## 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 asearly as Thursday morning to appear in next issue.

Walrus Leather, Nickel Anodes, Turkey Emery, Pumice Stone and Composition. Greene, Tweed & Co., N.Y.

Straight Line Engine Co., Syracuse, N.Y. See p. 252.

Catalogues free .- Scientific Books, 100 pages; Electrical Books, 14 pages. E. & F. N. Spon, 44 Murray St., N. Y.

Owners of patents desiring to sell the same, or have the articles made on royalty, can address as below. Send full particulars. Cuts or papers returned if desired. Would be pleased to communicate with parties desiring bronze or brass castings. Lock Box 35, West Troy, N. Y. New list Machinists' Tools now ready. Address E.

West, Lockport, N. Y.

Storage of Electricity, \$1; by N. Y. Agent College Electrical Engineering. Latest and best book on this subject

Loud Speaking Telephones, \$5 a pair. Illus. circular for stamp. Agents wanted, W. R. Brooks, Phelps, N. Y

Improved Skinner Portable Engines. Erie, Pa. American FruitDrier. FreePamphlet. See ad., p. 254.

Am. Twist Drill Co., Meredith, N. H., make Pat Chuck Jaws, Emery Wheels, Grinders, automatic Knife Glinders

Drop Forgings. Billings & Spencer Co. Seeadv., p. 253

Brass & Copper in sheets.wire & blanks. See ad.p. 252

The Chester Steel Castings Co., office 407 Library St. Philadelphia, Pa., can prove by 20,000 Crank Shafts 15,000 Gear Wheels. now in use, the superiority of their Castingsover all others. Circular and price list free.

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

Diamond Tools. J. Dickinson, 64 Nassan St., N.Y.

Tight and Slack Barrel Machinery a specialty. John Greenwood & Co., Rochester, N. Y. See illus. adv. p. 254. | he shows the expense and cost of wars and war prepara-

Gear Wheels for Models (list free): Experimental Work, etc. D. Gilbert & Son, 212 Chester St., Phila., Pa.

Combined Concentric and Eccentric Universal and Independent Jaw Chucks. The Pratt & Whitney Co., Hartford, Conn.

Catechism of the Locomotive, 625 pages, 250 engrav ings. Most accurate, complete, and easily understood book on the Locomotive. Price \$2.50. Send for catalogue of railroad books. The Railroad Gazette, 73 B'way, N.Y.

20,000 Duc Spherical Elevator Buckets, sizes 3½ to 17 inches, constantly on hand. Telegraphic orders filled. T. F. Rowland, sole manufacturer, Brooklyn, N. Y.

First Class Engine Lathes, 20 inch swing, 8 foot hed. now ready. F. C. & A.E. Rowland, New Haven, Conn. Guild & Garrison's Steam Pump Works, Brooklyn,

N. Y. Steam Pumping Machinery of every descrip tion. Send for catalogue. Blake's Patent Belt Studs. Best & strongest fastening

for Leather & Rubber Belts. Greene, Tweed & Co., N.Y.

Wanted .- Foreman for malleable iron foundry. One familiar with the running of air furnaces preferred. Address M. J. C., Letter Carrier No. 72, St. Louis, Mo.

The New System of Bee Keeping .- Every one who has a farm or garden can keep bees on my plan with good profit. Illustrated circular of full particulars free. Address Mrs. Lizzie E. Cotton, West Gorham, Maine

For Pat. Safety Elevators, Hoisting Engines, Friction Clutch Pulleys, Cut-off Coupling. see Frisbie's ad. p. 237. For Mill Mach'y & Mill Furnishing, see illus.adv. p.236.

See New American File Co.'s Advertisement, p. 238. Mineral Lands Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co. Box 423. Pottsville, Pa. See p. 237

Steam Pumps. See adv. Smith, Vaile & Co., p. 236. Boiler Scale.- Parties having fine specimens for sale or loan, address Jas. F. Hotchkiss, 84 John Street, N. Y.

Farley's Directories of the Metal Workers, Hardware Trade, and Mines of the United States. Price \$3.00 each. Farley, Paul & Baker, 530 Market Street, Phila. Woodwork'g Mach'y. Rollstone Mach. Co. Adv., p. 221.

Lightning Screw Plates, Labor-saving Tools, p. 222. The Best .- The Deuber Watch Case.

Curtis Pressure Regulator and Steam Trap. See p.206. The Celebrated Wooton Desk. See adv., page 206.

Permanent Exposition .- Inventors' Institute, Cooper Union, N.Y. City. Every facility for exhibition of machinery, merchandise, and inventions. The expense is small -the advantages great. Send for particulars.

Contracts taken to manuf. small goods in sheet or cast brass, steel, or iron. Estimates given on receipt of model. H. C. Goodrich, 66 to 72 Ogden Place, Chicago.

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

Lists 29, 30 & 31, describing 4,000 new and 2d-band Ma-

Latest Improved Diamond Drills. Send for circular to M. C. Bullock Mfg. Co., 80 to 88 Market St., Chicago, Ili. For Power & Economy, Alcott's Turbine, Mt.Holly, N.J.

