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.

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 n to 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.

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) G. E. M. asks: Can you tell me how the fine lines of a micrometer, used in measuring microscopical objects, are ruled? A. By means of a very accurate and expensive machine called a dividing engine.

(2) P. J. W. asks: 1. What size battery will produce an electro-magnet of 50 lbs. lifting power? A. Use four or six cells of Bunsen. 2. Is there any means of estimating the attractive power of an electro-magnet at any given distance from its poles, the power at the pole being known? A. Magnetic attractions and repulsions are inversely as the squares of the distances.

(3) W. A. B. asks: 1. How can I procure the powered silver you mention in your issue of March 22, used in the Righi telephone? Will very fine silver filings do? A. We do not know that it is in the market; you can make it by grinding silver leaf with honey on a marble slab, afterward carefully removing the honey by repeated washings. 2. Are the wires connected the same in this telephone as in the carbon telephone? A. One wire is connected with the spring; the other to the metal plunger attached to the diaphragm.

(4) L. O. B. asks: 1. Does it make any difference which binding post of a Bell telephone is connected to the zinc pole of a battery? If it does how must it be connected? I want to experiment with a microphone. A. No. 2. Will one cell of a Watson battery be sufficient to operate a call bell, on a line 1 mile long? A. No; use four.

(5) G. R. D. asks: 1. What kind of paper is used to produce the stencil with the mechanical pen? A. Any thin paper, of smooth, firm texture. 2. How are copies taken after the stencil is made? A. By stretching the stencil in a frame, placing it in contact with the paper to receive the copy, and passing over it a roller charged with stencil ink.

(6) A. B. & B. ask: 1. How big a wire rope will it require, stretched over a span of forty feet, to sustain a load of one ton or 2,000 lbs.? A. .75 to .8 inch diameter. 2. How much will such a rope deflect in center, when stretched moderately tight, and what means are employed to get such a rope stretched tight enough? A. 3½ feet. Consult Stahl's "Power by Wire Ropes."

(7) A. B. P. asks: 1. In making small magnets must I use fine or coarse wire? Tell why telegraph sounders are made with very fine wire, and magnets made to break the currents in shocking machines are coarse. A. The size of wire required for a magnet will depend altogether on the purpose for which the magnet is intended. The resistance of the wire is proportional to its size. If the magnet is used on a line of small resistance, the wire may be larger than when the resistance is great. Consult a good work on electricity. 2. How to make carbon for batteries. A. See SCIENTIFIC AMERICAN SUPPLEMENTS, Nos. 157, 158, and 159.

(8) P. J. asks: 1. In constructing an induction coil would hard wood or bone answer instead of vulcanite for the cylinder for commutator? Also for the tray in the "Simple Electric Light," described in SUPPLEMENT No. 162? A. Yes, in either case; but it should be filled with paraffine. 2. Will silver answer in place of platinum for point of screw and contact piece on the spring of the vibrating armature? If not, why? A. No; it will burn out too easily. 3. What is "tea paper," and where can I get it? A. The thin white paper used by grocers.

(9) S. W. writes: I am trying to plate steel knives and forks with tin. Please tell me what will cause the tin to flow smooth and appear white when finished. A. Clean the metal by scouring with moist pumice stone powder, and rinse in clean hot water, which will cause it to dry quickly. Then dip it in the melted tin covered with rosin, removing it frequently to rub with a brush of clean hemp. Then transfer for a short time to a pot of very hot tallow, free from salt, on removal from which tap smartly to remove list; cool, and clean with sawdust.

(10) D. B. B.—Please give a recipe for acid bath and process for resharpening old files in such a bath. A. The files must be thoroughly cleansed in warm water containing a small quantity of potash, which readily removes all the grease and dirt. After they are thus cleansed they must be washed with warm water and dried by artificial heat. Next place 1 pint of warm water in a wooden vessel and put in as many files as the water will cover, then add 2 oz. blue vitriol (sulphate of copper), finely pulverized, and 2 oz. borax, well mixed, taking care to turn the files over so that each may come in contact with the mixture. To the above mixture now add 7 oz. sulphuric acid and ¼ oz. cider vinegar, which will cause the files to assume a red appearance at first, but they will in a short time resume their natural color. Then remove them, wash in cold water, and dry by artificial heat. When dry, sponge with olive oil, wrap in porous paper, and lay aside for use.

