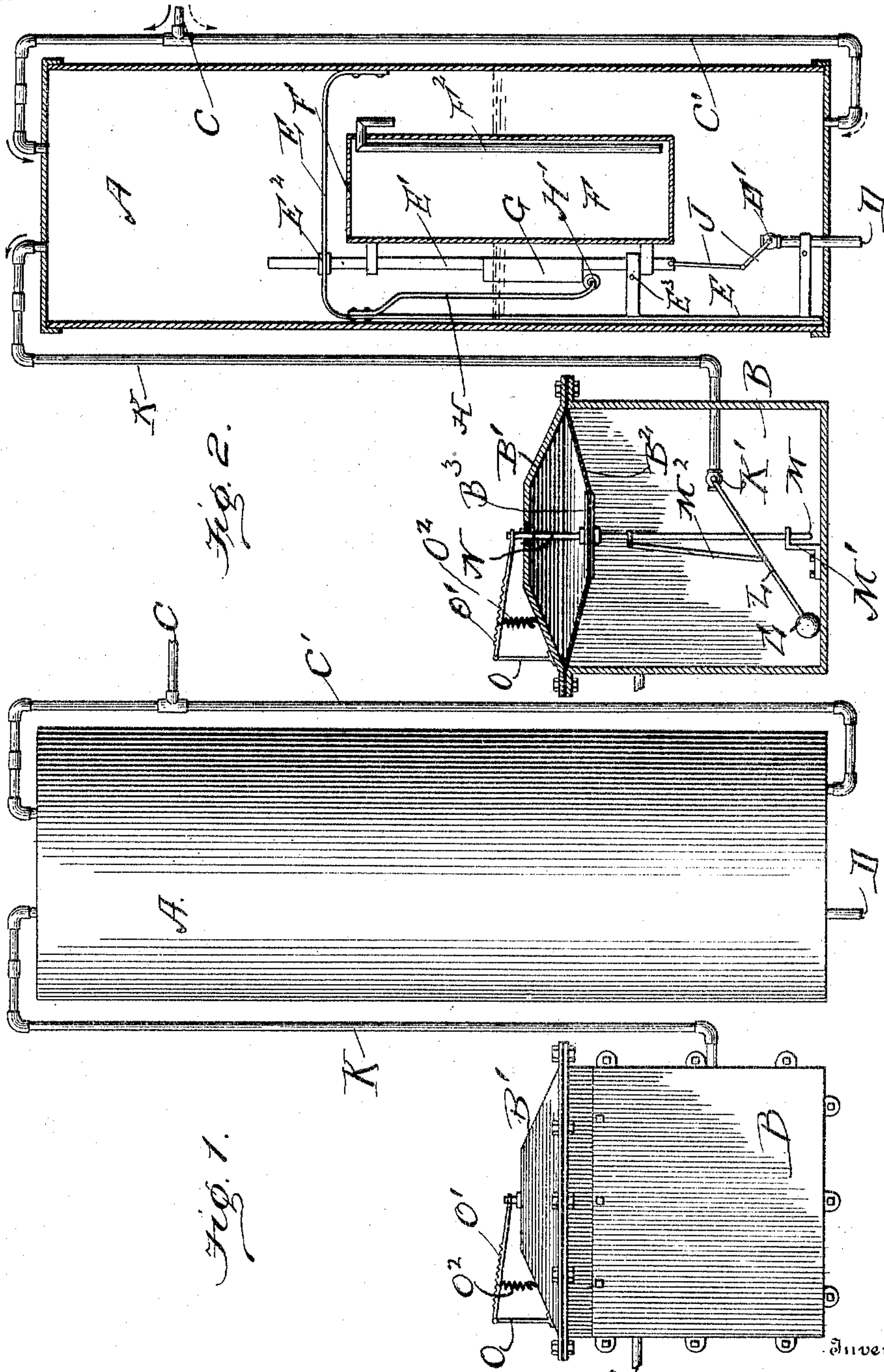


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WATER AND GAS SEPARATOR.  
APPLICATION FILED JULY 11, 1904.

NO MODEL.



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## WATER AND GAS SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 776,753, dated December 6, 1904.

Application filed July 11, 1904. Serial No. 216,066. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT T. NEWMAN, a citizen of the United States, residing at Greeley, in the county of Anderson and State of Kansas, have invented a new and useful Improvement in Water and Gas Separators, of which the following is a specification.

This invention relates to a device for separating the water from gas fed from a retort and also for regulating the flow of gas to the mains.

The invention consists of a tank having a gas-pipe leading into the upper portion of same and a water-supply pipe entering the lower portion of the tank, both pipes being branches of a common pipe leading from the source of gas-supply, of a float arranged in the said tank and adapted by its movements to regulate the flow of water therefrom, and of a second tank adapted to receive gas from the first tank and containing means for regulating the amount of gas admitted from the first to the said second tank.

