

(16) J. M. asks (1) for the proportions for making rubber waterproof solution. How much rubber, how much bisulphide of carbon, and how much absolute alcohol? A. Caoutchouc (gum rubber) 1 oz., carbon disulphide, about 1/4 pint rubber, and vice versa. 2. If you drop coal oil on a hot plate it will vaporize. Is that the same as gas; if not, what is the difference between vapor and gas? Will the vapor condense back into liquid, or how will you keep it in a state of vapor? A. A gas is distinguishable from a vapor by the fact that, as in the case of atmospheric air, it can only be condensed by great cold and pressure. The vapor of coal oil or petroleum is not such a gas. If, however, this vapor be brought into contact with intensely heated surfaces a considerable portion of it is converted into a gas as permanent as that used for illuminating purposes. It is used by some of our gas companies for enriching common coal and "water gas." Alone it burns with a very smoky flame, owing to its richness in carbon.

(17) R. D. asks: What is peroxide of manganese composed of, and where can I obtain such as is used for filling the porous cup of a Leclanche battery? A. It is a compound of the metal manganese with oxygen. It occurs native as pyrolusite. It can be obtained through any druggist. 2. How is hard rubber moulded such as is used by electricians? I can get this rubber in sheets any thickness, and I want to know if I can melt it and run it into any form I wish. A. It cannot be melted or moulded as you propose. See pp. 48 and 105, Vol. 39, SCIENTIFIC AMERICAN.

(18) H. D. C. asks for a recipe of rubber cement that will cement together the edges or overlaps of thin sheet rubber. A. The rubber cement is prepared by dissolving finely cut pure gum caoutchouc in a sufficient quantity of naphtha. The naphtha is warmed by standing the vessel containing it in another containing hot water, away from fire.

(19) H. M. asks: What dye is strong enough and cheap enough to use as a test of suspected communication between a cesspool and a well? Can you suggest any better method than the use of a dye to learn if any communication does exist between the cesspool or well? A. The coal tar dyes magenta and fluoresceine have been employed successfully for similar purposes.

(20) G. W. H. asks how to make a good cement for wood with a light color. A. Dissolve best white glue in a sufficient quantity of strong hot acetic acid.

(21) J. H. F. asks: Do you know of any method whereby gray iron castings can be coated with brass to a thickness of one-sixteenth or more of an inch? A. We know of no better way than that of brazing on a shell of the requisite thickness.

(22) W. L. asks where to find information in regard to the distillation of turpentine and resin. A. Consult Knight's New Am. Mech. Dictionary, also Johnson's and Appleton's Encyclopedias. We know of no book on the subject.

(23) E. H. K. asks: What work on assaying could you recommend to me? Or is there anything in your paper that would give satisfactory information on metallurgy? A. Consult Percy's Metallurgy and Rickett's "Assaying and Assay Schemes."

(24) D. H. C. asks for the name or names of some complete and reliable book or work on assaying gold and silver, etc., from all kinds of quartz and rock and ore. I want some complete work on the above giving full details of the latest and best methods, giving materials, etc., used; name of book, price, address where to be had. A. See reply to E. H. K., this page. You should address booksellers who advertise in this paper for their catalogues and price lists.

(25) F. B. W. asks if Richard Trevithick, of Merthyr Tydvil, South Wales, ran an engine on rails before an engine was run on the Stockton and Darlington road, England. A. Yes, in 1803, in South Wales.

(26) A. M. R. asks: What is the composition of the gelatine transfer pad? A. See p. 235, Vol. 41, SCIENTIFIC AMERICAN.

(27) A. D. writes: I am desirous of using vulcanized India rubber for moulding purposes. Will you tell me the best method of reducing rubber to the proper consistency for that purpose, and if anything is required to harden it again? A. Vulcanized rubber cannot be reworked in the way you propose. See pp. 48 and 105, Vol. 39, SCIENTIFIC AMERICAN.

(28) C. W. V. writes: In your issue for February 28, 1880, Vol. 42, page 133, you give a receipt for gutta-percha cement. What kind of pitch do you mean; that made from coal or that made from the pine tree? A. Pine pitch. The addition of shellac will harden it.

(29) S. L. H. asks for a receipt for making a solution to be used as sizing on white paper so as to prepare it for varnishing with alcohol varnish. A. Have you tried thin aqueous solution of glue?

