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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.

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(8608) A. J. P. writes: I have seen a thermometer with a storm indicator on the same perpendicular support. This indicator is sealed, so one can turn it upside down without spilling the contents. In the bottom of same there is a salt, and the rest of the tube is nearly filled to the top with a liquid. According to the condition of the weather, this salt rises in the tube, rising nearly to the top, in stormy weather. Now if the tube is sealed, how can the pressure of the atmosphere have any effect on the contents? Or how can the moisture of the atmosphere communicate itself to the salt? What kind of salt is in the tube? Is this a reliable instrument? A. The instrument you describe is usually filled with alcohol in which camphor is dissolved. The tube is then sealed by melting the end of it in a blast lamp. After this is done neither the moisture nor the pressure of the air has any effect upon the contents of the glass. The heat of the air would seem to be the only form of energy which can change the condition of the contents of the tube. You can determine for yourself by observation whether the instrument is reliable. We should prefer a mercurial barometer as a weather indicator. Instruments which are affected by moisture or heat are slower than those which respond to the change in the pressure of the air, and the weather often changes before they show any indication of change.

(8609) B. B. H. asks: 1. Which is the best to use in wireless telegraphy? A cylinder made of a sheet of copper, say No. 12 to 14, or the sheet of copper straight? A. Both cylinders and sheets are used for sending messages over short distances by wireless telegraphy. 2. Is a sheet of copper No. 12 to 14 plenty big enough to use with half-inch spark coil, where the stations are about 500 feet apart? A. Probably the size of sheet you name will transmit to the distance you wish. 3. Would it work all right where there are two stations about 300 feet apart, for one to use a 1/4-inch and the other a 1/2-inch spark coil? A. The coils at the two ends are not necessarily the same in size. They do not work together at all. If the smaller coil can transmit its own messages, it will answer the purpose. 4. How many ampere hours are there in a gravity battery? How many gravity batteries will it require to charge a 50-ampere-hour storage cell? Norrie in his book ("Induction Coils") says he charged a 50-ampere-hour storage cell with five gravity batteries. Is that possible? A. A gravity cell has a mean working E. M. F. of about one volt, and an average internal resistance of about one-half an ohm. It should deliver on a small external resistance about two amperes. The number of ampere hours it can give depends upon the size of the zincs, and cannot be told as an absolute amount. Five gravity cells will yield 2 1/2 volts, which is the proper pressure for charging one storage cell. 5. Has liquid air ever been analyzed? If so, what were the elements composing it? A. Liquid air does not require analysis. It is ordinary air turned into a liquid, and has the same composition as any other air—79 parts of nitrogen and 21 parts of oxygen when first liquefied.

(8610) H. G. asks: Am interested in wireless telegraphy, and reading about it in the September 14 number, want to construct one. I would like some information regarding the construction of a coil that would give 1/2 or 1 inch spark. A. The construction of a good coil is to be found in SUPPLEMENT No. 160, price 10 cents. This gives a spark somewhat longer than an inch, but an excess is better than a deficiency of power in doing any work.

(8611) F. X. D. asks: Whether chloride of gold after having been liquefied can be used in the toning bath. Some time ago a bottle was opened and not sealed properly, and now the gold is a liquid. Can it be used in any way? Or must I buy a fresh bottle? A. Chloride of gold is a very deliquescent substance; that is, it absorbs water from the air and dissolves in it with ease. No harm is done by this. You only need to add water enough to the liquid now in the bottle to make the required quantity, and you can then mix the toning bath as if the chloride of gold were solid when you began.

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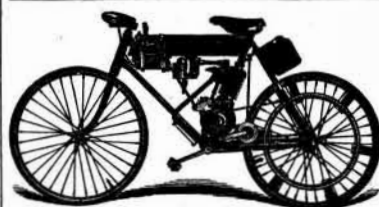
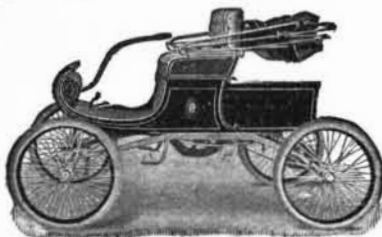
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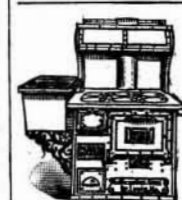
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