

(32) E. R. M.—A good cement for joining gla tubes to metal caps or connections is the following:
Glue, best white..... 11 ounces.
White curd soap..... 1 "
Plaster of Paris..... 3/4 lb.

The glue is put to soak over night in just enough of the water to well cover it. In the morning (or when properly softened) it is dissolved together with the soap in the rest of the water previously heated to boiling.

(33) R. O. B. asks where to obtain information concerning galvanizing metal, desiring to make use of the best process for galvanizing roofing material.

(34) J. A. asks: How is the preservation of little fish in our aquariums at home explained. They live without apparently receiving the least bit of food for years, been kept in water very limpid?

(35) A. W. W. writes: 1. I have tried to make a type metal casting from a perfectly dry plaster of paris mould, but invariably gases seem to generate or an ebullition is set up by other causes, by which the casting is spoiled.

(36) X. Y. Z.—1. For an ice box follow the plan and general principles given in the article. "Ice House and Refrigerator, SCIENTIFIC AMERICAN SUPPLEMENT No. 116, page 1851.

(37) T. G. H. and others.—The subject of soap bubbles is discussed in great detail on page 2539 of SCIENTIFIC AMERICAN SUPPLEMENT, No. 160, under title of Plateau's Films.

(38) W. C. J. H.—The dead black on optical instrument is produced by dipping in a solution of chloride of platinum. To make this, take two parts hydrochloric acid, one part nitric acid, mix in a glass bottle and put in as much platinum foil as the acid will dissolve when placed in a warm sand bath.

(39) J. D. M. writes: In refining some silver I melted some chloride in a new crucible, and the crucible absorbed all of the silver. How can I recover the silver? Have tried crushing and digesting in nitric acid.

(40) A. S. B.—Mildew is removed from cotton by rubbing into the material a little soap or steeping in a little soda and then steeping in chloride of lime. The following is likewise recommended: rub or scrape a little yellow soap on the article, and then a little salt and starch on that.

(41) W.—You can purchase the magnesia already calcined, or else you can buy the magnesium carbonate and calcine it yourself. The former sells at \$1.00 a pound, and the latter at 25 cents.

(42) S. A.—For galvanizing cast iron with zinc, first clean the castings thoroughly by immersing in a bath of 1 part muriatic acid, 2 parts water, for a few hours, wash thoroughly in hot water and scrub with brush and sand.

(43) W. S.—An ink that will not freeze: Aniline black, 1 drachm; rub with a mixture of concentrated hydrochloric acid, 1 drachm; pure alcohol, 10 ounces.

(44) G. A. L.—All metals expand by heat until they reach the melting point. The amount of expansion is the same whether heated by steam or fire. If heated by steam, the expansion is greater at high pressure because the temperature is higher.

(45) M. B. S. B.—There is no way to sharpen hack saws that is more practicable than with a three cornered or saw file. The great trouble is to know how to use the file.

(46) W.—Brass work that is so dirty by smoke and heat as not to be cleaned with oxalic acid should be thoroughly washed or scrubbed with soda, or potash water, or lye.

(47) J. H.—The best mixture for small patterns, that does not shrink in casting, is, 60 parts lead, 15 1/2 parts antimony, 15 1/2 parts bismuth by weight.

(48) J. M. A.—For serpents' eggs try the following: One grain of dry mercury sulphocyanide is mixed with one ounce gum tragacanth which has previously been soaked in hot water.

(49) R. H. W. asks how to charge a lapidary saw of sheet iron with diamond dust. A. Mix the diamond dust with good olive oil or lard oil, with one-quarter best kerosene oil added to thin and make it spread freely.

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

S. P. S.—The sample is limestone coated with hydrated iron oxide, apparently of no value. An assay would cost \$5.00.—R. H. H.—The sample is pyrite-iron sulphide; it may carry gold.—A. G. R.—Only one sample received, i. e., the white substance, which is a decomposed feldspathic granite.

COMMUNICATIONS RECEIVED.

- On Anti-Extraction. By R. H.
On Drainage. By C. F. H.
On Nava Construction. By C. M. R.
On the Obelisk. By J. E.
On the Origin and Early Use of Rolls. By L. F. & M. C.
On Floods. By G. M. B.
On Long Distance Telephoning. By R. L. G.
On Transmission of Power by Electricity. By A. B. De R.
On Signaling at Sea. By F. K.

OFFICIAL

INDEX OF INVENTIONS

FOR WHICH

Letters Patent of the United States were Granted in the Week Ending

April 10, 1883,

AND EACH BEARING THAT DATE.

[r]hose 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 25 cents. In ordering please state the number and date of the patent desired and remit to Lunell & Co., 361 Broadway, corner of Warren Street, 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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