261,210
Meat cutter, J. E. Smith... 261,397
Mechanical movement, Somers & Sperry... 261,178
Metallic gate and hinge, P. Hayden... 261,345
Meter. See Grain meter.
Micrometer gauge, B. H. Bristol... 261,201
Milk skimmer, W. E. Lincoln... 261,241
Milk skimming apparatus, J. M. Baker... 261,124
Mill. See Rolling mill. Windmill.
Mining shaft ventilator, C. S. Litzenberg... 261,466
Mother-of-pearl and similar substances on metal, mounting, C. P. Fest... 261,216
Motion, device for converting reciprocating into rotary, J. T. Richardson... 261,334
Mowing machine knife coupling, I. G. Bower... 261,299
Musical instrument key board attachment, G. B. Kelly... 261,360
Musical instrument, mechanical, W. A. Webber... 261,413
Nut lock for carriage top props, S. H. Raymond... 261,482
Offal, etc., apparatus for treating, J. N. B. Bond... 261,298
Oil can, J. Kaye... 261,357
Oil press, W. R. Fee... 261,440
Older and holder, watch, F. Gundorph... 261,340
Ore concentrator, C. D. Smith et al... 261,177

Organ action, E. Brown... 261,202
Organ valve, reed, J. P. Richardson... 261,483
Ornamental screen, hanging, etc., E. Vedder... 261,282
Ox shoes, manufacture of, W. Pearce... 261,254
Pail fastener, A. Burgland... 261,304
Paraffine and other petroleum products, process of and apparatus for freezing, E. Kells... 261,236
Pegging jack, G. P. Hayes... 261,152
Permutation lock, E. Stockwell... 261,271
Photographic apparatus, T. H. Blair... 261,425
Photographic burnisher, H. W. Bray... 261,200
Photographic camera, T. H. Blair... 261,130
Picture frame, E. Brodtag... 261,132
Piles, preserving, W. Taggart... 261,405
Pillow sham holder, W. G. Foster... 261,218
Pin. See Clothes pin. Tidy pin.
Pipe. See Sectional pipe.
Pipe joint, J. L. Dibble... 261,141
Pipe wrench, A. F. Field... 261,217
Pipe wrench, J. E. Sanders... 261,486
Pitcher cover, H. H. C. Arnold... 261,416
Pitcher, ice, J. Brauer... 261,199
Pitcher, molasses, J. Bulluss, Jr... 261,427
Planter check-row attachment, corn, J. M. Toy et al... 261,279
Planter, corn, C. J. Lilloe... 261,162
Planter, peanut, J. R. Ayres... 261,418
Plastic and other materials, process of and apparatus for compressing, Hemje & Brecht... 261,228
Plow, gang, E. Topham... 261,182
Plow, sulky, L. Luppen... 261,365
Plow, sulky, A. Sanborn... 261,176
Post. See Fence post.
Potato digger, E. O. Cook... 261,312
Power. See Horse power.
Power elevator, A. S. Morse... 261,377
Press. See Hay press. Oil press.
Protector. See Head protector.
Punch, recording ticket, F. R. Alderman... 261,195
Punch, ticket, L. O. Crocker... 261,198
Railway, animal slinging, R. J. Davies... 261,316
Railway joint, P. H. Grace... 261,335
Railway rail chair, T. Tostevin... 261,497
Railway rail joint, P. Tatam... 261,277
Rake. See Hay rake.
Reaper and mower, Snyder & Bachman... 261,268
Reclining chair, J. Champie... 261,205
Reclining chair, A. Collignon (r)... 10,165
Reclining chair, A. Graham... 261,336
Recorder. See Time recorder.
Refrigerating and drying grain, etc., Johnson & McMillan... 261,460
Refrigerating by means of ammonia, R. H. Lucas (r)... 10,161
Refrigerating machines, heat interchanging apparatus for, Sterne & Clerk... 261,491
Register. See Watchman's register.
Roller. See Curtain roller. Shade roller.
Rolling mill, J. L. Chapman... 261,134
Rope carrying system or endless railway, elevated, A. J. B. Berger... 261,296
Rotary engine, W. D. Cook... 261,313
Rotary engine, V. H. Felt... 261,215
Roving machine condenser, A. T. Atherton... 261,294
Saddletree, T. E. Meanea... 261,374
Saddletree, H. C. & J. R. Still (r)... 10,162
Safe, fireproof, Johnson & McMillan... 261,461
Safe, provision, T. Atkinson... 261,417
Safety hook and buckle, combined, F. A. Hake... 261,341
Sap evaporator, P. S. Ewins... 261,325
Sash balance, C. E. Bogle... 261,510
Saw, drag, W. C. Allen... 261,292
Saw, drag, F. M. Elliott... 261,322
Saw gummer, W. Newell... 261,249
Sawmill dog, Sanders & Talley... 261,387
Saw set, B. S. Treadway... 261,407
Scraper, road, W. H. Talbot... 261,276
Screen. See Ornamental screen.
Seam presser, Jellison & Smith... 261,459
Secondary batteries, apparatus for charging and discharging, C. E. Buell... 261,303
Secondary batteries, mode and device for charging and discharging, C. E. Buell... 261,513
Secondary battery, C. F. Brush... 261,512
Secondary battery, C. Cuttriss... 261,435
Sectional pipe, N. U. Walker... 261,190, 261,191
Sectional pipe for underground electrical wires, N. U. Walker... 261,189
Seeder and cultivator combined, W. D. Stroud (r)... 10,166
Separator. See Starch separator.
Sewing machine, A. M. Leslie... 261,363
Sewing machine, E. T. Thomas... 261,181
Sewing machine button hole, J. F. Snediker... 261,399
Sewing machine, carpet, A. Neustadt... 261,248
Sewing machine feed mechanism, Korup & McGill... 261,161
Sewing machine hemstitch attachment, G. W. Baker... 261,420, 261,421
Sewing machine treadle, W. L. Grout... 261,446
Shade roller, spring, D. E. Kempster... 261,159
Shafting, device for turning, J. M. Hawes... 261,344
Shafts, step for vertical, W. Crowe... 261,139
Sheet metal can, E. Small... 261,396
Sheet metal can or box, J. Cartwright... 261,306
Ships, automatic drag for, J. McAdams... 261,303
Shirt, C. G. Dobbs... 261,318
Shoe, Luo Chew Fan... 261,439
Shoe healing machine, M. V. B. & F. N. Ethridge... 261,145
Sieve, bolting, J. W. Herr... 261,347
Signal. See Fog signal.
Silk machine for throwing, J. E. Tynan... 261,409
Smoke consumer, A. M. Wayne... 261,284
Smoke consuming furnace, G. A. Barth... 261,422
Snow as it falls upon and contiguous to railway tracks, device for removing, L. D. Craig... 261,434
Snow melting apparatus, F. D. Riker... 261,434
Snow plow, E. Grove... 261,339
Soap tablet, W. J. Houston... 261,156
Soldering machine, A. Lusk... 261,366
Sole fastener, J. M. Estabrook... 261,213
Sower, fertilizer, J. L. Halteman... 261,517
Speaking tube attachment, W. K. Balch... 261,196
Spindle and bearing therefor, G. E. Taft... 261,275
Spinning and twisting fibrous material, apparatus for, Broadbent & Mitchell... 261,300
Spittoon, D. Hallum... 261,342
Spring. See Buggy spring. Vehicle bolster spring.
Springs, machine for making coiled, J. Dubelman... 261,319
Stamp, hand, B. E. Hill... 261,229
Stamp-mill mortar, H. Bolthoff... 261,297
Stand. See Bottle stand.
Starch separator, P. H. Grimm... 261,445
Stave jointer, J. Spaulding, Jr... 261,179
Steam boiler, G. H. Babcock et al... 261,122
Steam boiler, S. L. Hill... 261,348
Steam boiler, J. Rodie... 261,298
Steam boilers, variable fire arch for, F. W. Merriam... 261,469
Steam generator, Voigt & Adams... 261,412
Steam, utilizing exhaust, H. T. Litchfield... 261,163
Steam washer, A. O'Neill... 261,170
Stove cover lifter, W. F. Shuter... 261,338
Stove pipe joint, J. Naughten... 261,473
Strainer and steamer, food, Dorsch & Lindner... 261,142

