

(779) W. R. asks how to make a spark coil. A. Make a $\frac{3}{4}$ inch bundle of iron wire 8 inches long, wrap it with five pounds No. 20 magnet wire. It will with battery and proper appliances light gas, but not an oil lamp.

(780) J. S. writes: Is beef a more digestible meat than veal? A. Beef is far more digestible. 2. In which time about is the former, and in which time the latter digested? A. Beef—boiled 2 hours 45 minutes, roasted 3 hours. Veal—roasted 4 hours, fried 4 hours 50 minutes.

(781) O. H. P. writes: 1. What is the meaning of the words ampere and ohm? A. See answer to queries 236 (Jan. 26) and 427 (March 9). 2. Give a good receipt for making a copying pad which will not spoil in warm weather. I desire to make from 20 to 50 copies from one copy. A. See SUPPLEMENT, No. 438, which we can send you for 10 cents. Mix a very little oil of cloves with it for hot weather.

(782) S. H. G. writes: Referring to the SCIENTIFIC AMERICAN of January 21, 1888, page 42, Prof. Mendeleef's "theory of the formation or origin of petroleum," where does he place the laboratory—as low down as "Cambrian," or not? A. Far below any geological horizon, in the incandescent regions of the earth's interior.

(783) M. S. asks: What is the usual treatment of apatite to extract the phosphoric acid, and also about what per cent it usually carries? A. It is treated with sulphuric acid to convert it into a superphosphate.

(784) J. W. D. writes: 1. Will vapor gas such as used by gasoline stoves answer for heating purposes, either by hot water or steam? A. Yes; but it is dangerous, as involving the storing and handling of large amounts of naphtha. 2. Would it be as cheap as bituminous coal at \$3 per ton or anthracite at \$6 per 2,000 lb.? A. Probably it would prove cheaper, because so easily extinguished and started, and because of there being no ashes to dispose of, etc. 3. From what is the gas made that H. Diston is using for fuel in his saw works, and is it the same with which Westchester, Pa., is to be supplied for fuel? A. We cannot answer this. Address the party named. 4. What is the probable comparative cost of kerosene, or crude oil, or fuel gas, or coal for generating steam? A. Allow $\frac{3}{4}$ barrels of oil to the ton of coal, and 55 to 65 lb. of coal to 1,000 cubic feet of gas for equal calorific powers. From these figures make your estimates according to relative prices in your vicinity.

(785) R. T. F. writes: 1. Can you give me a good simple recipe for making a nice liquid or solid shoe blacking, that will produce a quick shine? A. Various receipts have been published in our Notes and Queries. We also refer you to "Trade Secrets," which we can supply for 60 cents by mail. 2. Can you tell me what makes my hands perspire while playing the violin, and can you tell me of a harmless remedy to prevent it? A. It is constitutional. Try bathing the hands in alcohol and use powdered corn starch or soap-stone on them before playing.

(786) T. L. R. asks: Will the receipt No. 653 in April 20, 1889, issue, for gumming labels, do to use in fastening papers, such as a bunch of note or letter heads? If not, will you please give a good receipt? Something that does not require heating when to be used, cheap and gummy. A. No. The regular composition used is made from best glue and glycerine and water colored with aniline. This needs heating. A solution of gum tragacanth with a little glycerine might answer your requirements, but we advise the first. For 5 lb. of dry glue allow 1 lb. of glycerine.

(787) H. C. asks: 1. Is there a paper published, anywhere in the world, which is devoted entirely to the subject of "Aerial Navigation"? A. Yes; in France. 2. What is the lifting power of 1,000 cubic feet of what is called "water gas," being made from steam, coal, and naphtha? A. About twenty pounds.

(788) W. H. M. asks: Can you give me the formula of a liniment of which sulphuric acid is a component part? A. No official liniment of this character is given. A mixture of the strong acid with saffron, forming a paste, is a strong caustic which has been used successfully. It is very powerful, and must be used with caution.

