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EDISON'S NEW STEAM DYNAMO.

In our issue of November 19 we described the Edison system of electrical conductors now being placed beneath the street pavements of New York city. We now present our readers with an engraving of one of the gigantic dynamo-electric machines of the type to be used in supplying the current to the conductors above referred to. This particular machine is an exhibit at the Paris Electrical Exhibition, but it differs but slightly from the others of the same class. The dimensions and weight of this machine are briefly as follows:

Weight of cast iron sole plate upon which dynamo and engine are placed, with pillow blocks, 9,600 lb.; magnets complete, 24,500 lb.; armature complete and shaft, 8,500 lb.; engine, 10,000 lb; total weight 44,600 lb. The total weight of copper on armature and magnets is 3,600 lb. Principal dimensions: sole plate, 12½x8½ feet; length of magnets, 8 feet; length of armature, 5 feet (commutator makes additional length of 9 inches); diameter of armature, 28 inches; engine cylinder, 11 inches by 6 inches; capacity, 2,400 gas jets.

In the Edison system an engine of great power is connected directly with the armature shaft of a single dynamo capable of economically converting the power of the engine into electric energy for distribution to lamps and motors.

The speed of the engine and armature is 350 revolutions per minute. The boiler pressure is 120 lb. With engines of the most perfect build, and with the armature weighing 8,500 lb. as a fly wheel, the Edison machine attains great uniformity in speed and consequently insures perfect steadiness in the light. The armature is arranged on Siemens' principle, the wires being replaced by bars of copper. These bars lie close to each other around the cylinder which forms the armature, and they generate the current. Their extremities are connected with disks of copper laid one against the other at the ends of the cylinder and insulated from each other. Each bar is fastened to its corresponding disks in such a way as to form a single circuit enveloping the cylinder longitudinally, the bars are coupled two-and-two, with the commutator blocks, which are made after the Gramme pattern. Figs. 2 and 3 give an idea of this new arrangement. The center of the cylinder itself outside of the rotating axle consists of a cylinder of wood, which in its turn is surrounded by a thick tube made of a series of very thin disks of iron, separated from each other by tissue paper. This arrangement facilitates the rapid changes of polarity in the plates. This tube is terminated at its two extremities by two thick clamping disks, which are made to compress the others laterally, and the copper disks of the working coil occupy the two compartments at the extremities of the cylinder, as seen in

Fig. 2.

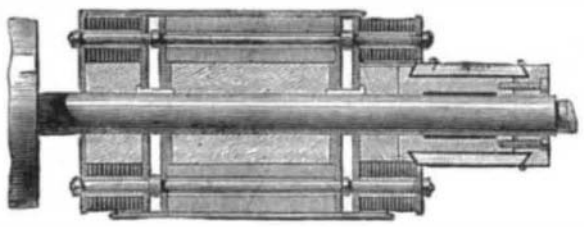
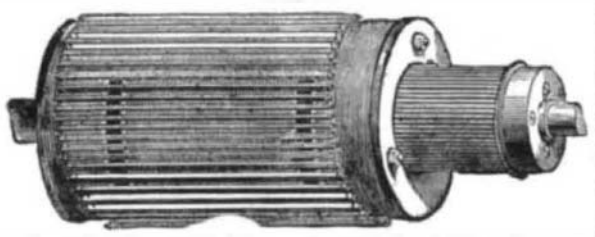


Fig. 3.



SECTIONAL AND PERSPECTIVE VIEWS OF THE ARMATURE.

