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.

NEW BOOKS AND PUBLICATIONS.

OFFICIAL ARMY REGISTER FOR JANUARY, 1883. 8vo, pamph., pp. 394. Washington.

HOW TO BUILD A HOUSE. New York: C. B. P. Association, 24 Beekman Street. Price 50 cents.

WEALTH CREATION. By Augustus Mongredien, with an introduction by Simon Sterne. Cassell, Petter, Galpin & Co., New York, London, and Paris. pp. 308.

A proper understanding of the causes which produce wealth is a great promoter in the production of wealth. This most recent work on political economy attempts to make this clear by defining what wealth is, and discussing the aids and obstacles to its creation. The author also shows that education and morality both promote and are promoted by the creation of wealth. The most valuable portion of the book is that in which he shows the expense and cost of wars and war preparations, while he points out how worse than useless they are. His method of settling international differences would be by arbitration. In the appendix he gives the draught of a constitution that he would like to see adopted by the great and small powers of Europe, forming a council that should settle all differences. He believes free trade to be a boon to a nation whether others adopt it or not, for an excess of imports is mostly a sign of wealth, and, strange as it may sound, he asserts that protection discourages native industry. Notwithstanding some of these absurd statements, the book is deserving of a careful reading.

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.

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) L. M.—The method of obtaining boron by electricity is not satisfactory, as it can only be obtained in minute quantities. It is preferably prepared by treating boric acid with an equal weight of potassium and igniting the two at a strong heat in an iron tube.

(2) G. W. H. asks: 1. Should fine oil paintings ever be varnished? I have one that has been varnished. Should anything be done to modify the effects of the varnish, such as oiling or anything else? If it does not hurt an oil painting to varnish it, what varnish should be used? A. Most oil paintings are varnished. Nothing is to be done to modify its effects. If it is in bad condition, revarnish it. Use the finest mastic varnish; it comes expressly for this purpose. 2. Does the gas that escapes from soft coal stoves injure oil paintings to a serious extent? A. Gas has an injurious effect upon paintings in a general sense, but in your case the injury possibly depends upon the amount of gas escaping, etc. We do not believe it would be serious. 3. What varnish is used over silver leaf to make it look like gold? A. Use gold lacquer. 4. Can a correct thermometer be made open at the top? A. Yes, but if opened the oxygen of the air would in course of time oxidize the mercury and so injure its utility. Of course alcohol would volatilize in the case of an alcohol thermometer.

(3) F. A. D.—Oleate of soda is formed by heating equal parts of soda and oleic acid with a small quantity of water; it forms a gelatinous mass which must be purified by dissolving it in alcohol. Probably pure Marseilles soap will answer your purpose.

(4) C. R. asks how much boracic acid to use for preserving one hundred pounds of fresh meat. A. About six pounds, and it should be injected.

(5) O. W. B.—Krewanek's analysis of the composition on Swedish matches of one variety is: glass, 1¼ parts; glue, 1 part; potassium bichromate ⅛ part; potassium chlorate, 6¾ parts; iron peroxide, ½ part; black manganese oxide, 2 parts; sulphur, 1 part. Jettel thinks that half the amount of sulphur would be enough. The friction surface contained: glue 1⅛ parts; manganese 4⅛ parts; antimony sulphide, 16⅜ parts; and amorphous phosphorus, 10 parts.

(6) U. W. writes: In the manufacture of harness leather, we occasionally have spots from which the lime has not been worked. What shall we use to rub upon such spots neutralize the lime, so the leather will take the blacking, as it is impossible to black such spots under ordinary treatment, while the remainder of the leather blacks perfectly? A. The spots may be treated with a little dilute muriatic acid and then washed.

(7) J. O.—For indelible pencils take of

Kaolin	8 parts.
Finely powdered manganese dioxide	2 "
Silver nitrate	3 "

Mix and knead intimately with 5 parts of distilled water, then dry the mass and inclose it in wood. Transfer paper is made by rubbing white paper with a composition of 2 ounces tallow; half an ounce powdered black lead; a quarter of a pint of linseed oil; and sufficient lampblack to make it of consistency of cream. These should be melted together and rubbed while hot on the paper. When dry, it will be fit for use.

