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 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) W. C. asks: 1. Does iron, when subjected to intense cold, become more brittle? A. See answer to C. P., page 106 (3), current volume. 2. Can a perfectly round ball be made to travel in a horizontal curved line? A. Yes. 3. What is the simplest way of making a fire assay of metal specimens? A. It depends upon the character of ore and the metals to be determined. It is probable an article on the subject will shortly appear in this paper. 4. Where can I obtain double sulphate of nickel, also pure nickel? A. Almost any druggist can procure it for you. See our advertisment columns for addresses of dealers in electroplating supplies. 5. What is the best manner of connecting the battery with a silver plat bath? A. See article on page 81, current volume. 6. Can cast iron be welded in a common forge fire without the aid of anything except the hammer? A. Not satisfactorily. 7. Can iron wire (small) be welded to any extent in any manner? A. They may be welded at a bright red heat by cleaning with a little borax glass powder and hammering together.

(2) T. F. asks (1) for test for pure cream tartar and soda. A. Dissolve a sample of the tartar in hot water and note whether any impurities remain behind. Acidify with a little nitric acid, and add solution of barium sulphate. A precipitate indicates the presence of sulphuric acid—probably as sulphate or soda or potassa. Weigh out 188 grains of the dry sample, dissolve in hot water, filter, and add a filtered solution of lead acetate. Filter, dry the precipitate at 212° Fah., and weigh it; it should weigh 355 grains, corresponding to about 80 per cent tartaric acid. 20 grains commercial bicarbonate of soda should just neutralize 18 grains pure tartaric acid. It should dissolve completely in 40 parts of water, and the solution should remain unaltered on adding solution of pure corrosive sublimate, platinum chloride or sulphate of magnesia. 2. How is powder bluing made for washing? A. *a*. Use aniline blue in powder. *b*. Triturate thoroughly fine prussian blue with about one-twelfth its weight of ferro-cyanide of potassium and a little water; mould and dry. *c*. Nearly neutralize indigo sulphate paste with soda, and dry. *d*. Purify finest blue ultramarine by elutriation. 3. What are the pictures called oilgraphs, and how made? A. The picture or design is made translucent by saturating it with castor oil, then fastened between two glass plates.

(3) H. H. F. asks for full practical information on enameling on wood in black, like parlor organ stops and knobs. A. Seed lac and pale resin, each 2 oz.; alcohol, 1 pint. Warm the wood in an oven, apply the varnish quickly and evenly; let dry, give another coat, and when dry rub down with pumice stone. For a black body, dissolve 4 oz. shellac in 1 pint of alcohol, and mix up to color with ivory black in impalpable powder; give the work one or more flowing coats of this, and heat in an oven (gradually) to about 400° Fah., for half an hour. After cooling somewhat give a flowing coat of pale spirit-copal varnish, harden again in the oven, and polish with felt and tripoli, finishing with a trace of oil. For white ground mix washed flake white with one-sixth its weight of starch, grind very finely, and temper with mastic varnish. Harden by heat, and lay on 5 coats of the following: Seed lac, 2; gum anime, 3; coarsely powder, dissolve in 1 quart of alcohol, and strain. Harden and polish as before, using putty powder.

(4) R. S. T. asks: What will give ink a fine gloss? A. Add a little nitric acid to any good gall iron ink and increase the amount of gum arabic and sugar sufficiently. Or add gum arabic to a strong hot aqueous solution of soluble nigrosine.

(5) E. V. writes: I have a large quantity of frosted silver to keep clean. Could you recommend something in the way of a bath to keep it in good order? A. Try a solution of 1 oz. cyanide of potassium in 1 pint water (cyanide is very poisonous, and must be handled accordingly). Rinse thoroughly in running water and then in hot water. The heat imparted by the latter will cause to dry at once when taken out.

(6) C. M. K. asks: What effect would tartaric acid have on the system when used as a beverage? A. In small quantities it is a comparatively harmless refrigerative. In large quantities, or in a concentrated form, it is, in common with other acids, a corrosive poison.

(7) J. H. C. asks (1) how to make the cable insulating material used in making electrical condensers. A. The following composition is used for the purpose: Linseed oil, 2 parts; cotton seed oil, 1; heavy petroleum, 2; light coal tar, 2; Venice turpentine, ½; spirits of turpentine, 1; gutta-percha, ½; sulphur, 2; heat the oils separately to about 300° Fah.; cool to 240°, and mix in the other materials, the sulphur last. Heat to 300° Fah., for about an hour or until the mixture becomes pasty, and on cooling is soft and elastic. 2. How many feet of No. 35 copper wire is used in a Brush or Edison electric machine to produce a light of eight candles? A. No. 35 wire is too fine for a Brush or Edison machine. The size of the wire will depend on the size of the machine and upon the manner in which it is to be used.

