



TIRRILL'S EQUALIZING GAS MACHINE.

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The illustrations accompanying this article represent the appearance and arrangement of parts of a gas machine, which, after a careful study of the principles involved in its construction and operation, we find to represent a decided advance in machines of its class, in that it provides, without unnecessary complication, the means for obtaining at all times an *illuminating gas of uniform quality*.

The variability in the quality of the gas furnished by the so-called gas machines, has always been a serious objection against them, and has, more than anything else, hindered their very general adoption in situations remote from cities. The conditions of practical safety have been fully met in machines of this order, and to the entire satisfaction of the fire underwriters, by locating the generator outside of, and a minimum distance of 30 feet, from the building to be lighted, and by the observance of other details of construction of minor importance unnecessary to specify here; but the variable quality of the gas produced has, until lately, been recognized as the

one great and apparently insuperable objection to their usefulness.

This difficulty arises from the fact that the more volatile portions of the gasoline employed in the generator are the first to pass off as vapour, yielding an extremely rich gas, which is difficult to burn properly on account of its tendency to smoke. On the other hand, the process of evaporation is a chilling operation, and after a number of hours of constant use, the liquid becomes so highly refrigerated that its volatility is greatly reduced, and the gas yielded grows progressively poorer in illuminating property. The same result will follow in time as the liquid in the generator becomes progressively heavier, and consequently less volatile. So that a gas machine that may work satisfactorily for some time after the generator has been freshly filled with gasoline, will make a progressively poorer gas as the material is consumed, unless provision is made to prevent this action by mechanical or other expedients.

These difficulties have long been recognized by the makers of machines of this class, and various plans have been resorted to, to meet and overcome them. Of these, two plans only