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

C. M. M.—It is chiefly composed of iron pyrites (fool's gold)—of no value.—S. P.—The bead contains iron and copper—no silver.—H. B. It is an impure potter's clay. Properly washed it might be worth about a dollar per ton at the pottery.—E. F. A.—It is clay slate. It does not contain an appreciable quantity of gold or silver.—W. R. C.—It is a brown hematite (iron ore) of some value.

COMMUNICATIONS RECEIVED.

On Pigeon House. By H. R.
On Squaring the Circle. By R. R. P.
On Squaring the Circle. By C. M. G.
On Ice Caves. By A. L. R.
On Life and Electricity. By T. B. M.
On Grain Binding Material. By N. C. T.
On Sewer Gas. By D. W.

[OFFICIAL.]

INDEX OF INVENTIONS

FOR WHICH

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

April 1, 1879,

AND EACH BEARING THAT DATE.

[Those marked (r) are reissued patents.]

A complete copy of any patent in the annexed list, including both the specifications and drawings, will be furnished from this office for one dollar. In ordering, please state the number and date of the patent desired and remit to Munn & Co., 37 Park Row, New York city.

Adjustable bracket, Redman & Conklin	213,775
Advertiser, street lamp, S. Smith	213,785
Albumen for the production of moulded articles, treatment of, J. Bliss	213,733
Annunciator, bell, C. Pilout	213,834
Axle box, car, J. R. Baker	213,731
Axle box. car, F. W. Schroeder	213,842
Band cutter, W. J. Kellar	213,758
Basin, catch, J. B. H. Nolte	213,832
Bed bottom, spring, H. Baer	213,803
Boot and shoe screw wire, E. F. Richardson	213,938
Bow, N. R. Streeter	213,851
Box pile, E. Wheeler	213,855
Brick kilns, fireproof arch for, J. R. Bowers	213,805
Brush block borer, C. A. Mahle (r)	8,647
Buckle, C. Hersome (r)	8,655
Building, fireproof, J. J. Schillinger	213,845
Burglar alarm, J. A. Reese	213,936
Burial case, Leach & Hiser	213,762
Car brake, railway, G. Marshall	213,915
Car coupling, W. J. Orr	213,928
Car coupling, Shafer & Ewart	213,946
Car drawbar, railway, J. H. Coxey	213,810
Car starter, A Christin	213,872
Car starter, S. Graham	213,895
Car starter, W. A. Warriner	213,959
Car, street, W. P. Hansell	213,889
Carbureter, air and gas, E. A. C. Pew	213,931
Card clothing, H. E. Cunningham	213,876
Carriage door sash frame, W. Ruby	213,778
Carriage top, F. A. Presko	213,933
Cartridge, J. E. Tyler	213,958
Cartridge loader, C. A. R Dimon	213,877
Caster, sewing machine, J. O. Sloan	213,844
Chain, log or bull, R. J. Millen	213,769
Cheese vats, milk agitator for, M. P. Jackson	213,755
Chests, construction of, G. V. Luce	213,913
Cigar stand, J Grzybowski	213,747
Cistern, drain, T. Houston	213,886
Clock pendulum clutch, E. Davies	213,811
Clothes line support, W. W Gledhill	213,746
Clothes pounder, C. F. K. Wilson	213,962
Cock, water and steam, W. H. Hoyt	213,903
Coin counter, H. Clark	213,738
Coin wrapper, G. Rettig (r)	8,649
Column, F. H. Smith	213,786
Cooker and steamer, T. Lee	213,763
Corn dropper and marker, J. A. & J J Stephenson	213,788
Crane, mail bag, H. M. Hall	213,750
Cultivator fender, A. & M. Simmons	213,948
Cultivator, wheel, A. Sanders	213,943
Curtain fixture, G. C. Mathers	213,917
Dam, D Tufts	213,957
Dental engine, H. Laurence	213,809
Dental plate, W. D. Holbrook	213,820
Desk and work table, writing, E Emanuel	213,814
Direct acting engine, W. F Garrison	213,880
Discharge pipe plug, wash basin, etc., J. S. Gilbert	213,881
Dish heater and holder, S. R. Jarvis	213,904
Ditching machine, Grant & McClelland	213,897
Dyeing aniline black, H. Kinsbourg	213,907
Egg carrier, J. L. Stevens	213,848, 213,849, 213,850
Egg lifter, B. W Nelson	213,772
Feed water heater, Goodwin & Joyce	213,892
Fence, J. R Elliott	213,882
Fence, A. G. Powell	213,832
