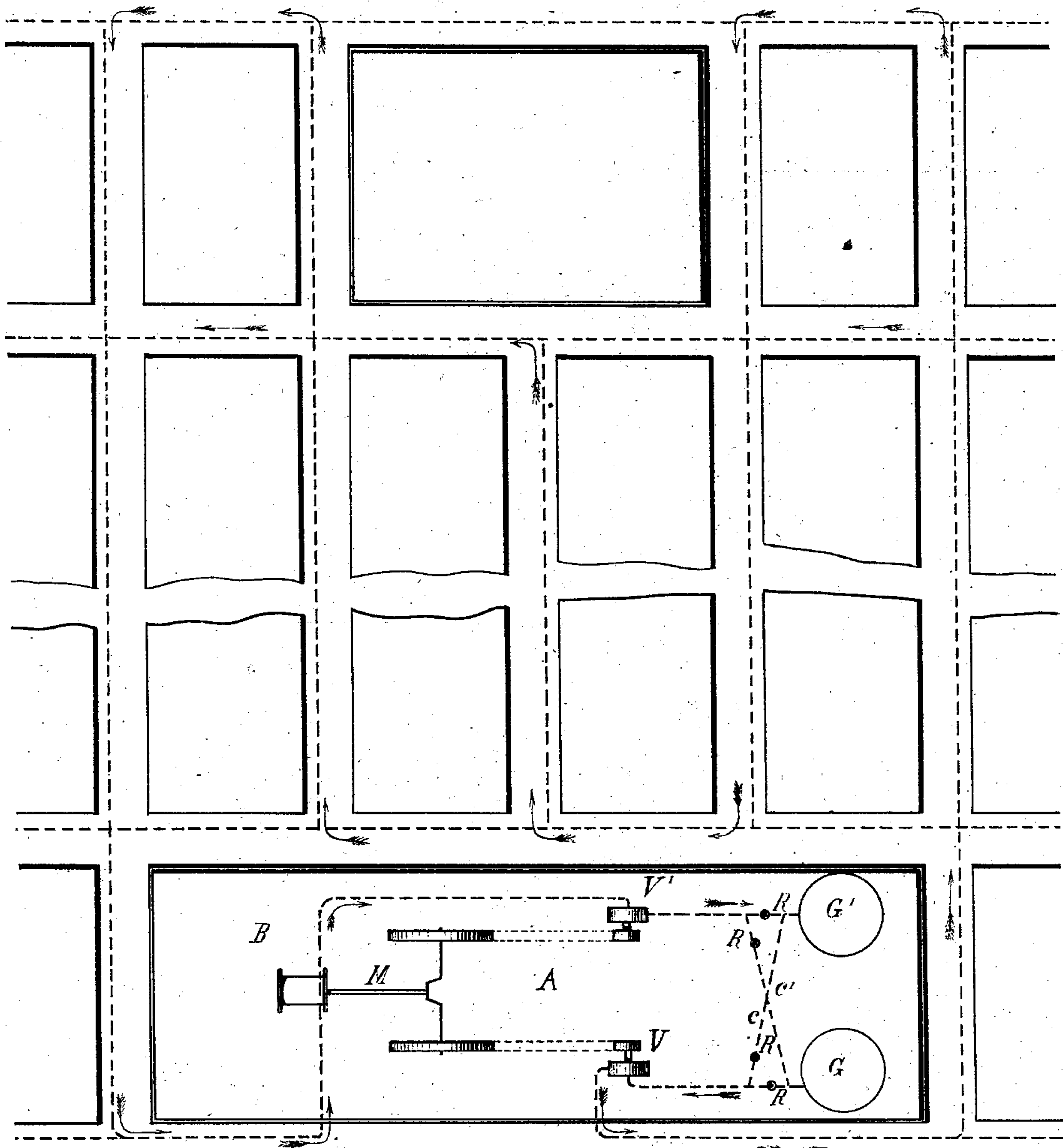


C. M. TESSIÉ du MOTAY & E. STERN.
Process and Apparatus for Accelerating the Distribution
of Gas.

No. 224,311.

Patented Feb. 10, 1880.

Figure 1.