(8) J. S. asks: What is put in the starch to make collars and cuffs stiff and also to give them a gloss? A. Moisten the surface of the starched articles with a rag dipped in a mixture of raw starch (unboiled starch mixed with a little warm water) to which has been added a small quantity of gum arabic and well beaten white of egg. Use a polishing iron.

(9) M. C. M. asks: 1. Is there a cure for hydrophobia? If so, what is it and where can it be had? A. See articles on this subject, pp. 299 (No. 19), 797 (No. 50), 957 (No. 60), and 1006 (No. 63), SCIENTIFIC AMERICAN SUPPLEMENT, and pp. 120 and 320, vol. xxxix., 129, vol. xxxv., 274, vol. xxxvi., and 326, vol. xxxvii., SCIENTIFIC AMERICAN. 2. What will make a good black japan for small castings and how used? A. Asphaltum, ½ lb.; melt and add hot balsam of capivi, 1 lb.; mix well and thin with oil of turpentine. Give three coats, and dry in an oven at between 250° to 300° Fah.

(10) R. A. & J. S. ask: What is the best way to repair a rent in a rubber gas bag? A. Use a benzole solution of caoutchouc or marine glue. See receipts in SCIENTIFIC AMERICAN SUPPLEMENT, No. 158.

(11) F. J. H. asks: With a ten foot pulley as driver on to a six foot pulley as driven what distance between centers will produce the best result in belting in transmitting power? A. There is no definite rule, but the shafts should be so far apart as that the belt would have a decided "sag" on both parts. We think from six to eight times the diameter of the smallest pulley would operate very well.

(12) E. S. W. asks: Is there any rule for sparring and putting a center board well in a three-mast schooner, also what is the rule for stationing the masts in a narrow flat two mast schooner? Is there any architectural work in use in which I could find these things? A. We know of no published work which will give you the information. Your masts for schooner should be so placed that the center of effort of the sails shall be a little forward of the center of length on water line.

(13) H. & W. ask: Would the heating of carriage tires in boiling water expand sufficiently to be placed on the wheel? If so, it would be a great benefit, as the heat would be equal all round, and no burning of the rim, also the contraction equal. A. The slight expansion caused by the heat of boiling water would be of no use. The iron requires to be heated above the temperature of melted lead to grip the tire properly on chilling. The best method of heating tires that we know of is the gas heating apparatus illustrated on p. 66, vol. xlii., SCIENTIFIC AMERICAN.

(14) A. W. W. writes: 1. I want to find a composition or substance which has the property of being pliable and of taking and retaining a clear impression, but which can be again worked over and used. A. Gutta percha alone, or tempered with a little pitch, will probably answer your requirements. It is easily softened by gently heating in water or otherwise. Gelatine-glycerine moulds may also prove serviceable. See answer to A. T. G. (14), p. 106, current volume. 2. What kind of ink is used for inking ribbons of hand stamps? It seems to not dry while upon the ribbon. A. Dissolve a sufficient quantity of good aniline violet, blue or red, in warm glycerine by digestion and trituration.

(15) S. H. writes: In calculating the horse power of an engine we are directed to multiply the square, diameter, etc., by the speed of piston in feet per minute, etc. A light engine runs at a higher speed than one carrying a load. How am I to allow for this? It is self evident that as the load varies so will the speed of the piston. Though the engine may be working up to the same pressure, yet the result of the calculations, owing to the varying load, would greatly differ. A. The pressure on the piston is determined by the work the engine is doing, not by the pressure in the boiler. Then, of course, the less work or load the less pressure on the piston and the engine working at less horse power.

(16) A. E. F. asks: 1. Can you give me a good receipt for a baking powder? A. Bicarbonate of soda, 20 oz.; bitartrate of potassa (cream of tartar), 45 oz.; fine starch, 35 oz. Dry each separately and mix thoroughly. It must be kept from moisture. 2. What change takes place when it is mixed, in bread making? A. The reaction may be expressed as follows:

$$\underset{\text{Bitartrate of potassa}}{C_4H_5KO_6} + \underset{\text{Bicarbonate of soda,}}{HNaCO_3} = \underset{\text{Tartrate of potash and soda,}}{C_4H_4KNaO_6} + \underset{\text{Carbonic acid,}}{CO_2} + \underset{\text{Water}}{H_2O}$$