Strap. See Boot strap. Hitching strap.
Straw and stalk cutter, J. T. Flanagan... 261,329
Suspenders, G. H. W. Curtis... 261,140
Telegraph, railway train, C. F. McGlashan... 261,370
Telegraph transmitter, automatic, H. Van Hovenbergh... 261,410
Telephone, acoustic, W. D. G. Quigley... 261,174
Telephone switch apparatus, T. N. Vall... 261,186
Thill coupling, W. A. Eddy... 261,144
Thrashing machine, J. Benitt... 261,126
Thrashing machine, grain, J. H. Melick... 261,167
Tidy pin, C. C. Crossman... 261,206
Tie. See Bag and sail tie.
Time recorder, watchman's, A. B. Goodrich... 261,149
Tongue coupling, vehicle, J. L. Metcalfe... 261,376
Torch, gas lighting, E. P. Gleason (r)... 10,159, 10,160
Torpedoes, compound for railway signal, J. F. A. Mumm... 261,247
Toy bank, C. A. Bailey... 261,419
Toy, mechanical, H. O. Lund... 261,244
Tracing wheel, M. E. Kellogg... 261,359
Tree. See Saddle tree.
Tricycle, B. F. Sloan... 261,395
Trolling spoon, L. C. Wylly... 261,194
Truck, car, J. McLaughlan... 261,371
Truss, hernial, C. Morrill... 261,168
Type setting machine, J. North... 261,378
Umbrella slide, Grataloup & Leymarie... 261,151
Valve. See Organ valve.
Valve, balanced slide, J. B. Conrad... 261,206
Valve, steam actuated, W. Royce... 261,435
Valve, three way, J. A. Groshon... 261,224
Vapor burner, M. L. Best... 261,423
Vapor burner, C. A. Stockstrom... 261,408
Vehicle bolster spring, C. A. Howard... 261,349
Vehicle brake, R. M. Quackenbush... 261,255
Vehicle running gear, B. M. Soule... 261,269
Vehicle shifting rail, A. Gould et al... 261,443
Vehicle, two wheeled, R. D. McLennan... 261,372
Vehicle wheel, W. F. Crowell... 261,314
Vehicle wheel, P. Gendron... 261,222
Velocipede, Van Meter & Hesser... 261,411
Velocipede, flying, Wyke & Bancroft... 261,290
Vener dish blank machine, J. R. Allgire... 261,120
Ventilating soil pipes, device for, J. D. Harrington... 261,451
Ventilation, J. R. Shirley... 261,488
Ventilator. See Mining shaft ventilator. Window ventilator.
Ventilator, A. B. Summers... 261,404
Ventilator wheel or fan, J. M. Blackman... 261,128
Violin case, J. W. Harlow... 261,450
Wagon brake, V. Gilsinger... 261,333
Wagon, dumping, M. M. Clark... 261,308
Wagon, dumping, H. F. W. Koehler... 261,362
Wagon, side bar, Scofield & Cooper... 261,391
Washer. See Steam washer.
Washing machine, J. I. Dalbey... 261,515
Watchman's register, C. E. Sanford... 261,388
Water closet mechanism, D. S. Keith... 261,358
Water closets, etc., stop cock injector for, W. L. Horne... 261,155
Water elevator, H. F. L. W. De Romilly... 261,436
Well point or strainer, drive, O. B. Olmsted... 261,251 to 261,253
Wheel. See Car wheel. Tracing wheel. Vehicle wheel. Ventilator wheel. Wind wheel.
Whiffletree iron, C. Gardner... 261,219
Wind wheel, O. D. Thompson... 261,495
Windmill, Gorrell & Post... 261,442
Window ventilator, S. K. Addoms... 261,291
Wire harbing machine, G. C. Baker... 261,299
Wire oiling machine, E. M. Hewson... 261,452
Wrench. See Pipe wrench.