Witnesses:

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Anthony Griefs

Inventors:

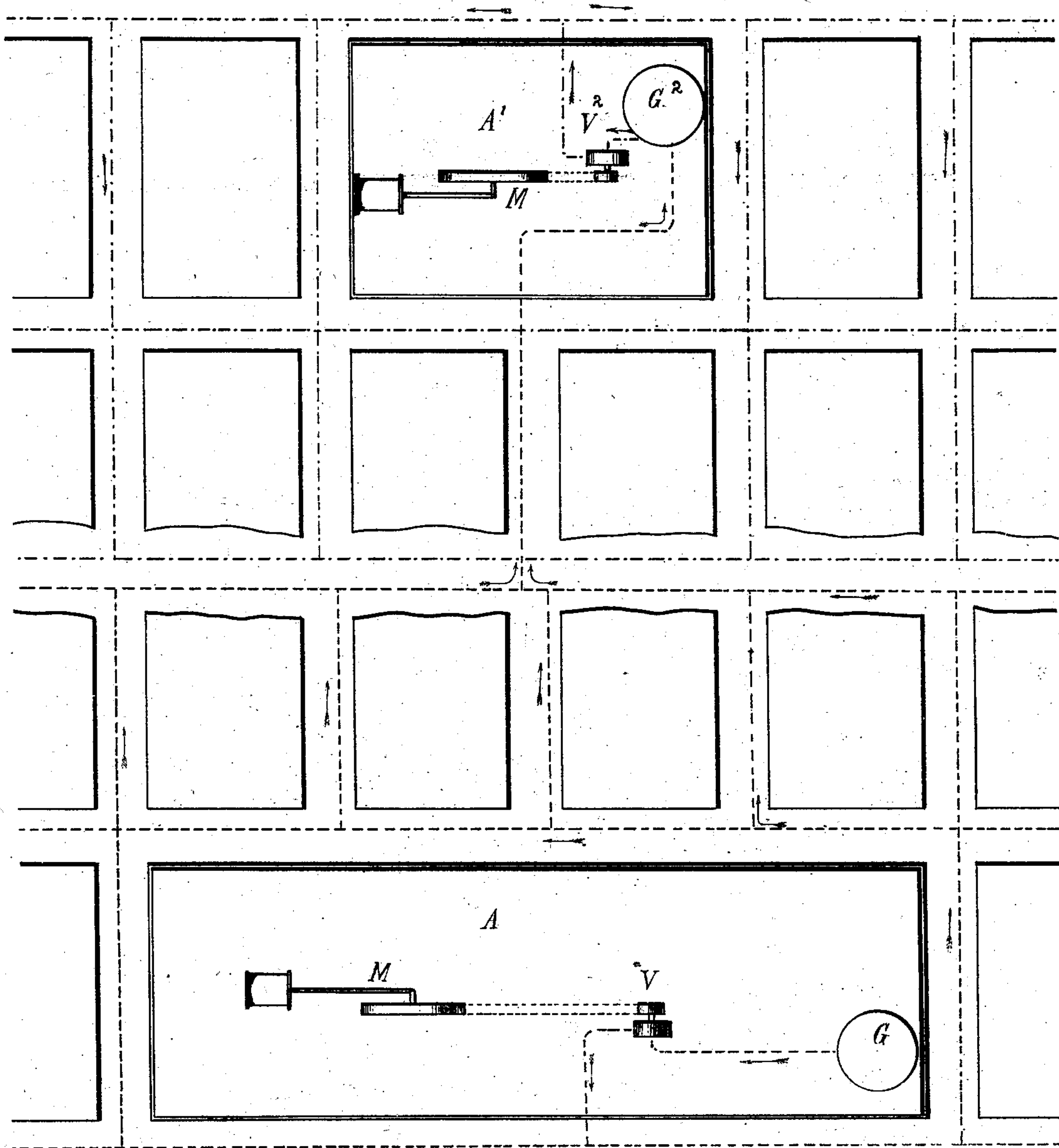
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Figure 2.



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UNITED STATES PATENT OFFICE.

CYPRIEN M. TESSIÉ DU MOTAY, OF PARIS, FRANCE, AND EDWARD STERN,
OF NEW YORK, N. Y.

PROCESS AND APPARATUS FOR ACCELERATING THE DISTRIBUTION OF GAS.

SPECIFICATION forming part of Letters Patent No. 224,311, dated February 10, 1880.

Application filed December 6, 1878.

To all whom it may concern :

Be it known that we, CYPRIEN MARIE TESSIÉ DU MOTAY, of Paris, France, and EDWARD STERN, of the city and State of New York, have invented a new and Improved Process and Apparatus for Accelerating and Equalizing the Distribution of Gas in the Pipes of Cities, of which the following is a full, true, and exact description, reference being had to the accompanying drawings.

At the present day the net-work of gas-pipes is so extended in cities that the pressure of the gas varies greatly in them. This variation is so great that often at the end of the pipes, where they are most distant from the gas-works, the pressure becomes less than one-half, and causes the gas-delivery to be insufficient for the needs of the city.

