WOOD AND COAL BOX.—Rudolph Federroll, New York City. This box is preferably made of metal, and has an open-topped case in which slides a wood box, the box being mounted on rollers so that it may be easily moved about. The lower portion of the box is divided into upper and lower compartments by an inclined partition, in which is an opening, there being also an opening closed by a vertically-swinging door in the front of the lower compartment. The box is cheap and compact, and holds the coal in such a manner that it may be easily shoveled out without spilling.

DETERGENT PASTE. — Joseph Judge, Pittston, Pa. This is a paste for scouring and polishing purposes. It may be used for polishing and scouring hot or cold metals without much labor, its action being very rapid upon rust, corrosion or discolorations of the surface, and it leaves a polish which will last for a considerable length of time.

HAT.—Samuel Cohen, New York City. This is a hat more especially designed for the use of hunters, etc., having a sufficiently stiff brim to afford protection against the sun and rain, while it may be readily folded up to carry in the pocket. The brim is made in sections folding one upon the other, and the hat is made of a covering material and lining between which are interposed stiffening plates made of cardboard, rubber, leather, metal, etc., joints being formed by the covering material and lining at the ends of adjacent plates.

VAGINAL SYRINGE. — John D. Kirkwood, Pullman, Washington. This a device of novel construction, made in one piece, without joint or seam or screw thread, so that dirt or other matters cannot collect in it, while it has no weak part to break and is not liable to get out of order.

DESIGN FOR A MEDAL. — Albert O. Quinby and Thomas H. Bates, Fresno, Cal. This is a Chicago World's Fair souvenir, and has on it a representation of a spread eagle surmounting a shield-like figure bearing a bird's eye view of the exposition buildings.

NOTE.—Copies of any of the above patents will be furnished by Munn & Co., for 25 cents each. Please send name of the patentee, title of invention, and date of this paper.

Business and Personal.

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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 This is for our information and not for publication.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.

(4465) A. R. S. wants to know what is the best proportion of materials to make a German silver which does not tarnish. A. Nickel 35 parts, tin 20 parts, zinc 18 parts, copper 16 parts, and white cast iron 10 parts.

(4466) M. J. S. writes: Having practiced taxidermy for many years, I naturally read with interest the article on "Dangers of Arsenical Soap," in SCIENTIFIC AMERICAN of April 23, 1892. For the last eighteen years I have used arsenical soap only, believing it to be less harmful than white arsenic. 1. Now if (as this article asserts) arsenic is non-volatile, and "the little arsenic it would be possible to absorb would act only as a tonic," how comes it that a single grain of arsenic in a square yard of wall paper is so injurious? A. The poisonous effect of mixtures of arsenic with organic matter by formation of volatile products is still somewhat in debate. The ill effect of arsenical wall paper is still somewhat uncertain. 2. The taxidermist receives many valuable specimens in the first stages of decay. Will not the application of white arsenic to the skins of such develop ptomaine of arsenic also? A. Ptomaines may be developed in such cases. 3. If the best white toilet soap is used, can ptomaine be developed in the arsenical soap? A. Distinction in favor of olive oil or other vegetable soap might be drawn. 4. Is there any safe, reliable substitute for arsenic in the preparation of skins? A. Arsenic seems to hold its place as the favorite application.

(4467) R. G. P. says: In the manufacture of perfumery, what portion of the plant is used? A. The odors of plants reside in different parts of them, sometimes in the roots, as in the iris and vitivert; the leaves in mint, patchouly and thyme; the stem or wood in cedar and santal; the flower in the roses and violets; the seeds in the tonquin bean and caraway; the bark in cinnamon, etc. Some plants yield more than one odor, which are quite distinct and characteristic. The orange tree, for instance, gives three; from the leaves one called petit grain; from the flowers we procure neroli; and from the rind of the fruit essential oil of orange; named Portugal. The fragrance or odor of plants is owing in nearly all cases to a volatile oil, either contained in small vessels or sacs within them or generated from time to time, during their life, as when in blossom. Some few exude, by incision, odoriferous gums, as benzoin, myrrh, etc.; others give, by the same act, what are called balsams, which appear to be mixtures of an odorous oil and an inodorous gum.

(4468) N. McH.—Commercial dextrine is obtained by heating dry potato starch to a temperature of 750° Fah., in sheet iron trays or revolving iron or copper drums, similar to those used in coffee roasting, whereby it is transformed into semi-transparent, brownish lumps, which are converted into a pale yellow powder by grinding between millstones. It is completely soluble in cold water, from which it may be precipitated by addition of excess of strong alcohol. Potato starch is generally used, but starch from other sources will answer. The best tests to ascertain its purity are to agitate briskly a few grains of the dextrine in a test tube with fifty times its weight of pure cold water, then set it aside for 10 minutes. Pure dextrine dissolves completely in cold water to a clear solution. If not all dissolved, pour off the solution, add a little water to the residue, heat to boiling, let cool, and add a few drops of iodine water; a blue color indicates starch.

(4469) W. A. B. asks: 1. I have an induction coil I made that gives a shock as strong as I can bear with a current from two cells of gravity battery. What would be the best kind of battery to use to occupy very little space and at the same time not be expensive? A. Use a plunging bichromate battery. 2. What length of focus, size of glasses, distance apart, and number of glasses should be in a microscope to magnify 350 diameters? I can make the glasses and mount them myself. If you have a SUPPLEMENT that gives information on this subject, tell me the number and I will send for it. A. The formula for a good microscope objective requires very careful calculation, and the lenses must be made of special glass and carefully corrected. We do not think you will be able to do this unless you are an expert optician. You will find information on grinding lenses in SUPPLEMENT, No. 318.

(4470) W. T. B. writes: In Sloane's "Arithmetic of Electricity," the strength of current that a copper wire can safely carry is given as 2·5 amperes for a No. 18 wire, Birmingham gauge. Other authors whose works I have vary but slightly from 8 amperes for No. 18 B. and S. gauge, a smaller wire than the other gauge. Now, will you please tell me what is the safe carrying capacity of say No. 18 B. and S. gauge copper wire? A. The 2·5 amperes is credited to No. 18 B. and S. or American wire gauge—not Birmingham. There is no hard and fast rule. The figure given in the arithmetic is for electro-magnets and amatures, where the wire is insulated. A bare wire would carry considably more. 2. What is the ratio of the current capacity of wires to their diameters? A. The square of the carrying capacity varies with the cube of the diameter. See "Arithmetic of Electricity," pages 58, 59.

(4471) R. M. McG. asks for a so-called window pane barometer. A. By painting the window pane or wall paper with any one of the following solutions, different colors are exhibited npon atmospheric changes, owing to the well known properties of nickel and cobalt salts, which change color in accordance with the variation or amount of moisture in the air. No. 1. Cobalt chloride 1 part, gelatine 1 part, water 100 parts. No. 2. Copper chloride 1 part, gelatine 10 parts, water 100 parts. No. 3. Cobalt chloride 1 part, gelatine 20 parts, water 200 parts, nickel oxide 0·75 part, copper chloride 0·25 part. In damp weather all will be colorless; in clear weather No. 1 will be blue, No. 2 yellow, and No. 3 green.

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