(22) P. W. M. asks how to prepare self-raising flour. A. Reduce separately, by grinding, to impalpable powders, 1 lb. bicarbonate of soda, 2½ lb. cream of tartar, 1¼ lb. salt. These should be intimately mixed together and then with 100 lb. fine flour. All of the substances employed should be thoroughly dry.

(23) J. W. asks: Is there any preparation or cement, or any way that thin sheet lead can be fastened to cast iron, so that it will adhere firmly and resist the action of the weather, that is, will not be loosened by ordinary use and exposure? A. The new sulphur sulphide composition, called Spence metal, is said to anwer very well for this purpose. In a capacious iron vessel with a loose cover melt by heat, 2 lb. sulphur. Heat to bright redness in a sand crucible 3 lb. of coarsely powdered sulphide of iron (FeS_2). Remove the crucible and melted sulphur out of doors, quickly, but cautiously, transfer the contents of the former to the latter, cover, and smother the flames by covering the pot with moist earth or sand. When cold remelt the contents of the pot at a gentle heat, and having packed the base of the joint, lead outside, with oakum, pour in the melted composition.

(24) E. A. R. asks for a formula for making the liquid for a barometer or storm glass. A. Dissolve 1 oz. each of potassium nitrate and ammonium chloride in 5 oz. of hot water and let it cool, dissolve in 3 oz. of spirit of wine, ⅔ oz. of good camphor. Filter the solutions, and gradually pour the solution of salts into the camphor solution with constant stirring until a slight permanent precipitate is produced. Pour this liquid into the tube and draw out the latter so that only a pin hole remains open.

(25) E. J. C. asks: What can be used in paste for wall paper to hinder its destruction by the silver moth? A. A small quantity of corrosive sublimate or zinc chloride—70 or 80 grains (dissolved in a litle water) to the bucketful is usually employed and proves effectual.

(26) S. R. B. writes: I am a painter for a large iron foundry, and have much trouble to get a filler (that will harden quick) for rough castings. Some of our large castings are quite rough, and look bad when painted. Can you tell me of anything that will answer this purpose? A. The following would probably answer your purpose: Put 28 lb. each of common pitch and coal tar asphaltum into an iron pot and heat to boiling over a fire. Continue the boiling eight hours, or until all volatile matters and moisture are driven off. Let it stand all night, and next morning heat to boiling again and add 8 gallons of boiled oil, then gradually 10 lb red lead and 10 lb. litharge, and continue the boiling three hours longer or until a small sample of it when cooked on a glass plate will roll up very hard between the fingers. Then remove the pot out of doors (away from fire), let it cool down somewhat, and add 20 gallons of turpentine. This black will dry in less than half an hour if it has been properly boiled.

(27) J. R. asks: How can I render paper pulp or papier mache non-porous, impervious to water, and to the action of potash? Can I treat ordinary pressed paper to accomplish the above results? I want to turn out a sheet of paper with a glazed, marblized surface, about the thickness of an ordinary business card, rolled from the pulp, or of pressed sheets, that will be unharmed by weak potash in solution, somewhat stiff and tenacious, but not brittle. Can I do it? A. If not too expensive you might use a solution of gutta percha in purified benzole as a sizing. We can think of nothing cheaper that will fully answer your requirements.

(28) R. J. B. asks for a good mixture for covering steam boilers and steam pipes. I happen to have some finely ground soapstone, with a little plumbago and mica in it. Is there anything with which it could be mixed so as to use it for the above purpose? A. Mix the powdered stone into a paste with an equal weight of plaster of Paris and the proper quantity of water, and cast in flat bricks or semi-cylindrical well oiled moulds, to fit the pipes, etc.

(29) J. A. S. asks: What chemicals are used in the Babcock fire extinguisher, and what are the directions for using the extinguisher? A. Bicarbonate of soda, water, and sulphuric acid. The soda is dissolved in water, the acid being contained in a leaden cup or bottle so arranged at the top that, when the handle at the top is pulled up the acid vessel is inverted and the contents thrown into the solution of bicarbonate of soda, 1 pint of strong acid will completely decompose nearly 3¼ lb. of bicarbonate of soda, resulting in the formation of sulphate of soda and carbonic acid (gas).

(30) J. C. K. writes: I am making brands out of pure copper, and very often have trouble in casting, as it does not run well and leave holes in the edges of the letters of the brands. Can you tell me how to prevent this? Can I mix anything with the copper, that it will make as good a brand as pure copper? If so, please name it. A. The addition of a small quantity of zinc and about one-tenth of one per cent of phosphorus will sharpen the casting and in a great measure prevent the formation of blow holes.

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

M. G. M.—The rock is hornblendic. It contains much sulphide of iron, some copper and zinc, but no appreciable quantity of free gold. The sulphurets may be richly auriferous, but an assay would be required to settle this point.—H. L. E.—Quartz rock containing crystallized sulphide of iron—pyrites—no value.—J. L. R.—The fine brassy piece is chiefly iron sulphide—pyrites; the other is manganiferous iron oxide and augite.—J. E. C.—It is a good ferruginous clay—almost too "fat" for brick-making alone, but good for pottery of some varieties.

COMMUNICATIONS RECEIVED.

Is Steam Explosive? By S. G.
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[OFFICIAL.]

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[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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