

R. N. BAYLIS.
ANTIFLUCTUATING DEVICE FOR GAS SERVICE PIPES.

(Application filed May 3, 1901.)

(No Model.)

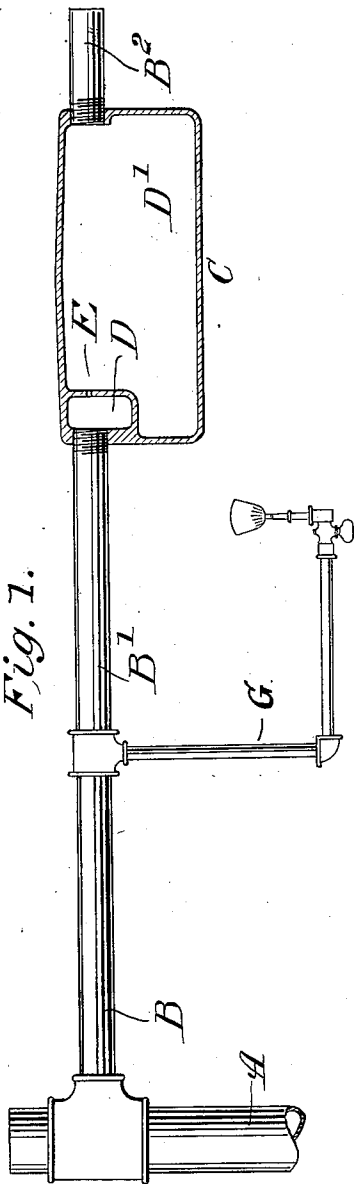


Fig. 1.

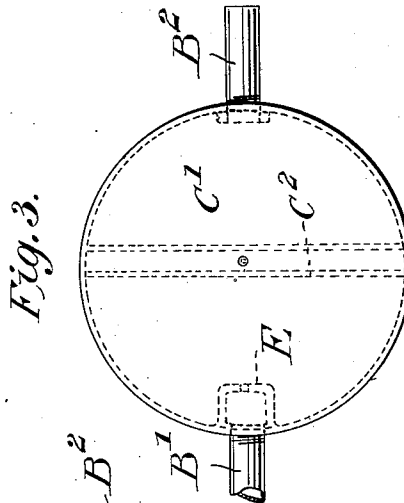


Fig. 3.

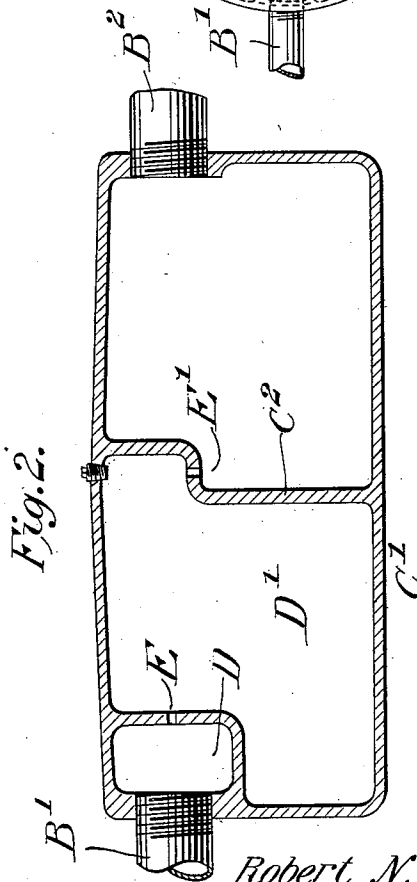


Fig. 2.

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ANTIFLUCTUATING DEVICE FOR GAS SERVICE-PIPES.

SPECIFICATION forming part of Letters Patent No. 699,281, dated May 6, 1902.

Application filed May 3, 1901. Serial No. 58,585. (No model.)

To all whom it may concern:

Be it known that I, ROBERT N. BAYLIS, a citizen of the United States, residing at Englewood, New Jersey, have invented certain new and useful Improvements in Antifluctuating Devices for Gas Service-Pipes, of which the following is a full, clear, and exact description.

My invention relates to gas-controlling devices, and particularly to a device designed to prevent the transmission back to the main of pressure fluctuations caused by gas engines, pumps, and the like drawing their supply of gas from such mains. For this reason the device will be termed an "antifluctuator."

The main object of my invention is as indicated above; and this object I attain by the use of a simple, durable, and effective device such as hereinafter described, and shown in the accompanying drawings, in which—

Figure 1 is a side elevation of a portion of a gas-main and service-pipe leading therefrom, showing in section my improved antifluctuating device. Fig. 2 is a relatively enlarged sectional elevation showing a modified construction. Fig. 3 is a plan view, on a reduced scale, of the antifluctuating device shown in Fig. 2.

Referring to Fig. 1, which is illustrative merely of a preferred form, A is a gas-main. B B' B² are sections of a service-pipe leading therefrom and, for example, to a gas-engine. (Not shown.) The antifluctuating device comprises a reservoir presented by the casing C, into one end of which the service-pipe B' is fitted and from another portion of which the section B² of the service-pipe continues. D D' are compartments. The compartment D is in direct communication with the incoming section B' of the service-pipe. The other compartment D' is in direct communication with the outgoing section B² of the service-pipe. The partition dividing the compartment D from the compartment D' is provided with a restricted passage E, the cross-sectional area of which is much smaller than the normal cross-sectional area of the passage through the service-pipe.