(17) D. H. D. asks: 1. What is the composition of an amalgam for the rubber of an electrical machine? A. Mercury, 4 parts; zinc, 8 parts; tin, 2 parts. Melt the zinc, add the tin, stir it well and pour it, not too hot, into a wooden box coated internally with chalk and into which the mercury (heated) has first been poured. The cover is put on and the box violently shaken until the amalgam becomes cool. It is then finely pulverized in a mortar, and is mixed with a little lard and applied to the cushions. Care should be taken not to inhale the fumes of the mercury. Amalgam that will answer nearly if not quite as well as the above may be made by mixing fine zinc and tin filings with mercury in the proportions given, and allowing the mixture to stand for a day or so befor rubbing it up in a mortar. 2. Should the rubber of the exciting plate of a two plate Holz machine be coated with the same amalgam as an ordinary friction machine? A. No.

(18) W. A. P. asks: 1. How long a line will a telephone made as described in SUPPLEMENT, No. 142, work over? A. Five miles or more. 2. In making the magneto-telephone call, as per SUPPLEMENT, No. 162, how much wire and what size should be wound on the bobbins? A. six to eight layers of No. 36.

(19) L. M. writes: 1. I am making a dynamo-electric machine, as described in SCIENTIFIC AMERICAN SUPPLEMENT, No. 161. Now, what I want to know is whether the wire (No. 14) with which the connections under the base are made must be cotton covered or whether naked wire would do? A. This is immaterial, so long as there are no crosses; but for safety it is better to insulate with rubber tube. 2. I have turned the armature three-thirty-seconds of an inch smaller than the cylindrical cavity in the electro-magnet is bored out. Is that too small? should the armature fit closer? A. Your armature is too small. It should fit as closely as possible without touching. 3. Would a piece of hard wood (maple), well coated with shellac, answer for the commutator? A. Yes.

(20) I. B. C. asks: Cannot a platinum wire of the same length be substituted for the smaller carbon of George M. Hopkins' transmitter, illustrated in SCIENTIFIC AMERICAN, of March 19, 1881, with an improved result? A. We believe this has been tried, and preference given to the carbon.

(21) C. R. writes: We heat the liquors in our tannery by passing the exhaust from our engine, through a copper pipe, which lies in the bottom of a long dall, through which we run the liquor. Occasionally there occur, as it were, explosions which burst the copper pipe with a tremendous force. Would you tell me how this could be avoided? A. We think your trouble must be from a bad arrangement of the pipes, allowing water to accumulate; or it may possibly occur from a leak in the pipes.

(22) C. W. S. writes: I have been much pleased with and instructed by the article upon "Amateur Mechanics" in your issue of March 5, 1881, and I should feel greatly obliged if your correspondent "M" would further explain some of the details of the attachments therein described and illustrated: 1. The size or sizes best adapted for the cutter heads, Nos. 3 and 4. A. This will depend on the size of the lathe and the speed at which it may be driven. If the lathe is capable of being driven fast enough to turn small wooden articles a head 1½ inches square will be right. 2. The length and size of the bar No. 5 for fluting, and the material of which it should be made? A. The size and length of the twisted bar will depend entirely on the kind of work to be done. For small work the bar may be of iron a quarter of an inch thick and three quarters of an inch wide. 3. How can the taper bole be bored for the mandrel from the underside of the top end of the frame No. 7, for moulding? The lower end or arm being directly in the way, I can see no other way but to make one of the arms separate, and then secure it to the frame after the hole is drilled and reamed. A. The holes in the top and bottom of the frame are first bored straight through, then a tapered reamer having a shank small enough to pass down through the screw holes at the bottom of the frame is inserted, and a bushing filling the screw hole and forming a bearing for the

reamer shank is put into place. The hole is then reamed, the reamer being driven by inserting the projecting end in a drill chuck. 4. Will the edge of the cutter head, G, No. 7, cut in wood? The edge being a right angle, instead of an angle of 60° or less, I should suppose it would scrape and tear instead of cutting. A. The cutter will cut without difficulty. 5. If M., or some one of your correspondents, would write a chapter upon a milling or planing attachment for the lathe, I am confident it would afford great satisfaction to many of your subscribers besides myself. A. You will find a chapter on milling attachments by "M." on page 340, vol. xl., SCIENTIFIC AMERICAN.

