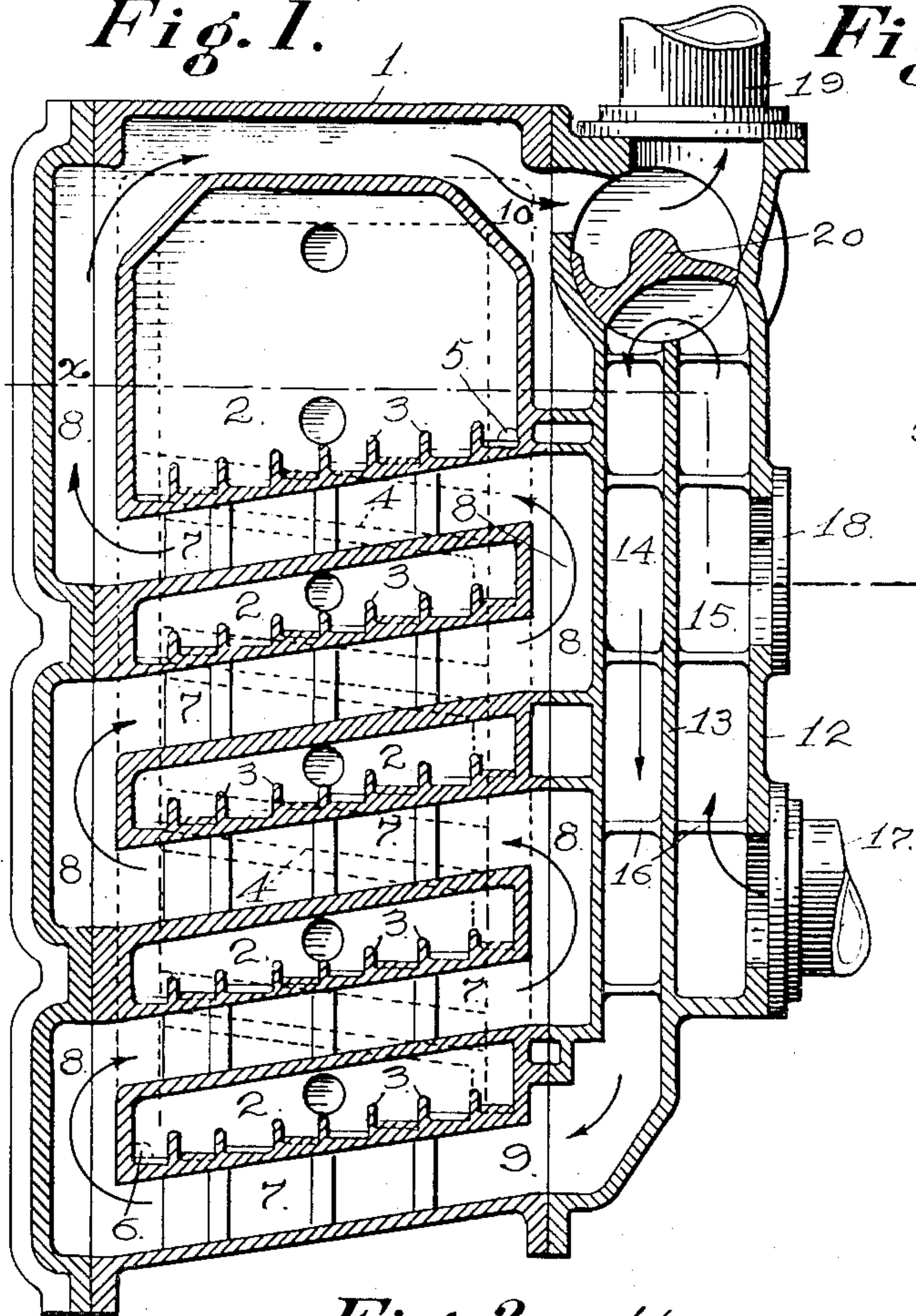


G. W. PRICE.  
GAS GENERATOR FOR EXPLOSIVE ENGINES.  
