# Notes & Queries

HINTS TO CORRESPONDENTS.

**Names and Address** must accompany all letters or no attention will be paid thereto. This is for our information and not for publication.

**References** to former articles or answers should give date of paper and page or number of question.

**Inquiries** not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all either by letter or in this department, each must take his turn.

**Buyers** wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same.

**Special Written Information** on matters of personal rather than general interest cannot be expected without remuneration.

**Scientific American Supplements** referred to may be had at the office. Price 10 cents each.

**Books** referred to promptly supplied on receipt of price.

**Minerals** sent for examination should be distinctly marked or labeled.

(8067) C. A. C. writes: I want to make a coil for a jump spark suitable for a gasoline engine. Can you give me any information in regard to it? A. SUPPLEMENT No. 1281, price 10 cents, contains an article upon gas engine ignition. A description of a jump spark coil is given therein which can be made from the description if you understand the general method of doing such work.

(8068) F. L. asks: Does water, when converted into vapor, obey Avogadro's law, and expand so as to equal to the sum of two volumes of hydrogen and one volume of oxygen of which it is composed? A. Water obeys Avogadro's law when in the form of vapor, just as any other vapor does, but its volume is not that of two volumes of hydrogen and one of oxygen. When two volumes of hydrogen and one of oxygen combine to form water, they furnish two volumes of water vapor. There is a shrinkage of one-third in the result. See any good chemistry, such as Remsen's, price $1.25.

(8069) C. F. De W. writes: What is meant by expansion engines? Also what is meant by high and low pressure engines? If a condensing engine is a low pressure engine, why is it so? A. An expansion engine is any engine in which the steam at full pressure does not follow the piston for the whole stroke, but is cut off at some specified point, allowing the steam to drive the piston to the end of the stroke under a decreasing pressure. "Low pressure engine" is the old name for a condensing engine. High pressure engine is the usual designation of a non-condensing engine running with high pressure. The early low pressure engine used steam at from 7 to 10 pounds pressure and depended upon a vacuum and condenser to add to its work.

(8070) W. G. writes: Kindly state how much voltage is needed to run the motor described in your issue of December 8 last; also state if No. 22 wire will answer just as well to wind the armature as No. 21, which I cannot get? A. The diagram of the motor and its connections shown in the issue of December 15 gives a battery of four cells, two in series and two series in multiple for running the motor. This indicates not more than four volts as needed. No. 22 wire will answer for winding the motor.

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