THE BERLIN METROPOLITAN RAILWAY.—By William Bird. Full account, with descriptions of foundations, bridges, permanent way, cost, and details. With 14 figures. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 338. Price 10 cents. To be had at this office and from all newsdealers.

SALICYLIC ACID IN YELLOW FEVER. Cholera, etc.—A paper, by Dr. T. Brown Henderson, giving an account of the recent successes that have been obtained from the use of salicylic acid as a preventive of zymotic diseases. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 338. Price 10 cents. To be had at this office and from all newsdealers.

SUPERIORITY PROVED. THE SIMPLEST & BEST SEWING MACHINE IS THE LIGHT-RUNNING NEW HOME. Perfect in every particular. 200,000 sold yearly. NEW HOME SEWING MACHINE CO., 30 Union Square, N. Y. Chicago, Ills., Orange, Mass., or Atlanta, Ga.

CONSUMPTION.—A PAPER, BY PROF. Tyndall, presenting an account of Koch's recent important researches into the etiology of tubercular disease. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 338. Price 10 cents. To be had at this office and from all newsdealers.

ROD HAMMERS. Punching Presses. Dies and other tools. For the manufacture of all kinds of SHEET METAL, COPPER, BRASS, ZINC, &c. Siles & Parker Press Co., Middletown, Conn.

MINERAL WOOL. This fireproof and indestructible material successfully prevents loss of heat by radiation, keeps frost from water pipes, deadens sound, checks spread of fire in walls, partitions, floors of dwellings. 25 cts. per cubic foot. U. S. MINERAL WOOL CO., 16 Cortlandt St., N. Y.

THE DETERMINATION OF SEX IN GENERATION.—A paper by Dr. T. M. Harris presenting a new theory and giving the results obtained by its application in the breeding of Jersey cattle. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 338. Price 10 cents. To be had at this office and from all newsdealers.

CATALOGUES FREE TO ANY ADDRESS. TOOLS OF ALL KINDS. CRODWINN AND TITMAN BOSTON.

PATENTS. MESSRS. MUNN & CO., in connection with the publication of the SCIENTIFIC AMERICAN, continue to examine improvements, and to act as solicitors of patents for inventors.

In this line of business they have had thirty-five years' experience, and now have unequalled facilities for the preparation of Patent Drawings, Specifications, and the prosecution of Applications for Patents in the United States, Canada, and Foreign Countries. Messrs. Munn & Co. also attend to the preparation of Caveats, Copyrights for Books, Labels, Reissues, Assignments, and Reports on Infringements of Patents. All business intrusted to them is done with special care and promptness, on very reasonable terms.

A pamphlet sent free of charge, on application, containing full information about Patents and how to procure them; directions concerning Labels, Copyrights, Designs, Patents, Appeals, Reissues, Infringements, Assignments, Rejected Cases, Hints on the Sale of Patents, etc. We also send, free of charge, a Synopsis of Foreign Patent Laws, showing the cost and method of securing patents in all the principal countries of the world. MUNN & CO., Solicitors of Patents, 261 Broadway, New York. BRANCH OFFICE—Corner of F and 7th Streets, Washington, D. C.