

Business and Personal.

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Curtis Return Steam Trap returns all condensations into the boiler without waste. Curtis Regulator Works, Boston, Mass.

Agents Wanted.—New household novelty; sells at sight; profits large. Rogers Novelty Mfg. Co., Cohoes, N. Y.

55 good unpatented inventions (various) to be sold for best offers. P. O. box 510, Philadelphia, Pa.

For Sale.—A manufacturing business protected by patents. Address for particulars Geo. Haseltine, 247 Broadway, N. Y.

Billings' new Hand Vise, with parallel jaws. Drop Forgings. Billings & Spencer Co., Hartford, Conn.

Casings for model steam engines in brass, iron, or white metal. Address E. P. Ryder, Brooklyn, N. Y.

For Sale.—Rights to manufacture and sell the Metal Tongs illustrated on page 370. Address W. W. Winegar, Chambersburg, Ill.

Geo. E. Lloyd & Co., Electrotype and Stereotype Machinery, Folding Machines, etc. Send for catalogue. Chicago, Ill.

Nickel Plating.—Sole manufacturers cast nickel anodes, pure nickel salts, polishing compositions, etc. \$100 "Little Wonder." A perfect Electro Plating Machine. Sole manufacturers of the new Dip Lacquer Kristaline. Complete outfit for plating, etc. Hanson, Van Winkle & Co., Newark, N. J., and 92 and 94 Liberty, St., New York.

Grimshaw.—Steam Engine Catechism. A series of thoroughly Practical Questions and Answers arranged so as to give to a Young Engineer just the information required to fit him for properly running an engine. By Robert Grimshaw. 18mo, cloth, \$1.00. For sale by Munn & Co., 361 Broadway, N. Y.

The Knowles Steam Pump Works, 44 Washington St., Boston, and 93 Liberty St., New York, have just issued a new catalogue, in which are many new and improved forms of Pumping Machinery of the single and duplex, steam and power type. This catalogue will be mailed free of charge on application.

Air Compressors, Rock Drills, J. Clayton, 43 Dey st., N. Y.

Haswell's Engineer's Pocket-Book. By Charles H. Haswell, Civil, Marine, and Mechanical Engineer. Giving Tables, Rules, and Formulas pertaining to Mechanics, Mathematics, and Physics, Architecture, Masonry, Steam Vessels, Mills, Limes, Mortars, Cements, etc. 900 pages, leather, pocket-book form, \$4.00. For sale by Munn & Co., 361 Broadway, New York.

Shafting, Couplings, Hangers, Pulleys, Edison Shafting Mfg. Co., 86 Goerck St., N. Y. Send for catalogue and prices.

Iron Planer, Lathe, Drill, and other machine tools of modern design. New Haven Mfg. Co., New Haven, Conn.

Wanted.—Patented articles or machinery to manufacture and introduce. Lexington Mfg. Co., Lexington, Ky. For Power & Economy, Alcott's Turbine, Mt. Holly, N. J. Machinery for Light Manufacturing, on hand and built to order. E. E. Garvin & Co., 139 Center St., N. Y.

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

Presses & Dies, Ferracute Mach. Co., Bridgeton, N. J. If an invention has not been patented in the United States for more than one year, it may still be patented in Canada. Cost for Canadian patent, \$40. Various other foreign patents may also be obtained. For instructions address Munn & Co., SCIENTIFIC AMERICAN patent agency, 361 Broadway, New York.

Supplement Catalogue.—Persons in pursuit of information of any special engineering, mechanical, or scientific subject, can have catalogue of contents of the SCIENTIFIC 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.

Guild & Garrison's Steam Pump Works, Brooklyn, N. Y. Steam Pumping Machinery of every description. Send for catalogue.

Send for descriptive circular on lubrication. Charles H. Besly & Co., North American Agents for Reiser's Celebrated Solid Oil, 175 & 177 Lake St., Chicago, Ill.

Mineral Lands Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co. Box 423, Pottsville, Pa. See p. 46.

Cutting-off Saw and Gaining Machine, and Wood Working Machinery. C. B. Rogers & Co., Norwich, Conn.

Curtis Pressure Regulator and Steam Trap. See p. 350.

