

SCIENCE

[Entered at the Post-Office of New York, N. Y., as Second-Class Matter.]

A WEEKLY NEWSPAPER OF ALL THE ARTS AND SCIENCES.

SEVENTH YEAR.
VOL. XIII. No. 324.

NEW YORK, APRIL 19, 1889.

SINGLE COPIES, TEN CENTS.
\$3.50 PER YEAR, IN ADVANCE.

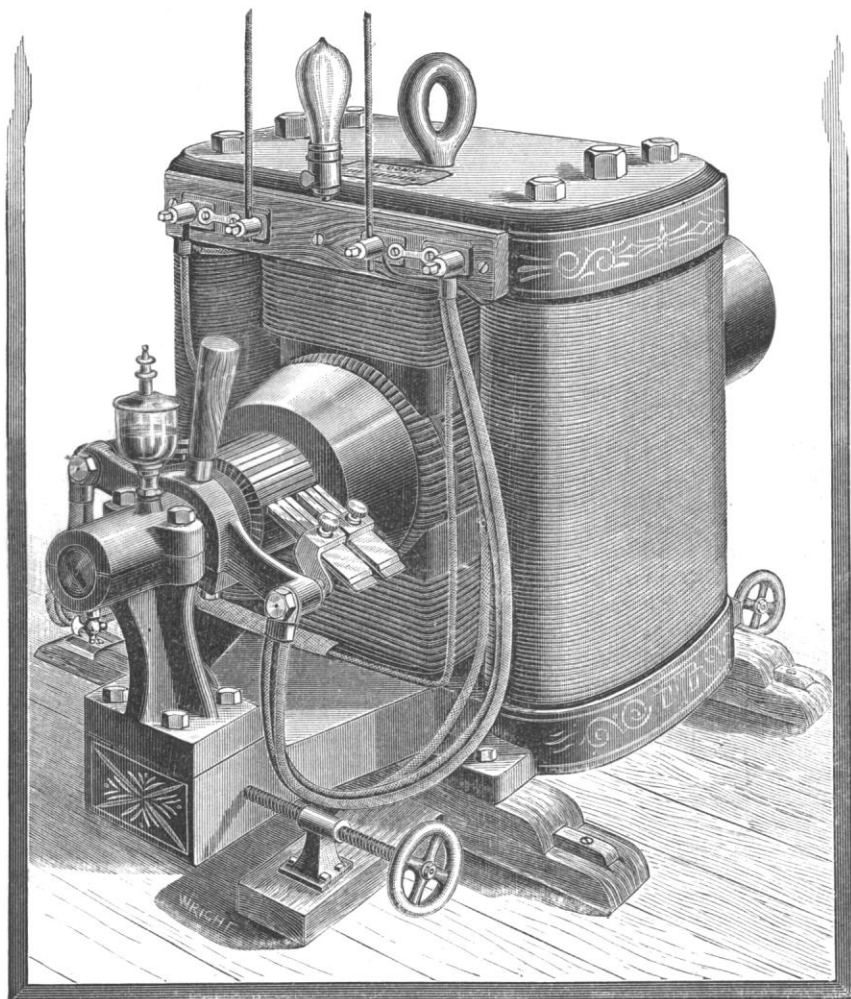


FIG. 1.



FIG. 2.

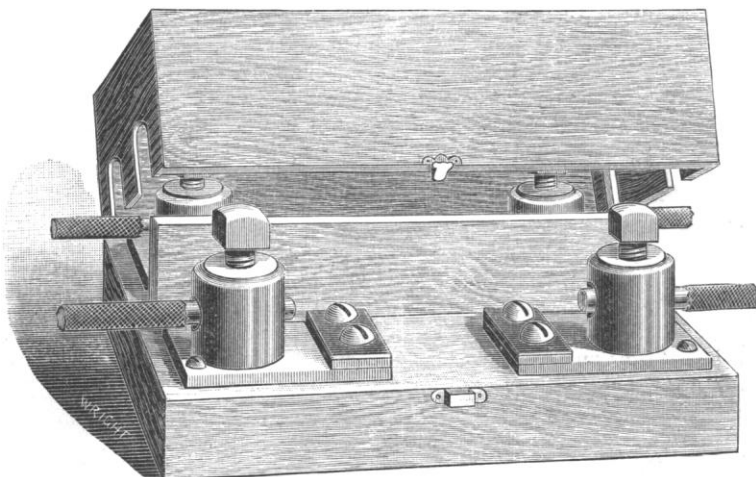


FIG. 3.

THE LOOMIS ELECTRIC-LIGHT SYSTEM.

Fig. 1. Dynamo; Fig. 2. Incandescent Lamp and Socket; Fig. 3. Fusible Cut-Out. [See p. 292.]

THE LOOMIS ELECTRIC-LIGHT SYSTEM.

THE Loomis system of electric lighting, though comparatively new, has been long enough in operation to test the value of the various features peculiar to it, and it has received the indorsement of many establishments in which it is in use. The field in which it

watch either the dynamo or a resistance-box. Moreover, no sparking at the brushes can be detected when the lights are turned on or off.