(789) O. V. writes: 1. Can you inform me what sort of cement is used in wooden boxes to make battery cells? A. Have boxes perfectly dry, smear them inside with a hot mixture of four parts resin, one part gutta percha, and a little boiled oil. The mixture must be thoroughly melted and stirred before use. A hot rod of iron may be used to melt it into the crevices. 2. Are they only good for Bunsen batteries or Grenet? A. They can be used for any ordinary type of battery. 3. What are dry batteries composed of, and are they any good for a medical coil? A. A good effect can be obtained from a paste of plaster of Paris one pound, oxide of zinc one-fourth pound, saturated solution of chloride of zinc enough to make a stiff paste. They are very good for medical coils.

(790) L. W. asks: 1. How to wash copper wire with mercury. I wish to use it for internal use. A. Dip in mercury covered with dilute sulphuric acid. 2. Also, is mercury poison? A. Yes. 3. Also how to silver copper wire and pan. A. Best by electroplating described in our SUPPLEMENT, Nos. 157, 158, and 159.

(791) O. B. asks how rubber cement is made, such as is used for repairing rubber boots. A. For solution of India rubber see SUPPLEMENT, Nos. 249, 251, and 252. Gutta percha dissolved in bisulphide of carbon may answer your purpose.

(792) A. J. P. writes: What effect has mercury on a man's system, and the way to extract it? A. It produces salivation and tends to disturb the entire gastric and intestinal system, and in sufficient quantity and form acts as a strong corrosive poison. Local blood letting, demulcent drinks, etc., are applied after cases of mercurial poison. Its effects vary according to the form in which it is administered. In many cases, the effects of a disease which has been treated by

mercurial medicines are considered the effects of the mercury itself. A physician should be consulted in all such cases. It probably does not remain long in the system.

(793) Constant Reader asks: Some years ago I had some talk in regard to albumen, caseine, etc., with Prof. Chas. Joy, and he referred to the extraction of albumen by using ozone generated by passing air through spirits turpentine, if I remember correctly. What I want to ask is, Is ozone generated in that way by any one? A. Turpentine, has a bleaching action formerly attributed to the presence of ozone. This is now not credited, the bleaching power being supposed due to an organic compound, $C_{10}H_{16}O_4$. We have no record of ozone being thus successfully generated.

(794) An Old Reader asks for a good receipt for making honey, if possible, without using honey as one of the ingredients? A. 5 lb. white sugar, 2 lb. water, gradually bring to a boil and skim well. When cool add 1 lb. bees' honey and 4 drops peppermint. To make of better quality add less water and more real honey. Other formulae are given in Dick's Encyclopedia, which we can supply for \$5. 2. Would also like to know what the chemical composition of honey is. A. Principally of saccharine matter and water, about as follows: Levulose 33 $\frac{1}{4}$ to 40 per cent, dextrose 31 $\frac{1}{4}$ to 39 per cent, water 20 to 30 per cent, besides ash and other minor constituents.

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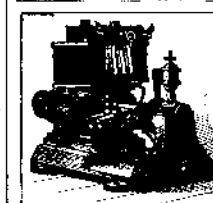
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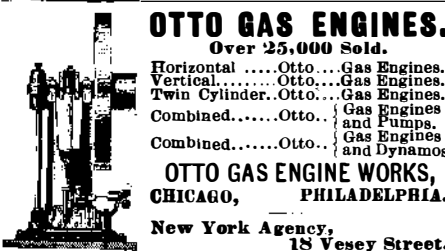
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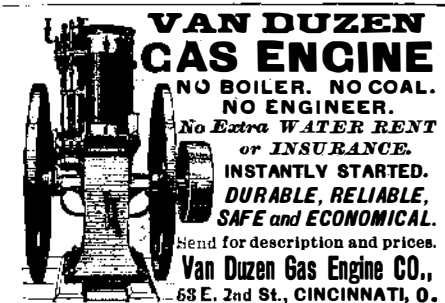


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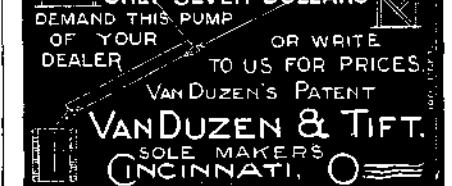


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