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

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

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

Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J.

Supplement Catalogue .- Persons in pursuit of information on any special engineering. mechanical, or scientific subject, can have catalogue of contents of the Sci-ENTIFIC AMERICAN SUPPLEMENT sent to them free. The SUPPLEMENT contains lengthy articles embracing the whole range of engineering, mechanics, and physical science. Address Munn & Co., Publishers, New York

## NEW BOOKS AND PUBLICATIONS.

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

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

WEALTH CREATION. By Augustus Mon-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 tions, 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.



## HINTS 'TO CORRESPONDENTS.

No attention will be paid to communications unless accompanied with the full name and address of the

writer. Namesand 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 SUPPLE-MENT 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 war-nished. 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 iu 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 yourse of time oxidize the mercury and so injure its utility. Of course alcohol would volatilize in the case of an alcohol thermometer.

(5) O. W. B.-Krewanek's analysis of the gar, and thicken the liquid, during boiling, with a fine composition on Swedish matches of one variety is: glass, 11/4 parts; glue, 1 part; potassium bichromate # part; potassium chlorate, 6% parts; iron peroxide, 1/2 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 1% parts; manganese 41% parts; antimony sulphide, 163 parts: and amorphous phosphorus, 10 parts.

(6) U. W. writes: In the manufacture of rness 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 Finely powdered manganese dioxide ... 2

Silver nitrate..... 3 " Mix and knead intimately with 5 parts of distilled water, then drythe 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 orintroducing 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 verydilute 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 onequarter 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 Arm (Japan clover). It belongs to the leguminous or pulse family of plants, the same as the clover, pea, bear, 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 SUP-PLEMENT No. 252 will give you a power of about 40 with your object glass. Make the tube 2 inchesshorter 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 what would that speed be with 60 pounds pressure? A. 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 mag- (30) J. M. C. asks: Is there any preparaincrease the magnetism to let it remain a greater length 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 hetter 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 elec-

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. Hubner finds that ground flaxseed, almonds, and otheroily 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 beltwill 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 pressureengine. 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 beesvax 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 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.

net (horseshoe) by putting each end in a helix, will it iton that will insure the adhesion of oil paint to copper plate so that it will not blister or peel off? A. The best of time or not? A. Beyond the period required to cure for the difficulty would be proper treatment to begin with. Someof 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 making paper labels adhere to tin? A. Starch paste to a few days, when it will be ready for use. As soon as which a little Venice turpentine had been added while the proper color is produced wash the articles in water. it was warm, answers very well. The following is good: 1 If the solution 1s not saturated, the brass will turn brown

chines, ready for distribution. State just what machines wanted. Forsaith & Co., Manchester, N. H., & N. Y. city.

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

Magic lanterns, stereopticons, cond. lenses, etc., on hand and made to order, C. Beseler, 218 Centre St., N. Y.

Railway and Machine Shop Equipment. Send for Monthly Machinery List to the George Place Machinery Company, 121 Chambers and 103 Reade Streets, New York.

25" Lathes of the best design. G. A. Ohl & Co., East Newark, N. J.

"How to Keep Boilers Clean." Book sent free by James F. Hotchkiss, 84 John St., New York.

Engines, 10 to 50 horse power, complete, with governor. \$250 to \$550. Satisfaction guaranteed. More than seven hundred in use. Forcircular address Heald & Morris (Drawer 127), Baldwinsville, N. Y.

Wanted .-- Patented articles or machinery to make and introduce. Gaynor & Fitzgerald, New Haven. Conn.

Water purified for all purposes, from household supplies to those of largest cities, by the improved filters manufactured by the Newark Filtering Co., 177 Commerce St., Newark, N. J.

(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.

(17) D. M. L. asks: 1. What is used for Soften good glue in water, then boil it with strong vine- and rough.

tric motor, see SUPPLEMENT No. 259.

## Scientific American.

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(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 "	1
Plaster of Paris 31/4 lb.	
Water	Ċ

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 kepi 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 makeatypemetal 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 broughtinto contact (a) Whatwould 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 desirely their velocity, (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 lampwicks. 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 SUP-PLEMENT 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, nnder 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 anew crucible with borax intimately mixed with the powder, and fuse.

(43) W. S.—An ink that will not freeze: "B 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,  $1\frac{1}{2}$ 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  $_{\rm B}$ heated by steam, the expansion is greater at high pres- B sure 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 B to use the file. The saw should be put in a vise so that **E** 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 notash water, or lye. Then din 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 <sup>B</sup> 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 of 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 constitu-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.