(8) H. H. W.—Lead amalgam may be prepared by triturating lead filings with the mercury or introducing the mercury into the lead when it is in a melted condition. Care should be taken to not inhale the fumes of the mercury.

(9) R. N. A.—The method of making luminous paint given in the SUPPLEMENT 249 referred to is the correct one. Still, it is possible that you did not use the right kind of oyster shells; we understand that the manufacturers claim that a certain kind must be used. "Flowers of sulphur," is a term used in distinction to "roll sulphur." It is prepared by carrying the vapor of sulphur into a cool room, where it condenses and falls in the shape of dust or flowers. Sublimed sulphur is the same as the flowers of sulphur.

(10) T. G. C.—In mixing glycerine and litharge a paste is obtained which will harden in from ten to twenty minutes, depending upon the amount of litharge used. See also SUPPLEMENT No. 158 for receipts for cements.

(11) G. W. L.—Hydrochloric acid will dissolve shells. Use a very dilute bath and watch the action; if it is too strong, acetic or citric acid may be used.

(12) M. G. M.—As a general rule, a one-quarter inch area per horse power is given for steam pipes for high pressure engines, where the distance is not great, or under 50 feet. This quantity has to tally with the standard sizes of pipe, if of wrought iron. Therefore, when they do not exactly agree, use the next size larger, as you may judge by the distance you have to carry the steam. For engines of less than 15 horse power, a less area may be used for short connections, say one-fifth of an inch.

(13) J. W. W.—The plant received with your late communication is Lespedeza striata, *Hook and Arn (Japan clover)*. It belongs to the leguminous or pulse family of plants, the same as the clover, pea, bean, etc. How or from where it was introduced into the Southern States is not known. See *American Naturalist*, vol. i., page 495, also ii., 39.

(14) G. H. R.—For a celestial eye piece for power of 80 to 100, use a field lens 1¼ inch focus and an eye lens of three-eighths inch focus—seven-eighths inch face to face of lens—plane sides next the eye Huyghens' form, diaphragm in the middle or focus of eye lens. The terrestrial eye piece described in SUPPLEMENT No. 252 will give you a power of about 40 with your object glass. Make the tube 2 inches shorter than the focal length of the object glass, so that the Huyghens eye piece will fit the adjusting tube when shoved well in. The terrestrial eye pieces must also be fitted to the adjusting tube, so that you can bring it to the focal range by pulling the adjusting tube out a short distance.

(15) W. M. asks: 1. How many miles per hour will water run in a ditch or race with one-quarter of an inch fall per rod; said race being (we will say) 4 feet wide on top, 2 feet 6 inches on the bottom, and 3 feet deep, and conveying about 400 inches of water; said race having several moderate curves per mile? A. Making moderate allowance for friction of bends, 2·15 miles per hour. 2. How much fall should such a race have per rod, in a tolerably tenacious subsoil, so as not to cut the sides? A. About 8 inches per mile.

(16) W. A. H. asks: 1. In making a magnet (horseshoe) by putting each end in a helix, will it increase the magnetism to let it remain a greater length of time or not? A. Beyond the period required to saturate the magnet, nothing is gained by prolonging the operation. A magnet can be fully charged almost instantaneously. 2. Will it be better to have the magnet made of a flat bar of steel, or a square one? I think that in a magnet made of a flat bar there will be more lines of force in proportion, from pole to pole, to act on the helix to be placed between them. A. Within reasonable limits the form of the bar makes very little difference. Probably the square form is best. 3. Will it give more power to make the helix of No. 33 gauge wire for a small machine, or should the wire be smaller? A. Finer wire would yield better results. Use No. 36. 4. In regard to the commutators, would it not be best to have the wire from each end of the helix join on to a collar at each end? A. You can arrange them in that way for alternating currents. For description of electric motor, see SUPPLEMENT No. 259.

(17) D. M. L. asks: 1. What is used for making paper labels adhere to tin? A. Starch paste to which a little Venice turpentine had been added while it was warm, answers very well. The following is good: Soften good glue in water, then boil it with strong vinegar, and thicken the liquid, during boiling, with a fine wheat flour, so that a paste results.