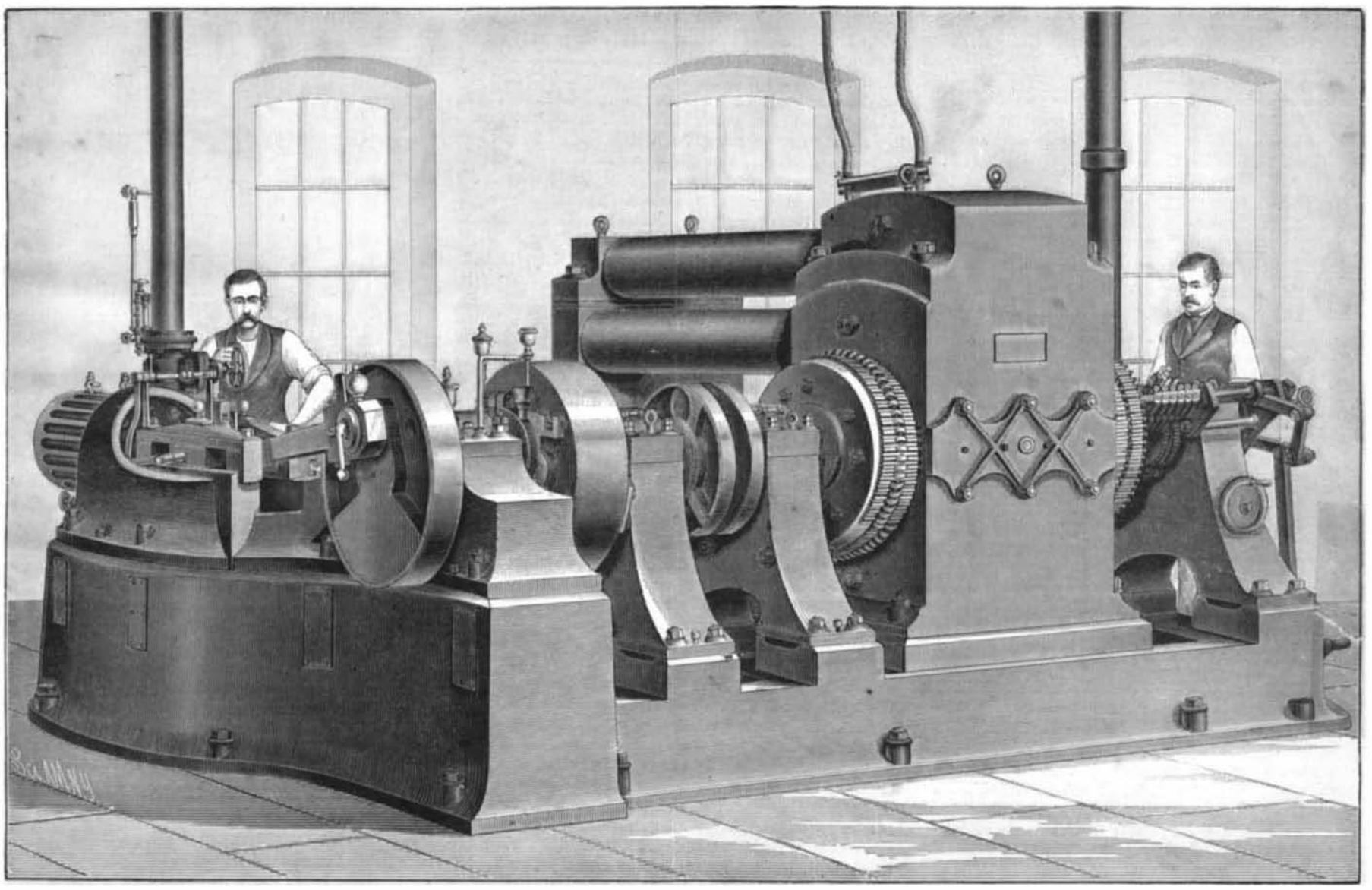
Fig. 2. Under such conditions as these, the resistance of the generator is small and permits of great subdivision of the current in multiple arc; there is no insulation to be burned, and it is possible in case of the deterioration of the bars to renew them easily, for they are simply screwed against their corresponding copper disks. In the new arrangement adopted by Mr. Edison, the field magnets lie horizontal, as shown in our engraving, instead of being placed in the vertical.

The central station now in process of construction will be provided with twelve steam engines of 150 horse power each, actuating dynamo electric machines, each of which will be capable of supplying 2,400 lamps of eight candle power. The current furnished to these lamps comes through the large sized conductors laid in the streets, from which smaller conductors lead into the houses. These conductors virtually bring the poles of the generator into each house, where the lamp wires can be brought in connection with them, thus rendering each house independent of any other, both for a supply of light and motive power.

An Acetate of Soda Stove.

An alleged improvement by a Dresden chemist, Herr Nieske, in the new method of heating with acetate of soda, consists in mixing hyposulphate of soda with the acetate. The former melts more quickly than the latter, and retards crystallization in cooling. Herr Nieske uses one volume of acetate with ten of hyposulphate. The cases are filled to the extent of three-fourths, hermetically closed, and kept in hot water till one no longer hears a sound from crystals within, on shaking. The cases will then give an equable heat from ten to fifteen hours, according to size. A room stove, acting on this principle, is described by Herr Nieske in the *Deutsche Ind. Zeitung*. It consists of an inner and an outer cylinder, the latter having numerous small holes. In the space between the two stand three of the heating cases. These can be easily lifted out by the handles, and put into water in the central cylinder, which can be heated in position by means of a burner below (or removed to be heated elsewhere). This done, the cases are lifted into their places in the annular space. The stove runs on casters and has a cover. The water in the inner cylinder furnishes, by evaporation, a wholesome degree of moisture.

DISCOVERY OF EXTENSIVE PINE FORESTS.—The recent exploration party of Colonel Mercer up the Spanish River, in the province of Ontario, is said to have discovered vast pine forests, containing upward of 24,000,000,000 feet of a superior quality of pine lumber, with facilities for getting it to market equal to the best.



EDISON'S STEAM DYNAMO-ELECTRIC MACHINE AT THE PARIS ELECTRICAL EXHIBITION.