

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 This is for our information, and not for publication.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 Information requests on matters of personal rather than general interest, and requests for Prompt Answers by Letter, should be accompanied with remittance of \$1 to \$5, according to the subject, as we cannot be expected to perform such service 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) G. J. S. writes: I am trying silver plating, that is on a small scale, for the fun of it, and expect to do some for some of my neighbors. Will you kindly inform me what is considered as a good plate, that is, how much silver it takes to put a good coating on an ordinary hunting case watch, enough to last for 4 or 5 years? I mean, would it take one, two, or more ten cent pieces to put on such a coating? Would a gold dollar be enough to plate a watch case with, to last the same length of time (5 or 6 years), or would it require more? Also what acid or acids will dissolve gold, from which I can precipitate gold chloride? A. As much silver as is contained in a dime would give a watch a very good plate. As much gold as is contained in a gold dollar would gild a watch fairly well. The gilding would last for several years if used with care. Dissolve gold in aqua regia, which consists of 1 measure of nitric acid and 3 measures of hydrochloric acid. The salt formed will be terchloride of gold.

(2) D. A. F. asks for information in regard to a good and cheap preparation to put on friction matches. A. The igniting composition varies with different makers. The following recipes may be taken as fairly representative, the first being the best:

- 1. Phosphorus by weight... 1/4 part. Potassium chlorate... 4 " Glue... 2 " Whiting... 1 " Finely powdered glass... 4 " Water... 11 " 2. Phosphorus by weight... 2 parts. Potassium chlorate... 5 " Glue... 3 " Red lead... 1 1/2 " Water... 12 "

(3) A. M.—We do not understand your receipt. A German mixture for matches consists of: Potassium chlorate... 78 parts. Lead hyposulphite... 26 " Gum arabic... 1 "

(4) A. J. A.—For best preparation to make soap bubbles: Dissolve Castile soap in strong alcohol; let it settle or filter, and take the clear solution, from which evaporate the alcohol. To this add half its weight of glycerine and sufficient water to give the proper consistency.

(5) C. L. asks what to do to cure stammering. A. Stammering in many instances is due to nervousness. Reading aloud every day is said to be of assistance to those afflicted with this complaint.

(6) F. B. P. asks the formula for "Putz pomade," used for cleaning and polishing metals. A. There are a number of formulas given for Putz pomade; the following is one modification:

- Oxalic acid... 1 part. Iron peroxide... 15 " Powdered rotten stone... 20 " Palm oil... 60 " Petrolatum... 4 "

Pulverize the oxalic acid and add iron oxide and rotten stone, mixing thoroughly, and sift to remove all grit; then add gradually the palm oil and petrolatum, incorporating thoroughly. Add oil of myrrhane or oil of lavender to suit. Apply with a piece of flannel, rubbing off with a piece of soft paper, and polish with chamois.

(7) J. C. T. asks what distance a vessel of 500 tons displacement would recoil were a projectile of 6 inches diameter or 28 inches area fired therefrom under water, say 4 feet deep, with a pressure of 4,500 pounds per square inch. A. There would probably be no perceptible recoil of the vessel. Its sides being elastic and the vessel hollow, the vessel would simply vibrate or tremble.

(8) S. L. L.—The restoration of an ink depends largely upon the variety of ink used. In the case of iron inks, exposure to the vapor of hydrogen sulphide of the moistened paper is sometimes sufficient. Potassium ferrocyanide will develop the ink in blue if iron was originally in the ink. See also page 2131 of SCIENTIFIC AMERICAN SUPPLEMENT, No. 134.

(9) J. J. A. asks how many miles he can make per hour with a small steamer 20 feet long by 4 1/2 wide, engine 2 1/2 by 3 1/2, pressure steam 90 pounds. A. 4 to 5 miles.

(10) J. S. P. writes: Some business men of this city wish me to write you for information as to when the process of galvanizing iron was first known, they having found some galvanized iron pipe; several feet below the cellar of an old building which has not been disturbed for over forty years. A. The process of coating iron with zinc, or zinc and tin, is a French invention, and was patented in England in 1837.

(11) F. M. K.—Steam flows into a vacuum at the atmospheric pressure with a velocity of 1,550 feet per second. At 10 atmospheres pressure the velocity is only about 1,780 feet. You may readily interpolate for intermediate pressures.