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COMMUNICATIONS RECEIVED.	CI
On Anti-Extraction. By R. H.	C
On Drainage. By C. F. H.	Ci
On Naval Construction. By C. M. R.	
On the Obelisk. By J.E.	CI
On the Origin and Early Use of Rolls. By L. F. &	C
M.Co.	C
On Floods. By G. M. B.	CI
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Car, dumping, Smith & Rhodes	275,532	Glass articles, manufacture of, T. B. Atterbury	
Car, passenger, A. Longstreet		Glass articles, mould for forming, T. B. Atter-	077 5 00
Car tracker, S. J. Stewart Car wheel, R. N. Allen (r)		Glass lamps, etc., mould for manufacturing, T. B.	
Card or sample holder, F. L. Cutter		Atterbury.	
Carding machine, W. E. Whitehead		Gold washing machine, C. D. Lane	275,777
Carriage door, G. Lowa		Grading and ditching machine, Edwards & Durkee	275 614
& McClinchie		Grate bar, A. C. Mann	
Case. See Bottle case. File case. Fishingtackle		Grate, self-feeding fire, S. Russell	275,525
case. Spectacle case.		Grinding mill, roller, S. L. Bean	
Cement compound, hydraulic, E. J. De Smedt Center board, J. E. Couch		Grinding mill, roller, W. Tennant275,542, Grindstones and emery wheels, device for truing,	40,043 ×
Chain snap, neck, L. F. Cahn		C. E. W. Brown	275,579
Chair. See Child's dining chair.	077 000	Guard. See Keyhole gnard. Lamp guard.	077 0
Chair seat, M. V. B. Howe Chair seats, machine for sand papering, M. V. B.		Gun. breech-loading, G. W. Hadley Halter, R. Melling	
Howe		Hanner, C. J. Greilner	
Chandelier, extension, D. W. Parker	275,515	Handle. See Saw handle.	•
Channels of rivers, etc., deepening the, J. F. Spearing		Harrow, double, G. F. Flynn	
Chart, arithmetical, J. B. Finch	275 594	Harvester cutter Conner & Finch	
		Harvester cutter, Conner & Finch	
Cherry stoner, D. S. Buck	275,475	Harvester cutter, Conner & Finch Harvester, grain binding, M. E. Blood Harvester, grain binding, Marsh & Blood	275,751
Child's dining chair, W. T. Miles	275,475 275,353 275,508	Harvester, grain binding, M. E. Blood Harvester, grain binding, Marsh & Blood Hat holder, F. E. Bundy	275,751 275,681 275,581
Child's dining chair, W. T. Miles Chisel holder, mortising, G. W. Amesbury	275,475 275,353 275,508 275,346	Harvester, grain binding, M. E. Blood Harvester, grain binding, Marsh & Blood Hat holder, F. E. Bundy Hay rake, horse, J. C. Roy	275,751 275,681 275,581 275,789
Child's dining chair, W. T. Miles	275,475 275,353 275,508 275,346 275,747	Harvester, grain binding, M. E. Blood Harvester, grain binding, Marsh & Blood Hat holder, F. E. Bundy	275,751 275,681 275,581 275,789 275,670
Child's dining chair, W. T. Miles Chisel holder, mortising, G. W. Amesbury Churn, E. Bach Churn motor, N. Mosher Cigar coloring and flavoring machine, E. Hadra	275,475 275,353 275,508 275,346 275,747 275,691	Harvester, grain binding, M. E. Blood Harvester, grain binding, Marsh & Blood Hat holder, F. E. Bundy Hay rake, horse, J. C. Roy Head covering, J. L. Kendall Heating and ventilating rooms, apparatus for, A. K. Campbell	275,751 275,681 275,581 275,789 275,670 275,585
Child's dining chair, W. T. Miles Chisel holder, mortising, G. W. Amesbury Churn, E. Bach Churn motor, N. Mosher Clgarcoloring and flavoring machine, E. Hadra Clamp. See Saw clamp.	275,475 275,353 275,508 275,346 275,747 275,691 275,646	Harvester, grain binding, M. E. Blood Harvester, grain binding, Marsh & Blood Hat holder, F. E. Bundy Hay rake, horse, J. C. Roy Head covering, J. L. Kendall Heating and ventilating rooms, apparatus for, A. K. Campbell	275,751 275,681 275,581 275,789 275,670 275,585 275,409
Child's dining chair, W. T. Miles Chisel holder, mortising, G. W. Amesbury Churn, E. Bach Churn motor, N. Mosher Cigar coloring and flavoring machine, E. Hadra	275,475 275,353 275,358 275,346 275,747 275,691 275,646 275,701	Harvester, grain binding, M. E. Blood Harvester, grain binding, Marsh & Blood Hat holder, F. E. Bundy Hay rake, horse, J. C. Roy Head covering, J. L. Kendall Heating and ventilating rooms, apparatus for, A. K. Campbell	275,751 275,681 275,581 275,789 275,670 275,585 275,409 275,695
Child's dining chair, W. T. Miles Chisel holder, mortising, G. W. Amesbury Churn mcr, E. Bach Cigar coloring and flavoring machine, E. Hadra Clamp. See Saw clamp. Clock system, pneumatic, V. Popp Clock winding and setting apparatus, V. Popp Clothes and towel rack, J. P. Geishaker	275,475 275,353 275,508 275,508 275,346 275,747 275,691 275,646 275,701 275,700 275,478	Harvester, grain binding, M. E. Blood Harvester, grain binding, Marsh & Blood Hat holder, F. E. Bundy Hay rake, horse, J. C. Roy Head covering, J. L. Kendall. Heating and ventilating rooms, apparatus for, A. K. Campbell Heating device, J. D. Potter Hitching strap holder, C. D. Page Hod elevator, endless, L. Atwood Hoe, horse scuffle, O. Burgher	275,751 275,681 275,581 275,789 275,670 275,585 275,409 275,695 275,455 275,462