Send for catalogue of Scientific Books for sale by Munn & Co., 361 Broadway, N. Y. Free on application.

Best Automatic Planer Knife Grinders, Pat. Face Plate Chuck Jaws. Am. Twist Drill Co., Meredith, N. H.

We are sole manufacturers of the Fibrous Asbestos Removable Pipe and Boiler Coverings. We make pure asbestos goods of all kinds. The Chalmers-Spence Co., 419 East 8th Street, New York.

Crescent Solidified Oil and Lubricators. Something new. Crescent Mfg. Co., Cleveland, O.

Steam Hammers, Improved Hydraulic Jacks, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York.

Emerson's *Book of Sawes free. Reduced prices for 1885.* 50,000 Sawyers and Lumbermen. Address Emerson, Smith & Co., Limited, Beaver Falls, Pa.

Safety Elevators, steam and belt power; quick and smooth. D. Frisbie & Co., Philadelphia, Pa.

"How to Keep Boilers Clean." Send your address for free 88 page book. Jas. C. Hotchkiss, 86 John St., N. Y.

Barrel, Keg, Hogshead, Stave Mach'y. See adv. p. 76.

The "Improved Greene Engine" can be obtained only from the sole builders, Providence Steam Engine Co., R. I.

Nervous, Debilitated Men. You are allowed a free trial of thirty days of the use of Dr. Dye's Celebrated Voltaic Belt with Electric Suspensory Appliances, for the speedy relief and permanent cure of Nervous Debility, loss of Vitality and Manhood, and all kindred troubles. Also for many other diseases. Complete restoration to health, vigor, and manhood guaranteed. No risk is incurred. Illustrated pamphlet, with full information, terms, etc., mailed free by addressing
Voltaic Belt Co.,
Marshall Mich.

Manufacture of Soaps, Candles, Lubricants, and Glycerine. Illustrated. Price, \$4.00. E. & F. N. Spon, New York.

Patent Elevators with Automatic Hatch Covers. Circular free. Tubbs & Humphrey, Cohoes, N. Y.

Iron and Steel Wire, Wire Rope, Wire Rope Tramways. Trenton Iron Company, Trenton, N. J.

Machinists' Pattern Letters. Pattern Letters to order. Vanderburgh, Wells & Co., 110 Fulton St., New York.

Brass and Iron Working Machinery, Die Sinks, and Screw Machines. Warner & Swasey, Cleveland, O.

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

Notes & Queries

HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters, or no attention will be paid thereto. This is for our information, and not for publication.

References to former articles or answers should give date of paper and page or number of question. Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and though we endeavor to reply to all, either by letter or in this department, each must take his turn.

Special Written Information on matters of personal rather than general interest, cannot be expected without remuneration. Scientific American Supplements referred to may be had at the office. Price 10 cents each. Minerals sent for examination should be distinctly marked or labeled.

(1) P. Z. E.—You will find full instructions for electroplating in SUPPLEMENT, No. 310.

(2) H.—Car wheels fixed on their axles slip in going around curves.

(3) U. O. C. asks: In which number of the SCIENTIFIC AMERICAN are the directions for making an induction coil for electrically lighting gas? A. For information on induction coils consult SUPPLEMENT, No. 160.

(4) R. H. asks how to stick celluloid to basswood, as in the manufacture of organ and piano keys.

A. Use the following cement:
Gum shellac.....1 ounce.
Camphor.....1 "
Alcohol.....4 "
Dissolve and filter; or:
Celluloid scraps.....1 "
Alcohol.....2 "

Macerate the scraps finely divided in the alcohol, and when they are dissolved filter.

(5) J. S. B. asks: What is the correct proportion of gas and air to form the explosive mixture in a gas engine? A. It varies in different engines. In a compression engine, it is one of gas to ten or twelve of air; in non-compression engines, one of gas to seven to ten of air.

(6) A. N. R. asks how to construct a cheap serviceable telephone to transmit sound a distance of 40 rods, if possible, without the use of electricity. A. Two cigar boxes about six inches square connected by a stout cord or, better still, by means of a twisted wire cable will probably answer your purpose.

(7) F. A. T. desires a recipe for polishing shirt bosoms, collars, and cuffs, that will put a gloss finish on them. A. Pour a pint of boiling water upon two ounces of gum arabic; cover it, and let it stand over night. Use a small quantity in the starch.

