Business and Personal.

The Charge for Insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in next issue.

Notes & Queries

(1) R. G. McC. wishes to know how to prevent quicksand from coming into the bottom of a well. A. We think you will have to deepen the well considerably below the quicksand, going down with a tight case.

(2) J. E. T. asks for a test to determine the quality or purity of milk. A. Consult SCIENTIFIC AMERICAN SUPPLEMENT No. 73, p. 1,162.

(3) L. A. G. says: In dyeing cotton with scarlet and blue anilines, I find the colors fade and rub off; can you tell me of something to fasten them that will not destroy the brilliancy of the colors? A. The cottons are prepared for 4 or 5 hours in ¼ of their weight of sumac (or pale myrabolans), working in the cold that the yellow coloring matter may not take on the fiber. The goods may then be dyed in the aniline color beck, to which a little soap has been added. If it is not desired to use soap—as for blues which have to be acidified—the goods after treatment with sumac are steeped for one hour in a solution of sodium stannate 2½ lbs., water 87 quarts. Rinse and dye. Stannate of soda cannot be safely applied to goods containing wool or worsted; they seldom escape being more or less blackened by it.

(4) W. C. asks how pool or billiard balls are colored. A. Red: Soak for a few minutes in weak nitric acid, and then immerse in a strong infusion of cochineal in aqua-ammonia; or add ammonia water to strong solutions of magenta and picric acid (separate), and then mix the solutions. Black: Immerse the pieces in weak aqueous solution of silver nitrate for a short time, and then expose to sunlight; or steep for 2 or 3 days in a strong decoction of galls, 1 lb.; logwood, 2 lbs.; then steep for a few hours in a strong solution of iron acetate (iron liquor). Green: Dissolve verdigris in weak vinegar or very dilute nitric acid: a little sal-ammoniac may be added to this. Yellow: Steep for 24 hours in aqueous solution of acetate of lead, and after drying immerse in solution of potassium dichromate. Blue: Stain green, then dip in strong pearlash solution, or steep them for a short time in a weak solution of indigo carmine or sulphate of indigo, to which a little cream of tartar has been added. Purple: Steep in a weak aqueous solution of gold chloride.

(5) F. G. McC. writes: I am experimenting in electrotyping, but I do not succeed as I wish. I make a solution of sulphate of copper in one vessel, in which I place a sheet of copper. I use a one cell Daniell's battery. I join copper in the battery to copper in the solution, and the zinc pole of the battery to the wax matrix in the solution, and which has been covered with plumbago. The copper deposits in crystals; of course I cannot use it in that shape. Now what remains to be done? A. The current used is not strong enough; see that all the connections are tight and clean; bring the work closer to the copper anode, which should expose greater surface than the work; make the bath slightly acid; then increase your battery if necessary.

(6) J. M. L. asks how to dissolve shellac to make a varnish, other than using alcohol. A. Shellac dissolves in wood naphtha (methylic spirit), in strong hot solution of borax, and in strong aqua-ammonia; these solutions have been used as varnishes.

(7) P. A. S. asks for a recipe for a cement for mending leather belting, or for patching old boots, etc. A. (1) Melt together equal parts of pitch and gutta percha; apply hot with pressure. (2.) Dissolve gutta percha in naphtha to the consistence of cream. See other recipes on this page.

(8) A. P. O. asks how to pack material similar to fine flour (dry) tight into barrels, without machinery. A. As we understand your meaning, we do not think it can be done, unless you can place a loose paper lining in the barrel and ram the material as the barrel is filled.

(9) J. E. L. asks: What will remove greasy substance that gathers on inside of sink pipes from dish water, etc.? A. Use occasionally a strong hot solution of caustic soda.

(10) J. L. asks for a recipe for making blacking that will raise a polish over oil or grease. A. Bone-black (best from sugar house filters, dried), 30 lbs.; sulphuric acid (commercial oil of vitriol), 2 quarts; strong malt vinegar, 3 quarts; mix and digest; then add, with constant stirring, coarse brown sugar, 11 lbs.; molasses (average New Orleans), 30 lbs.; sperm oil, 2 gallons; water, q. s. The ingredients must be well commingled by trituration, and allowed to act upon each other for several days before using.

(11) F. W. R. writes: What should be the resistance of the magnet wire of an electric engine, that is to be driven by the electric current, produced by a magneto-electric machine? A. The resistance of the magnet wire of each instrument should be about equal.

(12) E. A. asks for the cheapest method to melt horn, and what kind of moulds to use. A. Horn is softened by boiling water, and while soft may be moulded by heavy pressure. The moulds used are generally of zinc, bronze, steel or iron.

(13) J. F. C. desires to know the best cheap composition to heat and dip knives into to plate them bright, so that acid will not tarnish them. A. A bath of molten tin covered with tallow has been used.

(14) Y. & O. ask: How can we keep paste, made of flour with a little alum added, from souring? A. Add a small quantity of zinc chloride solution or a few drops of carbolic acid or oil of cloves.