Child's dining chair, W. T. Miles Child's dining chair, W. T. Miles Churn, E. Bach Churn motor, N. Mosher Clarp. See Saw clamp. Clock system, pneumatic, V. Popp Clock system, pneumatic, V. Popp Clock winding and setting apparatus, V. Popp Clothes and towel rack, J. P. Geishaker Club, Indian, Foster & Dudley	275,475 275,353 275,358 275,346 275,747 275,691 275,646 275,701 275,700 275,478 275,627	Harvester, grain binding, M. E. Blood Harvester, grain binding, Marsh & Blood Hat holder, F. E. Bundy Hay rake, horse, J. C. Roy Head covering, J. L. Kendall Heating and ventilating rooms, apparatus for, A. K. Campbell Heating device, J. D. Potter Hitching strap holder, C. D. Page Hod elevator, endless, L. Atwood Hoe, horse scuffle, O. Burgher Hoes, machine for making the eyes of, J. S. Craft	275,751 275,681 275,581 275,789 275,585 275,409 275,695 275,455 275,462 275,363
Child's dining chair, W. T. Miles Chisel holder, mortising, G. W. Amesbury Churn mcr, E. Bach Cigar coloring and flavoring machine, E. Hadra Clamp. See Saw clamp. Clock system, pneumatic, V. Popp Clock winding and setting apparatus, V. Popp Clothes and towel rack, J. P. Geishaker	275,475 275,353 275,508 275,346 275,747 275,691 275,646 275,701 275,700 275,478 275,426	Harvester, grain binding, M. E. Blood Harvester, grain binding, Marsh & Blood Hat holder, F. E. Bundy Hay rake, horse, J. C. Roy Head covering, J. L. Kendall. Heating and ventilating rooms, apparatus for, A. K. Campbell Heating device, J. D. Potter Hitching strap holder, C. D. Page Hod elevator, endless, L. Atwood Hoe, horse souffle, O. Burgher Hoes, machine for making the eyes of, J. S. Craft Holder. See Card and sample holder. Chisel	275,751 275,681 275,581 275,789 275,585 275,409 275,695 275,455 275,462 275,363
Child's dining chair, W. T. Miles Child's dining chair, W. T. Miles Churn, E. Bach Churn motor, N. Mosher Clarp. See Saw clamp. Clock system, pneumatic, V. Popp Clock system, pneumatic, V. Popp Clock winding and setting apparatus, V. Popp Clothes and towel rack, J. P. Geishaker Club, Indian, Foster & Dudley Clutch, friction, E. P. H. Capron Clutch, reversible friction, F. P. Huyck Cock, A. W. Parsons	$\begin{array}{c} 275,475\\ 275,353\\ 275,358\\ 275,508\\ 275,5346\\ 275,747\\ 275,646\\ 275,701\\ 275,700\\ 275,478\\ 275,627\\ 275,478\\ 275,466\\ 275,388\\ 275,406\\ \end{array}$	Harvester, grain binding, M. E. Blood Harvester, grain binding, Marsh & Blood Hat holder, F. E. Bundy Hay rake, horse, J. C. Roy Head covering, J. L. Kendall Heating and ventilating rooms, apparatus for, A. K. Campbell Hitching strap holder, C. D. Page Hod elevator, endless, L. Atwood Hoe, horse scuffle, O. Burgher Hoes, machine for making the eyes of, J. S. Craft Holder. See Card and sample holder. Chisel holder. Crayon holder. Hat holder. Hitch- ing strap holder. Horse tail bolder. Music	275,751 275,681 275,581 275,589 275,670 275,585 275,409 275,695 275,455 275,462 275,363
Child's dining chair, W. T. Miles Chisle holder, mortising, G. W. Amesbury Churn motor, N. Mosher Clarp motor, N. Mosher Clamp. See Saw clamp. Clock system, pneumatic, V. Popp Clock system, pneumatic, V. Popp Clock winding and setting apparatus, V. Popp Clock winding and setting apparatus, V. Popp Club, Indian, Foster & Dudley Club, Indian, Foster & Dudley Clutch, reversible friction, F. P. Huyck Cock, A. W. Parsons Cock, Mater, M. Hogau	$\begin{array}{c} 275,475\\ 275,353\\ 275,358\\ 275,508\\ 275,546\\ 275,747\\ 275,646\\ 275,701\\ 275,700\\ 275,478\\ 275,627\\ 275,476\\ 275,388\\ 275,406\\ 275,388\\ 275,487\\ \end{array}$	Harvester, grain binding, M. E. Blood Harvester, grain binding, Marsh & Blood Hat holder, F. E. Bundy Hay rake, horse, J. C. Roy Head covering, J. L. Kendall Heating and ventilating rooms, apparatus for, A. K. Campbell Heating device, J. D. Potter Hitching strap holder, C. D. Page Hot elevator, endless, L. Atwood Hoe, horse scuffle, O. Burgher Hoe, machine for making the eyes of, J. S. Craft Holder. See Card and sample holder. Chisel holder. Crayon holder. Hat holder. Hitch- ing strap holder. Horse tail bolder. Music leaf holder. Quilt holder. Ribbon holder.	275,751 275,681 275,581 275,589 275,670 275,585 275,409 275,695 275,455 275,462 275,363
Child's dining chair, W. T. Miles Child's dining chair, W. T. Miles Churn motising, G. W. Amesbury Churn motor, N. Mosher Clara coloring and flavoring machine, E. Hadra Clara postem, pneumatic, V. Popp Clock system, pneumatic, V. Popp Clock system, pneumatic, V. Popp Clock system, pneumatic, J. P. Geishaker Club, Indian, Foster & Dudley Clutch, friction, E. P. H. Capron Clutch, reversible friction, F. P. Huyck Cock, A. W. Parsons Cock, water, M. Hogan Collar stuffing machine, W. Foglesong	$\begin{array}{c} 275,475\\ 275,353\\ 275,508\\ 275,508\\ 275,508\\ 275,546\\ 275,701\\ 275,646\\ 275,700\\ 275,700\\ 275,478\\ 275,478\\ 275,466\\ 275,388\\ 275,466\\ 275,388\\ 275,487\\ 275,487\\ 275,624\\ \end{array}$	Harvester, grain binding, M. E. Blood Harvester, grain binding, Marsh & Blood Hat holder, F. E. Bundy Hay rake, horse, J. C. Roy Head covering, J. L. Kendall. Heating and ventilating rooms, apparatus for, A. K. Campbell. Heating device, J. D. Potter Hitching strap holder, C. D. Page Hod elevator, endless, L. Atwood Hoe, horse scuffle, O. Burgher Hoek, machine for making the eyes of, J. S. Craft Holder. Crayon holder. Hat holder. Chisel holder. Crayon holder. Hat holder. Music leaf holder. Quilt holder. Ribbon holder.	275,751 275,681 275,581 275,589 275,670 275,585 275,409 275,695 275,455 275,462 275,363