The self-regulation of the dynamo, which is not obtained by a waste of power in driving the current through resistance coils or in weakening the current by shifting the brushes from the point of

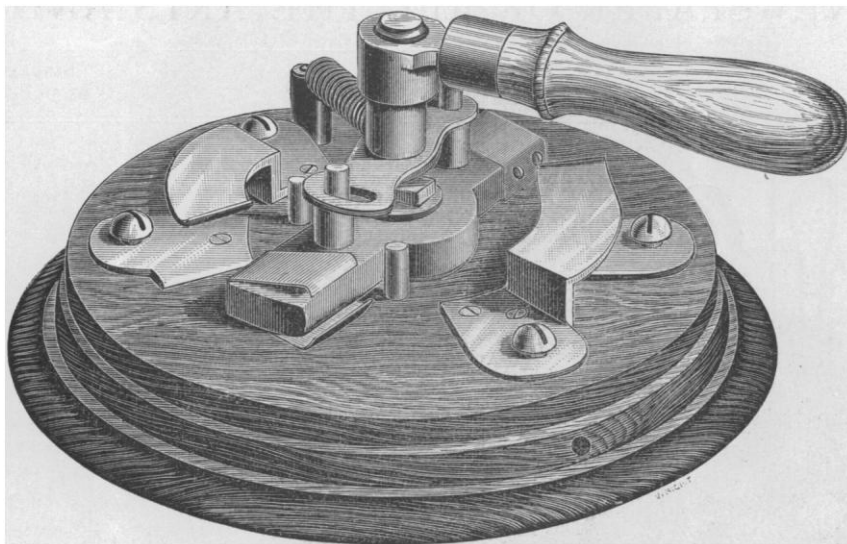


FIG. 4.—DOUBLE-POLE SWITCH.

is best known extends through the Eastern and Northern States, from Maine to Michigan.

One feature of the Loomis system is that the regulation of the dynamo is automatic; that is, that the dynamo "requires no more attention than a line of shafting." So long as the power is supplied and the bearings of the armature-shaft properly lubricated, the required amount of current is supplied, and no more, whether

greatest efficiency, enables the lamps to be kept up to their maximum of brilliancy at a minimum consumption of power, while it is believed that the steadiness of the current extends the life of the lamp to its utmost limit.

The main advantages claimed by this system may be summed up as follows: first, economy in cost of plant, owing to simplicity of construction of dynamos and accessories, and ease of installation; second, economy of maintenance, power being used only in proportion to the amount of light furnished, and no extra attendant being required; third, exemption from the necessity of stoppage for repairs, as it is maintained that the armature cannot be burned out under any circumstances; fourth, the light is steady; fifth, owing to absence of variation in the intensity of current, the lamp lasts longer than in systems where such conditions do not prevail.

The company maintains that the lamps are practically the only destructible parts of their system, and they guarantee them an average life of at least six hundred hours. They have on record one case in which 42 lamps in an installation of 123 are always lighted whenever the dynamo is in operation. Of these 42, 34 were still in use after 2,162 hours' service. Of this same installation, which is in a paper-mill at Holyoke, Mass., the treasurer of the paper company says, "I find I can cut out 122 of 123 lamps without increasing the brilliancy of the remaining one or causing any spark to form at the brushes."

The Loomis dynamo is shown in Fig. 1; the lamp and socket, in Fig. 2, the sockets being of such a design as to guard against liability to short-circuiting. Fig. 2 shows the actual size of a 16-candle-power lamp. Fig. 3 is a fusible cut-out. It has ample contact surfaces for the fuses, and consequently is not liable to give trouble by unnecessarily burning out. The switches, both double-pole and single-pole, have large contact surfaces, and make the break instantaneously. The double-pole switch is shown in Fig. 4. This company furnishes ammeters, voltmeters, ground detectors, and other electrical appliances and safety apparatus required for incandescent plants. The voltmeter is shown in Fig. 5. At an early date they will have ready a motor embodying the same general features as their dynamo.

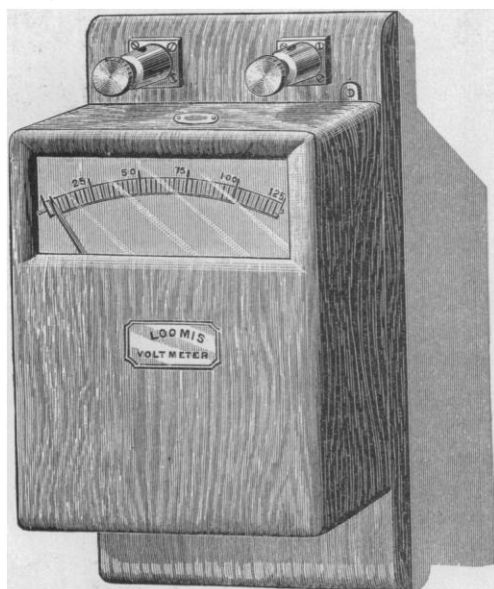


FIG. 5.—VOLT METER.

there be only one lamp in circuit or the maximum number for which the machine is intended. The quantity of current is diminished as the lamps are extinguished, and increased as they are lighted, without any attention being paid to the dynamo, and it is claimed that power absorbed by the dynamo is in proportion to the number of lamps in actual use. The regulation of the dynamo so as to secure these results is accomplished by a simple method. There is no shifting of the brushes required, nor is any resistance introduced into the circuit, so there is no attendant required to

A CAVE of unexplored dimensions, containing a beautiful lake, the shores of which are covered with human bones and pieces of pottery, was discovered recently by two miners near El Paso, Tex.