## 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.*

OFFICE OF SCOTT & HALL,
Burlington, Kansas, March 10, 1881.

We, the undersigned citizens of Burlington, hereby certifythat the H. W. Johns Asbestos Roofing, put on our new stores last summer by S. H. Davis of this place, is perfectly wind and water-tight, as well as fireproof. This was proven on Sunday, the 27th of February last, when the stores adjoining burned, and the flames being blown by a strong wind directly upon the buildings had no effect upon the asbestos, even when the woodwork inside the front cornice caught fire and communicated to the sheathing and rafters, which burnt out from under the roofing, so that the roofing had to be cut away to put out the fire underneath. If it had not been for the asbestos our buildings would probably have burned, as well as most of the business part of the town.
D. E. SCOTT, J. M. ALLISON, W. W. VOENARD.

Patent for sale. G. O. Keiter, Spring City, Pa.

Grain Nickel, Nickel Salts, Nickel Anodes, Composition, Felt Buff Wheels. Greene, Tweed & Co., New York.

An automatic surface blow-off by circulation without loss of water, trapping sediment to be blown out at pleasure. Simple, inexpensive, effective. Hotchkiss' Mechanical Boiler Cleaner, 84 John St., New York.

The Mechanical Laboratory of the Stevens Institute of Technology has nearly ready one large Railroad Oil Testing Machine. R. H. Thurston's patents. Price, $450, without countershaft. Address the Director of the M. L. of the S. I. T., Hoboken, N. J.

The Newell Universal Mill Co., Office 7 Cortlandt St., New York, are manufacturers of the Newell Universal Grinder for crushing ores and grinding foundry facings, phosphates, bone, oyster shells, plaster, dyewoods, and all gummy and sticky substances. Circulars and prices forwarded upon request.

Alden Crushers and Pulverizers manuf'd and sold by the Westinghouse Machine Co., Pittsburg, Pa., U.S.A.

Rollstone Mac. Co.'sWood WorkingMach'y ad. p. 158.

Ten Double-acting Presses, 8 single-acting Presses, 127 Foot Presses, for sale by The George Place Machinery Agency, 121 Chambers St., N. Y.

For best Duplex Injector, see Jenks' adv., p. 204.

Cotton Belting, Rubber Belting, Leather Belting, Polishing Belts. Greene, Tweed & Co., 118 Chambers St., N.Y.

Akron Rubber Works, Akron, O., Manufacturers of Mechanical Rubber Goods.

For best Portable Forges and Blacksmiths' Hand Blowers, address Buffalo Forge Co., Buffalo, N. Y.

Sawmakers Wanted.—Anvil hands on large circulars. Address Emerson, Smith & Co., Beaver Falls, Pa.

Rue's New "Little Giant" Injector is much praised for its capacity, reliability, and long use without repairs. Rue Manufacturing Co., Philadelphia, Pa.

For Sale at a Bargain.—One half or whole interest in a Machine and General Repair Shop. Address Machinist, Box 92, Farmington, Iowa.

Portable Railway Track Cars of all Descriptions for Railroad Grading, Sugar Plantations, Mines, etc. Send for circulars. F. W. Corey & Co., 162 Broadway, N. Y.

Cope & Maxwell M'f'g Co.'s Pump adv., page 188.

For the Cheapest Process of Manufacturing Bricks, see Chambers Bros. & Co.'s adv., page 190.

N. C. Baughman's Climax Wash. Mach. See adv., p. 188.

50 cents each will be paid for the following numbers of London *Engineering*. Jan. 14, 28, and Feb. 18, 1876; Sept. 14, 1877. B. R. Western, No. 8 Broad St., N. Y.

For Machinists' Tools, see Whitcomb's adv., p. 173.

Presses, Dies, and Tools for working Sheet Metals, etc. Fruitand other Can Tools. E. W. Bliss, successor to Bliss & Williams, Brooklyn, N. Y.

L. Martin & Co., manufacturers of Lampblack and Pulp Mortar-black, 226 Walnut St., Philadelphia, Pa.

Send to John D. Leveridge, 3 Cortlandt St., New York, for illustrated catalogue, mailed free, of all kinds of Scroll Saws and Supplies, Electric Lighters, Tyson's Steam Engines, Telephones, Novelties, etc.