(18) J. S. R.—The following receipts are used to remove odorous compounds from porcelain and glassware, and might be found efficacious for your purpose. Wash the articles with ground mustard and some water. A. Huebner finds that ground flaxseed, almonds, and other oily seeds have the same effect.

(19) R. L.—Asbestos makes the most durable felting for cylinders. If you can get the crude asbestos, you can make a plastic material by crushing and mixing with one-tenth its weight of good clay; add enough water to work it, and plaster the cylinder. If you wish to use the pure asbestos felting, you may obtain it in sheets of dealers whose advertisements will be found in our advertising columns.

(20) J. T. S. writes: Noticing in your issue of March 10, among Notes and Queries, No. 1, J. F. asks: "What is the best cement, etc?" Please say to him that the very best cement in the world in his case is copper rivets. Drill through the pulley at regular intervals holes just as large as the rivets; drive from the outside and rivet inside. No cement however good will hold in this case, for the push of the belt will make the covering travel. There must be something to hold the belt positively. The leather covering should be first wet and drawn down tight as fast as the riveting progresses, and at the finish a square butt joint should be made. In the case of No. 2, I would drill through as before, and either countersink from inside and use wood screws or use tire bolts, in which case there would be no need of countersinking. When the lagging is being put on, glue the edges with good common glue. He will never be troubled with lagging coming off if put on in this way.

(21) A. W. asks: How hot can water be made with exhaust steam without a back pressure on engine? A. There is always some back pressure with a high pressure engine. It can be heated to 210° or 212° without more back pressure than is due to the atmosphere.

(22) W. M. K. asks: In increasing the speed of a well formed ship from say 15 to 18 knots per hour, what proportion of the increased resistance is due to skin friction? A. Frictional resistance varies with the model of the vessel, fairness of bottom, and smoothness of surface. For high speeds, for average proportions of model, etc., frictional resistance varies from 50 to 70 per cent of total resistance.

(23) M. B.—A pendulum for seconds in latitude 23° should be 9919·58 millimeters in length.

(24) W. H. P.—For your tin battery cells, dissolve shellac in alcohol, and add about a spoonful of turpentine to each quart of solution.

(25) A. W. B. asks: 1. How can I make a liquid that will burn with a red flame? Must be a liquid. A. Dissolve a lithium salt in alcohol, and it will burn red. 2. How can I give marbles or balls a gold or silver coating without plating them? A. Coat them with size and then cover them with bronze or gold powder.

(26) F. O. B.—For floor polish cut beeswax into small pieces or else grate it up. Add turpentine, allow the mixture to stand for twelve hours, then heat the mixture over the fire till it dissolves. Care must be taken not to heat the mixture too hot, and also the flame must not come too near, for explosive vapors are generated, which are liable to catch fire. Brushes specially manufactured are now in the market for polishing floors.

(27) H. G.—Railroad paint, are made by grinding the colors in a small portion of linseed oil, and the mixture is then thinned out with benzine; sometimes petroleum oils or resin oils are used.

(28) C. D. M. writes: 1. A friend and myself are building a small oscillating engine (2½ by 5 inches) for a launch 22 feet in length and 6 feet beam. Please inform me what length of piston rod you would recommend to get the greatest possible speed. A. Of length to give clearance from stuffing box bolts sufficient to screw up the gland when engine is running. 2. And what would that speed be with 60 pounds pressure? A. Speed not over six miles per hour, with a fair modeled boat. 3. What size boiler would we require? A. Should have about 48 feet heating surface.

(29) J. C. D. asks what kind of clay or mineral is used in the manufacture of aluminum. A. Decomposed feldspar or any common clay found anywhere and everywhere contains aluminum. Says an English authority in this connection: "The sources of aluminum are, therefore, boundless, and it lies at the doors of the richest and poorest members of society." It is the most common metal, with the exception of silicon, that there is.

(30) J. M. C. asks: Is there any preparation that will insure the adhesion of oil paint to copper plate so that it will not blister or peel off? A. The best cure for the difficulty would be proper treatment to begin with. Some of the necessary precautions to follow are that the copper should be thoroughly dried; no adhering moisture can be allowed to remain on the surface; also any extremes of temperature are to be avoided; the copper must not be cooled nor can be heated, and the paint must be allowed to thoroughly dry before the copper is used.