Child's dining chair, W. T. Miles Chisle holder, mortising, G. W. Amesbury Churn motor, N. Mosher Clarp motor, N. Mosher Clamp. See Saw clamp. Clock system, pneumatic, V. Popp Clock system, pneumatic, V. Popp Clock system, pneumatic, V. Popp Clock winding and setting apparatus, V. Popp Clock winding and setting apparatus, V. Popp Clothes and towel rack, J. P. Geishaker Club, Indian, Foster & Dudley Clutch, riction, E. P. H. Capron Clutch. reversible friction, F. P. Huyck Cock, A. W. Parsons Cock, water, M. Hogan Collar stuffing machine, W. Foglesong Conveyer, W. H. Feithousen	275,475 275,353 275,508 275,508 275,546 275,747 275,691 275,691 275,691 275,691 275,691 275,692 275,478 275,488 275,406 275,487 275,624 275,408	Harvester, grain binding, M. E. Blood Harvester, grain binding, Marsh & Blood Hat holder, F. E. Bundy Hay rake, horse, J. C. Roy Head covering, J. L. Kendall Heating and ventilating rooms, apparatus for, A. K. Campbell Heating device, J. D. Potter Hitching strap holder, C. D. Page Hod elevator, endless, L. Atwood Hoe, horse scuffle, O. Burgher Hoes, machine för making the eyes of, J. S. Craft Holder. See Card and sample holder. Chisel holder. Crayon holder. Hat holder. Hitch- ing strap holder. Horse tail bolder. Music leaf holder. Quilt holder. Ribbon holder. Sash holder. Thread holder. Hook. See Lacing hook. Snap hook. Hoop. See Toy hoop.	275,751 275,681 275,581 275,789 275,585 275,409 275,695 275,455 275,462 275,363
Child's dining chair, W. T. Miles. Child's dining chair, W. T. Miles. Child's dining chair, W. T. Miles. Churn motor, N. Mosher. Cigar coloring and flavoring machine, E. Hadra Clamp. See Saw clamp. Clock system, pneumatic, V. Popp Clock system, pneumatic, V. Popp Clock winding and setting apparatus, V. Popp Clock winding and setting apparatus, V. Popp Clothes and towel rack, J. P. Geishaker. Club, Indian, Foster & Dudley. Clutch, friction, E. P. H. Capron. Clutch, reversible friction, F. P. Huyck. Cock, A. W. Parsons. Cock, aver, M. Hogan Collar stuffing machine, W. Foglesong Compasses, J. Neimeyer. Conveyer, W. H. Felthousen. Corn sheller, C. P. Ferrier	$\begin{array}{c} 275,475\\ 275,383\\ 275,588\\ 275,584\\ 275,546\\ 275,747\\ 275,646\\ 275,701\\ 275,700\\ 275,700\\ 275,478\\ 275,678\\ 275,487\\ 275,466\\ 275,388\\ 275,487\\ 275,408\\ 275,408\\ 275,758\\ 275,628\\ \end{array}$	Harvester, grain binding, M. E. Blood Harvester, grain binding, Marsh & Blood Hat holder, F. E. Bundy Hay rake, horse, J. C. Roy Head covering, J. L. Kendall Heating and ventilating rooms, apparatus for, A. K. Campbell Heating device, J. D. Potter Hitching strap holder, C. D. Page Hod elevator, endless, L. Atwood Hoe, horse scuffle, O. Burgher Hoe, horse scuffle, O. Burgher Hoe, smachine for making the eyes of, J. S. Craft Holder. Crayon holder. Hat holder. Chisel holder. Crayon holder. Hat holder. Musie leaf holder. Duith holder. Ribbon holder. Sash holder. Thread holder. Hook, See Lacing hook. Snap hook. Hoop. See Toy hoop. Horse quarter boot, Hise & Fenton	275,751 275,681 275,581 275,585 275,670 275,585 275,409 275,695 275,462 275,462 275,863
Child's dining chair, W. T. Miles. Child's dining chair, W. T. Miles. Child's dining chair, W. T. Miles. Churn motor, N. Mosher. Cigar coloring and flavoring machine, E. Hadra Clamp. See Saw clamp. Clock system, pneumatic, V. Popp Clock system, pneumatic, V. Popp. Clock winding and setting apparatus, V. Popp. Clothes and towel rack, J. P. Geishaker. Clutch, friction, E. P. H. Capron. Clutch, reversible friction, F. P. Huyck. Cock, M. W. Parsons. Collar stuffing machine, W. Foglesong Compasses, J. Neimeyer. Compasses, J. Neimeyer. Corr sheller, C. P. Ferrier. Corset, C. W. Higby. 275,652	275,475 275,383 275,386 275,386 275,386 275,747 275,646 275,701 275,700 275,478 275,646 275,388 275,406 275,388 275,406 275,406 275,408 275,403 275,624 275,408 275,658	Harvester, grain binding, M. E. Blood Harvester, grain binding, Marsh & Blood Hat holder, F. E. Bundy Hay rake, horse, J. C. Roy Head covering, J. L. Kendall. Heating and ventilating rooms, apparatus for, A. K. Campbell Heating device, J. D. Potter Hitching strap holder, C. D. Page Hod elevator, endless, L. Atwood Hoe, horse scuffle, O. Burgher Hoe, horse scuffle, O. Burgher Hoe, bloes eard and sample holder. Chisel holder. Crayon holder. Hat holder. Music leaf holder. Quilt holder. Ribbon holder. Sash holder. Thread holder. Hook. See Lacing hook. Snap hook. Hoop, See Toy hoop. Horse quarter boot, Hise & Fenton Horse tail holder. A. C. Smith	275,751 275,681 275,581 275,789 275,670 275,585 275,409 275,695 275,462 275,462 275,363