Pure Oak Leather Belting. C. W. Arny & Son, Manufacturers, Philadelphia. Correspondence solicited.

Within the last ten years greater improvements have been made in mowing machines than any other agricultural implement. It is universally acknowledged that the Eureka Mower Co., of Towanda, Pa., are making the best mower now in use, and every farmer should write to the manufacturers for catalogue, with prices.

Jenkins' Patent Valves and Packing "The Standard." Jenkins Bros., Proprietors, 11 Dey St., New York.

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

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

The "1880" Lace Cutter by mail for 50 cts.; discount to the trade. Sterling Elliott, 262 Dover St., Boston, Mass.

Experts in Patent Causes and Mechanical Counsel. Park Benjamin & Bro., 50 Astor House, New York.

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

Malleable and Gray Iron Castings, all descriptions, by Erie Malleable Iron Company, limited, Erie, Pa.

Power, Foot, and Hand Presses for Metal Workers. Lowest prices. Peerless Punch & Shear Co., 52 Dey St., N. Y.

National Steel Tube Cleaner for boiler tubes. Adjustable, durable. Chalmers-Spence Co., 40 John St., N. Y.

Wren's Patent Grate Bar. See adv. page 173.

Corrugated Wrought Iron for Tires on Traction Engines, etc. Sole mfrs., H. Lloyd, Son & Co., pittsb'g, Pa.

Best Oak Tanned Leather Belting. Wm. F. Forepaugh, Jr., & Bros., 531 Jefferson St., Philadelphia, Pa.

Stave, Barrel, Keg, and Hogshead Machinery a specialty, by E. & B. Holmes, Buffalo, N. Y.

Houston's Sash Dovetailing Machine. See ad., p. 205.

For Thrashing Machines, Engines, and Horse Powers, see illus. adv. of G. Westinghouse & Co., page 189.

Wright's Patent Steam Engine, with automatic cut off. The best engine made. For prices, address William Wright, Manufacturer, Newburgh, N. Y.

Clark Rubber Wheels adv. See page 172.

The Brown Automatic Cut-off Engine; unexcelled for workmanship, economy, and durability. Write for information. C. H. Brown & Co., Fitchburg, Mass.

Saunders' Pipe Cutting Threading Mach. See p. 173.

Nickel Plating.—Sole manufacturers cast nickel anodes, pure nickel salts, importers Vienna lime, crocus, etc. Condit, Hanson & Van Winkle, Newark, N. J., and 92 and 94 Liberty St., New York.

Saw Mill Machinery. Stearns Mfg. Co. See p. 141.

For Mill Mach'y & Mill Furnishing, see illus. adv. p. 172.

Mineral Lands Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co. Box 423, Pottsville, Pa. See p. 189.

For Pat. Safety Elevators, Hoisting Engines, Friction Clutch Pulleys, Cut-off Coupling, see Frisbie's ad. p. 188.

The I. B. Davis Patent Feed Pump. See adv., p 205.

Apply to J. H. Blaisdell for all kinds of Wood and Iron Working Machinery. 107 Liberty St., New York. Send for illustrated catalogue.

Peck's Patent Drop Press. See adv., page 204.

For the best Diamond Drill Machines, address M. C. Bullock, 80 to 88 Market St., Chicago, Ill.

Clark & Heald Machine Co. See adv., p. 206.

Fire Brick, Tile, and Clay Retorts, all shapes. Borgner & O'Brien, M'f'rs, 23d St., above Race, Phila., Pa.

Turbine Wheels; Mill Mach'y. O. J. Bollinger, York, Pa.

Brass & Copper in sheets, wire & blanks. See ad. p. 206

The Chester Steel Castings Co., office 407 Library St., Philadelphia, Pa., can prove by 15,000 Crank Shafts, and 10,000 Gear Wheels, now in use, the superiority of their Castings over all others. Circular and price list free.

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

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

Eagle Anvils, 10 cents per pound. Fully warranted.

Geiser's Patent Grain Thrasher, Peerless, Portable, and Traction Engine. Geiser M'f'g Co., Waynesboro, Pa.

Machinists' Tools and Special Mach'y. See adv., p 295.