Fence, D Wright	213,709
Fence, iron, I. L. Sherman	213,947
Fiber, animal, J. A. Southmayd	213,949
Fiber separator, J. A. Southmayd	213,950
File, letter, J. F. Tapley	213,852
Filter, J. Grant	213,896
Firearm, breech-loading, C. A. King	213,760
Firearm, magazine, A. Burgess	213,866 to 213,869
Fire kindler, J. McShane	213,768
Fireproof box for papers, etc., N. Fowler (r)	8,654
Forging hammers, D. Maydole	213,766
Fur articles, S. D. Castle	213,736
Furs, treating, S. D. Castle	213,735
Furnace, E. W. & C. W. Blair	213,861
Gas burner, M. B. & C. G. Dyott	213,879
Gas lighter, electric, W. H. H. Whiting	213,795
Gas meter, wet, G. Lizars	213,911
Gas regulator, S. F. Leach	213,910
Glass furnace, D. Agnew	213,858
Gold beater, J. H. Cooper	213,874
Grain, apparatus for removing germs and fuzz from, Potts & Parson	213,774
Grain binder, F. W. Randall	213,838
Grain separator, W. S. Reeder	213,934
Grain separators, straw carrier for, W. S. Reeder	213,935
Grate bar, J Ashcroft	213,730
Grave or tomb, J. H. Thorp	213,790
Grinding mill, middlings, J. Mills	213,922
Guano and seed distributer, J. Scoggin	213,843
Gun, magazine, A. Burgess	213,865
Harness, gag runner for, W. M. Blain	213,862
Harvester grinder, R. P. Clarke	213,873
Hat, wire brim, L. T. Smith	213,846
Hay rake, horse, A. W. Mathis	213,839
Heating pot, H. J. Nelson	213,926
Heel shave, H. A. Lothrop	213,827
Heel trimmer, J H. Busell	213,806
Horse blinder, I. R. Armstrong	213,800
Horse power, P. K. Dederick	213,742
Horseshoe weight, J. Robinson	213,939
Hot air engine, H. W. Sherrill	213,783
Hot air furnace, W. J Towne	213,791
Hydraulic engine, L. K. Fuller	213,745
Hydraulic engine, J. Talley, Jr	213,952
Infusions, making, R. U. Etzensberger	213,815
Inlaying metallic scroll ornaments in hard rubber and allied gums, M. Smith	213,784
Joint for solid and tubular connections, C. H. Jackson	213,754
Knit vest or jacket for female wear, J Cave	213,808
Knitting machine, E Tiffany	213,956
Ladders. portable platform for fire and other, M. Cronin	213,741
Lamp, C. F Spencer	213,951
Lantern, railway signal, D. W. F. De Grange	213,812
Lasting machine. device for applying power from a rotating shaft to a, Woodward & Brock	213,857
Latch, closet, W. E Sparks (r)	8,644, 8,645
Levees, protecting, J. Johnson	213,822
Liniment, S. C Buchanan	213,863
Log roller, E. Tarrant	213,953
Loom temple, Porter & Clark (r)	8,656
Lounge, folding, O. Stechhan	213,847
Machinery motor, J. Williams *et al.*	213,797
Meat, preserving raw, A. A. Libby	213,824, 213,825, 213,826
Mechanical motor, A. G. Kiler	213,759
Metals, working cast malleable, E. Wheeler	213,856
Millstone pick, R J. Wheatly	213,961
Millstones, ventilating, G. Heifert	213,900
Naphtha burner, U. P. Smith	213,845
Nozzle, noise-quieting steam, T. Shaw (r)	8,643
Odor destroyer, B. J Tayman	213,853
Ore separating jigger, W. H. Plumb (r)	8,653
Ores in their natural situation, process and apparatus for melting, C. M. T. Du Motay	213,789
Ore reducer, J Seanor	213,782
Packing, piston, E. B. Colby	213,739
Packing spring, piston, J. Sadler	213,942
Padlock, W. C McGill	213,918
Padlock, Wirth & Wichert	213,798
Paper bags, making, Nugent & Burns	213,773
Paper perforator, W Koch	213,908
Pedal mechanism, W. R. McDonald	213,767
Peg rasper, W. B. Arnold	213,729
Pelts, finishing, S. D. Castle	213,737
Pencil, L. De Faber	213,884
Pianoforte action, G. O. V. Roedern	213,940
Pitman connection, A D. Love	213,912
Planters, check rower for corn, L. B. Berrien	213,732
Plow, C. V Dyer	213,878
Plow, gang, L. M Kelly	213,906
Printing press perforator, J. A. Carruth (r)	8,646
Printing press sheet deliverer, S. D. Tucker	213,793
Pump, double-acting, W. Rodda	213,776
Pump, force, W. H. Kacy	213,757
Pump, hydraulic, W. Foster	213,817

