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.

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Curtis Pressure Regulator and Steam Trap. See p. 142.

Cushman's Chucks can be found in stock in all large cities. Send for catalogue. Cushman Chuck Co., Hartford, Conn.

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Stewart's Anti-Incrustation Solution. See next issue.

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

Astronomical Telescopes, from 6″ to largest size. Observatory Domes, all sizes. 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 This is for our information, and not for publication.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.
Books referred to promptly supplied on receipt of price.
Minerals sent for examination should be distinctly marked or labeled.

(1) M. R. T. asks (1) a recipe for black paint for iron smokestacks. A. Use coal tar if it can be had; next, lampblack and boiled linseed oil, or plumbago paint. 2. For preventing boiler scale. A. We recommend a study of Davis book on boiler incrustation. It treats of various kinds of water and scale. We can furnish it for $2.00. 3. What causes the roaring or humming noise produced by acoustic telephones, and why is it at intervals instead of being constant? A. The hum ing noise of the telephone is mostly caused by wind, or an induction from some other source of noise.

(2) F. C. asks (1) for a receipt for making an indelible marking ink using aniline black as coloring matter. A. An indelible aniline ink may be made thus: One hundred gr. of hydrochlorate of aniline and sixty gr. of chlorate of sodium are dissolved in three and a half ounces of water, and a half grain of vanadate of ammonia added to the liquid, when it will soon become dark colored, and deposit an abundant precipitate of aniline black. This may be dried, made into a paste with powdered gum arabic water, and glycerine, and used with a stencil. 2. A good receipt to make inks for stylographic pen. A. Use simple solutions of nigrosine or aniline black in water.

(3) C. M. asks: What are the chemicals used, or the process necessary, in order to repair articles made from tortoise shell? A. Use the following cement: Mastic thirty parts, shellac ninety parts, turpentine six parts, spirit of wine ninety per cent strong, three hundred and fifty parts.

(4) C. S. M. asks how to prepare a polish (or dressing) for furniture, whereby old furniture may be made to assume a bright and new appearance. A. Melt three or four pieces of sandarac, each of the size of a walnut, add one pint of boiled oil, and boil together for one hour. While cooling add one drachm of Venice turpentine, and if too thick a little oil of turpentine also. Apply this, and after some hours rub off. Make frequent applications.

(5) A. H. C. asks how to make a hard transparent soap. A. It is made by dissolving hard white soap, previously reduced to meal and thoroughly dried, in alcohol. A steam bath, fitted with a still-head, makes a good containing vessel. The alcohol and soap are taken in about equal proportions; and as the solution proceeds, any spirit which may distill over must be allowed to condense in a worm and be collected in a receiver. The heat should not exceed 212°. After solution, allow time for settling. Then draw off the clear fluid from the sediment into wooden frames or globular moulds, after which color and perfume the same as other soaps.

(6) A. E. H. asks: What is the best material for polishing brass, especially hot brass? A. Mix together 1 ounce oxalic acid, 6 ounces rottenstone, and a half ounce gum arabic; all these are to be finely powdered. Then add one ounce sweet oil and sufficient water to form the mixture into a paste. Apply a small portion to the article to be cleaned, and rub dry with a flannel or wash leather. See "Spons' Workshop Receipts," second series, which we can send you for two dollars.

(7) E. M. R. wants a No. 1 cement for cementing hot air furnace and stoves. A. The following cement, used for steam pipes, will probably be found satisfactory: Litharge 2 parts, powdered slaked lime 1 part, sand 1 part. Mix the mass with a sufficient quantity of hot linseed oil varnish to form a stiff paste. This cement must be used while fresh and warm.

(8) J. & B. ask for a receipt to make a good stove polish which can be moulded into bars. A. It is made from graphite or black lead purified in the usual manner, and then mixing the powder with some oil of turpentine, to which some ordinary turpentine has been added to make it adhesive, after which the whole is subjected to strong pressure in appropriate moulds.

(9) J. K. asks how to get out the white stain which alcohol makes on varnish, without painting it over. I am informed there is a preparation which you need only to rub over it to take the stain out and polish it at the same time. A. As the alcohol dissolves the varnish, the spot cannot be removed, except by renewing the varnish. The article to which you refer is probably some simple alcoholic solution of shellac.

(10) W. C. P. asks for a mineral that, when moistened, will ignite, and that can be worked into very small lozenge-like pieces. A. The article referred to may be the metal potassium or phosphide of calcium; as they are all dangerous, we would not recommend their use.

(11) J. G. M. asks if there are any chemicals that will destroy lampblack. A. Boiling solution of chromic acid in sulphuric acid or boiling nitric acid. These are to be handled with care.