Child's dining chair, W. T. Miles. Child's dining chair, W. T. Miles. Child's dining chair, W. T. Miles. Churn motor, N. Mosher. Cigar coloring and flavoring machine, E. Hadra Clamp. See Saw clamp. Clock system, pneumatic, V. Popp Clock system, pneumatic, V. Popp Clock winding and setting apparatus, V. Popp Clock winding and setting apparatus, V. Popp Clothes and towel rack, J. P. Geishaker. Club, Indian, Foster & Dudley. Clutch, friction, E. P. H. Capron. Clutch, reversible friction, F. P. Huyck. Cock, A. W. Parsons. Cock, aver, M. Hogan Collar stuffing machine, W. Foglesong Compasses, J. Neimeyer. Conveyer, W. H. Felthousen. Corn sheller, C. P. Ferrier	275,475 275,383 275,386 275,386 275,386 275,747 275,646 275,701 275,700 275,478 275,646 275,388 275,406 275,388 275,406 275,406 275,408 275,403 275,624 275,408 275,658	Harvester, grain binding, M. E. Blood Harvester, grain binding, Marsh & Blood Hat holder, F. E. Bundy Hay rake, horse, J. C. Roy Head covering, J. L. Kendall Heating and ventilating rooms, apparatus for, A. K. Campbell Heating device, J. D. Potter Hitching strap holder, C. D. Page Hod elevator, endless, L. Atwood Hoe, horse scuffle, O. Burgher Hoe, horse scuffle, O. Burgher Hoe, smachine for making the eyes of, J. S. Craft Holder. Crayon holder. Hat holder. Chisel holder. Crayon holder. Hat holder. Musie leaf holder. Duith holder. Ribbon holder. Sash holder. Thread holder. Hook, See Lacing hook. Snap hook. Hoop. See Toy hoop. Horse quarter boot, Hise & Fenton	275,751 275,681 275,581 275,789 275,670 275,585 275,409 275,695 275,4692 275,4692 275,4692 275,4692 275,4693 275,695 275,655 275,655 275,655
Child's dining chair, W. T. Miles. Child's dining chair, W. T. Miles. Child's dining chair, W. T. Miles. Churn motor, N. Mosher. Clarance Clamp. Clara Coloring and flavoring machine, E. Hadra Clamp. See Saw clamp. Clock system, pneumatic, V. Popp Clock system, pneumatic, V. Popp Clock system, pneumatic, J. P. Geishaker Club, Indian, Foster & Dudley. Clutch, friction, E. P. H. Capron. Clutch, friction, E. P. H. Capron. Clutch, reversible friction, F. P. Huyck. Cock, A. W. Parsons. Collar stuffing machine, W. Foglesong Compasses, J. Neimeyer. Conveyer, W. H. Felthousen. Corn sheller, C. P. Ferrier Corset, C. W. Higby. Thill coupling. Crayon holder, J. Pusey	275,475 275,383 275,508 275,508 275,747 275,691 275,691 275,701 275,701 275,700 275,478 275,700 275,478 275,406 275,487 275,408 275,408 275,687 275,687 275,687 275,687 275,687 275,687 275,653	Harvester, grain binding, M. E. Blood Harvester, grain binding, Marsh & Blood Hat holder, F. E. Bundy Hay rake, horse, J. C. Roy Head covering, J. L. Kendall. Heating and ventilating rooms, apparatus for, A. K. Campbell. Heating device, J. D. Potter Hitching strap holder, C. D. Page Hod elevator, endless, L. Atwood Hoe, horse scuffle, O. Burgher Hoe, horse scuffle, O. Burgher Hoe, horse scuffle, O. Burgher Hoe, see Card and sample holder. Chisel holder. Crayon holder. Hat holder. Hitch- ing strap holder. Horse tail bolder. Music leaf holder. Quilt holder. Ribbon holder. Sash holder. Thread holder. Horse, See Toy hoop. Horse quarter boot, Hise & Fenton Horses from cribbing, device for preventing, J. H. Ellis Horses' heads. rubber bumper for, G. J. Hise	275,751 275,681 275,581 275,580 275,670 275,545 275,409 275,455 275,462 275,363 275,655 275,462 275,655 275,462 275,655 275,462 275,865 275,655
Child's dining chair, W. T. Miles Child's dining chair, W. T. Miles Child's dining chair, W. T. Miles Churn motor, N. Mosher Clarp. See Saw clamp. Clock system, pneumatic, V. Popp Clock system, pneumatic, V. Popp Clock winding and setting apparatus, V. Popp Clothes and towel rack, J. P. Geishaker Club, Indian, Foster & Dudley Clutch, friction, E. P. H. Capron Clutch, reversible friction, F. P. Huyck Cock, A. W. Parsons Cock, water, M. Hogan Collar stuffing machine, W. Foglesong Cornyeyer, W. H. Felthousen Corn sheller, C. P. Ferrier Corset, C. W. Higby	275,475 275,383 275,508 275,508 275,747 275,646 275,701 275,701 275,701 275,703 275,478 275,627 275,478 275,466 275,487 275,487 275,623 275,623 275,623 275,623 275,623 275,517 275,517 275,517	Harvester, grain binding, M. E. Blood	275,751 275,681 275,581 275,582 275,409 275,409 275,455 275,462 275,455 275,462 275,462 275,463 275,462 275,462 275,454 275,455 275,429 275,570
Child's dining chair, W. T. Miles. Child's dining chair, W. T. Miles. Child's dining chair, W. T. Miles. Churn motor, N. Mosher. Clarance Clamp. Clara Coloring and flavoring machine, E. Hadra Clamp. See Saw clamp. Clock system, pneumatic, V. Popp Clock system, pneumatic, V. Popp Clock system, pneumatic, J. P. Geishaker Club, Indian, Foster & Dudley. Clutch, friction, E. P. H. Capron. Clutch, friction, E. P. H. Capron. Clutch, reversible friction, F. P. Huyck. Cock, A. W. Parsons. Collar stuffing machine, W. Foglesong Compasses, J. Neimeyer. Conveyer, W. H. Felthousen. Corn sheller, C. P. Ferrier Corset, C. W. Higby. Thill coupling. Crayon holder, J. Pusey	275,475 275,533 275,508 275,508 275,747 275,691 275,701 275,700 275,478 275,627 275,476 275,476 275,406 275,388 275,406 275,406 275,538 275,653 275,653 275,517 275,517 275,517	Harvester, grain binding, M. E. Blood Harvester, grain binding, Marsh & Blood Hat holder, F. E. Bundy Hay rake, horse, J. C. Roy Head covering, J. L. Kendall. Heating and ventilating rooms, apparatus for, A. K. Campbell. Heating device, J. D. Potter. Hitching strap holder, C. D. Page Hod elevator, endless, L. Atwood Hoe, horse scuffle, O. Burgher Hoe, horse scuffle, O. Burgher. See Card and sample holder. Chisel holder. Crayon holder. Hat holder. Hitch- ing strap holder. Horse tail bolder. Music leaf holder. Quilt holder. Ribbon holder. Sash holder. Thread holder. Horse yauter boot, Hise & Fenton Horses from cribbing, device for preventing, J. H. Ellis Horses heads. rubber bumper for, G. J. Hise	275,751 275,651 275,658 275,759 275,759 275,409 275,655 275,409 275,655 275,409 275,655 275,409 275,655 275,429 275,5558

