

and grinding 40 pounds of this frit, with 5 pounds of potter's clay in water, until it is brought to the consistence of a pap. A coat of this being applied and dried, but not hard, the glaze powder is sifted over it. This consists of 100 pounds Cornish stone in fine powder, 117 pounds borax, 35 pounds soda ash, 35 pounds niter, 35 pounds sifted slaked lime, 13 pounds white sand, 50 pounds of powdered white glass. These are all fused together, the frit obtained is pulverized. Of this powder 45 pounds are mixed with 1 pound of soda ash in hot water, and the mixture dried in a stove is the glaze powder. After sifting this over the body coat the cast iron article is put into a stove, kept at a temperature of 212 deg. to dry it hard, after which it is set in a muffle kiln to fuse it into a glaze. The inside of pipes may be enameled (after being cleaned) by pouring the above body composition through them while the pipe is being turned around to insure an equal coating. After the body has become set the glaze pap is poured in the same manner. The pipe is then fired in the kiln. 2. What kind of cells should I use when necessary to add an extra battery to a Queen Acme bridge and how should they be connected? A. We cannot tell. We advise you to consult the makers of the bridge.

(10286) J. H. asks: 1. Can you tell me if it is possible to get mica in solution, if so, how? A. Mica is not soluble. It may be ground to a powder and formed into a paste with shellac or some varnish. 2. Is there any form of silica soluble in water, or any other simple solvent? A. There are soluble silicas. Soluble glass, sodium silicate, or potassium silicate, is of this sort. These substances are often called water glass. 3. I once saw some small clay vessels made on the potter's wheel; after a vessel was finished, the exhibitor poured some transparent liquid upon it from a bottle, which glazed and hardened it at once. Can you give a formula for such a liquid? A. You will find a large number of formulas for glazes in the "Scientific American Cyclopaedia of Receipts, Notes and Queries," price \$5 by mail. We do not know to what glaze you refer in your inquiry.

(10287) T. V. C. asks: In an essay on the spectroscope an illustrative analogy was thus given: An observer near a railroad will notice that the whistle of a locomotive changes in pitch as the engine approaches or recedes. Is this true, and why? A. It certainly is true that the tone of a locomotive whistle rises very suddenly and sharply as the locomotive rushes up to one, while it is sounding the whistle. This is a matter of easy observation. The pitch falls again as the locomotive rushes away from one. The effect is due to the change in wave lengths of the sound. The velocity of the engine is added to that of the sound in approach and subtracted in recession. So the wave lengths are shorter as the engine approaches, and the pitch of the note rises. The principle is called Doppler's principle, and may be found in advanced textbooks of physics. Forty miles an hour will sharpen a note a half-tone.

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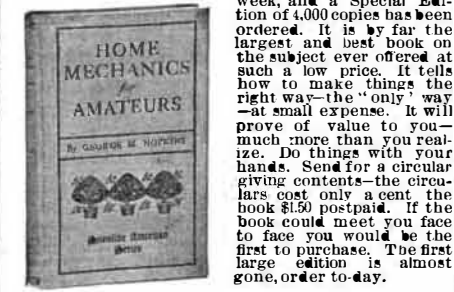
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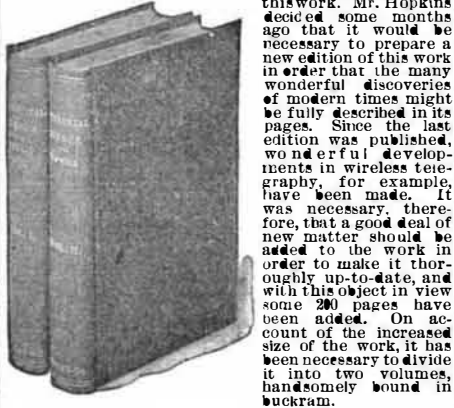


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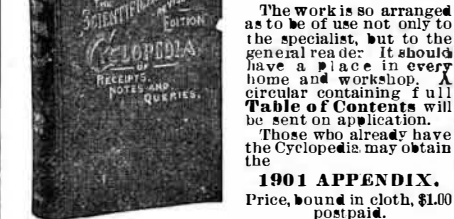


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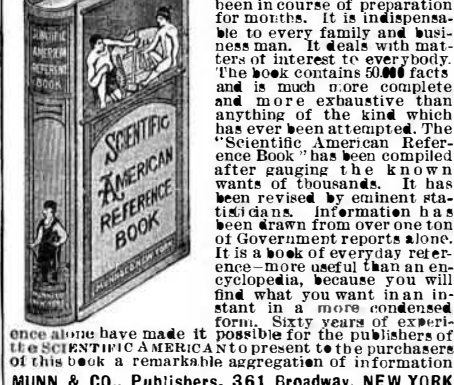
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