

## INDUSTRIAL NOTES.

## The Crocker-Wheeler Motors.

THE Crocker-Wheeler Electric Motor Company of this city are now turning out a line of motors which, in point of excellence, both mechanically and electrically, leave little to be desired in the present stage of electrical development. These motors are so designed and constructed that they do their rated work at a much slower speed than has been possible heretofore, and without the hitches and troubles frequently incident to the use of electrical machinery.

In the accompanying illustrations, Fig. 1 is a skeleton view showing the construction of a motor of small size, one-horse-power and under. Figs. 2 and 3 show an indestructible resistance-box, made entirely of iron and slate, and used in starting, stopping, and regulating the speed of the motors.

The field-magnets are composed entirely of wrought iron, each being forged in a single piece and set deeply into the base, insuring ample magnetic contact, together with great solidity of construction.

The space for wire on the magnets is perfectly cylindrical, thereby insuring smooth and perfect winding of the wire, and is short in length, permitting the shaft of the machine to be low enough to free it from vibration. By this construction, the neutrality or freedom of the base from magnetism is secured, and there is no tendency to leakage, making the machine superior in this respect to those in which the base is made to serve as one of the pole-pieces.

The armatures contain several improvements. They are suffi-

ciently large in diameter to obtain slow speed, and are so designed that the wire winding is entirely embedded below the surface of

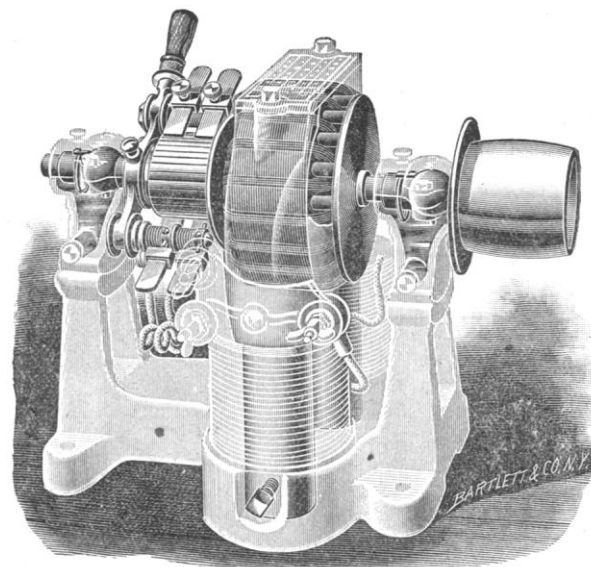


FIG. 1.

the iron core, thus protecting it from injury, holding it rigidly in position, and rendering it possible for the magnets to approach very closely to the core, so that an intense magnetic effect is pro-

Publications received at Editor's Office,  
March 9-28.

ARKANSAS, Annual Report of the Geological Survey of, for 1889. Vol. II. The Geology of Crowley's Ridge, by R. Ellsworth Call. Little Rock, Woodruff Pr. Co. 283 p. 8°.

CULIN, S. Chinese Games with Dice. Philadelphia, The Author. 1889. 21 p. 8°.  
— The I'Hing or "Patriotic Rising." Chinese Secret Societies in the U. S. Customs of the Chinese in America. Philadelphia, The Author, 22 p. 8°.

GRIBAYÉDOFF, V. The French Invasion of Ireland in '98. New York, Truth Seeker Co. 192 p. 12°. \$1 50.

HAGERUP, A. T. The Birds of Greenland. Tr. by F. B. Arnglimson. Boston, Little, Brown, & Co., 62 p. 8°. \$1.

HANS ANDERSEN'S Stories. Newly translated. Part I. (Riverside Literature Series. No. 49.) Boston and New York, Houghton, Mifflin, & Co. 96 p. 16°. 15 cents.

HATCH, F. H. An Introduction to the Study of Petrology: The Igneous Rocks. London, Swan Sonnenschein & Co.; New York, Macmillan. 128 p. 12°. 90 cents.

HÖFFDING, H. Outlines of Psychology. Tr. by Mary E. Lowndes. London and New York, Macmillan. 365 p. 12°. \$1.50.

LUDLOW, H. H., and Bass, E. W. Elements of Trigonometry. 3d ed. New York, Wiley. 294 p. 8°. \$3.

NATIONAL GUARD, The. Vol. I. No. 1. w. Washington, J. H. Polkinhorn. 16 p. 1°. \$3 per year.

SLOANE, T. O'C. Rubber Hand Stamps and the Manipulation of Rubber. New York, N. W. Henley & Co. 146 p. 12°. \$1.

TRUTH SEEKER Annual and Freethinkers' Almanac, The, 1891. No. 1, January. m. New York, Truth Seeker Co. 114 p. 8°. \$3 per year.

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duced. The armature is mounted upon a brass face-plate, which is first turned perfectly true, and after completion the armature is carefully balanced, so that when run at full speed the motion is hardly perceptible. The bearings are all of the self-oiling type,

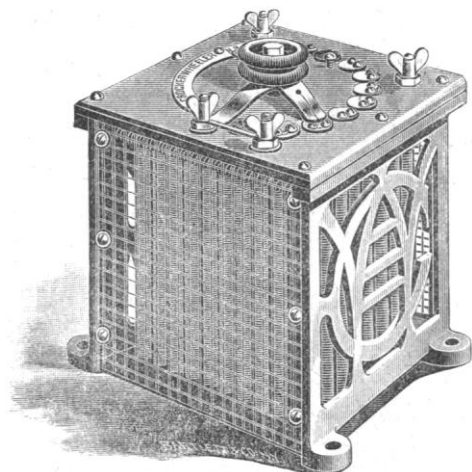


FIG. 2.

which do not require attention oftener than once in two to four weeks.

In the regulator, the arrangement of contacts in the switch on top is such that both the field and armature of the motor are charged by the single operation of turning the knob, making it

impossible to put the current on the armature before the field is charged, which has often been the cause of the burning-out of motors by the use of ordinary regulators. The field is first charged through a small resistance-coil, which is put in for the purpose of preventing a too sudden change in the magnetic strength of the latter, as well as to divide the spark when the motor is disconnected. The coils used for starting the armature are all of the

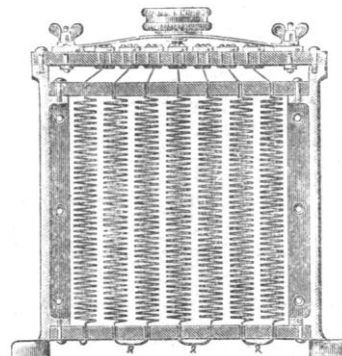


FIG. 3.

same size wire, carefully tried for carrying the full current of the machine at all speeds. With the fire proof regulator, the motor can therefore be slowed down and left running at any desired speed indefinitely; and the usual caution, "never to leave the box half turned on for fear of overheating and fire," is unnecessary. The capacity of these boxes is stamped upon them also, as it is on all apparatus made by the company.

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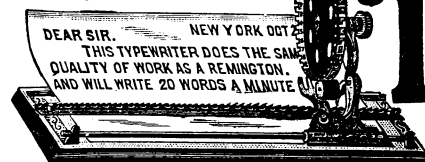
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