(31) I. P. S. asks how the beautiful blue finish is produced on brass instruments such as theodolites and transits. A. The steel gray or bluish tint upon instruments is made by dipping or washing with chloride of platinum solution, which is made by dissolving platinum in 2 parts muriatic (hydrochloric) acid, 1 part nitric acid, mixed; as much platinum as the quantity of acid you may wish to prepare will take up. Use platinum foil, put the whole in a glass bottle with wide mouth, cover loosely, and place in warm sand bath or any place where it will be as hot as boiling water for a few days, when it will be ready for use. As soon as the proper color is produced wash the articles in water. If the solution is not saturated, the brass will turn brown and rough.

(32) E. R. M.—A good cement for joining glass tubes to metal caps or connections is the following:

Glue, best white	11 ounces.
White curd soap	1 "
Plaster of Paris	3¼ lb.
Water	½ gallon.

The glue is put to soak over night in just enough of the water to well cover it. In the morning (or when properly softened) it is dissolved together with the soap in the rest of the water previously heated to boiling. When a quantity of the cement is required, a sufficient quantity of the plaster of Paris is mixed up quickly with enough of the warm liquid to form a smooth thin paste. This paste must be used at once, as it soon sets or hardens. When hardened, it is impervious to coal oil.

(33) R. O. B. asks where to obtain information concerning galvanizing metal, desiring to make use of the best process for galvanizing roofing material. A. We know of no book treating specially on galvanizing or zincking of iron. If you wish to galvanize sheet iron work, dip in a bath of muriatic acid 1 part, water 4 parts, leave the work in long enough to break up the scale; clean with brushes or scrapers so that the surfaces shall be free from scale or dirt. Then dip in a fresh bath of muriatic acid and water, 1 to 4, with about 1 ounce sal ammoniac to the gallon of solution. Then dry quickly and thoroughly in a hot oven or on hot plates of iron, and dip in the zinc bath. Never dip if any moisture remains among laps or rivets, for an explosion will ensue. Heat the zinc so that it will have a clear, shining surface. Sprinkle a little powdered sal ammoniac upon the surface to clear it. Skim away the dross.

(34) J. A. asks: How is the preservation of little fish in our aquariums at home explained. They live without apparently receiving the least bit of food for years, been kept in water very limpid? I refer specially to gold fish. A. Gold fish are a species of carp. They are vegetable feeders, and appear to thrive on the microscopic growths in ordinary water.

(35) A. W. W. writes: 1. I have tried to make a type metal casting from a perfectly dry plaster of Paris mould, but invariably gases seem to generate or an ebullition is set up by other causes, by which the casting is spoiled. What is the trouble? A. Use only plaster enough to hold the mould together, mix it rather thin with sifted coal ashes and sand, vent the mould thoroughly, and dry at a high temperature. 2. If two permanent magnets (steel) of about equal powers were brought into contact so that their several poles, as of horseshoe magnets, were touching, and then one of the magnets were revolved, so that *opposite* and *like* poles were alternately brought into contact (*a*) What would be the result to the magnets; would one destroy the other? (*b*) What would be the result if one of said magnets should be much more powerful than the other? (*c*) What would be the result if the magnets were not allowed to come into contact or did not quite touch? A. The alternating of the poles of two permanent magnets tends to destroy their polarity. (*a*) Yes. (*b*) The weakest magnet would first be enfeebled. (*c*) They would last longer. 3. Do you know of any other flexible incombustible material except asbestos and mica? A. Mineral wool. 4. Asbestos is used to a certain extent for lamp wicks. Why is it not used more extensively? Is it because of an inherent quality, or expense or difficulty of preparation? A. It is too fragile.

(36) X. Y. Z.—1. For an ice box follow the plan and general principles given in the article, "Ice House and Refrigerator, SCIENTIFIC AMERICAN SUPPLEMENT No. 116, page 1851. 2. A good mucilage may be made by macerating 5 parts of good glue in 20 parts of water for five hours, adding 20 parts of rock candy and 3 parts of gum arabic.