Punching machines, feeder for, T. R. Morgan. . 213,770
Railway bearing cushion, lamin., F. W. Schroeder 213,841
Railway, elevated, J Johnson 213,905
Railway track, portable, J. Morgan, Jr.... 213,923
Range, cooking, J. Jewett..... 213,756
Ratchet wrench, S. W. Martin..... 213,916
Reamer, H Reichardt. 213,937
Reclining chair, J. E. Graetz 213,894
Reflector, W J Flick 213,744
Refrigerating apparatus, B. F. Teal 213,954
Refrigeration or freezing of liquids, apparatus for the, H. J West..... 213,794
Refrigerator, A. H. Heinz. 213,751
Rein holder, C. M. & E. R. Parker 213,930
Roof, wooden, A J. Conner..... 213,740
Saddle, cart, E A. Franks 213,887
Saddle pads, fastener for harness, T. Buswell 213,870
Sandpapering machine, W Carlisle 213,507
Sash lock, H. A. Holt 213,821
Saw filing machine, T. L Nanney..... 213,925
Saw frame, Gage & Linscott..... 213,889
Saw handle, crosscut, M E. True 213,792
Scales, platform, Fairbanks & Spencer..... 213,743
Scales, weighing, D. Hallock..... 213,896
Scow dumping, M. P. Walsh..... 213,854
Screw press, P. R. Campbell 213,871
Sewer gas from basin overflows, device for preventing the escape of E. Blunt..... 213,862
Sewing machine needle bar, N. Hayden 213,819
Sheet metal coupling fastener, C F Henis. 213 901
Shipping case, W B & H C Atkinson. 213 859
Shoe holder, B Elliott 213,881
Shovel and spade metallic socket, H.A. Thompson 213,955
Soldering iron, J J Henry 213,902
Spool or bobbin, metallic, G. A. Lambert. 213 761
Spoon, sheet metal, J Fallows (r).... 8,650
Steam boiler, upright, P Quinn 213,837
Steam pipes, etc., mould for the manufacture of heat-retaining coverings for, C. A. Evans.... 213 883
Stench trap connection R. McBee 213 831
Stocking knee protector W A. Lighthall 213 764
Stone moulder and surfacer J W. Maloy 213,828
Stone, etc polisher J W Maloy.... ..... 213 829
Stove hearth S. R Burton *et al*.... 213,864
Stud or button shirt D S Spaulding. 213 787
Stuffing box. H S Ross 213,777
Sugar mould, E Langen (r) 8,642
Swing S Mackbee 213,914
Tablet, manifold writing, Morris & McLane..... 213,771
Tap, barrel, E. J. Rubottom 213,839
Telegraph, automatic, A G. Ryder 213,779
Telephone, acoustic. J Draper 213813
Telephone signaler, Paris & Lange 213,929
Thill coupling, C. A. Williams 213,796
Thrashing machine straw carrier, F Kitten (r) ... 8 652
Time lock, C. E Chinnock 213,809
Tire tightener washer, D. R. Lucas..... 213,765
Toy hand car, F. R. Hadley..... 213 749
Truck, car, F. W Schroeder 213,840
Trunk catch C. H Nye 213,927
Valve gear, steam pump L. J Knowles 213,823
Vapor or gas engine, F. A. T De Beauregard..... 213,860
Vegetable parer, H. Ehmann 213,880
Vehicle spring, O S. Gorton 213,893
Vehicle spring, A. Gummer..... 213,748
Vehicle spring, W. S Haggard 213,818
Vehicle spring brace, J. P. Fuller 213,888
Violin chin rest, H. C. Barnes. 213,804
Vise, G B Foote 213,816
Voting register, electric, R O Crowley 213,875
Wagon body corner iron, J. L. Morgan 213,924
Wagon, road, C. W. Saladee..... 213,780
Washing machine, C P Rood 213,941
Watch key, adjustable, W Haines (r)..... 8,648
Watch, stem winding and setting, U Oppliger . . 213,833
Water closet, F Pohley..... 213835
Water closet cistern, automatic, S. McKissock.. 213,920
Water cooler, Quigley & Grayson..... 213,836
Water meter, oscillating, S T Sanford..... 213,944
Water motor, W R. Fox 213 885
Water wheel, turbine, J McLucas 213,921
Wells, rod coupling for oil, Z. McGinnis 213,919
Wind wheel, G Schweizer... 213,781
Windmill, T. Bickerman 213801
Windmill, Warwick & Marshall 213,960
Wire rope, sheave for, C W. Hunt 213,753
Wooden box trimmer, J. Bozorth 213,734