APPLICATION FILED JULY 27, 1908.

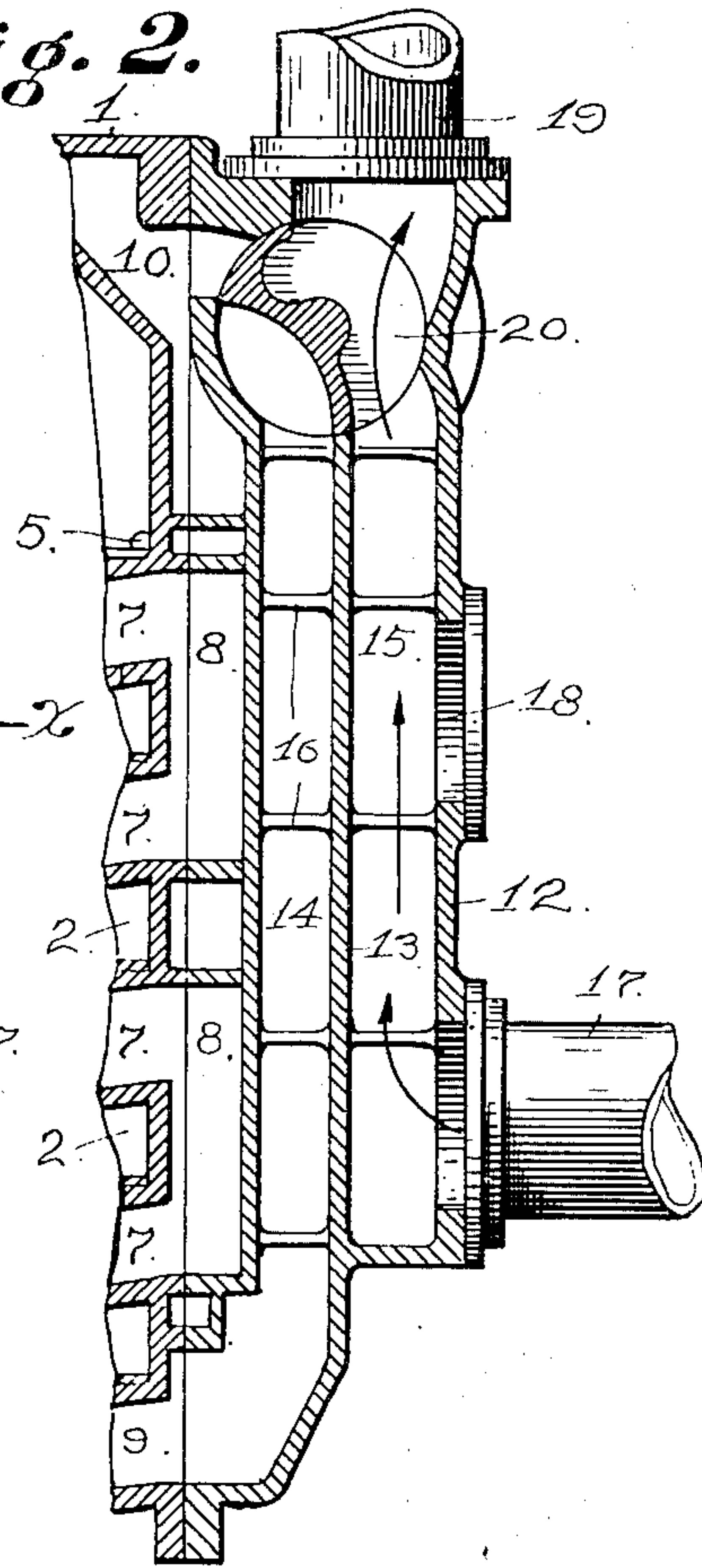
918,197.

Patented Apr. 13, 1909.