(37) T. G. H. and others.—The subject of soap bubbles is discussed in great detail on page 2539 of SCIENTIFIC AMERICAN SUPPLEMENT, No. 160, under title of Plateau's Films. The following, much easier to prepare, is recommended: 1 gramme dry Marseilles soap is dissolved in 100 grammes warm water; this is filtered, and to every 100 cubic centimeters of the solution 40 grammes white sugar is added.

(38) W. C. J. H.—The dead black on optical instruments is produced by dipping in a solution of chloride of platinum. To make this, take two parts hydrochloric acid, one part nitric acid, mix in a glass bottle and put in as much platinum foil as the acid will dissolve when placed in a warm sand bath, or to hasten the solution, heat to nearly the boiling point of the acids. Half an ounce nitric and one ounce hydrochloric acid will absorb about thirty grains platinum, but in order to neutralize the acid it is better to have a surplus of platinum. Dip the article or brush in the chloride.

(39) J. D. M. writes: In refining some silver I melted some chloride in a new crucible, and the crucible absorbed all of the silver. How can I recover the silver? Have tried crushing and digesting in nitric acid. A. Break the crucible and grind it into fine dust, then fill in a new crucible with borax intimately mixed with the powder, and fuse.

(40) A. S. B.—Mildew is removed from cotton by rubbing into the material a little soap or steeping in a little soda and then steeping in chloride of lime. The following is likewise recommended: rub or scrape a little yellow soap on the article, and then a little salt and starch on that. Rub all well on the article, and put in the sunshine.

(41) W.—You can purchase the magnesia already calcined, or else you can buy the magnesium carbonate and calcine it yourself. The former sells at $1.00 a pound, and the latter at 25 cents.

(42) S. A.—For galvanizing cast iron with zinc, first clean the castings thoroughly by immersing in a bath of 1 part muriatic acid, 2 parts water, for a few hours, wash thoroughly in hot water and scrub with brush and sand. Then dip in a solution of sal-ammoniac and water, half a pound to the gallon, hot. Dry quickly and dip in the zinc bath.

(43) W. S.—An ink that will not freeze: Aniline black, 1 drachm; rub with a mixture of concentrated hydrochloric acid, 1 drachm; pure alcohol, 10 ounces. The deep blue solution obtained is diluted with a hot solution of concentrated glycerine, 1½ drachms; in water, 4 ounces.

(44) G. A. L.—All metals expand by heat until they reach the melting point. The amount of expansion is the same whether heated by steam or fire. If heated by steam, the expansion is greater at high pressure because the temperature is higher.

(45) M. B. S.B.—There is no way to sharpen hack saws that is more practicable than with a three cornered or saw file. The great trouble is to know how to use the file. The saw should be put in a vise so that it will not chatter, or place the teeth as close to the jaws as possible and not let the file touch the jaws. Do not be in a hurry. Move the file across the saw slowly, or very slowly from point to shank, bearing hard; do not draw the file backwards. You will not fail to sharpen satisfactorily the hardest hack saw that is made.

(46) W.—Brass work that is so dirty by smoke and heat as not to be cleaned with oxalic acid should be thoroughly washed or scrubbed with soda, or potash water, or lye. Then dip in a mixture of equal parts of nitric acid, sulphuric acid, and water; or, if it cannot be conveniently dipped, make a swab of a small piece of woolen cloth upon the end of a stick and rub the solution over the dirty or smoky parts; leave the acid on for a minute and then wash clean and polish.

(47) J. H.—The best mixture for small patterns, that does not shrink in casting, is, 69 parts lead, 15½ parts antimony, 15½ parts bismuth by weight. A cheap kind for finished patterns can be made of 10 parts zinc, 1 part antimony, 1 part tin.

(48) J. M. A.—For serpents' eggs try the following: One grain of dry mercury sulphocyanide is mixed with one ounce gum tragacanth which has previously been soaked in hot water. When the gum is completely softened, it is transferred to a mortar and the mercury sulphocyanide (in fine powder) is mixed with it by aid of a little water, so as to turn out a somewhat dry pill mass. This is then formed and cut into pellets of the desired size, which are dried on glass.

