(25) G. H. M. asks: 1. How long should work be left in the plating bath to give as thick and durable a nickel plating, using say three cells Daniell's battery? I have used the information from your article on nickel plating, but have no idea how long the articles should remain in the plating bath. A. Expose from one to three hours according to requirements. 2. Should the articles be removed from the bath and scratch brushed or scoured, or simply allowed to remain undisturbed? A In most cases it is not necessary to remove them. 3. Can an article once nickel plated and still covered all over with nickel be replated without stripping or removing the old plating? These questions I can find no satisfactory answer to in any work at my command, and living away from a large city can consult with no nickel plater. A. Yes, if the coating is perfect. In most cases it is better to strip. 4. Can a substantial silver coating be applied to an article with a bath and battery, but without using a silver anode, and if so, how can it be done? I am only an amateur, and these questions will solve some difficulties if you will answer them. A. Yes. Use carbon or platinum anode The bath cannot be depended upon, however, as the silver salts soon become exhausted.

(26) R. S. writes: I would like to know how to make a strong mucilage, that I can put on the back of paper, and use it after it is dry, by moistening it as you would a postage stamp. A. Try the following: Cooper's liquid glue, gum arabic, and white sugar, equal parts, hot water, q. s.

(27) W. S. writes: I have the charge of a 35 horse power engine, stationary, making 165 revolutions per minute, slide valves. There is a dispute among some of us in regard to setting the valves to realize the most power. A. Without knowing the dimensions and proportions of the engine, we could not advise you fully; but at the speed you run the engine, the valve should have considerable lead.

(28) E. S. C. asks: 1. What is the best size of wire for line for acoustic telephones? A. No. 30. 2. Should the wire be hard or soft? A. Soft. 3. Will any other wire beside copper answer for line? A. Soft brass wire will answer. Soft iron wire serves a good purpose, but is not durable. 4. What kind of type is used by bookbinders for printing gold letters on cloth or leather. Will common printing type do? Brass usually. Common printing type may be used, but great care will be required to avoid melting while heating them. 5. What is the powder composed of which they dust on the leather previous to applying the gold leaf? A. Well beaten white of an egg diluted with water is used for this purpose. 6. How can I transfer newspaper cuts to wood to be engraved? A. Take a saturated alcoholic solution of potash, pour it on the engraving, and immediately remove all superfluous liquid by means of blotting paper. Lay the engraving while damp upon the wood and place it in a press (a copper-plate press is best). The transfer will be obtained immediately. The engraving must be immersed in clear cold water after the transfer is made.

(29) W. W. asks: 1. Is the conuvosite metal made up from the sulphurets of several metals, and described as recently invented, inoxidizable, black, hard as wrought iron, melts at 300° Fah., expands in casting, cost $50 per ton—is it sold in this country? A. You probably refer to Spence metal. It is described in SUPPLEMENT, 222. For further information in regard to it address dealers in metals who advertise in our columns. 2. Somewhere in your columns you state that a French authority asserts a quart of nitroglycerine to be equal to 5,000 horse power working continuously. Is this not a misprint, or too high an estimate? But, assuming it to be correct, I read often in the SCIENTIFIC paper, and reports of the Aeronautical Society, etc., that if the power were controllable, it would solve the flying question. Suppose one lb. Mowbray's glycerine were mixed with several lb. of raw unconverted glycerine, would not its violence be reduced, like the case of the Otto "silent" gas engine, in which the gas is diluted, etc.? A. We know of no successful experiments in this line. When largely diluted, as you suggest, the detonation of the explosive becomes very difficult and uncertain The extraordinary energy developed in the explosion of nitroglycerine is largely due to the almost instantaneous nature of the reaction in which it consists; and while by the dilution of the liquid by a comparatively inert substance, it may in some degree be possible to bring the power as measured by the volume of gaseous matter produced in the reaction within control, it would seem to be impossible to retard the rapidity of the reaction. Considering the power developed by the increase of volume from the liquid to the heat expanded gas, only the estimate referred to is doubtless excessive.

(30) S. F. asks: 1. What is the best material for small embossed ornamental blocks? A. Papier mache answers very well. 2. What are the proportions of the mixture of bullock's blood and sawdust—is it subjected to pressure, and subsequently dried, to get best results? A. Use enough of the blood to completely moisten the dust. It is submitted to hydraulic pressure, then gradually heated to about 300° Fah.

(31) W. T. asks (1) how cores for brass castings are made. A. The cores are made of sharp sand to which a very small proportion of flour has been added. The sand and flour are mixed dry; the mixture is then moistened with a little stale beer or molasses and water. 2. What preparation they use for pasting parts of cores together. A. Flour paste. 3. Why will the mould not fill up with metal; providing it has lots of air holes? A. Your sand may be rammed too tight, or your metal may not be hot enough.

(32) I. S. R. writes: I have often wondered how common playing marbles were made, but never thought the matter of sufficient importance to warrant much effort to find out; but as my little boy, aged 13, now asks me the question, I refer the matter to you. A. Playing marbles are made from a hard stone found near Coburg in Saxony. The stone is first broken with a hammer into cubical fragments, and about 100 to 150 of them are ground at once. The mill is something like a flour mill; the lower stone is stationary and filled with concentric grooves, which receive the stone fragments. The upper stone is revolved by suitable power, and small streams of water are thrown on the lower stone. The pressure of the running stone on the small fragments causes them to roll in all directions until they are reduced to perfect spherical form. It is said that it requires only a quarter of an hour to shape the millful.

(33) J. W. S. asks if there is any preparation made for cleaning brass while hot, such as the throttle box, etc., on locomotives, whereby it can be thoroughly cleaned and at the same time retain its luster. I am a locomotive fireman, and like to keep a clean engine, but as she is always hot, I have failed so far to find anything to answer the purpose. A. Where it is not liable to get into wearing surfaces washed emery moistened with kerosene oil is very good. Where the surfaces are subject to wear tripoli or rotten stone and kerosene oil may be used. The oil should be thoroughly removed by means of a cloth and a little dry whiting.

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

F. McC.—1. Limestone—the pearly mineral is diallage. 2. Traprock and serpentine. 3. Chlorite. 4. Quartz rock. 5. Fluorspar.

COMMUNICATIONS RECEIVED.

Is Steam Explosive? By S. G.

Determination of the Moon's and Sun's Horizontal Parallax at Mean Distance. By F. G.

Experiments with Naked and Metallized Carbons. By C. S.

[OFFICIAL.]

INDEX OF INVENTIONS

FOR WHICH

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

February 22, 1881,

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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