(8) W. H. B. asks how to polish, clarify, and color ox horns. A. The process is elaborately explained in Spon's Workshop Receipts, First Series. Several columns are there devoted to this subject. The book can be procured from us for \$2.00.

(9) F. O. writes: I wish to filter a quantity of bay rum; could you tell me of a cheap way to manage it? A. Filter it through common filtering paper in a glass or porcelain funnel.

(10) W. F. H.—Kerosene can be vaporized by gentle heat. Gasoline is one of the lightest distillates of crude petroleum.

(11) H. E. C. asks if a diamond can be dissolved in vinegar. A. No.

(12) F. L. B. asks: Can you give me directions how to make a cheap anemometer that will give fair results as to accuracy in respect to wind pressure or velocity? Something that an ingenious, handy mechanic can make. A. Make a disk of wood having one square foot area; attach to the center of the disk a rod; place the rod in suitable horizontal guides, and put a spring back of the disk. By means of a spring balance graduate the rod into pounds and fractions of pounds. Support the disk on a pivot, and provide a vane which will hold the disk to the wind. The pressure of the wind upon the disk will then be indicated in pounds and ounces, and from this indication you can readily compute the velocity of the wind. Should you desire to do so, you can apply to the rod an index, and provide a curved scale along which the index may move, thus rendering the divisions of the scale greater, and permitting of seeing the indications at a greater distance. You can also readily make an anemometer by connecting suitable registering mechanism with a small carefully made windmill. The graduations of your indicating mechanism must be argued at by experiment.

(13) M. D. L. M. asks what sulphurous oxide is. A. It is the product of the combustion of sulphur in dry air or oxygen gas.

(14) C. W. F. asks: In what can rubber be dissolved so that a thick or thin varnish can be made to cover rubber cloth? A. Rubber may be dissolved in naphtha, also in bisulphide of carbon.

(15) E. T.—Any wholesale drug house can furnish you with bichromate of ammonia. It can

be made by evaporating a mixture of chromic acid with excess of ammonia, or by decomposing the chromate of barium with sulphate of ammonium.

(16) M. asks a good cure for mange in a dog, rather a light case. A. An ointment consisting of 1 ounce sublimed sulphur and 2 ounces lard, mixed together, is generally used for light cases.

(17) J. H. D. asks (1) the quickest way to make vinegar from cider. A. The manufacture of vinegar consists simply in exposure to the air, thereby causing an oxidation of the cider, at a temperature of from 75° to 85° Fah., in open vats or by trickling over wood. 2. Can vinegar be made quicker from cider water? A. Yes; but the article made from pomace is not marketable, on account of its flavor.

(18) A correspondent writes: Where can the seed of pure Havana tobacco be procured? A. Send to some of the large seedhouses in New York, and they will send to Cuba, and obtain the seed for you. 2. Desires information on the curing of the leaf. A. F. W. Coon, Edgerton, Wis., has recently published a book on this subject, and there is also a book on "Tobacco Culture" published in this city, which we can procure for you.

(19) V. D. & Co. ask: At what point in the discharge of a rifle does the recoil occur—when the ball first starts, or as it leaves the muzzle of the gun? A. When the ball starts.

(20) W. H. A. writes: I have two good magic lanterns, and have very little use for more than one; is there any possible way of using the lenses or combination of the lenses for a photograph camera? The condensers are 3/4 inches diameter, the focusing lenses 1/4 inches. A. Your lantern objective if of good quality may be used to advantage in photography. The condensers would not be available.

(21) F. J. G. asks: 1. Can you inform me how to make small "electric influence machine," partly described in SCIENTIFIC AMERICAN, March 7, 1885, page 150? A. You will find the Holtz electrical machines described in SUPPLEMENT, Nos. 273, 279, and 282.

(22) J. R. F. asks: 1. Can you tell me where the reels made on the lazy tongs principle can be bought? A. We believe that the reels referred to can be bought at most of the stores dealing in worsteds. 2. If they cannot be bought, will it be safe to make some of the same kind? A. If the reels referred to are made by the inventor or under his sanction, and there is nothing upon any of the reels or the packages that contain them to indicate that they have been patented, you cannot be prosecuted for making the reels.

