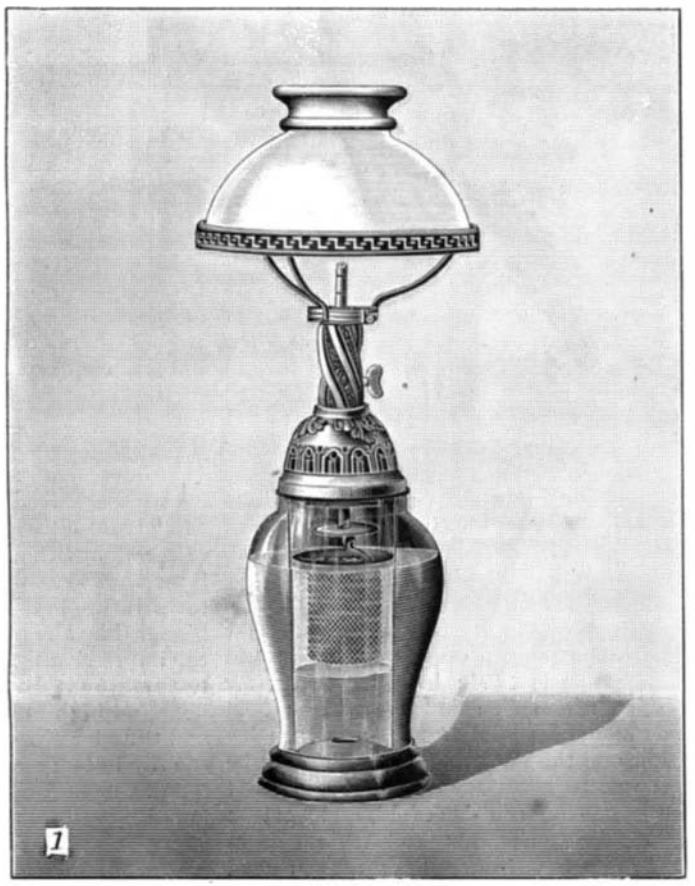
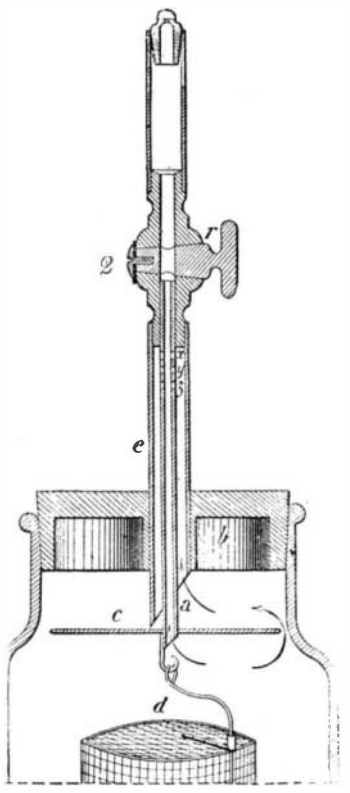
A FRENCH MODEL ACETYLENE LAMP.

The rapidity with which acetylene has received commercial development is very remarkable. It is hardly a matter of surprise that one of the most artistic and convenient examples of the uses to which this new material as an illuminant can be put is due to the ingenuity and good taste of the French. The lamp shown in the accompanying illustration is from the laboratory of Mr. G. Trouvé, the well known French scientist, and shows the practical form in which the lamp may be constructed to render it available as a portable lamp for domestic uses. Before, however, such a lamp is introduced into general use in the family the fact of its absolute safety and impunity from accident must be assured, and such an end will be reached in time, no doubt, by experiment and by perfecting the apparatus.

It is interesting to notice the credit given in La Nature to the original simple apparatus, described by T. O'Conor Sloane, in our columns, as being the first acetylene lamp produced, which apparatus was given originally in the pages of the SCIENTIFIC AMERICAN of March 30, 1895. This appeared in the spring of 1895, and La Nature speaks of it as the first acetylene lamp ever made.





TROUVE'S ACETYLENE LAMP.

G. Trouvé's lamp, of an exceeding simplicity, consists of two glass vessels, one fitting within the other, and of a metal part closing the top, to the center of which top is connected the jet or burner tip.

In the interior vessel, which is practically a bottle with a large neck, is suspended a little metal basket which holds the calcium carbide; the bottle in question has a conical opening in its bottom, the size of which orifice depends on the use to be made of the lamp, so that the movements within this bottle, which acts as a bell jar, shall not be too sudden, depending as they do on the speed of entrance and outflow of the liquid. Under these conditions the flame and its intensity are fixed.

Acetylene, depending on contact with water for its formation, carries off a quantity of vapor of water, which must be instantly condensed so as not to interfere with the proper action of the lamp, whose burner, as in all portable lamps, is very near the generator. Mr. Trouve first tried to obtain this result by means of a condenser with large metallic surface, namely, a spiral ribbon, and later by a still simpler arrangement shown in Fig. 2.