Steam Engines; Eclipse Safety Sectional Boiler. Lambertville Iron Works, Lambertville, N. J. See ad. p. 189.

New Economizer Portable Engine. See illus. adv. p. 205.

Catechism of the Locomotive, 625 pages, 250 engravings. The most accurate, complete, and easily understood book on the Locomotive. Price $2.50. Send for a catalogue of railroad books. The Railroad Gazette, 73 Broadway, New York.

C. B. Rogers & Co., Norwich, Conn., Wood Working Machinery of every kind. See adv., page 205.

Moulding Machines for Foundry Use. 33 per cent saved in labor. See adv. of Reynolds & Co., page 205.

For Shafts, Pulleys, or Hangers, call and see stock kept at 79 Liberty St., N. Y. Wm. Sellers & Co.

Wm. Sellers & Co., Phila., have introduced a new injector, worked by a single motion of a lever.

Skinner & Wood, Erie, Pa., Portable and Stationary Engines, are full of orders, and withdraw their illustrated advertisement. Send for their new circulars.

The Sweetland Chuck. See illus. adv., p. 204.

Toope's Pat. Felt and Asbestos Non-conducting Removable Covering for Hot or Cold Surfaces; Toope's Pat. Grate Bar. C. Toope & Co., M'f'g Agt., 353 E. 78th St., N. Y.

Use Vacuum Oil Co.'s Cylinder Oil, Rochester, N. Y.

Don't buy a Steam Pump until you have written Valley Machine Co., Easthampton, Mass.

For Superior Steam Heat. Appar., see adv., page 204.

Vick's Seeds best in world. Floral Guide tells how to grow them. See adv., p. 204.

Burgess' Portable Mechan. Blowpipe. See adv., p. 204.

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

Lightning Screw Plates and Labor-saving Tools. p. 204.

The New System of Bee Keeping. Every one who has a farm or garden can now keep bees with pleasure and profit. For particulars address Mrs. Lizzie E. Cotton, West Gorham, Maine.

Pat. Steam Hoisting Mach'y. See illus. adv., p. 140.

## Notes & Queries

### HINTS TO CORRESPONDENTS.

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

Names and addresses of correspondents will not be given to inquirers.

We renew our request that correspondents, in referring to former answers or articles, will be kind enough to name the date of the paper and the page, or the number of the question.

Correspondents whose inquiries do not appear after a reasonable time should repeat them. If not then published, they may conclude that, for good reasons, the Editor declines them.

Persons desiring special information which is purely of a personal character, and not of general interest, should remit from $1 to $5, according to the subject, as we cannot be expected to spend time and labor to obtain such information without remuneration.

Any numbers of the SCIENTIFIC AMERICAN SUPPLEMENT referred to in these columns may be had at this office. Price 10 cents each.

(1) C. M. C. writes: I have occasion to finish nickel plated work in different colors, for bands and lines, and have tried using aniline colors mixed with a lacquer, but it rubs off easily, and I wish to get a receipt for a lacquer or japan (light color preferable) that will mix with colors making a smooth finish that will not scratch off easily; also I would like to learn how brass and oreide are treated to give that finish such as is on lamp trimmings, etc. If it needs to be baked please give the degree of heat and time it should be exposed. A. Color alcoholic spirit copal varnish with any of the soluble coal tar dyes previously dissolved in a little absolute alcohol. Warm the work, apply the colored varnish quickly, and harden at about 300° Fah. (higher if the varnish will bear it), in an oven. The trimmings are largely stamped from rolled sheet metal or turned over a mandrel, thinly lacquered with pale shellac and sandarac, in alcohol (or wood naphtha), and the lacquer hardened in an oven as above.

(2) E. McA. B. asks: What per cent of carbon does ordinary cast iron, Bessemer iron, and wrought iron contain respectively? A. Cast iron, 3·2 to 4·7 per cent; when manganese is present, sometimes as high as 5·9 per cent. Bessemer iron contains about 0·45 per cent of carbon. Wrought iron seldom or never contains less than 0·08 per cent of carbon.