(12) D. B. K. asks how to oxidize brass and German silver ferrules. Would like to give them a dark appearance without being shining or polished. A. You may oxidize brass or German silver by a vapor bath of sulphur made by burning a small piece of sulphur in a box in which the ferrules are hung. Another method is to dip the ferrules in a solution of water and a few drops of hydrosulphate of ammonia heated to about 180° Fah. The strength must be found by trial.

(13) A. B. asks (1) how to make a composition to resilver brass. A. Prepare a solution of 1 part cyanide of potassium in 6 parts water; add to it a concentrated aqueous solution of nitrate of silver (free from acid) until the precipitate is redissolved. Mix this solution with fine chalk, and apply after previous cleaning of the objects. 2. And also how to silverize iron. A. Unless the iron is first coated with copper, the process is somewhat difficult. See the receipts given for this purpose in the "Techno-Chemical Receipt Book," which we can send you for $2.00.

(14) E. A. M. asks the best lubricating oil to use on very light machinery, such as dental engines and lathes. Sperm, lard oil and kerosene all gum up in time. A. There is no oil that will not gum in time. Use good sperm oil that has been treated with lead shavings and exposed to the sun in a bottle for a few days. Decant the clear oil. The lead and sunlight will purify the oil.

(15) G. F. asks a way to color castings of Babbitt metal or type metal so as to give them the appearance of gray iron that has been coppered. A. The castings can be colored by a deposition of a thin film of copper by dipping in a solution of sulphate of copper and water.

(16) B. C. H.—Low temperature thermometers are made with colored alcohol, which is liquid at about as low as 160° Fah.

(17) T. V. L. F.—The pressure that lead or any other soft metal or alloy will stand depends upon the relative proportions of the thickness of the walls and the interior area of a cylinder. None of the soft metals is fit for a steam cylinder for an engine, if that is what you mean. Use iron or hard brass. Use the ordinary yellow brass for hard soldering or brazing copper.

(18) C. S. R.—Coke at 8 cents per bushel has nearly the same value in carbon as anthracite at $4.50 per 2,000, lb., but is not as good for firing under small boilers. It is light and spongy, occupying nearly twice the space of anthracite, and requires more attention to keep up the intensity of fire required in boilers constructed for anthracite fires. With fire chambers of larger dimensions, coke is nearly equal to anthracite for equal weights.

(19) J. S. W. asks (1) why a cutter yacht carries a shifting bowsprit. A. For convenience of housing in rough weather. 2. Why is the cutter or sloop rig faster than the schooner rig? A. With the same area of sail, the single sail is supposed to hold the wind better than when divided.

(20) P. A. F. writes: In plating small articles with tin, I find that the metal becomes foul and makes the work rough. How shall I remedy this? Would it be advisable to mix antimony with the tin? A. You can improve the tin bath by thoroughly stirring with a stick of green wood, which boils the tin by liberating steam and gas, then cool until it will just pour, when you can pour off the tin slowly, leaving the alloys in the pot. You may use a little sal ammoniac (pulverized) on the tin surface to clear it, and occasionally skim off the dross. You will not be able to use up all the tin of the bath in tinning. It does not pay. Better sell it or make it into coarse solder. Use no antimony.

(21) T. S. asks the process by which quicksilver is applied to glass to make a mirror? What coating can be applied to the quicksilver to protect it from dampness or moisture? A. The quicksilvering of glass is done by covering a sheet of pure tin foil laid upon a cushioned table with mercury; then, sliding the clean glass on the mercury to prevent air bubbles, and pressing the glass down upon the foil, slightly tip up the table to allow the surplus of mercury to run off. Leave the glass under pressure for several hours, to allow the amalgam to set. You cannot put anything on the back to protect it. See SCIENTIFIC AMERICAN SUPPLEMENT, No. 105, for the wet process, which allows of lacquering the back.

TO INVENTORS.

An experience of forty years, and the preparation of more than one hundred thousand applications for patents at home and abroad, enable us to understand the laws and practice on both continents, and to possess unequaled facilities for procuring patents everywhere. A synopsis of the patent laws of the United States and all foreign countries may be had on application, and persons contemplating the securing of patents, either at home or abroad, are invited to write to this office for prices, which are low, in accordance with the times and our extensive facilities for conducting the business. Address MUNN & CO., office SCIENTIFIC AMERICAN, 361 Broadway, New York.

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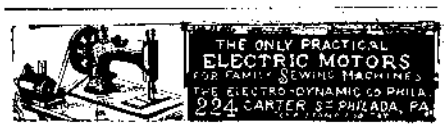

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