(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. printed, must be copied by hand. The following is likewise recommended: rub or scrape a little yellow soap on the article, and then a little salt Ađ and starch on that. Rub all well on the article, and put in the sunshine.

(41) W.-You can purchase the magnesia An 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 salammoniac and water, half a pound to the gallon, hot. Dry quickly and dip in thezinc bath.

A printed copy of the specification a patent in the annexed list, also of a since 1866, will be furnished from this In ordering please state the number patent desired and remit to Munn 8 way. corner of Warren Street, New also furnish copies of patents grant but at increased cost, as the sn ecific

	Advertising device. J. Wrightsman	275,459	De
	Ague remedy, C. L. Robinson	275,524	
÷	Alarm lock, H. J. H. Schuett	275,527	De
į	Alarm lock for jails, pneumatic, I. Hodgson	275,656	De
1	Ammoniacal liquors, apparatus for purifying foul,		De
ŝ	J. Taylor	275,541	De
	Anæsthetic, liquefied, E. E. Murphy, Jr	275,511	Di
	Animaltrap, L. J. Phelps	275.786	Di
	Awning frame, G. Borst	275,573	Di
•	Bail ear and lock, combined, I. M. & J. W. Ross	275,416	Di
	Bales of pressed hay. cotton, etc., binding, P. K.		Di
	Dederick	275,366	Do
	Band cutter, J. C. Burnes	275.463	Ea
	Bar. See Grate bar.		Ec
	Barrels, fastener for retaining the heads and bot-		El
	toms in, Tetamore & Fordham	275.544	El
Į	Bed bottom, S. E. Moore		E
	•		