(3) T. T. T. asks: What composition is best to put upon iron to prevent rusting underground? A. The following preparation, used for ocean cables and underground iron work, will give satisfaction: Cotton seed or linseed oils, 1 lb.; coal tar, 1; sulphur, 1. Heat separately, mix thoroughly, and heat to 300° Fah., for about 1 hour, at the end of which it becomes pasty and is ready for use. Heat the metal to which it is to be applied. Under ordinary circumstances it will remain unchanged for an indefinite period.

(4) E. W. S. writes: I see in a late number of your valuable paper that you recommend glycerine and alcohol for oil stone. I object to it, for the following reasons: The alcohol evaporates, leaving the glycerine alone on the tools. Glycerine has a strong attraction for water, and will draw it from the air, causing the tools to become coated with rust. I would suggest pure lard oil as the best thing for oil stone. It will not gum, and it preserves the tools from rust.

(5) V. H. writes: In your paper dated January 22, you explain how writing with a saturated solution of alum water may be copied indefinitely by laying it upon a gelatin pad previously rubbed with a wet sponge and the pad afterwards rolled with a printer's roller, when the writing engraved on the pad acts like a lithograph, taking ink and yielding an impression for each fresh inking. Can this suggestion be applied to type writing. I have tried by soaking a strip of muslin in glycerine and copying ink in equal proportions, in which powdered alum had been dissolved in sufficient quantity to operate as you suggest when applied to paper with a pen, but I cannot succeed with the ribbon on the type writer at all. It would be a very valuable assistant to type writing if it could be copied in the cheap and expeditious way you suggest with respect to writing with a pen. A. Try saturated solution of alum in glycerine (made by aid of heat) without the ink. Or add to a saturated aqueous solution of alum just enough glycerine to make a clean not necessarily visible copy with the type. Let the copy remain on the gelatine some time.

(6) J. M. H. asks: 1. Is paper pulp manufactured from pine wood? Yes. See "Technology of the Paper Trade," SUPPLEMENTS Nos. 109, 110, 116, 117, 118, and 123. 2. Give receipt for making glue used by manufacturers of pocket books and bookbinders. A. Mix together over a water bath equal parts of flour paste and good glue size.

(7) G. B. & Co. ask for the best and most recent method of dissolving bones for fertilizing purposes. A. Grind the dry bones and gradually mix them with about one-fourth their weight of oil of vitriol previously diluted with an equal volume of water and cooled. Boiling in a 5 per cent solution (aqueous) of muriatic acid completely dissolves the earthy phosphates from bones, the remaining portions being useful to the glue manufacturer.

(8) J. H. B. asks how to make papier mache for stereotyping. A. Lay a piece of tissue paper upon a perfectly flat surface and paste a soft piece of printing paper, which must be pressed evenly on to the tissue. Lay the paper on the form, previously oiled, and cover with a damp cloth; beat with a stiff brush the paper in evenly; then paste a piece of blotting paper and repeat the beating in; after which three or more pieces of soft tenacious paper are pasted and used in a similar way; back up with a piece of cartridge paper. The whole must then be dried at a moderate heat under a slight pressure. When thoroughly dry brush well over with plumbago or French chalk. When this is done it is ready for the matrix. 2. Can I take a cast with papier mache from a plaster cast? A. No, not very well.

(9) H. L. C. writes: I see reply to M. M. H., as to how to temper iron springs. I submit the following, as it is cheaper and better for large and small springs. Heat to an even red heat, rather low, to prevent cracking; quench in lukewarm water; place in ladle with tallow to cover; heat until tallow burns with a large flame spreading beyond ladle, then set the ladle aside and allow it to cool. Will stand frost, or work under water.

(10) J. T. D. asks (1) for the best way to remove the marks of a friction match from a valuable piece of ground glass. A. Try a little aqua regia (nitric acid, 1; muriatic acid, warm, 3; mix); rinse with water, and scour with a little soap and water and an ordinary nail brush, if necessary.

(11) C. D. V. writes: In SUPPLEMENT, 267, page 4249, you give recipe for chrome ink. Does the addition of sodium carbonate prevent gelatinization, and if not, what can be added that will prevent it? A. Yes, to a certain extent. Use the finest French extract, and avoid an excess of the chromate.

(12) T. A. H. asks: How is the ink—such as is used for making copies from electric pen stencils—made? A. 1. By thinning printer's ink with castor oil; or, 2, dissolving suitable dyes (aniline-coal tar) in glycerine and molasses.