(23) H. W. B.—When the Bell magneto-telephone is employed for both transmitting and receiving, it is simply inserted in the line. You may use two such instruments at each end of your line, employing one as a transmitter and the other as a receiver.—A patented article may be made and used for experimental purposes.

(24) D. J. A. asks: Will you please inform me how I can prepare plaster of Paris so that it will not crack or chip, without adding greatly to its cost? A. You can harden plaster casts by soaking them in glue size, afterward allowing the casts to dry perfectly.

(25) J. G. writes: A bets B that there is no one-wheeled vehicle in existence operated similar to a tricycle or bicycle. B claims that there is, and says that the unicycle on page 150, vol. 1, SCIENTIFIC AMERICAN, proves it. A. The vehicle mentioned in our paper is a unicycle. The best bicycle riders can and do also ride on only one wheel of a machine.

(26) W. H. asks how to make colors adhere on albumenized photographs. A. Make a solution of albumen as follows: Separate from the germs the whites of eight eggs, these should amount to 8 fluid ounces of albumen. Add to this quantity 24 drops of glacial acetic acid diluted with one ounce of water. Stir well with a glass rod for a minute or so without making a froth. Allow the solution to stand for an hour or more, then strain through a couple of thicknesses of cambric muslin. Finally add half a drachm liquid ammonia; bottle, and cork tightly. The solution will keep indefinitely, and can be used at any time. In mixing or dissolving the colors, use one part of the albumen solution in four parts of pure water. The colors will adhere perfectly to the surface when laid on with a brush. Add to the 4 ounces of water a few drops of prepared ox gall when the colors are diluted.

(27) C. H. McC. asks: What will remove the spots from a zinc lined bath tub in which water has been permitted to stand for several days? Ordinary scouring, etc., have no effect upon it. A. Soap and sand or sapollo should be all that is necessary to remove any spots. If the spots fail to yield to these substances, a little dilute hydrochloric acid can be used, but this dissolves away the zinc.

(28) O., Ky.—The tin bath used in tin plating becomes foul by absorption of iron or other metal being tinned. The fluid tin may be poured off just above the melting point of tin by allowing the bath to cool down slowly until signs of setting are noticed, when the pure tin will run off. The refining of the spongy mass or thick tin is too difficult for ordinary practice, and this is generally sold to chemical manufacturers or to brass foundries for brass alloys. Banca tin is supposed to be the purest and best for tinning purposes. The production is very small, and the probability is that it is mostly absorbed in the English tin plate interest. The trade is not reliable, and you may buy almost any kind from the same pile.

(29) H. F. S. asks how red flannel underclothing can be treated so as not to cause constant irritation to the skin. A. The irritation is caused by the flannel and not by the dye. The belief is very common that red flannel has some special value because of its color, but the belief is without foundation, and any other color where the flannel is of the same quality is equally efficacious. The red flannel selected is often and perhaps generally thick and heavy in texture, and consequently causes an irritation of the skin, for which the dyestuff is by no means responsible. A softer;

flannel, or one made soft by wearing and washing, is what you need.

(30) W. T. S. asks: What will congeal gasoline so as to make it somewhat like jelly? There is a man here selling a preparation for taking grease out of clothing. He has something that he puts in gasoline which makes it like jelly. A. Gasoline, which is one of the first distillates from crude petroleum, and very much the same as benzine, will remove grease without any admixture. Possibly the ingredient is some inert substance, like fuller's earth, chalk, magnesia, or it may be Castile soap. Sometimes scouring balls are sold having the following composition: Dry fuller's earth, moistened with the juice of lemons; add a small quantity of pearl ashes and a little soft soap; knead the whole well together into a thick elastic paste; form it into small balls, and dry them in the sun. When used, moisten the spot on the clothes with water; then rub it with the ball, and let the spot dry in the sun. When washed with pure water, the spot will disappear.