	Curtain fixture. T. Breen	Hose reel, J. E. Gillespie 275,637	
and drawing of any	Curtain fixture, W. N. Buckley 275,580		
any patent issued	Curtain pole angle joint, R. S. Gould 275,480		
s office for 25 cents.	Curtain pole bracket extension, R. S. Gould 275,481	Hydrocarbon burner and apparatus for burning	
r and date of the	Cushion. See Billiard table cushion.	hydrocarbons, W. Jasper 275,390	
& Co., 361 Broad-	Cushion. See Billiard table cushion. Cutlery blade, J. D. Frary 275,630	Hydrocarbon fluids, process of and furnace for	
w York city. We	Cutter. See Band cutter. Harvester cutter.		
nted prior to 1866;	Peg cutter. Stalk cutter.	Hydrocarbon furnace, C. Holland275,382, 275,433, 275,489 Ice cream freezer, T. Sands	
cations, not being	Cutter bead, R. V. Boice 275,459	Lee cream freezer, T. Sands 275,418	
	Cutter head for carving scrolls, N. K. Jones 275.391	Ice, house for producing and preserving, C. Pohl-	
	Decorating rooms, W. Nielson 275,692	mann	
	Deodorizing solutions of colophony in heavy	Indicator. See Express indicator.	
275,524	hydrocarbons, H. Brackebusch 275,565	Indopbenols, treatment of, Koechlin & Witt 275,774	
275,527	Derrick, J. T. Scully 275,421	Insulating compourd for electric conductors, S.	
	Derrick, G. W. Tarr 275,540		
	Derrick, portable stacking, L. T. Mitchell 275,689		
	Desk and blackboard, combined, W. E. Crandall . 275,598		
Jr 275,511	Digger. See Potato digger. Tree digger.	Iron bending machine, W. A. Wren 275,741	
		Ironingtable, C. Campbell 275,753	
	Distilling apparatus, wood, C. J. T. Burcey 275,461		
	Distilling petroleum, Clark & Beecher 275,589		
	Ditching machine, tile, T.B. Fagan 275,372		
		Key hole guard, J. Warner	
	Easel, F. S. Frost 275,631		
		forming, L. J. Knowles 275,393	
	Electric arc light, G. J. Murdock 275,510		
		Lacing hook for gloves, W. F. Foster 275,628	
	Electric cable, S. F. Shelbourne 275,424	Lamp and lantern, Ewing & Bill 275,474	