(13) J. A. B. asks: 1. What is the best and cheapest means of hardening paper, without destroying its pliability? A. Pass the paper quickly through strong oil of vitriol and wash thoroughly in running water; or use a hot sirupy solution (aqueous) of zinc chloride, and rinse quickly and thoroughly in water containing a trace of soda. 2. Where can I obtain the fullest treatise on the chemical (or other) manufacture of paper pulp from wood, etc.? A. See "Technology of the Paper Trade," Nos. 109, 110, 116, 117, 118, and 123, SCIENTIFIC AMERICAN SUPPLEMENT.

(14) C. A. B. asks for a cheap and simple method of frosting windows and glass doors without the use of paint. A. Clean the glass and moisten it with ordinary hydrofluoric acid. As soon as the frosting is satisfactorily completed wash off with water.

(15) P. A. asks for a good receipt for making an oil paste shoe blacking. A. Ivory black, in impalpable powder, 1 oz.; molasses, ½ oz.; sperm oil, ½ oz; sulphuric acid, ¼ oz; hydrochloric acid, ¼ oz.; mix the first 3 ingredients, then add the acid with enough water to reduce to proper consistence. Triturate together until a perfectly homogeneous paste is obtained.

(16) A. H. asks: What are the ingredients used by taxidermists to embalm small birds? A. Consult Brown's "Taxidermist's Manual." 2. What will crystallize to represent a snow storm? A. You fail to state the conditions. 3. Where can I obtain supplies for bird stuffing? A. See Hints to Correspondents and Business and Personal column.

(17) E. D. V. says, in answer to J. R. K. and others, who have asked about copying pads: "I have made and used almost every kind of pad proposed, and find that pure gelatin and pure glycerine, without any addition, such as sugar whiting, sulphate of baryta, etc., make the best pad. The consistence and color the latter gives is an evil and not a benefit. With whiting or the sulphate added fewer impressions and more difficulty of erasing are the results. 1 oz. of French pink gelatin and 8 oz. (by weight) of glycerine. Soak the gelatin in cold water one hour; it will be flaccid. Have the glycerine hot in a pail in a water bath, or remove the lid from the tea kettle and set the pail in its place. Wring the water from the gelatin in a towel; then put it into the hot glycerine and stir till well broken up. Heat it several hours. It will give a crimson transparent pad; good glue will give a brown transparent pad; cheap glue a miserable pad. 1 oz. violet aniline 6 B. in one pint hot water, with ½ oz. gum arabic and tartaric acid, gives a good ink." W. H. F. says: I have had occasion to use the gelatin copying pad a good deal, and find that 2 oz. good gelatin in 1 lb (avoirdupois) of glycerine (about 1 to 8) prepared as directed in your article (page 100, vol. xlii.), gives the best result. Whiting and sulphate of baryta are not beneficial.

(18) A. M. asks how to make a cement that will unite leather shavings or leather that has been ground to a pulp, so that when it is rolled out and pressed it will not crack or break when doubled, and be of use in places where strength is not requisite. A. Thin coal tar, cotton seed oil, and sulphur, equal parts; fuse together at a moderate heat. Mix the dry pulp thoroughly with this and expose the mixture for about an hour to a temperature of about 300° Fah. The hot sulphur produces a kind of vulcanization in the mass which renders the composition tough and flexible.

(19) F. H. B. writes: I have some Florida orange blossoms preserved in alcohol, which smell very sweet. How can I extract a perfume from them? A. Essential oil of orange flowers (ol. neroli) is usually obtained by distilling the flowers in a retort along with an equal quantity of water—the oil volatilizes, passes over, condenses with the steam, and is easily separated from the distilled water, which is returned to the retort for a second distillation. About 600 lb. of the flowers produce only one ounce of the essential oil. A weak alcoholic essence may be obtained by macerating the flowers with spirit of wine or by percolation.

(20) S. G. M. asks: 1. Is the induction coil used with carbon telephones because the induced current is able to overcome the resistance easier? A. Yes. 2. If so, why cannot I use a carbon telephone on a very short line, without induction—wire is No. 12? A. You can; but the effect is greatly increased by the induction coil. 3. Is the Lyon's telephone transmitter, described in SUPPLEMENT, 163, of practical value for talking? A. Yes.