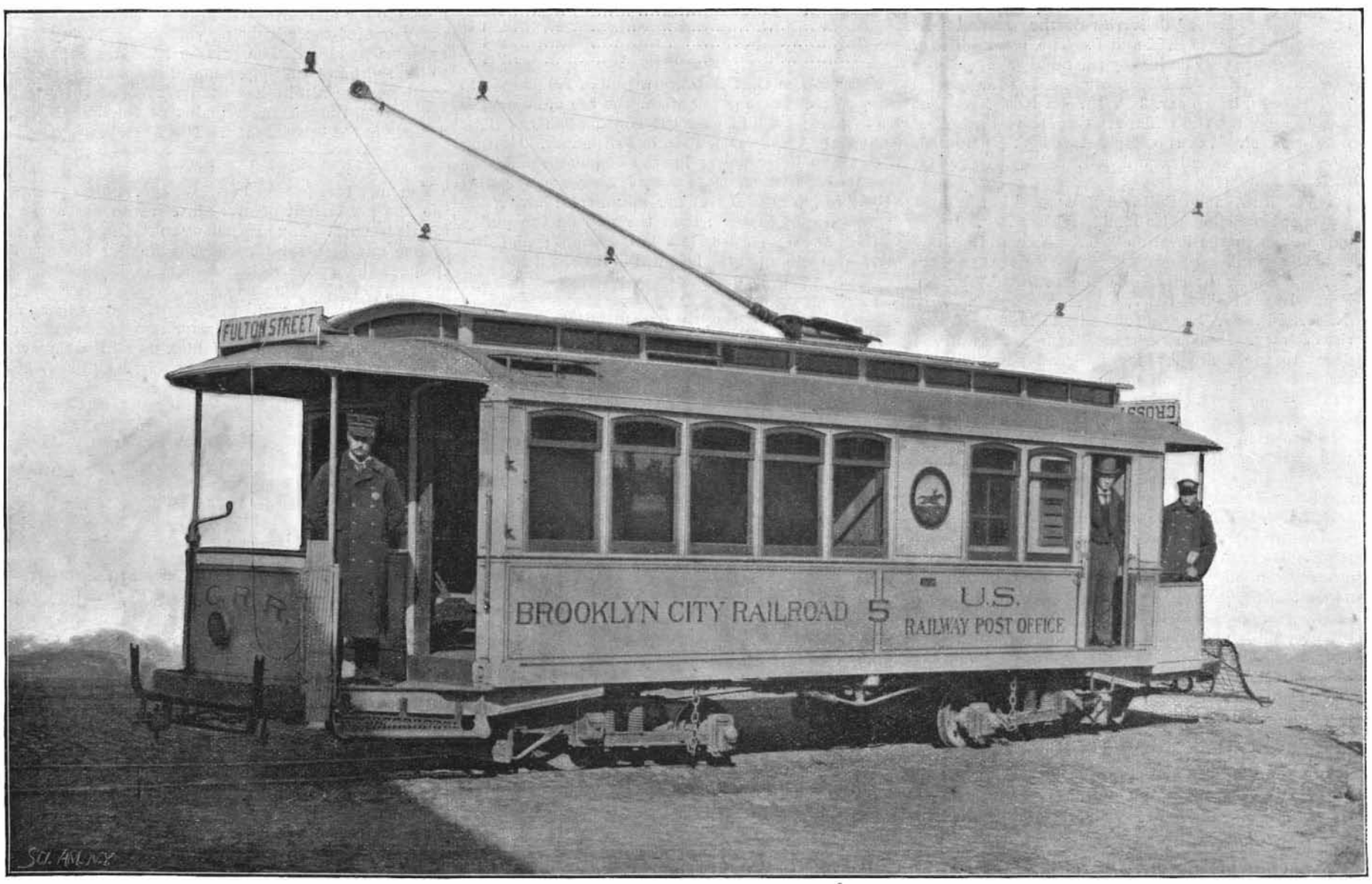
He uses two concentric tubes, a e, cut off obliquely and connecting with the cock, r. At first the gas passes by both tubes to the burner, as is shown by the arrows, but as soon as the vapor condenses in the central tube it seals it and it acts as a siphon. The acetylene continues to go through to the burner by the exterior tube, e, and by the little holes, x, y, z, by which the exterior tube communicates with the interior tube, a. As this siphon action is continuous, the interior tube carries off constantly the condensed vapor of water into the recipient whence it came. Furthermore, a disk, c, of large area, soldered to the tube, a, just above its lower opening, condenses the first vapor carried off by the gas. Furthermore, it enables one to withdraw this tube to get access to the entire system for cleaning and drying it.

It is very important to be able to govern the production of acetylene, because if the basket contains a large quantity of calcium carbide, the production of the gas would become more and more rapid. In spite of the regulation by successive immersions, the vapor of water traversing the calcium carbide from below upward finally moistens the whole mass. To govern adequately the production, Mr. Trouvé has adopted a system of superimposing the lumps of carbide in layers separated from each other by disks of glass. These act as diaphragms to prevent the vapor of water carried off by the gas from traversing the carbide which they support, and the automatic production of the acetylene is uniform from the beginning to the end of the lighting. First the lower layer is reduced to lime, then, as it softens, the second layer, descending, takes its place, and this action is repeated with the successive layers until the carbide is completely exhausted and the disks of glass rest one upon the other on the bottom of the basket.

Acetylene having almost the density of air, 0·92, burns best in a still atmosphere, so that the burner is placed in the center of the metallic disk, which tends to deprive the air of any upward draught, giving the flame proper steadiness. These lamps consume on an average 1,543 grains (about 3¼ ounces) of carbide for 38 candle hours.

STREET POSTAL CAR SYSTEMS OF NEW YORK AND BROOKLYN.

The establishment on February 3 of the street postal car service on Broadway, Brooklyn, again attracts public attention to one of the most important enterprises the United States postal service has undertaken. This is distinctly a novel development of the mail service, and the recent general awakening in this direction is due to the foresight and energy of Mr. Charles Neilson, the Second Assistant Postmaster-General, of Washington. Mr. Neilson's long experience as a manager of rail-



STREET POSTAL CAR SYSTEM—COMPARTED CAR