The invention also consists in the novel features of construction and arrangement of parts hereinafter described, particularly pointed out in the claims, and shown in the accompanying drawings, in which—

Figure 1 is a view of the device in elevation. Fig. 2 is a vertical section through the tanks and float.

In the drawings, A represents the separating-tank, and B the receiving-tank. The mingled gas and water is fed through a pipe C, connected by a T-coupling to a pipe C', the pipe C' discharging at its upper end into the top portion of the tank A and at its lower end into the bottom portion of the tank A. A water-discharge pipe D leads from the lower portion of the tank A, and a suitable valve D' of any desired type is arranged at the upper end of the pipe D, the pipe projecting into the tank A. In the tank A is arranged a suitable bracket E, and a bar E' is carried by the bracket and is adapted to slide vertically in guides E<sup>2</sup> and E<sup>3</sup>. A hollow float F is carried by the bar E', and the bar also carries on the side opposite the float a check-block G. A

spring-arm H is carried by the bracket E, and the free end of the arm carries a roller H', normally in the path of the check-block. The float F has a small perforation F' in the top, and a siphon F<sup>2</sup> is arranged in the float, the short leg of the siphon projecting without the float adjacent its upper end. The lower end of the movable bar E' is connected by pivoted links J to the stem of the valve D', which is preferably a butterfly-valve.

A pipe K leads from the top of the tank A into one side of the tank B, and at its lower end, within the tank B, the pipe K is provided with a valve K', to the stem of which is secured a rod L, carrying at its free end a weight L'. The top B' of the tank B is preferably semiconical, and adjacent the said top is arranged a flexible diaphragm B<sup>2</sup>, rigid plates B<sup>3</sup> being secured to the central portion of the diaphragm on both its upper and lower faces. To the under plate B<sup>3</sup> is attached a rod M, the lower end of which is adapted to slide in a bracket M'. A link M<sup>2</sup> pivotally connects the rods L and M. A rod N is secured to the upper plate B<sup>3</sup> and passes loosely through the central portion of the top B' of the tank B.

A standard O is arranged on the top of the tank B, and to the top of the standard is pivoted a lever O', having its upper edge notched or serrated, and its free end is secured to the upper end of the rod N. A spring O<sup>2</sup> is connected at its lower end to the top B', and its upper end is formed into a hook adapted to engage the notches in the lever O'.

The operation of the device is as follows: The water in the pipe C will pass downward in the pipe C' from its point of juncture with the pipe C and enter the tank A at the bottom, carrying the float F upwardly as the height of the water in tank A rises. The gas will pass upwardly in the pipe C' and enter the tank A at the top, where it will be under pressure of the rising column of water in the said tank. As the float F rises the valve D' is gradually opened, and a portion of the water in tank A is thus discharged through the pipe D, thus relieving the pressure on the gas, and as the float falls the valve at D' will be



gradually closed. To prevent the high pressure in the tank crushing the float F, it is perforated at F', and the pipe F<sup>2</sup> is also arranged therein, so that should water get into the float  
 5 it will be forced out through the pipe F<sup>2</sup> by pressure of the gas in the float. To prevent a too rapid fall of the float, the check-block is employed, the block engaging the roller H' and arresting descent of the float until a suffi-  
 10 cient amount of water has drained off, thus relieving the float of its buoyancy and permitting its weight to force the spring-arm H and roller H' out of the path of the block, and the roller still pressing against the side of the  
 15 block will act as a brake.

A feeder-pipe P leads from the tank B, and should the supply of gas therein become excessive the diaphragm B<sup>2</sup> will be raised, drawing up the rods L and M and closing the  
 20 valve at K', thus shutting off further admission of gas until the pressure has fallen. As the pressure falls the spring O<sup>2</sup>, acting on the lever O' and through the medium of that lever and the rod N, returns the diaphragm  
 25 to its normal position, which return is also aided by the weight L', and the valve at K' is gradually opened.

By means of this apparatus the gas is separated from the water and held under the de-  
 30 sired pressure, the supply delivered to the

feeder-pipe P being automatically regulated and the pressure in the mains kept uniform.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A device of the kind described comprising a separating-tank, means for admitting gas into the upper portion of the tank and water into the lower portion, a hollow float in the tank, said float being perforated in its  
 40 upper portion, a siphon having its long leg depending in the float, and the short leg without the float, a discharge-pipe, a valve therein, and means connecting the float with said valve.

2. A device of the kind described comprising a tank, means for admitting water and gas to the said tank, a valve-controlled discharge-pipe, a bracket therein, a bar slidably carried by the bracket, a float connected to the bar,  
 50 a check-block carried by the bar, a spring-arm carried by the bracket, a roller carried by the arm and adapted to engage the check-block, and links pivotally connecting the bar and valve, as and for the purpose set forth.

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Witnesses:

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