(21) J. B. writes: I am engaged in dyeing large quantities of small bone articles. I want to dye them quick and cheap. I use logwood. It only gives me a surface dye. I want it at least one-sixteenth inch deep. Can you give me a good cheap receipt? A. Dip the articles for a few moments into a strong, hot, aqueous solution of caustic potash; rinse in plenty of hot water; boil in a strong aqueous solution of equal parts tannic acid and logwood extract, or logwood and cutch, then in acetate of iron.

(22) B. & H. ask (1) whether the enamel that is used on tin ware to make it look like marble can be used on cast iron. A. Yes. 2. If so, what is it made of, or where can it be had? A. Fine kaolin, 3 parts; silica, ½ part; calcined borax, 1 part. Mix and fuse in a crucible. Remove from the fire and stir in 1 part fine umber. Cool quickly, grind to a fine powder, mix with water to a paste, and apply to the clean metal. Dry slowly in a warm place; then heat gradually in a muffle or seggar until the enamel fuses. Cool slowly.

(23) G. S. asks how to prevent fire clay from cracking while it is drying. A. Mix the clay very thoroughly and with as little water as possible, and dry very slowly in the air before kiln drying.

(24) J. H. asks: Is there any known method of depositing a film of gold on glass? A method similar to that used in depositing silver would be most suitable for my purpose. A. Try the following: 1. Gold chloride, 1 drachm; distilled water, 2 oz.; dissolve. 2. Oxalic acid (pure) 1 oz.; water, 6 oz.; dissolve. Clean the glass thoroughly, warm the plate, and pour over it a mixture of equal volumes of the above solutions to a depth of a quarter of an inch, the edges being rimmed with gutta percha putty as in silvering. Let it stand about six hours.

(25) P. S. M. asks: 1. What is horsepower of upright tubular, water leg boiler, 4 feet 6 inches high (including leg), 2 feet 4 inches diameter, 78 1½-inch tubes 2 feet 6 inches long? After passing out of top of tubes the products of combustion dive outside of shell to flue about two-thirds of distance to lower end of tubes. A. About 5 horse power. 2. What size horizontal tubular boiler of usual style would be equal to above in steaming power? A. A boiler having about 70

feet fire surface. 3. Used for house heating how many square feet of radiating surface should above boiler supply to advantage? A. About 600 feet.

(26) B. & A. Co. write: We have two shafts running 1¼ inch to the foot out of line, with two pulleys attached, 36 inches diameter, 10 inch face, run by an upright belt, and the belt in running runs off both pulleys on the same side 1½ to 2 inches; both pulleys are turned the usual way crowning, and running at a speed of two hundred revolutions a minute. What we wish to know is, if we have one or both pulleys made a little crowning off the center, will it lead the belt on straight, and would we get full power of belt; and if we should make them doubly as crowning would it make any difference? A. Crowning will do no good. Your only mode of correcting the evil is to so place carrier pulleys or oilers, that the belt shall run on both pulleys at right angles to their respective shafts.

(27) C. S. writes: I bought SUPPLEMENT, 142, in view of constructing me a telephone for a private line. But there are several points I would inquire further about. 1. Should the ends of the coil wire wound around the spool touch the connection wire fastened in the binding post? A. Yes. 2. How can I tell the like poles on magnets? A. Present the poles to a compass needle. Poles that produce the same effect are alike. 3. Would common tin do for the diaphragm, or what other material should I use? A. Tin is too thick. Use ferrotype plates. 4. Should I use No. 36 common copper wire for connecting the instrument with another? A. Use No. 12 iron wire for your line.

(28) A. S. R. asks (1) for information on melting and ponring caoutchouc. A. Caoutchouc cannot be melted and poured as you suggest. When heated to the fusing point it suffers partial decomposition. 2. Is there a work published on the manufacture of Indian arrow heads? A. We know of no book on this subject.