(49) R. H. W. asks how to charge a lapidary saw of sheet iron with diamond dust. A. Mix the diamond dust with good olive oil or lard oil, with one-quarter best kerosene oil added to thin and make it spread freely. Use a small iron wire flattened a little at the end like a spatula; dip in the diamond dust, and hold against the edge of the wheel. It requires very little to do the work.

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

S. P. S.—The sample is limestone coated with hydrated iron oxide, apparently of no value. An assay would cost $5.00.—R. H. H.—The sample is pyrite—iron sulphide; it may carry gold.—A. C. R.—Only one sample received, *i. e.*, the white substance, which is a decomposed feldspathic granite. Its principal constituents are silica, alumina, and traces of lime and soda.—W. W. S.—The sample is galenite in quartz gangue. Its chemical composition is lead sulphide. Its value depends on whether it contains silver. To determine this, an assay will be necessary.

COMMUNICATIONS RECEIVED.

On Anti-Extraction. By R. H.
On Drainage. By C. F. H.
On Naval Construction. By C. M. R.
On the Obelisk. By J. E.
On the Origin and Early Use of Rolls. By L. F. & M. Co.
On Floods. By G. M. B.
On Long Distance Telephoning. By R. L. G.
On Transmission of Power by Electricity. By A. B. De R.
On Signaling at Sea. By F. K.

[OFFICIAL.]

INDEX OF INVENTIONS

FOR WHICH

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

April 10, 1883,

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., 361 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.