TRADE MARKS.

Cotton piece goods, Stark Mills..... 7,142
Cough and croup sirup, C. B Kingsley 7,140
Gin, F. Boegler 7,146
Ginger ale, Cantrell & Cochrane..... 7,148
Gloves, Goodyear's India Rubber Glove Manufacturing Company 7,149
Hair tonic restorative, and dressing Ziegler & Case 7,145
Leather Kiefer, Stifel & Co..... 7,143
Metal polish H. Behr & Co. 7,139
Neat's foot oil, H J. Linneman 7,150
Needles, Liebenroth Von Auw & Co..... 7,141
Plows, Carr & Hobson 7 147
Salves and pills, Jahne & Co 7,145
Silk ribbon, J. Silbermann 7,151
Soap, F. S. & T M Lincoln 7,154
Standard weights and measures, College of Pharmacy of the City of New York 7,144
Tonic cordial, J Tardos..... 7,152
Whisky, Lathrop & Leigh 7,153

DESIGNS.

Buttons, T. F. N. Finch..... 11,137
Carpet, C. Magee 11,130
Carpet, D. McNair..... 11,136
Corset, M. P Bray..... 11,127
Font of printing types, J M. Conner 11,128
Handkerchief, J. Nightingale 11,134
Oil cloth, T. E. Pennell 11,135
Oil cloth, J. Hutchison 11,129
Oil cloth, C. T. & V. E. Meyer.....11,131 to 11,133

English Patents Issued to Americans.

From April 1 to April 8, inclusive

Animal fibers, material from, J A Southmayd, U. S.
Berths, G. Sickels, Boston, Mass
Boxes for transmitting samples, F. F. Atkinson, New York city
Cooking food, J W. Jones, Portland, Me.
Driving mechanism, L. Steinberger, Philadelphia, Pa.
Furnace for steam boilers, C. Smith, Irwin's Station, Pa.
Keyboards for pianofortes, H. Heubach, Brooklyn, N.Y.
Locks and keys, H. E. Russell, New Britain, Conn.
Machine guns, E. G. Parkhurst, Hartford, Conn.
Mill for grinding wheat, S. Potts *et al*., Minneapolis, Minn.
Motive power, J. Williams, Sharpsburg, Pa.
Piston rod packing, T. Tripp, East Stoughton, Mass.
Printing presses, G. W Prouty, Boston, Mass.
Refrigerating apparatus. J. M. Dalton *et al*., Philadelphia, Pa.
Speed indicator, C. C. Jenkins *et al*., Philadelphia, Pa.
Ventilating sewer pipes, etc., A. W. Rand, Philadelphia, Pa.

GENERAL TABLE OF CONTENTS

Of the SCIENTIFIC AMERICAN Export Edition for April, 1879.

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.