The object of the present invention is to overcome this difficulty by accelerating and equalizing the distribution of the gas in the pipes or mains. To this end a circulation is caused through the latter by suitable apparatus—such as a blower, for example.

Heretofore gas has been propelled through pipes by means of forcing or forcing and exhausting apparatus, in order to deliver a larger quantity at a particular point. Moreover, it is not uncommon to supply in this way the gas to gasometers, which receive the same from the main gas-works and distribute it through the several localities in which they are situated. In this manner, by a sufficient multiplication of gas-holders, the difficulty above mentioned could be avoided.

By our invention multiplication is rendered unnecessary, wholly or to a great extent, as the field or district that can be supplied thereby is much enlarged.

It consists in a method of accelerating and equalizing the distribution of gas by forcing or causing a circulation through the pipes and mains of a system of a supply of gas in excess of the consumption, and returning the excess to be circulated again through the pipes and mains, and also in the apparatus, as hereinafter more particularly specified, whereby the said method can be carried into practical effect.

The invention differs essentially from the simple forcing of gas through pipes in order to

increase the delivery at a certain point, for it is evident that there must be some way of disposing of the excess without allowing it to go to waste, and if it is to be used to supply an additional system the same difficulty at first stated would be encountered, and this difficulty would increase as the excess over consumption is greater. In any event the use of one or more gasometers would be necessary in addition to those at the works at which the gas is generated, whereas in this invention, while such additional gas-holders may, in certain cases, be desirable, they are not essential.

In order more clearly to explain our invention and the manner of carrying it into effect, reference is made to the accompanying drawings, which form a part of this specification, and in which both figures are plan views.

Figure 1 represents a system of pipes supplied by a central gas-works, A, which produces the gas and the force to cause it to flow through the pipes. In these works are placed two blowers, V V'. The blower V drives the gas from the gasometer G and forces it into the distributing-mains. The other blower, V', draws in the gas from the other extremity of the mains and forces the excess of the gas into the second gasometer, G'. These blowers are driven by an engine or engines, M, connected with them. When the gasometer G is empty, the gasometer G', on the other hand, is full by the excess of gas drawn in. The cross gas-pipes shown put the forcing-blower V in communication with the gasometer G', and the drawing-blower V' in communication with the gasometer G. The blowers can be run in either direction, thus enabling the movement of the gas forward or backward through the pipes at will. The valves R in the pipes *c c'* enable this operation to be performed and the course of the gas to be changed.

Fig. 2 represents an arrangement using a blower at a local station distant from the gas-works. In one of two adjacent quarters the gas-works A is placed, and in those works is placed the forcing-blower V, driven by an engine, M, which drives the gas out into the conduits. In the other quarter are the works A', for the purpose of receiving and distributing the gas, but not making it. The blower

V² there shown may be actuated by an independent engine, but preferably by an air-engine driven from the works A. The blower V draws the gas held in the holder G and forces it through the part of the city served by the works A. The excess of the gas is driven into the holder G², and the blower V² in its turn drives out the gas from the holder G² in the second quarter served by the works A'. The excess of gas from the quarter served by the works A' is returned to a holder, from which, when full, the gas is forced by the first blower, V. It is obvious, however, that a complete circulation might take place in each quarter, the gas in sufficient quantities for supplying the amount consumed being taken from the mains by which the first quarter is served, or from the gas-holders at the works A.

One of the advantages of our system is to allow of the utilization of the mains to supply in winter the additional demand necessitated by the burning of the gas at that time.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The method of accelerating and equalizing the distribution of gas, which consists in causing a circulation of the gas from the gas-works through the pipes or mains in excess of the consumption which takes place on the line of said pipes or mains, and is supplied there-

from, and returning the excess to the said works for circulation again through the pipes or mains, substantially as described.

2. The combination, with a system of gas pipes or mains, of a forcing apparatus connected with one end of said system and with a suitable source of gas-supply, for forcing gas through said pipes or mains, and a return-pipe connected with the opposite end of said system, for returning gas supplied in excess of consumption, so that it can be again caused to circulate through the pipes and mains by the aid of said forcing apparatus, substantially as described.

3. The combination of two gasometers, a gas-forcing and gas-exhausting apparatus, and connections with valves between said gasometers, whereby the gas from the exhausting apparatus is made to supply and the forcing apparatus to derive its supply from said gasometers alternately, as set forth.

In testimony whereof we have signed our names to this specification before two subscribing witnesses.

C. TESSIÉ DU MOTAY.
E. STERN.

Witnesses:

J. ARMENGAUD, Jeune,
A. CABY.