Advertising device, J. Wrightsman 275,450
Ague remedy, C. L. Robinson 275,524
Alarm lock, H. J. H. Schuett 275,527
Alarm lock for jails, pneumatic, I. Hodgson 275,656
Ammoniacal liquors, apparatus for purifying foul, J. Taylor 275,541
Anæsthetic, liquefied, E. E. Murphy, Jr. 275,511
Animal trap, L. J. Phelps 275,786
Awning frame, G. Borst 275,573
Bail ear and lock, combined, I. M. & J. W. Ross 275,416
Bales of pressed hay, cotton, etc., binding, P. K. Dederick 275,366
Band cutter, J. C. Burnes 275,463
Bar. See Grate bar.
Barrels, fastener for retaining the heads and bottoms in, Tetamore & Fordham 275,544
Bed bottom, S. E. Moore 275,690
Bed bottom, H. Roberts 275,523
Bed bottom, spring, G. W. Fishering 275,476
Bed bottom, spring, A. L. Jaynes 275,661
Bed bottom, spring, J. M. Keith 275,668
Bed bottom, spring, P. H. Keseberg 275,497
Bed rail slat lock, J. H. Selby 275,718
Beer forcing apparatus, G. Engel 275,756
Bell, bicycle, H. B. Hart 275,485
Beveling the edges of metal plates, machine for, E. H. Johnston 275,666
Billiard table cushion, H. W. Collender 275,592, 275,593
Blacking apparatus and chair combined, shoe, E. S. Farson 275,621
Blind stop, J. Hunt 275,492
Blind, window, J. Williams 275,557
Board. See Center board.
Boat detaching apparatus, T. H. Sellers 275,529
Boiler. See Steam boiler.
Boot and shoe heeling machine, J. Sperry 275,535
Boot jack, J. R. Walker 275,551
Boot or shoe burnishing apparatus, C. J. Addy 275,452
Boot or shoe insole, J. Hill 275,767
Boot top, H. J. Mahrenholz 275,678
Boot tree, J. P. Pratt 275,411
Bottle case, H. Walton 275,552
Bowl, sugar, J. T. Bond 275,350
Box. See Fare box. Stationery box.
Bracket. See Curtain pole bracket. Lamp bracket.
Brake shoe, J. Timms 275,547
Breech-loader, Webley & Brain 275,737
Brick and tile kiln, J. L. Friend 275,477
Brick making machinery, C. Chambers, Jr. 275,467
Brick moulding machine, C. F. Schlickeysen 275,715
Buckle, F. W. Thomas 275,545
Bung, J. Church 275,588
Bung and vent tube for kegs, B. Schock 275,790
Burial casket catch, W. C. Langenau 275,503
Burial caskets, basket for, M. L. Johnson 275,665
Burner. See Gas burner. Hydrocarbon burner.
Bustle, Rheubottom & Mack 275,710
Button, G. P. Farmer 275,619
Button and scarf ring, combined collar, J. H. Race 275,412
Button fastener, P. H. Sweet, Jr. 275,435
Calendering machine, M. A. W. Louis 275,676
Caloric from or communicating it to liquids, rapidly extracting, C. Tellier 275,437
Canals, flumes, and water-ways, apparatus for regulating the flow and delivery of water through, J. Emerson 275,371
Canteen, Pilger & Knight 275,697
Car brake, G. Heidel 275,650
Car brake, J. B. O'Donnell 275,513
Car blind, A. Roelofs 275,712
Car coupling, J. W. Cole 275,754
Car coupling, Johnson & Walkley 275,662, 275,663
Car coupling, H. K. Sebring 275,717
Car coupling, Simpson & Wilson 275,720, 275,721
Car coupling, J. G. Slater 275,428
Car coupling, J. M. Terry 275,433
Car coupling link, J. Bridge 275,460
Car door, grain, Voorhis & Houser 275,735
Car door, grain, E. M. Wilcox 275,448
Car, dumping, N. W. Condict, Jr. 275,357
Car, dumping, Smith & Rhodes 275,532
Car, passenger, A. Longstreet 275,397
Car tracker, S. J. Stewart 275,728
Car wheel, R. N. Allen (r) 10,306
Card or sample holder, F. L. Cutter 275,601
Carding machine, W. E. Whitehead 275,447
Carriage door, G. Lowa 275,398
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Case. See Bottle case. File case. Fishingtackle case. Spectacle case.
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Center board, J. E. Couch 275,361
Chain snap, neck, L. F. Cahn 275,584
Chair. See Child's dining chair.
Chair seat, M. V. B. Howe 275,383
Chair seats, machine for sand papering, M. V. B. Howe 275,385
Chandelier, extension, D. W. Parker 275,515
Channels of rivers, etc., deepening the, J. F. Spearing 275,534
Chart, aritbmetical, J. B. Finch 275,475
Cherry stoner, D. S. Buck 275,353
Child's dining chair, W. T. Miles 275,508
Chisel holder, mortising, G. W. Amesbury 275,346
Churn, E. Bach 275,747
Churn motor, N. Mosher 275,691
Cigar coloring and flavoring machine, E. Hadra 275,646
Clamp. See Saw clamp.
Clock system, pneumatic, V. Popp 275,701
Clock winding and setting apparatus, V. Popp 275,700
Clothes and towel rack, J. P. Geishaker 275,478
Club, Indian, Foster & Dudley 275,627
Clutch, friction, E. P. H. Capron 275,466
Clutch, reversible friction, F. P. Huyck 275,388
Cock, A. W. Parsons 275,406
Cock, water, M. Hogan 275,487
Collar stuffing machine, W. Foglesong 275,624
Compasses, J. Neimeyer 275,403
Conveyer, W. H. Felthousen 275,758
Corn sheller, C. P. Ferrier 275,623
Corset, C. W. Higby 275,652, 275,653
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Crushing and pulverizing machine, G. Sibley 275,719
Cultivator, A. E. Brooks 275,577
Cultivator, J. Lane 275,502
Cultivator shovel, H. N. Timms 275,546
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Curtain fixture, W. N. Buckley 275,580
Curtain pole angle joint, R. S. Gould 275,480
Curtain pole bracket extension, R. S. Gould 275,481