(23) F. L. W. asks: Can you give me any suggestions through your Hints to Correspondents, as to the best means of conducting water from my spring to my house, being situated about ten rods apart, the spring being about three feet lower than the house? My present mode of bringing it is by means of a pail suspended beneath a four wheeled iron car, which runs upon a track consisting of two wires. The track is built with sufficient grade as to cause the car to run to the spring and dip the pail. It is then drawn back by means of a cord attached to a wheel about two feet in diameter. By this means I am able at any time to obtain good fresh water, and can bring it right into the kitchen, but after building my new house my living rooms will be next to the spring and my kitchen on the back. Can I build my track on a curve so as to bring it to my kitchen? If not, what is the best means of conveying pure and fresh water from my spring to my house? A. You can work your car on a curve by proper arrangements. Would it not be better to sink a reservoir or cistern below the height of the spring and near or under your kitchen, lead the water from the spring to the reservoir by a pipe, and then pump the water for the uses of the house?

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

B. J. & Co.—1. Syenite. 2. Limestone. 3. Traprock. 4. Hematite—iron ore. 5. Calcareous clay. 6. Quartzose rock—contains gold and probably silver. 7. Limonite—iron ore.—E. M.—Arsenopyrite—arsenical sulphide of iron. It contains a trace of nickel.—E. P. St. J. —1 Crocidolite. 2. Amianthus—asbestos. 3. Talcose-schist. 4. Augite. 5. Alumite. 6. Talc.—F. M. D.—A fine variety of quartz sand.—J. J S.—Iron sulphide—contains a little copper, arsenic, antimony, and probably traces of silver. 2. Quartz, with a little erbusite. 3. Arsenical sulphide of iron and copper. 4. Powdered iron ore. 5. Powdered ferruginous and silicious limestone.—J. E. W.—Rich auriferous quartz—would probably assay about $2,000 a ton.—J. J.—Biotite—a variety of mica—and orthoclase.

COMMUNICATIONS RECEIVED.

On a Telephone Hook Switch. By J. H. S.
On a Petrified Human Skull. By T. G. H.
Ship Railroad Across the Isthmus. By J. A.
On a System of Weights and Measures. By D. B.

NEW BOOKS AND PUBLICATIONS.

UNITED STATES DEPARTMENT OF AGRICULTURE. SPECIAL REPORT (No. 28) ON THE CULTURE OF THE SUGAR BEET AND THE MANUFACTURE OF SUGAR THEREFROM IN FRANCE AND THE UNITED STATES. By William McMurtrie, E.M., Ph.D. Washington: Government Printing Office. 8vo, pp. 294.

A valuable study of the history, conditions, and success of the sugar beet industry in France, with suggestions applicable to the development of the industry in this country. Appendix A contains nearly half a hundred cuts of the more essential apparatus and machinery used abroad in the production of beet root sugar. The other appendices contain summaries of experiments made in this country and other related information.

ANNUAL REPORT OF THE BOARD OF REGENTS OF THE SMITHSONIAN INSTITUTION FOR 1879. Washington: Government Printing Office.

Contains, in addition to the annual report of the operations and condition of the institution, and related matters, a considerable number of important scientific papers much space being given to American anthropological researches.

REMINISCENCES OF DR. SPURZHEIM AND GEORGE COMBE. By Nahum Capen, LL.D. New York: Fowler & Wells.

The disciples of phrenology will welcome this sketch by one who was closely associated with Dr. Spurzheim during the closing months of his life, and who for nearly half a century has been prominent in that school of philosophy The larger part of the book is devoted to a review of the progress of phrenology from the days of Gall to those of Combe.

CHIPS FROM THE WHITE HOUSE, COMPILED BY JEREMIAH CHAPLIN. Boston: D. Lothrop & Co.

An unobjectionable book, whose reason for existence is not apparent. It is made up of selections from the speeches, conversations, diaries, letters, and other writings of the several Presidents of the United States.

THE LOCOMOTIVE. Published by the Hartford Steam Boiler Inspection and Insurance Company. New Series. Vol. I. Hartford, Conn.

The first twelve numbers of the *Locomotive* in its new form make a modest octavo book of some 200 pages, well packed with valuable information relative to boilers and boiler explosions. The publishers give little countenance to the "mysterious" in boiler accidents so-called, believing that boilers do not explode when properly made and managed. They recognize four causes of explosion: bad material; faults in type; bad work in construction; and inefficiency and carelessness in management. From this point of view boiler explosions are not so much accidents as crimes.

REPORT OF THE BOARD TO RECOMMEND A STANDARD GAUGE FOR BOLTS, NUTS, AND SCREW THREADS FOR THE UNITED STATES NAVY, May, 1868. Washington: Government Printing Office. 1880.

An examination of the systems of bolts and nuts in general use, with the reasons which led to the recommendations of the system of Mr. William Sellers, for use in the American navy.

