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A NEW SYSTEM OF GAS LIGHTING.

A new system of lighting public thoroughfares, which for a year past has been in operation in a street in Jersey City, is certainly something novel in the practice of gas illumination, and, if we may judge from a brief examination, aided by the inventor's explanations, is an advance of considerable value considered from an economical point of view. The scheme abolishes gas works, and machines which produce gas by the passage of air through or mingling of air in hydrocarbon vapor. Paradoxical as it may seem at first, there are no gas pipes—in short, the gas generator is located in the burner, and the invention reduces itself simply to the means of sending the requisite gas-producing material to that point in each post or fixture. Without further preamble, let us state that the entire apparatus consists of an air compressor at some central locality, several small tanks (one to each lamp post) laid under the side walk, a small air tube connecting with each from the reservoir filled by the compressor, and another small tube which carries a petroleum product up to the burner. This is the simple plant which it is proposed to substitute for elaborate manufactories, miles of heavy piping, and innumerable meters at special points.

From the large engraving, Fig. 1, given herewith, the general arrangement of the tanks in the street will be understood; a sectional view of one of these receptacles is presented in Fig. 2. The tank is made of galvanized iron, with top and bottom of copper, and holds forty-eight gallons, that quantity of oil being somewhat in excess of a six months' supply. The hydrocarbon used is a benzine, grade 75, a product of low value and for which there is but little or no industrial employment. It is fed into the tank through an aperture in the top, this being accessible through an iron cover and scuttle arranged in the side walk. The pipe, A, is the main air conduit leading from the central reservoir, and communicating with the tank by the short tube shown. Extending up from the bottom of the receptacle is another pipe, B, which leads to the gas burner. It is evident that, an air pressure being produced in the tank by the current from pipe, A, the same, acting on the surface of the oil, will force the latter up pipe, B, and so to the point of combustion. The burner employed is provided with a small retort in which the oil circulates. A portion of the oil burning below this retort converts its contents into gas; the latter subsequently passes through various passages in which it becomes mingled with the proper quantity of air, and finally escapes from the orifice, where it is ignited. The exact form and nature of the burner it is not necessary here to dwell upon, inasmuch as the essential features of the device are those relating to the oil-feeding arrangements.