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Cutlery blade, J. D. Frary 275,630
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Cutter head for carving scrolls, N. K. Jones 275,391
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Deodorizing solutions of colophony in heavy hydrocarbons, H. Brackebusch 275,565
Derrick, J. T. Scully 275,421
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Desk and blackboard, combined, W. E. Crandall 275,598
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Distilling petroleum, Clark & Beecher 275,589
Ditching machine, tile, T. B. Fagan 275,372
Door attachment, inside, Smith & Rhodes 275,726
Easel, F. S. Frost 275,631
Eccentric and strap for steam engines, N. Hunt 275,659
Electric arc light, G. J. Murdock 275,510
Electric cable, Philips & Kitson 275,407
Electric cable, S. F. Shelbourne 275,424
Electric cable, subterranean, S. F. Shelbourne 275,425
Electric cables, machine for manufacturing, Philips & Kitson 275,408
Electric conductor, flexible, S. Bergmann 275,748
Electric light fixtures, connection for, S. Bergmann 275,749
Electric light switch, T. G. Turner 275,440
Electric machine, dynamo, V. E. Keegan 275,392
Electric machine, dynamo, C. J. Van Depoele 275,549
Electric signaling apparatus, C. Cummings 275,600
Electrical conductor, underground, J. Kruesi 275,776
Electrical machine, frictional, P. Atkinson 275,347
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Emery and corundum wheels and other tools, composition for, Pulson & Snow 275,704
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Engraving machine, S. D. Engle 275,618
Express indicator, railway, J. H. Dumont 275,609
Fare box, M. W. Mahar 275,781
Faucet, J. Sommer, Jr. 275,727
Faucet attachment, J. P. Gruber 275,433
Fence, C. C. Coe 275,591
Fence, L. P. Judson (r) 10,313
Fence, flood, Roush & Tener 275,713
Fence support and guard, wire, T. H. Dodge 275,607
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Fermenting casks, ventilating valve for, H. Guth 275,764
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Firearm, breech-loading, J. Deeley, Jr., & J. S. Edge, Jr. 275,605
Fire escape, W. W. Drake 275,608
Fire escape, E. J. Howe 275,658
Fire escape, J. B. Kennedy 275,772
Fire escape, J. Pappa 275,514
Fire extinguisher, Taylor & Cox 275,731
Fire extinguisher and alarm, C. E. Buell 275,752
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Fruit jar cover, W. R. Van Vliet 275,793
Fur cutting machine, E. H. Godshalk 275,640
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Furnaces, device for feeding air to, Bradshaw & Cowley 275,574
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Game, E. S. Sackett 275,526
Gas burner, E. B. Requa 275,708, 275,709
Gas generator, F. A. Lyman 275,677
Gas, process of and apparatus for manufacturing, J. P. Gill 275,761
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Gases or vapors, apparatus for condensing, De La Vergne & Mixer 275,367
Gate, W. R. Kramer 275,775
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Glass articles, mould for forming, T. B. Atterbury 275,562
Glass lamps, etc., mould for manufacturing, T. B. Atterbury 275,563
Gold washing machine, C. D. Lane 275,777
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Grate bar, A. C. Mann 275,679
Grate, self-feeding fire, S. Russell 275,525
Grinding mill, roller, S. L. Bean 275,568
Grinding mill, roller, W. Tennant 275,542, 275,543
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Halter, R. Melling 275,686
Hammer, C. J. Greilner 275,645
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Harvester cutter, Conner & Finch 275,595
Harvester, grain binding, M. E. Blood 275,751
Harvester, grain binding, Marsh & Blood 275,681
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Heating and ventilating rooms, apparatus for, A. K. Campbell 275,585
Heating device, J. D. Potter 275,409
Hitching strap holder, C. D. Page 275,695
Hod elevator, endless, L. Atwood 275,455
Hoe, horse scuffle, O. Burgher 275,462
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Hook. See Lacing hook. Snap hook.
Hoop. See Toy hoop.
Horse quarter boot, Hise & Fenton 275,655
Horse tail holder, A. C. Smith 275,429
Horses from cribbing, device for preventing, J. H. Ellis 275,370
Horses' heads, rubber bumper for, G. J. Hise 275,654
Horseshoe nail blank finishing machines, automatic feeder for, Wills & Kingsland 275,558
Horseshoeing implement, B. F. Pinson, Jr. 275,698
Hose, manufacture of rubber-lined, J. E. Gillespie 275,638
Hose reel, J. E. Gillespie 275,637
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Hydrocarbon burner and apparatus for burning hydrocarbons, W. Jasper 275,390
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Key. See Telegraph key.
Key hole guard, J. Warner 275,553
Key seats in hubs of gears, etc., machine for forming, L. J. Knowles 275,393
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Lacing hook for gloves, W. F. Foster 275,628
Lamp and lantern, Ewing & Bill 275,474