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

T. H. B.—1. Marmolite. 2. Hornblende in quartz. 3. Dolerite. 4. Feldspar and hornblende. 5. Chiefly quartz. 6. Hornblende. 7. Sandstone and lime carbonate.—S. W.—1. Heavyspar—barium sulphate. 2. Limonite on quartz. 3. Gypsum. 4. Ferruginous lime sulphate (deposit). 5. Pyroxene. 6. Chrysocolla. 7. Graphite in sandstone. 8. Chiefly quartz and limonite. 9. Limonite on quartz.—N. O. G.—It is tourmaline (hardness 7·5—corundum is 9, diamond 10).—E. G.—The powder contains traces of gold—hardly rich enough to pay.—J. M. S.—The small pebble (one) is quartz—not diamond.—T. C. Y.—Your ink, where not used in excess is easily removed.—T. F. W.—Iron, copper, and molybdenum sulphides. It may carry gold, but it will require a fire assay to determine this.—L. H. G.—The rock contains much titaniferous iron ore. Some of it may carry gold. An assay would be advisable.

## COMMUNICATIONS RECEIVED.

On a Brilliant Meteor. By C. E. S.

On the Operation of Arsenic and How to Detect Carbonic Oxide. By H. M. D.

## NEW BOOKS AND PUBLICATIONS.

ZEITSCHRIFT FUR INSTRUMENTENKUNE (JOURNAL OF SCIENTIFIC INSTRUMENTS). Edited by Dr. G. Schwirkus. Berlin: 1881. Julius Springer.

This monthly publication, the first number of which is now before us, is devoted to scientific instruments and the experiments therewith. Each number will contain illustrations and descriptions of the modern scientific instruments, the opinions of scientific men in regard to the same, and all possible improvements and observations in manufacturing the instruments will be given, so as to enable one manufacturer to profit by the experience of others, whereby the accuracy of scientific instruments in general will be greatly improved. All patents for scientific instruments will also receive proper notice. The leading savants of Germany, such as Messrs. C. Bruhns, of Leipsic; Bauernfeud, of Munich; v. Lang, of Vienna, and many others contribute to this work. The first number contains articles by Fuess, on Normal Barometer; Illuminating Micrometer Devices, by Foerster; Micrometer Screws, by Reichel; Vogel and Lohse, on Spectral Apparatus; Kronecker, on Graphical Methods in Physiology, etc. This work is printed in clear English type.

PROYECTO DE ORGANIZATION DE LA SECCION DE ESTUDIOS DEL ATENEO DEL URUGUAY. Por el Doctor F. A. Berra. Montevideo: 1880.

This volume of over 250 octavo pages is an elaborate plan for a total reorganization of the course of studies now pursued at the Atheneum of Uruguay. It seems that these studies have hitherto been quite elementary—just enough to give the student sufficient education to qualify him for business, but not enough to fit him to become a prominent member of society or even to qualify him for the duties of a public life. The consequence is that the administration of the government falls into the hands of a few privileged persons. This state of things for a republic is justly considered radically wrong by the promoters of the project under consideration. Hence the elaboration of a plan to give all the youths of the nation a liberal education which shall make them ornaments of society and good citizens, who shall be capable, when their country calls upon them, of filling any public office to which they shall be elected. The proposed course of instruction here laid down seems to be quite elaborate, and equal to that found in the curriculum of any prominent college or university. Dr. Berra and his associates are to be wished all success in their noble and patriotic undertaking.

THE MAGAZINE OF ART. Cassell, Petter, Galpin & Co. New York.

The March number of this entertaining art publication has made its appearance, and, like the preceding numbers, it is full of illustrations, and complete in interest to all lovers of art in varied departments.

[OFFICIAL.]

# INDEX OF INVENTIONS

FOR WHICH

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

**March 1, 1881,**

**AND EACH BEARING THAT DATE.**

[Those marked (r) are reissued patents.]

A printed copy of the specification and drawing of any patent in the annexed list, also of any patent issued since 1866, will be furnished from this office for one dollar. In ordering please state the number and date of the patent desired and remit to Munn & Co., 37 Park Row, New York city. We also furnish copies of patents granted prior to 1866; but at increased cost, as the specifications not being printed, must be copied by hand.

Air compressor, H. F. Fitzpatrick ..... 238,374
Air compressor, hydraulic, W. R. Freeman ..... 238,225
Atomizing tube, flexible, I. Heine ..... 238,368
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