ter of the wire fixes the fineness. No. 36 wire has a diameter of 5 mils, or 200 to the inch. Allowing for space, this would give a setting of 100 to 150 "threads to the inch." Your other queries are so indefinitely put that they cannot be answered definitely. A coil once punctured is practically irreparable, except by rewinding. The current which can be used on a coil depends on the size of the primary wire. Counter E.M.F. helps to prevent too strong a current passing. You can allow, as just said, 150 turns of No. 36 wire to the inch. A foot square of tinfoil gives two square feet of surface. A coil made by an amateur giving a 2 inch spark shows good practice. Experience is very requisite in making large coils.

(6844) L. J. H. asks: 1. To what resistance should field magnets be wound to be in proportion to armature, or what resistance should armature have, to be in proportion to field? A. See answer to preceding query. 2. How much resistance in ohms has an armature wound with 1,500 feet of No. 26 wire? A. The resistance of that wire is about 61 ohms; on an armature it is one quarter this amount, because it is wound in parallel. When the armature is rotating, counter E.M.F. is generated, which produces an effect equivalent to resistance in its action on the current.

(6845) O. R. says: Can you inform me through SCIENTIFIC AMERICAN (in your Notes and Queries) in what manner I can stamp a name on polished steel surfaces, such as saws, knife blades, and tools, where there are many pieces to be done alike, procure a rubber stamp with the required design made so that the letters and figure that are to be bitten by the acid shall be depressed in the stamp. Have a plain border around the design, large enough to allow a little border of common putty to be laid around the edge of the stamped design to receive the acid. For ink, use resin, lard oil, turpentine and lampblack. To ¼ pound of resin put 1 teaspoonful lard oil; melt, and stir in a tablespoonful of lampblack; thoroughly mix, and add enough turpentine to make it of the consistency of printer's ink when cold. Use this on the stamp in the same manner as when stamping with ink. When the plate is stamped, place a little border of common putty around and on the edge of the stamped ground. Then pour within the border enough acid mixture to cover the figure, and let it stand a few moments, according to the depth required, then pour the acid off. Rinse the surface with clean water; take off the putty border, and clean off the ink with the turpentine. Use care not to spill the acid over the polished part of the article. For the acid, use 1 part nitric acid, 1 part hydrochloric acid, to 10 parts water by measure. If the effervescence seems too active, add more water.

(6846) J. C. W. says: We have as great an evil here in the Johnson grass as the Russian thistle in the Northwest. I saw a notice published not long since that one of the great trunk railroads was trying to destroy the weeds and grass along its track with electricity. Was this a success? If so, about what current was used and how often applied? It seems that if the smallest sprangle of root of the Johnson grass be left in the ground, it will grow and multiply faster than microbes. As yet all our efforts to destroy it seem but cultivation. If electricity will kill it in any practical method of application, about what current would be necessary? About what would the dynamo to give such a current weigh, and about what would it cost? How many revolutions per minute would be required to give such current? A. Answer by the Assistant Botanist United States Department of Agriculture: Johnson grass is propagated largely by its perennial roots, and the chief difficulty in eradicating it is in killing those roots. The roots are killed by direct exposure to frost or to the drying effect of the sun; therefore, repeated plowing during the summer drought or during open winters will effect their destruction. This method can best be applied to sandy soils. Close grazing by sheep will weaken the Johnson grass, so that it can the more easily be destroyed by cultivation. Heavy seeding with cow peas will also choke it out to a considerable extent. Small patches may be economically destroyed by the application of carbolic acid. If the Johnson grass has become well established over a considerable area of heavy clay land, and makes sufficient growth to produce good hay crops, the most economical method is to use the land as a permanent meadow, cutting one or two crops of grass each year, and top dressing and harrowing about once in two years. [We doubt the possibility of getting satisfactory results by the application of electricity.—ED.]

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