(30) H. T. writes: 1. A piece of floor oil-cloth has been laid and in use several months and still remains sticky to such a degree that chairs, tables, etc., placed upon it will adhere to it more or less. What is the cause, and how can it be remedied? A. Try the application of a moderately strong wash of acetate of lead in hot water. 2. By what process can the polish of black marble, such as cases of French clocks are often made of, be restored after having become dull by age or handling? A. Use fine moist rouge and chamois skin. 3. I have a piano of excellent quality in every way except that it will not remain in tune longer than about one week after tuning, owing, as I believe, to the tuning pins being too small or thin for their sockets. Can I remedy this defect by the application of any such substance as glue or resin or anything of that nature to the pins or sockets; if so, which is the best, and how should it be applied to obtain the best result? 4. In our climate the felt with which the dampers and hammers of pianos are covered is generally damaged, materially within a short time by moths. Could not this felt, before application, be impregnated with some chemical that would prevent the attack of the moths and that would not

at same time produce deleterious effects upon the glue with which the felt is fastened to the hammers, or upon the strings where they are struck or touched by it? A. A little camphor sprayed on in alcoholic (absolute) solution does very well.

(31) J. R. C. asks how to remove castor oil and balsam fir from a camel's hair brush. A. Use oil of turpentine or ether.

(32) H. B. G. writes: In the Science Record of 1874, page 20, is a recipe for destroying hair. One of the ingredients is sulphhydrate of sodium. Now, is there another or common name for it, for I have been to every druggist in this vicinity; some say that they do not know what it is; others say that there is no such thing. A. Use ordinary chemically pure sulphide of soda (sodium sulphide), sold by dealers in laboratory supplies.

(33) W. P. writes: I have spilled a lamp full of coal oil on a Brussels carpet. How can I remove the spot or stain? A. Spread over the spot, above and beneath, warm pipe clay, and allow it to remain 24 hours; then brush it off and beat out the adhering portions with a light sifter.

(34) L. F. asks: 1. What advantage is it in the gravity battery to have the copper on the bottom instead of having it suspended from a yoke? A. It is so placed because the cuprous solution is strongest at that point, and as a matter of convenience. 2. If you silverplate first with a striking solution and strong battery, why do you not finish with the same also; or what advantage is there to use a richer solution and weaker battery? A. A weak bath and strong battery, because a strong bath or long exposure in a weak one is apt to act upon the uncoated metal and render the deposit uneven; a weak current and stronger bath, because such a current produces a more regular and "freer" coating, and such a bath has less resistance and requires a smaller exposure of anodes and less attention. 3. Your receipts for striking solutions have to 1 gallon of water from 1/4 oz. of AgCy, Vol. 40, page 124, 4; and 5 oz., Vol. 42, page 59, 4; and from 1 lb. of KCy, Vol. 40, page 124, 4; to 2 1/2 lb. of KCy, Vol. 42, page 59, 4. A. As a rule, the former gives the best results, especially with the more positive metals; the latter works more rapidly and quite satisfactorily with copper and German silver, if the battery is rapid enough and the work properly trussed.

(35) S. E. T. writes: I am using water from a well at the bottom of which there is quicksand. The suction pipe is two or three feet from the bottom; yet there seems to be a sort of fine mud or sand-like deposit around and on the water gauges. I blow out about a foot of water from the boiler every other day. The water which comes out is clear and free from a deposit. I do not see why there should be an apparent deposit around and from the water gauges and still the water seem so clear. Can you help the difficulty by any explanation? Do you think there is any great amount of deposit or scale-forming material collecting on the interior of the boiler? When we are running the planer the water in the boiler seems to rise up or foam. Is there any remedy for it? A. The water should be first pumped into a setting tank and drawn from that to deliver to the boiler; two setting tanks used alternately will be necessary, except one tank be large enough for a day's work, and is filled in the evening, and the water allowed to settle through the night. We can give no opinion about the scale forming, without knowing the character of the water. The foaming may proceed from bad water, bad circulation, or scant steam room. The residue consists chiefly of a very fine, light silicious clay and lime.

(36) A. F. O. writes: In pouring the composition for my gelatin printing pad I am troubled with little bubbles, which leave troublesome depressions. How can they be avoided? A. Warm the vessel in which the composition is to be poured, and skim the surface by drawing a sharp edged piece of metal or cardboard over it immediately after pouring.

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

F. L. S.—It is micaceous hematite. Its precise value here could only be ascertained by an analysis. Distance from railroad or navigable route, etc., must also be taken into consideration.—H. W. B.—It is chalcopyrite, an ore of copper—if found in sufficient quantity, of some value.—A. L. F.—1. Clay slate containing iron pyrites. 2 and 3. Porphyry. 4. Iron pyrites in altered dolerite.

COMMUNICATIONS RECEIVED.

- On Mercury in Vulcanite Plates. By T. H. C.
On Ice boats. By T. D.
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Astronomical Notes. By W. R. B.
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On Repairing Spiral Springs. By E. N. M.

[OFFICIAL.]

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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.

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Screws threads, machinery for cutting, F. Armstrong, Bridgeport, Conn.
Telegraphic cables, manufacture of, M. M. Manly et al., Philadelphia, Pa.