As is well known, the construction and operation of the gas-engine is such that the charges of gas by the explosion of which the engine is propelled are sucked violently from

the gas-supply pipe at certain strokes of the engine. This intermittent sucking action unless neutralized produces serious fluctuation in the gas-main or the service-pipe, so serious at times that lights which may be located in the vicinity of the engine are frequently extinguished without being turned off. This objectionable and dangerous condition is avoided by the use of my antifluctuator.

Assume the gas-engine is attached to the section B² of the service-pipe and assume that the gas is flowing from the main A to the gas-engine through the sections BB', the antifluctuator C, and the section B² of the service-pipe. The gas flows readily up to the restriction E or its equivalent, which allows it to flow into the chamber D', but not without some resistance. From the large chamber D' the gas may flow readily through the service-pipe B² to the engine. Any sudden suction of gas through the section B² of the service-pipe reduces the pressure in the compartment D'; but there is such a volume of gas stored in said compartment—say an equivalent for a plurality of supply charges for the engine—that owing to the elasticity of the gas or its capacity to expand the desired charge may be drawn therefrom without substantially accelerating the flow of gas from the main through the supply-section of the service-pipe, and consequently not substantially varying the normal pressure conditions in front of the antifluctuator. The cross-sectional area of the passage through the pipe B² is so much greater than the cross-sectional area of the passage E that, while the gas may be drawn readily from the compartment D' and in a large quantity, it cannot be drawn as readily or as quickly from the space in front of the restriction E as to cause serious fluctuation in the supply-pipe or main.

While it is preferred to provide the compartment D within the casing C, the restricted passage E may instead thereof be placed in the supply-section of the service-pipe leading to the antifluctuator or in the device itself immediately at the inlet.

In practice I have found that when this apparatus is employed gas for lighting purposes may be taken from the service-pipe before it reaches the antifluctuator, as indicated in

Fig. 1, in which G is a branch for lighting purposes, the flame on which will show no substantial fluctuation even though an engine beyond the antifluctuating device is being driven by successive charges of gas drawn from the source of supply through the compartment D'. In the preferred form the casing C is non-collapsible, so that reduction of gas-pressure within the same will create a partial vacuum, which accelerates slightly, but without perceptible fluctuation, the flow of the gas into the reservoir-compartment D' to replenish the same.

In Fig. 2 I have shown a modification in which C' is the casing. C² is a partition dividing into two sections what in Fig. 1 is the main compartment. The compartment D and the passage E in this figure correspond to the compartment D and the passage E of Fig. 1. In the partition C², I provide a restricted passage E'. The function of the passages E E' is the same, one supplementing the other. The function of the compartments on each side of the partition C² is to provide a series of storage-compartments from which intermittent drafts of gas may be sucked by the engine to be replaced from the gas-main. A greater or less number of such compartments with their restricted openings may be used, according to requirements.

In Fig. 3 I have shown a plan view of the modification shown in Fig. 2. In this figure the outline of the antifluctuator is shown to be round. It should be understood that the shape and proportions of the antifluctuating device, its compartments, partitions, and resistance-passages may be varied at will so long as it is not so varied as to prevent its performing its intended function.

What I claim is—

1. An antifluctuator for use in connection with gas engines, pumps, and the like, comprising a reservoir provided with a gas-supply and having a chamber for containing a plurality of supply charges, a gas-discharge leading from said chamber, said gas-supply having a restricted opening for the passage of gas to resist the flow thereof into said chamber.

2. An antifluctuator for use in connection with gas engines, pumps, and the like, comprising a non-collapsible reservoir provided with a gas-supply and having a chamber for containing a plurality of supply charges, a gas-discharge leading from said chamber, said gas-supply having a restricted opening for the passage of gas to resist the flow thereof into said chamber.

3. An antifluctuator for use in connection

with gas engines, pumps, and the like, comprising a reservoir provided with a gas-supply and having a chamber for containing a plurality of supply charges, a gas-discharge leading from said chamber, said gas-supply having a restricted opening located adjacent the mouth for the passage of gas to resist the flow thereof into said chamber.

4. An antifluctuator for use in connection with gas engines, pumps, and the like, comprising a reservoir provided with a gas-supply and having a chamber for containing a plurality of supply charges, a gas-discharge leading from said chamber, said gas-supply having a restricted opening for the passage of gas to resist the flow thereof into said chamber, and a partition in said reservoir having a restricted opening therein for the passage of gas from one side thereof to the other side.

5. An antifluctuator for use in connection with gas engines, pumps, and the like, comprising a reservoir having a chamber for containing a plurality of supply charges, and a smaller compartment having a restricted opening for the passage of gas to the chamber, and a gas admission and exit, respectively, for the compartment and chamber.

6. An antifluctuator for use in connection with gas engines, pumps, and the like, comprising a reservoir having a chamber for containing a plurality of supply charges and a smaller compartment with a restricted opening for the passage of gas to the chamber, a gas-supply communicating with said compartment, and an unrestricted gas-discharge leading from the chamber.

7. An antifluctuator for use in connection with gas engines, pumps, and the like, comprising a reservoir having a chamber for containing a plurality of supply charges and a smaller compartment with a restricted opening for the passage of gas to the chamber, and a gas admission and discharge, respectively, for the compartment and chamber, the several openings of the apparatus in immediate relation thereto being valveless.

8. An antifluctuator for use in connection with gas engines, pumps, and the like, comprising a reservoir provided with a gas-supply having a capacity for more than a single supply charge, a discharge leading from said chamber, a supply leading thereto, and a restricted opening for the passage of gas to resist the flow thereof into said chamber.

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Witnesses:

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