Business and Personal.

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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 This is for our information and not for publication.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.

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Minerals sent for examination should be distinctly marked or labeled.

(7424) W. H. C. asks: Kindly give me a method (such as I can use in a laboratory) for the separation of nicotine from tobacco. I have tried the experiment by digesting the ordinary plug tobacco in sulphuricacid, then mixing it with lime, and distilling, but without success. A. In order to extract the nicotine from tobacco, the leaves are boiled with water, which dissolves the alkaloid, in combination with malic and citric acids. The liquid, having been strained, is evaporated to a sirup and mixed with alcohol, when it separates into two layers, of which the upper contains the salts of nicotine dissolved in alcohol, the lower aqueous layer retaining the greater part of the vegetable matters. The alcoholic layer having been drawn off is next shaken with potash, to combine with acids, and with ether to dissolve the nicotine then set free. On decanting the ethereal solution of nicotine which rises to the surface, and evaporating the ether, the nicotine is left in the form of an oily liquid, which is colorless and perfectly pure, but soon acquires a dark brown color when exposed to air. It is very readily distinguished by its very pungent, irritating odor, recalling that of tobacco, and which is very perceptible at the common temperature, although the boiling point is 480° Fah.

(7425) W. F. A. writes: I have a small fan motor, which is intended to run on 3·2 volt alternating circuit. It is of the brush and commutator type, with 26 poles to the armature core. The commutator has 13 segments. The field has 2 coils. There is also a choking coil in the base. The whole machine is wound with No. 26 wire. The field, armature and coil are all in series. What must I do to it to make it run on 104 volt circuit? A. Without knowing more about the machine, it would be impossible to give more than general directions. You can wind it with a greater number of turns of wire in both field and armature, using finer wire. The best way would be to increase the self-induction of the choking coil. This would cut down the voltage supplied without any loss of energy except that due to the ohmic resistance of the wire m the coil. This extra self-induction must always remain in the circuit. That which is in the machine is probably for regulation.

(7426) D. asks: What is the difference (if any) between statical electricity generated by a frictional machine and the electricity induced in the secondary of an induction coil? A. There is but one electricity, just as there is but one water; but just as water may be more or less in quantity or be under a greater or less pressure or head, so with electricity we may have more or less of it, and it may be under a greater or less pressure. In the so-called static condition of electricity it is under great pressure, that is, it has a high E. M. F. Then its quantity in amperes is usually small. The mode of generating the electricity is of no importance. Electricity is electricity.

(7427) C. R G. writes: A weight clock is running with perfect accuracy. If the weights are changed to very much heavier ones, would the clock run with the same accuracy without adjustment? A. No, The weight or spring of a clock furnishes the power to move the train of wheels. These are so constructed that at each swing of the pendulum or balance wheel a tooth of the escapement wheel strikes upon and gives a slight impulse to the pendulum or balance wheel. This keeps it in motion and up to the proper length of swing. If a heavier weight is subetituted, the swing of the pendulum will be made longer and the clock will be likely to run irregularly.

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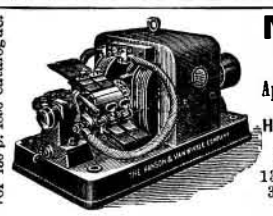

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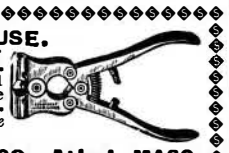

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INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

MAY 3, 1898,

AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]

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(Continued on page 318)

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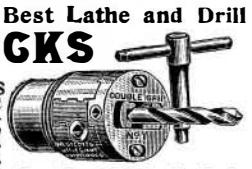

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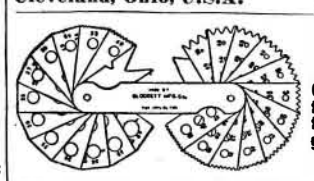

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