CONCISE DESCRIPTION OF THE EAST RIVER BRIDGE. By E. F. Farrington, Master Mechanic. New York: C. D. Wynkoop. Paper, 50 cents.

In this pamphlet of 62 pages Mr. Farrington has given an interesting popular account of the manner in which the great work has been carried on, with details of construction and kindred matters. The accompanying engravings are in the best sense of the word illustrations.

[OFFICIAL.]

INDEX OF INVENTIONS

FOR WHICH

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

March 8, 1881,

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 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. 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.

Aluminous cake, manufacture of, C. Semper..... 238,613
Audiphone, C. Davega..... 238,576
Axle box, car, A. Higley (r)..... 9,597
Axle box, car, W. G. Raoul..... 238,610
Bag lock, A. Bratt..... 238,745
Baking powder, C. A. Catlin..... 238,570
Barrel forming machine, S. Wright..... 238,743
Barrel head, T. G. Turner..... 238,620
Bed bottom, spring, H. A. Dalrymple..... 238,490
Bed bottom, spring, Walmer & Emery..... 238,540
Bed, metallic spring, P. H. Mellon..... 238,703
Bedstead, sofa, C. Streit..... 238,728
Bedstead, wardrobe, A. L. & C. A. Warner..... 238,622
Bell boat, W. R. Close..... 238,572
Billiard chalk holder, J. H. Alexander..... 238,629
Billiard table chalk holder, J. Jefferson..... 238,591
Bitters, S. A. Groff..... 238,581
Boiler furnace, steam, J. Alves..... 238,546
Bookbinder's press, J. W. Jones (r)..... 9,598
Book, scrap, F. Bowman..... 238,560
Boot and shoe sole, L. Slessinger..... 238,534
Boot and shoe sole trimming machine, J. W. Dodge 238,661
Bottle holder, M. Korff..... 238,697
Bottle stopper, C. B. Sponsler..... 238,726
Bouquet holder, T. W. Ryder..... 238,611
Bracelet, R. Oliver..... 238,520
Brick machine, G. Logan..... 238,699
Brooches and pins, safety fastening for, Zierleyn & Carstens..... 238,744
Buckles, manufacturing, W. F. Osborne (r)..... 9,600
Burglar alarm, R. G. Dudly..... 238,663
Button and fastening, combined, G. W. Prentice. 238,523
Button, separable, J. F. Blood..... 238,638
Cages, fastening for intersecting wires of, M. J. Stark..... 238,617
Camera plate holder, M. Flammang..... 238,669
Can protector and lifter, S. W. Brown..... 238,562
Candies, cakes, etc., manufacture of, I. W. Heysinger..... 238,587
Car brake, R. Hitchcock..... 238,686
Car brake, A. F. Martel..... 238,512
Car brake and starter, A. E. Hoadley..... 238,568
Car coupling, D. M. Elliott..... 238,494
Car coupling tool, M. M. Kirby..... 238,694
Car, freight, G. D. Benjamin..... 238,555
Car running gear, street, J. Stephenson..... 238,618
Car wheel, A. Rogers..... 238,717
Cars, safety step for freight, C. Carpenter..... 238,484
Carding machine, wool, W. E. & H. W. Bosworth. 238,559
Carpet sweeper, W. J. Drew..... 238,662
Carriage top, H. Lines..... 238,597
Carriage top, child's, Galt & Blaisdell..... 238,672
Carriage top prop block, J. Watters..... 238,541
Caster, furniture, O. S. Garretson..... 238,673
Caster, trunk, C. E. Crone..... 238,658
Casting metals, method of and apparatus for, W. McElroy..... 238,515
Centrifugal machine, T. Shaw..... 238,536
Chair head rest, C. J. Petersen..... 238,711
Chair seat, G. E. Davis..... 238,491
Churn, rotary, R. Murphy..... 238,519
Cigar machine, O. Hammerstein..... 238,500
Cigarette machine, J. A. Bonsack..... 238,640
Clutch, machinery, F. Dubrul..... 238,577
Coffins, pedestal for supporting, A. B. Russ..... 238,530
Coke oven lorries or tramway cars, device for operating, D. Carlin..... 238,646
Collar, horse, L. Guinnip..... 238,499
Collars and cuffs, machine for folding and shaping, J. G. Crawford..... 238,656