(31) O. F. asks: 1. What is the best kind of putty to fill the seams of the planking on the bottom of a small sailing yacht, and how should it be mixed, etc.? A. Fuse together equal parts of pitch and gutta percha, and to this add about 2 parts of linseed oil, containing 5 parts of litharge. Continue the heat until the ingredients are uniformly commingled. This cement should be applied warm. 2. The mahogany trimmings on the above yacht are finished with an article known as Crockett's spar varnish, and cannot be removed by the use of sandpaper, emery, or scraping, except by a great amount of labor. Please inform me if there is any other means by which it can be removed with less difficulty. A. Try the preparation recommended in answer to query 17, in SCIENTIFIC AMERICAN for October 3, 1885.

(32) J. C. asks (1) the best welding compound for welding cast steel when the coal is bad. A. A good welding compound may be made by pulverizing 10 parts borax and 1 part sal ammoniac together; then heat the mixture until the water boils off and the mass is dry, and pulverize and use for welding in the same way as with borax powder. A better way (if you can not get coke) is to make your own coke, for welding use only, by taking from the forge fire, a little at a time, the coked or half burnt coal and quenching it by sprinkling with a little water; lay this aside for special use. 2. The reason for four rollers on roller skates? A. The wear on four rollers is much less than on two rollers. The facility for making the mechanical movement required for turning curves is also favored by the use of four rollers. Two rollers have been used—Experts now skate on one roller.

(33) A. M. writes: In trying to take out a few rust marks in a silk handkerchief with javelle water, I stained the part whereon I poured it. Will you please let me know how to remove it? A. The javelle water is a bleaching agent, and removes color. If the handkerchief was originally colored, it is doubtful whether the shade can be reproduced. When color on a fabric has been accidentally or otherwise destroyed by acid, ammonia is applied to neutralize the same, after which an application of chloroform will, in some cases, restore the original color.

(34) J. N. asks (1) how tincture of iron and steel is made. A. Tincture of iron is officinal, and therefore can be found in any pharmacopoeia. It consists of solution of chloride of iron 35 parts and alcohol 65 parts. The use of the word steel becomes superfluous, as tincture of steel and tincture of iron are synonymous. 2. How carbolic salve is made. A. Take carbolic acid, 1/2 fluid drachm, and lard 1 ounce. Triturate together in a porcelain mortar. 3. To give name of any papers treating of the hair, in keeping it from falling out and preserving the same. A. See "The Hygiene of the Hair," SCIENTIFIC AMERICAN SUPPLEMENT, Nos. 102 and 388.

(35) W. A. W. desires a recipe for making a mucilage such as is usually sold in stationery stores. A. The best mucilage is made by dissolving gum arabic in water, and adding a little oil of cloves to prevent its decomposition. A common receipt is: Mix 3 ounces gum arabic, 3 ounces distilled vinegar, 1 ounce white sugar; 1 part of acetic acid in 5 parts of water can be used instead of the distilled vinegar. The poorer grades are made by treating starch with sulphuric acid. The government uses the following: Gum dextrine 2 parts, acetic acid 1 part, water 5 parts. Dissolve in a water bath and add alcohol 1 part.

(36) A. E. S. asks (1) if there is anything that would keep the scum out of an aquarium without injury to the fish? A. Get a dozen or so of fresh water snails, and they will keep the aquarium in order. 2. How to clean the shells and corals of the greenish matter? A. The shells can be cleaned by washing with a little dilute hydrochloric acid. Great care must be taken to remove all traces of the acid before the shells are replaced in the water, as the acid will destroy the fish.

(37) G. W. W. asks for a description of an imitation of etched or embossed glass. A. The following is used to render glass opaque:

Mastic..... 50 grains.
Gum sandarac..... 1/2 ounce.
Ether..... 5/8 "
Powder the gums and add to the ether, and shake till dissolved; then filter or pour off from the sediment after standing a while, and add of benzole from 2 to 2 1/2 ounces, beginning with the smaller quantity and testing till a surface of the right degree of fineness is produced, upon evaporation. This varnish should be carefully preserved in a tightly stopped bottle, so as to prevent evaporation.

(38) J. D. W. desires a formula how to make the so-called "tablet glue." A. 1. White glue, refined glycerine, acetic acid, and coloring material. 2. Common glue with about 5 per cent glycerine. 3. A quarter of an ounce crude gutta percha dissolved in carbon disulphide to the consistency of mucilage. The materials used in making this glue or cement for pads are generally of a low grade commercially, so that some experiment is necessary to make a good article.