(12) G. D. C. asks what metal is used for types, and what kind of moulds. A. Type metal: 3 parts lead, 1 part antimony, by weight. Plaster of Paris makes good moulds for type metal.

(13) W. S. P. asks how to give the flavor of maple sugar to a solution of cane sugar. A. Only by the admixture of maple sirup with the cane juice. The proportions must be determined by experiment.

(14) J. J. D.—Kerosene can be colored by means of aniline dyes. Many of these will dissolve directly in the kerosene. By using those soluble in alcohol, and dissolving them in this solvent and then mixing with the kerosene, the desired result will undoubtedly be accomplished.

(15) J. H. L. says: I have a simply geared circular saw that one horse works with difficulty. If I should increase the number of revolutions of the same saw one-half, using the same pulley, and force the wood against the saw at the same speed, would the work be easier on the horse? A. The increase of the work of the horse is more than the percentage of speed, much of the power being absorbed by the machinery of transmission, which we have no knowledge of.

(16) F. I. S. asks how to oxidize copper or brass. A. Immerse the articles in a solution of 2 ounces nitrate of iron and 2 ounces hyposulphite of soda to 1 pint of water, until the desired shade of oxidation is acquired, then wash, dry, and brush.

(17) O. H. H. asks: By what process is beeswax refined and made nice and yellow. A. Pure white wax is obtained from the ordinary beeswax by exposure to the influence of the sun and weather. The wax is sliced into thin flakes and laid on sacking or coarse cloth, stretched on frames, resting on posts to raise them from the ground. The wax is turned over frequently, and occasionally sprinkled with soft water if there be not dew and rain sufficient to moisten it. The wax should be bleached in about four weeks. If on breaking the flakes the wax still appears yellow inside, it is necessary to melt it again, and flake and expose it a second time or even oftener, before it becomes thoroughly bleached, the time required being mainly dependent upon the weather. There is a preliminary process, by which, it is claimed, much time is saved in the subsequent bleaching; this consists in passing melted wax and steam through long pipes, so as to expose the wax as much as possible to the action of the steam; thence into a pan heated by a steam bath, where it is stirred thoroughly with water and then allowed to settle. The whole operation is repeated a second and third time, and the wax is then in condition to be more readily bleached.

(18) C. F. S.—Your belt will transmit from 10 to 15 horse power, according to its tension. The determination of power used is very uncertain by belt alone. The only approximate way is to use a belt of a width that will just drive the machine without slipping and compute its value. See SCIENTIFIC AMERICAN SUPPLEMENT, Nos. 39 and 331, for tables and formulas for obtaining horse power of belts.

(19) O. O. writes: I wish to enamel cast iron pieces, partly hollow, which are not to be exposed to heat. How can I do it in a cheap way? A. Use white Japan varnish; bakes at about 250°, is hard and durable, same as used for registers; can be obtained from the varnish makers.

(20) J. E. W. sends us the flowering glumes of a grass that he wishes to know the name and value of. A. The glumes sent are those of the "wild oat," a grass very common in California. To botanists it is known as Avena sativa. It is considered a great injury to any grain field into which it may be introduced, but it makes a very good quality of fodder, and is sometimes employed for that purpose in California. We would not advise its cultivation, as it spreads very rapidly, and eventually becomes a very great pest.

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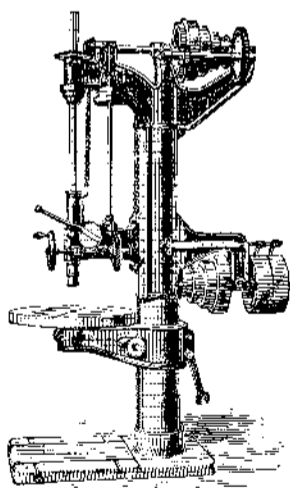
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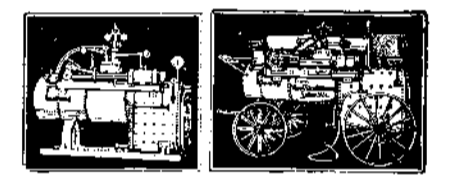
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