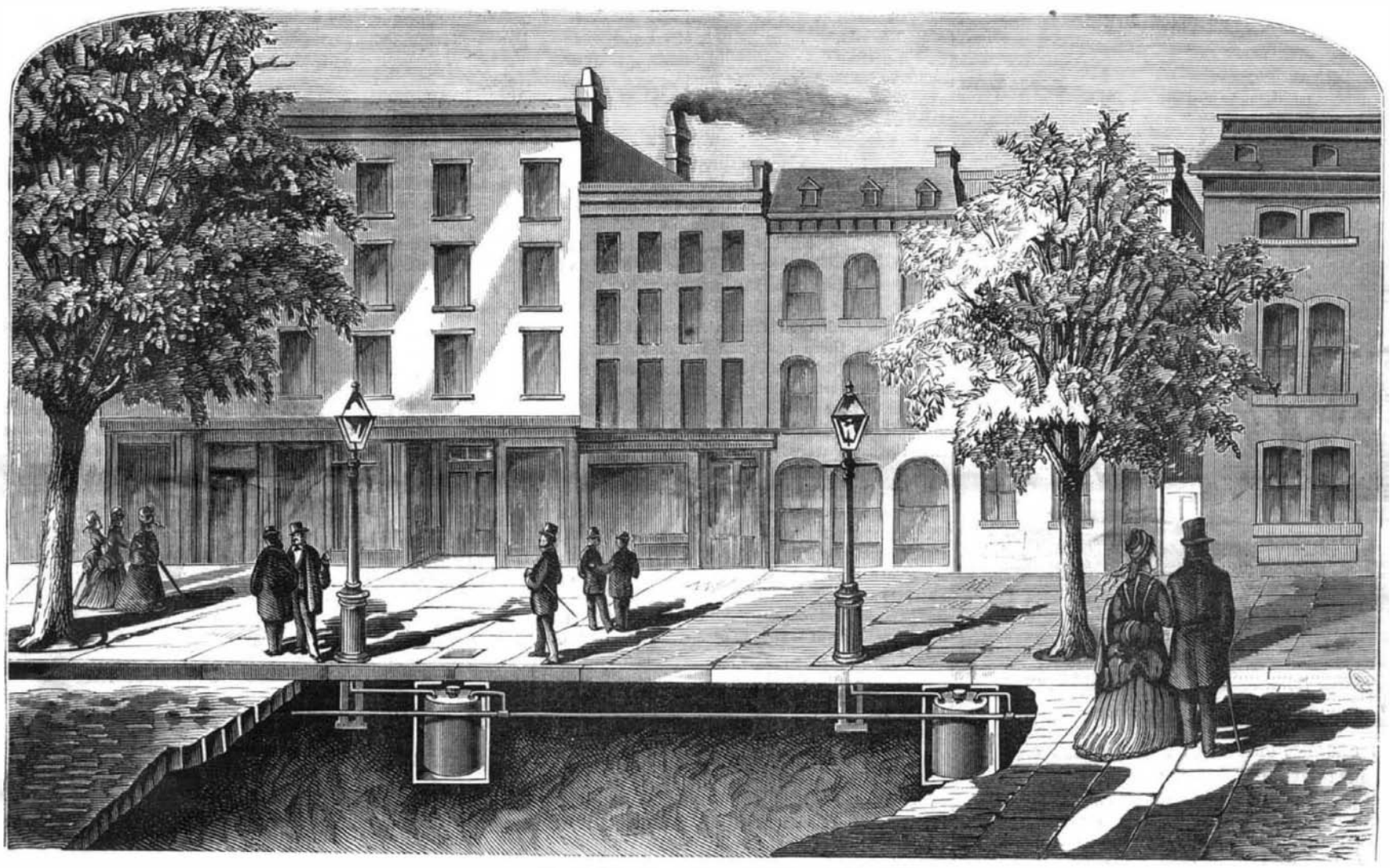
In lighting a large number of lamps—from 100 to 5,000—it would be necessary to have a small steam engine or water power to compress the air and keep it at a uniform pressure, which may be from four to six pounds per square inch. Clock work may be used for any number of lamps under 100. A two inch main pipe, distributing right and left and as near the center as possible, the inventor informs us, would be sufficient to supply two or three thousand lamps distributed over a whole city. This may seem extraordinary, but it should be remembered that the air is not used otherwise than to supply the displacement by combustion of the oil in the tanks and such accidental leakage as may occur. By such leakage, however, obviously there is no loss of gas, as when the latter is transmitted through pipes. The air costing nothing, if it should escape—except the labor of pumping—the actual displacement, we are informed, would be only 64 cubic feet in 2,000 lamps in 10 hours burning, and a half inch pipe could supply this in less than five minutes.

The cost of operating the system has been determined by the actual working of eight street lamps using a six foot burner each. In 35 days of ten hours each, eight gallons of material per lamp were consumed, or sixty four gallons in all. This at the present price of the oil—ten cents per gallon—would cost $6.40. The aggregate number of hours is 2,800, so that, with the six foot burners, a total of 16,800 cubic feet of gas was consumed. From these data it is clear that the cost per thousand feet is about thirty-eight cents, a mere fraction of the average cost of coal gas.

On visiting lately the locality in Jersey City now lighted by this process, we were enabled to examine the practical operation of the apparatus. The light seemed to be smokeless, and apparently is as powerful as that of ordinary street gas. The street in which the lamps are located is near the river and almost unprotected by buildings, a fact which suggested to us the question of how the intense cold of the past winter had affected the gas. In answer, the inventor informed us that, although the wooden boxes in which the oil tanks were enclosed became filled with water, which froze solid and so continued all winter, the lights remained entirely unimpaired. A large conflagration of a factory in the vicinity gave, besides, an excellent opportunity for noting the effect of great heat. This, though sufficient to melt the lantern frames and burners, showed no influence on the gas, nor produced any explosion in the oil contained in the tanks.

The invention would seem to be especially adapted for use in country towns and villages where no gas works exist, as it renders the lighting of the streets a matter of small expense and easily accomplished. It is also well suited for the illumination of gardens and pleasure grounds, as there can be no escape of gas to injure vegetation; and the necessity of tearing up the soil to lay heavy pipes is obviated. It may also be adapted to the lighting of buildings of any description. The tanks may be made to hold enough oil to last a year, so that filling need be done only at long intervals.

The system is protected by two patents, the most recent dated March 9, 1875. For further particulars address the inventor, Mr. R. V. de Guinon, P. O. Box 59, Jersey City, N. J.



De GUINON'S SYSTEM OF GAS LIGHTING.

Fig. 2.