Compasses, card and magnetic needle for mariners', Lewis & Brown..... 238,508
Cooking vessels, caloric safe for, J. M. Harney... 238,682
Corset busk, W. Bowers..... 238,642
Corset spring clasp, J. N. Thomson..... 238,731
Cot chair, folding, C. W. Soule..... 238,725
Cotton, hay, and tobacco press, W. W. Louis..... 238,511
Cradle, swing folding, V. A. Menuez..... 238,704
Crib and cradle combined, folding, J. B. Brolaski (r)..... 9,596
Cryptography, C. G. Burke..... 238,566
Dish, butter, A. Conradt..... 238,488
Ditching machine, Carter & Rennie..... 238,647
Dress shield, G. L. Witsil..... 238,742
Drills, adjusting attachment for the posts of power, C. P. Purinton..... 238,712
Drying apparatus, Scholfield & Schutte..... 238,531
Drying oleaginous and other substances, apparatus for, G. B. Boomer..... 238,641
Dyeing machine, W. McAllister..... 239,514
Earthenware vessel, J. P. Sherwood..... 238,722
Egg beater, T. W. Brown..... 238,565
Electric machine, dynamo, O. Lugo..... 238,700
Electric machine, dynamo or magneto, C. E. Ball. 238,631
Elevator, J. B. Underwood..... 238,734
Embroidery, manufacture of, J. Wiget..... 238,636
Eyeglass frame, L. Baum..... 238,632
Farm gate, J. M. Clay..... 238,486
Feeder for boilers, surface, C. N. Petesch..... 238,524
Fence, J. P. Brook..... 238,562
Fence, J. F. Johnson..... 238,693
Fence, metallic, W. H. Relcheneker..... 238,714
Fifth-wheel, C. Atwood..... 238,630
Firearm, magazine, W. Trabue..... 238,732
Fire escape, C. Barlow..... 238,551, 238,552
Flanging circular plates, machine for, M. W. Shapley..... 238,535
Fog signals, bell tower for, W. R. Close..... 238,573
Folding chair, L. C. Hayden..... 238,585
Folding chair, F. F. Parker..... 238,708
Foot rest, T. G. Maguire..... 238,600
Furniture, combined piece of, C. F. C. Knauff..... 238,696
Gas generator, hydrocarbon, P. J. Fitzgerald..... 238,668
Gate wheel, hinged, W. H. Wright..... 238,542
Gearing, I. E. Merritt..... 238,516
Glass and smelting metals, pot and crucible for making, E. Rosenzi..... 238,718
Glove clasp, J. Tréfousse..... 238,539
Gold washing machine, S. P. Bressler..... 238,643
Governor, steam engine, P. Jordan..... 238,593
Grain binder, S. V. Essick..... 238,747
Grain binding machine, C. L. Travis..... 238,750
Grain, device for unloading and conveying, G. D. Benjamin..... 238,554
Grain drill, S. B. Hart..... 238,683
Grain drill, J. T. West..... 238,736
Grate, agitating and dumping, F. S. Bissell..... 238,636
Grinding grain, roller mill for, W. D. Gray..... 238,677
Harrow, C. S. Giger..... 238,675
Harrow, D. W. Scobie..... 238,533
Harrow, disk, J. S. Corbin..... 238,654, 238,655
Harvester thrasher, W. J. Little..... 238,510
Horse detacher, G. W. Healey..... 238,586
Horse rake, B. L. Smith..... 238,615
Hose plug, E. M. Zerbe..... 238,544
Hydrocarbon furnace, J. L. Kite..... 238,695
Injector, L. Schutte..... 238,612
Injector and condenser, exhaust steam, J. Wheelock..... 238,625
Iron and steel, process of and compound for treating, A. H. Siegfried..... 238,749
Iron in reverberatory or other furnaces, blast apparatus for treating, F. Würtenberger..... 238,628
Ironing table, shirt, R. Brenner..... 238,482
Knives, etc., machine for grinding, L. J. Baker... 238,549
Lambrequin, moulded fibrous, A. B. Replogle..... 238,527
Lamp, P. Casamajor..... 238,569
Lamp, J. L. Forsaith..... 238,497
Lamp, library, R. Marsh..... 238,601
Lard and similar substances from barrels, etc., apparatus for removing, R. S. Jennings..... 238,592
Latch, locking, G. W. Tallman..... 238,729
Leather, machinery for scouring and setting out, C. Holmes..... 238,589
Level, plumb, H. Hobson..... 238,687
Life saving chair, A. Wilson..... 238,741
Loom, Crompton & Wyman..... 238,575
