

THE AMERICAN GAS MACHINE.

Low priced gas means economical lighting, heating and power, and an isolated gas plant insures independence and convenience, and in many cases it affords the luxury of a good gas light where otherwise only kerosene lamps or something worse would be possible.

We give herewith engravings of a simple automatic gas machine made by the New England Gas Machine Company for manufacturing gas for lighting and fuel purposes and for power, on either a large or small scale. This machine consists of the pump, the aerometer, the carbureter and the oil tank. The automatic hydraulic air pump is formed of two cylindrical galvanized iron vessels, one being made smaller than the other, in which it is inverted, forming a vessel similar to a small gasometer. The lower vessel is furnished with a water seal which permits the upper

ter, and it serves to give an even, steady pressure to the air, sufficient to force it through the carbureter and delivery pipes. The flow of water to the motor cylinder is governed by the amount of air in the aerometer. When the aerometer is full, it shuts off the water supply, and the upper part of the aerometer, in descending, automatically turns the water on when it reaches a certain point in its descent.

From the aerometer the air passes under an even pressure directly to the carbureter, where it becomes thoroughly saturated with the vapor of gasoline. The gasoline is allowed to flow into the carbureter until there is a sufficient depth of liquid to raise a small float which operates a valve similar to a ball cock, and this valve maintains an even depth of gasoline in the carbureter. The carbureter is divided into a series of narrow compartments by metal partitions running parallel, the compartments opening into each other on alter-

quality of gas. From the carbureter the gas passes through pipes of the same size and in the same manner as ordinary city gas and is used in the same way.

The accompanying illustrations show the gas-producing plant and give an idea of the adaptability of this gas to mechanical as well as to domestic purposes. The flame produced by gasoline gas is superior in heating qualities to the flame of ordinary gas. It is much used by manufacturers of bicycles, jewelry, tools, machines for brazing, soldering, enameling, tempering, welding, moulding, forging, and a great variety of purposes. For domestic uses it makes an economical and safe fuel for both heating and cooking. It is claimed for the gas made by this machine that it has double the candle power of ordinary gas.

The American gas machine is manufactured by the New England Gas Machine Company, at Attleboro,



1. Brazing bicycle frames. 2. Making jewelry. 3. The gas stove at home. 4. The automatic gasoline valve. 5. The complete gas apparatus.

GAS MACHINE FOR INDUSTRIAL AND DOMESTIC USES.

one to rise and fall while maintaining an air tight joint. A motor cylinder is attached to the bottom of the lower vessel and is provided with pistons attached to the upper or movable vessel, and water under a pressure of 20 pounds or more to the square inch is introduced into the motor cylinder under the piston, causing the piston to rise and lift the movable upper vessel. This draws air in through the check valve at the bottom of the stationary vessel, and when the piston reaches the upper end of the motor cylinder, an automatic trip works the valve which cuts off the water supply, and weights placed on the top of the movable vessel force it down. The air contained by the vessel is forced through the connecting pipe to the aerometer in which the air is stored, and as soon as the upper vessel in the pump reaches the lower end of its excursion, the automatic trip turns the water on again and the upper vessel of the pump ascends, thus drawing in another supply of air, and this operation continues automatically as long as gas is being used.

The aerometer is constructed like a small gasome-

nate ends, thus forming a long tortuous passage for the air. These compartments contain absorbent material which rests on the gasoline at the bottom and draws it up to a height of four or five inches, so that the air in passing through the absorbent material takes up the vapor of the hydrocarbon and becomes thoroughly carbureted. It then passes through a mixing chamber where the minute particles or molecules of hydrocarbon are intimately mixed with the air. Any surplus of gasoline passes back into the carbureter. The carbureter is inclosed in a tank of heavy cold rolled copper, and sealed gas tight and covered with a casing of wood, which is incased in a heavy galvanized iron casing, which is made gas tight.

The oil tank is a reservoir from which the gasoline is supplied to the carbureter. It is usually buried in the ground outside the foundation wall of the building containing the gas plant. The gasoline is preferably taken from the bottom of the tank, thus insuring uniformity in quality of the gasoline and avoiding any waste or residuum, at the same time insuring an even

Mass., with offices at No. 42 Oliver Street, in Boston, and at Attleboro.

Niagara Power.

Power from the dynamos of the Niagara Power Company will be transmitted to New York over 462 miles of wire, on May 5. The Western Union Company will furnish one of their largest cables to transmit the current. The current will not be heavy, but will demonstrate, it is thought, that by Tesla's new system the current can be conveyed long distances. It is expected that Governor Morton will turn on the current from Niagara at the opening of the National Electrical Exposition on May 5.

THE recent discovery of argon in atmospheric air by Lord Rayleigh and Prof. Ramsay has aroused such general interest that a volume containing an account of the methods of extracting the new gas from air and of its property, has been written by Prof. Ramsay.