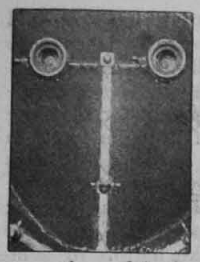
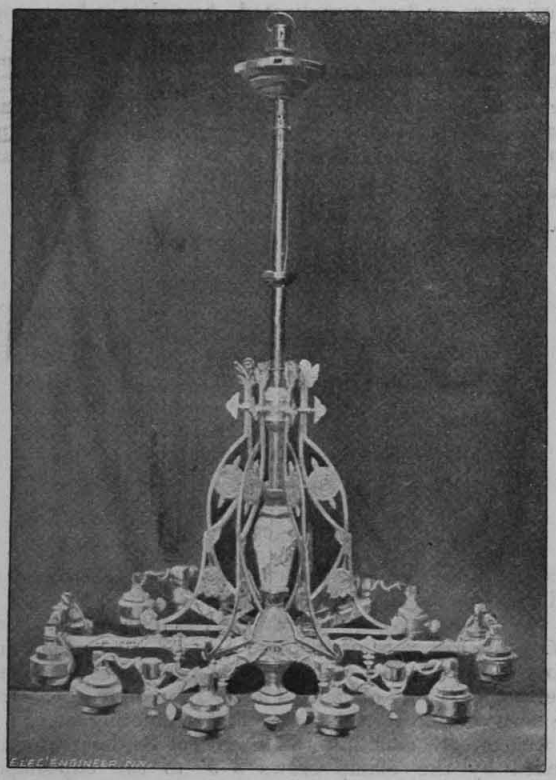
THE FIRST INCANDESCENT CHANDELIER.



THE chandelier of which an illustration is shown on this page is one of the most interesting relics of the early days of incandescent electric lighting. It is, in a word, the first chandelier ever used for the specific purpose of carrying incandescent lamps. It was in use at the residence of Mr. Francis R. Upton, at Menlo Park, near the laboratory where all the experimental work in connection with the Edison lamp was done; and was put up during 1880. This fixture was purchased from Mitchell, Vance & Co. originally, and then wired on the spot in a manner that indicates more than anything else the crudeness and difficulties of pioneer practice. It will be noticed that the wire runs exteriorly around the stem of the chandelier and the branching arms. Moreover, great care was taken to distinguish the polarity of the two sides of the circuit, the positive wires being of red "flexible cord" and the negative of blue. Another observable point is that the lamps were burned in the inverted position now so familiar, but then so entirely new and novel. The initial letter of this article shows one of the arms with sockets attached. The lamps that were in the sockets when the chandelier was first used have been preserved also, and are of the early Edison make in which platinum clamps were employed for holding the carbon filaments.



THE FIRST INCANDESCENT LIGHTING CHANDELIER.

This chandelier is now in the possession of Mr. Luther Stieringer, of this city, to whom it was presented by Mr. Upton, and to whom we are indebted for the opportunity of making the present cuts of it. Mr. Stieringer, by the way, has made a large collection of such interesting and valuable mementoes and relics, and hopes the day is not far distant when the electrical community will have provided some fireproof place of deposit for them—a museum of the electrical arts and sciences. He and others of like tastes are in possession of enough material for a collection and exhibit second to none of its class for interest and importance.

ELECTRIC LIGHTING OF RAILROAD CARS.

BY

L. D. Dallas

PERHAPS it may not be generally known to what an extent the development of the electric light has been applied to the lighting of trains. With the idea that a short account might be of some interest, the writer will proceed to give a brief description.

The two principal methods of lighting trains are:

1. By storage batteries, the charging of the cells being performed at each terminus.

2. By storage batteries as auxiliary to a dynamo operated by steam on the train.

The second method is the one more generally adopted. Each car has a certain number of cells connected to a dynamo in such a manner that each set of cells is equidistant from the dynamo, and each, consequently, receives the same amount of charge. Every car is also a complete unit in itself, so that should any one car be detached at a way station, the continuity of the circuit is still complete; at the same time the car thus detached is provided with the power to operate the lamps.

The method of obtaining this end is shown in the accompanying diagram, Fig. 1, three cars alone being shown for convenience. From the dynamo D one main is run the whole length of the train and back again to one terminal of the battery nearest the charging dynamo, and from the other pole of the machine the return main is run the length of the train merely. Connection between successive cars is accomplished by couplers. These connections usually are placed under the roof of the car over the platform. At the end of the train furthest from the dynamo a jumper is employed, completing the circuits A_1 and A_2.

Supposing that each car be of the same length, the distance from the dynamo to each battery is the same, or, in other words, each battery is equidistant from the source of power. Given that each battery be of the same counter-electromotive force and resistance, each will receive an equal amount of charge. The lamp circuit is, of course, distinct from the charging circuit, so that should any one battery become charged sooner than the others the circuit may be opened and the charging stopped on this particular battery, and thus the circuit for charging the other batteries is not disturbed.

A detail of the connections is shown in the diagram, Fig. 2. By opening the switch the charging circuit is broken. A is a switch for regulating the discharge of a greater or lesser number of cells; the other connections can easily be traced.

Having thus described the circuits generally, it will be well to consider the method of operating the dynamo. The ideal source of power, of course, would be by the transmission of the power from the axle. However, as this has been so far, in this country, impracticable on account of mechanical reasons, steam taken from the locomotive is usually employed. The Pullman Palace Car Co. operate many trains in this way, such as those running from Jersey City to Chicago over the Pennsylvania road; the Florida special, running between Jacksonville, Fla., and Jersey City, in winter; the Montezuma special, the Golden Gate express, etc., all solid vestibuled trains. The dynamos are coupled directly to engines of the Brotherhood type, running at a speed of four hundred revolutions per minute. The dynamos are of the Eickemeyer ironclad type, suitable for slow speeds; they are shunt-wound machines. There is, of course, a suitable means of regulating