Loom let-off motion, J. Cocker..... 238,650
Loom picker stick, S. C. Clatur..... 238,485
Loom reed, T. Stewart..... 238,538
Lubricator, J. Gates..... 238,674
Lubricator, C. H. Parshall (r)..... 9,601
Magnetic from non-magnetic substances, machine for separating, C. Wheeler, Jr..... 238,737
Mangle, J. G. Crawford..... 238,657
Measure, rotary, L. W. Brown..... 238,563
Mechanical motor for churns, etc., J. N. B. Lusk. 238,599
Medical compound, J. Keller..... 238,507
Milk cooler, P. L. Porter..... 238,609
Mole or gopher trap, H. W. Hales..... 238,583
Mosquito bar, H. Dunlap..... 238,665
Mucilage holders, stopper for, S. S. Newton (r)... 9,599
Muff, A. Pass..... 238,606
Netting frame, mosquito, A. H. Bailey..... 238,550
Nut lock, W. A. Ducker..... 238,578
Nut lock, J. R. Jones *et al*..... 238,596
Oils or solvents from fixed oils, apparatus for separating volatile, H. T. Yaryan..... 238,543
Ordnance, mounting and operating, A. Krupp... 238,698
Overflow indicator, J. P. Conlon..... 238,653
Package fastener, P. A. O'Malley..... 238,605
Paint can, C. E. Hore..... 238,505
Pantaloons, J. H. Clyde..... 238,574
Paper pulp engine, J. R. Abbe..... 238,545
Pavement, J. Murpby..... 238,706
Pen and pencil case, L. P. Warth..... 238,735
Permutation lock, F. G. Farnham..... 238,666
Permutation lock, O. E. Pillard..... 238,608
Pianoforte, R. Howson..... 238,690
Pianoforte, W. F. Ulman..... 238,733
Picture book, J. H. Walker..... 238,621
Pigment and manufacturing the same, white zinc, T. Griffiths..... 238,680
Pin for neckwear shields, W. W. Fichtenberg..... 238,667
Plaiting machine, F. R. Smith..... 238,616
Planing machine, wood, S. S. Hazeland..... 238,684
Planter, S. Mowry..... 238,705
Planter and fertilizer distributer, cotton, Wicklife & McCarter..... 238,738
Planter and guano distributer, cotton seed, Hood & Tift..... 238,590
Plow, wrought iron, J. G. Cockshutt..... 238,651
Pocketbook, J. G. Arms..... 238,480
Polisher, elastic, A. T. Harper..... 238,502
Power and imparting motion, mechanism for transmission of, J. D. Morrison..... 238,518
Pressure brake, fluid, W. P. Thompson..... 238,619
Printing and embossing plates, producing relief line, C. Sneider..... 238,724
Printing machine, Anthony & Taylor..... 238,547
Printing presses, cushioning device for, W. Scott 238,720
Proof press, W. Quail..... 238,525
Pulley, belt, P. Medart..... 238,702
Pulley, dead, M. H. Smith..... 238,723
Pulley, sash, C. H. Bayley..... 238,553
Pump, D. Gilbert..... 238,498
Pump, W. F. Mattes..... 238,513
Pump, air, W. R. Boerner..... 238,639
Pump bucket, chain, S. F. Lockwood..... 238,598
Pump plunger, F. M. Sherman..... 238,614
Pump, W. H. Birge..... 238,635
Pump, cuum, G. F. Badger..... 238,548
Radiator, steam, L. C. Rodier..... 238,529
Railway crossing, C. H. Morgan..... 238,517
Refrigerator, filter, and water cooler, combined, M. Greenebaum..... 238,679
Rock crusher, J. F. Golding..... 238,676
Rotary cutter, L. H. Page..... 238,522
Rotary engine, E. Medden..... 238,603
Rowboats, sliding seat for, McFarren, Jr., & Field 238,701
Rubber and gutta percha cloth, manufacture of India, C. A. Evans..... 238,496
Safe and extension dining table, combined kitchen, T. Erdin..... 238,495
Salt, manufacturing, J. Curran..... 238,659
Sash fastener, E. J. Steam s..... 238,727
Sash fastener, W. H. Wolfrath..... 238,627
Saw, E. Osgood..... 238,521
Saw cleaner for cotton gins, S. G. Cabell..... 238,645
Saw gummer, A. W. Clark..... 238,648
Scow, dumping, F. Pigeon..... 238,607
Sewing machine, G. Benson..... 238,556
Sewing machine motor, electro-magnetic, G. F. Green..... 238,678
Shaft coupling, C. E. Marston..... 238,602
Sheave, C. Ellis..... 238,579
Sheet metal cutter, E. M. Wilbor..... 238,739
Ships' bottoms, apparatus for scraping, J. Westberg..... 238,624
Shirt, G. Jaeger..... 238,691
Shoe nails, device for cutting, O. R. Chaplin..... 238,571
Shutter worker, R. G. Dudly..... 238,664
Shutter worker, J. S. O'Brien..... 238,604
Shutter worker, P. S. Robinson..... 238,716
Signs, composition for producing non-fading, J. Budd..... 248,483
Snap hook, J. G. Perry..... 238,710
Snow plow, G. J. Harding..... 238,501
Soldering apparatus, can, G. H. Gildersleeve..... 238,580
Spading machine, rotary, J. Schuchard..... 238,532
Spinning machine, Deal & Greeley..... 238,492
Spinning machines, thread contractor for, E. Kilburn..... 238,595
Stave steaming apparatus, E. & B. Holmes..... 238,688
Steaming apparatus, grain, J. F. Jensen..... 238,692
Steering boats in train, W. Frick..... 238,671
Stone or marble, artificial, D. G. Weems..... 238,623
Stove, coal oil, C. Riessner..... 238,528
Straw carrier attachment for separating grain from straw, J. S. Scott..... 238,719
Straw elevator, M. F. Hartman..... 238,584
Sugar refining, process of and apparatus for, S. M. Lillie..... 238,509
Syringe, L. M. Adams..... 238,477
Telegraph apparatus, chemical, C. A. Randall..... 238,713
Telegraph, multiplex, H. C. Nicholson..... 238,707
Telephone, F. Blake..... 238,558
Telephone, acoustic, H. Willard..... 238,740
Telephone call bell, M. L. Baxter..... 238,746
Telephone lines, signaling apparatus for, J. D. Richardson, Jr..... 238,715
Telephone, speaking, F. Blake..... 238,557
Telephonic apparatus, H. Howson..... 238,689
Therapeutical chair, electro, C. C. Sharp..... 238,721
Thill coupling, J. Bozorth..... 238,561
Thill coupling safety attachment, F. J. Flowers.. 238,670
Thrashing machine, L. & A. Y. Gray..... 238,748
Tire shrinking machine, G. W. Kemper..... 238,594
Tobacco compress, J. T. Drummond..... 238,493
Toy pail, E. Aldom..... 238,479
Toy pistol, H. Klassert..... 238,596
Tray and meal server, table, W. W. Reid..... 238,526
Truss, S. M. Bayard..... 238,481
Tubes, device for bending metal, W. H. Grubb... 238,582
Tug fastener, D. H. Smith..... 238,537
Tuyere, J. M. Hartman..... 238,503
Valve, puppet, J. Hemphill..... 238,685
Vapor burner, G. W. Billings..... 238,633, 238,634
Vapor burner, G. W. Clough (r)..... 9,602
Vehicle spring, H. S. Clark..... 238,649
Vehicle tops, shifting rail for, D. Conboy..... 238,652
Wagon bolster spring, J. R. Calhoun..... 238,567
Wagon brake, S. G. Thacker..... 238,730
Wagon running gear, M. Conrad..... 238,487
Wagon spring, W. R. Adams..... 238,478
Washing machine, W. Carter..... 238,568
Washing machine, D. T. Davis..... 238,660
Water supply valve, P. Harvey..... 238,504
Waterwheel, turbine, R. J. Brisack..... 238,644
Wheat, apparatus for bleaching, J. W. Blevin.. 238,637
Wheat, etc., apparatus for decorticating, J. Cornwell..... 238,489
Wool opening and cleaning machine, S. R. Parkhurst..... 238,709
Yoke for draught animals, neck, A. Harley..... 238,681

DESIGNS.

Cloths, nap surface of, F. Samson..... 12,184
Frames for sheaves or pulley blocks, C. W. Hunt.. 12,182
Jug, T. Mabbett, Jr..... 12,183

English Patents Issued to Americans.

From March 4 to March 8, 1881, inclusive.

Bottle cleaner, J. M. Hoyt, Lynn, Mass.
Bottle stopper, R. Robinson, Brooklyn, N. Y.
Door hanger, E. Prescott, Hampton Falls, N. H.
Dredged material, treating, F. A. Bishop, San Francisco, Cal.
Hose coupling, J. H. Hubbell *et al*., Boston, Mass.
Journal bearing, R. Jones, Braddocks, Pa.
Light, beacon, J. M. Foster, Philadelphia, Pa.
Link, open, W. A. Ingalls, Providence, R. I.
Loom, F. O. Tucker, Hartford, Conn.
Ordnance, N. B. Clark, Philadelphia, Pa.
Organ reed, J. Morgan, Brooklyn, N. Y.
Screws, moulding apparatus for casting, W. A. Ingalls, Providence, R. I.