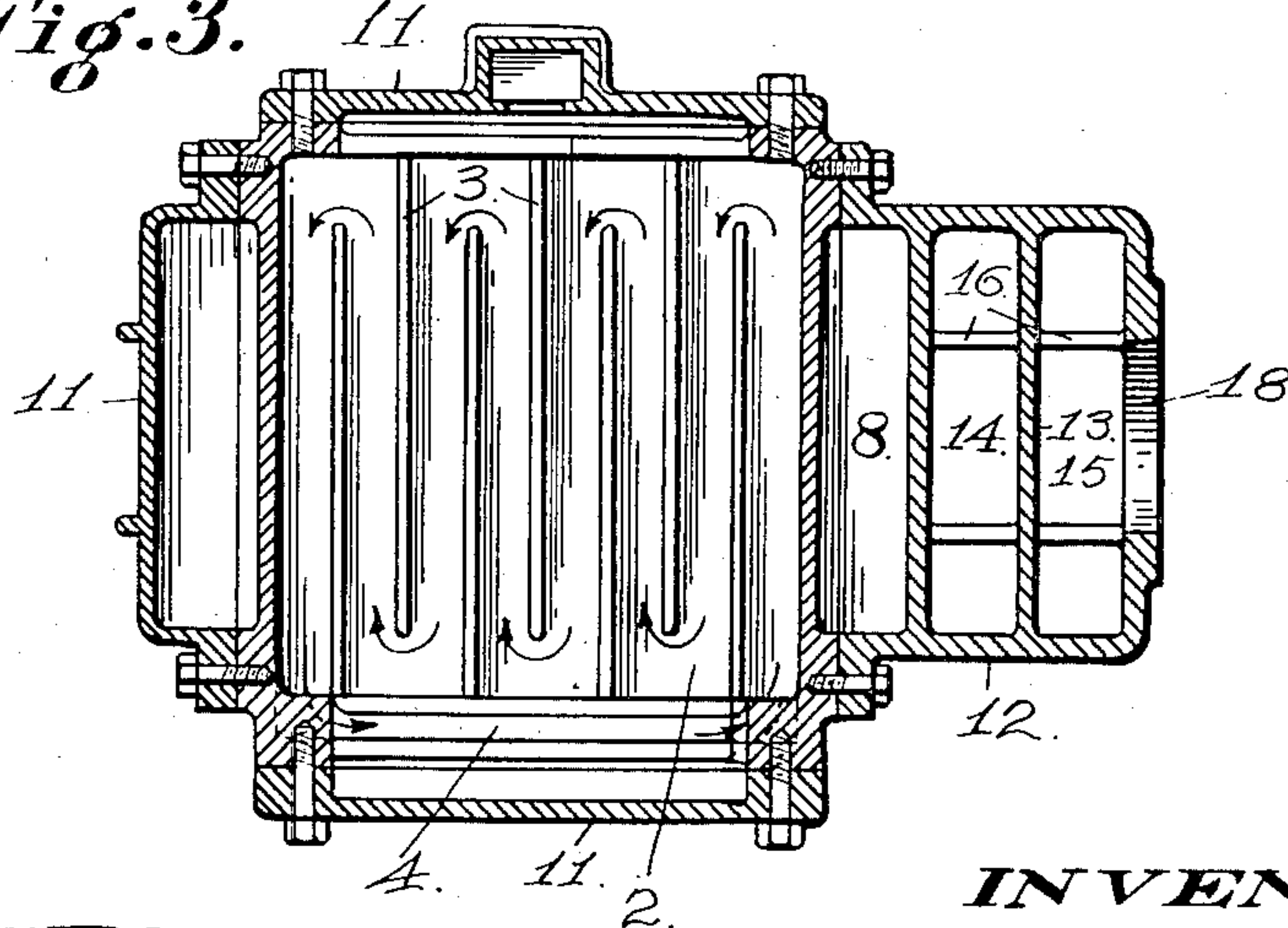
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



**WITNESSES.**

Arthur L. Lee  
*Arthur L. Lee*

**INVENTOR.**

Gomer W. Price  
by *Wm. F. Booth*  
his Attorney



# UNITED STATES PATENT OFFICE.

GOMER W. PRICE, OF OAKLAND, CALIFORNIA.

## GAS-GENERATOR FOR EXPLOSIVE-ENGINES.

No. 918,197.

Specification of Letters Patent.

Patented April 13, 1909.

Application filed July 27, 1908. Serial No. 445,596.

*To all whom it may concern:*

Be it known that I, GOMER W. PRICE, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Gas-Generators for Explosive-Engines, of which the following is a specification.

My invention relates to that class of gas-generators or carbureters for explosive engines, in which a heavy hydrocarbon, generally crude oil, is subjected, in its course through the generator, to a heating medium, usually the exhaust gases from the engine to which it supplies the explosive mixture.

The object of my invention is to control the flow of heating medium in such manner that it may readily, and by simple means, be deflected in whole or in part, as may be required, from its course through the generator; and to this end my invention consists in the novel construction and arrangement of a controlling valve, in connection with the inlet and exit of the channel by which the heating medium is conducted through the generator; as I shall now fully describe, by reference to the accompanying drawings in which:—

Figure 1 is a vertical section of my improved generator, the controlling valve being in position to allow the heating medium to pass in full volume into and through the generator. Fig. 2 is a vertical section of part of the generator showing the controlling valve turned to divert all the heating medium from the generator and not let it enter therein. Fig. 3 is a horizontal section on line  $x-x$  of Fig. 1.

The body of the generator here shown, is of a well known type, and I use it for the purpose of illustrating any generator in which the oil flows from above downwardly through a tortuous channel to a residue outlet; and in its course is subjected to the heat of the exhaust-gases which are admitted below and thence flow upwardly through a channel contiguous to the oil channel, and are discharged above, after an interchange of heat. In this generator the shell 1 is formed internally with a vertical series of oil chambers 2, the floor of each of which is provided with flanges 3, which extend alternately from opposite sides, as seen in Fig. 3, said flanges

forming an extensive and tortuous channel through which the oil flows. The end of the floor channel of one chamber communicates with the beginning of the floor channel of the next, by means of passages 4. At the beginning of the first floor channel is the oil inlet 5, and at the end of the last floor passage is the residue outlet 6. Thus the oil enters at 5, flows through the channels between the flanges 3 and from one chamber to the next, until the residue is drawn off at 6. Between each oil chamber is formed the sections 7 of the channel for the heating medium, said sections communicating at their ends by means of sections 8, so that one continuous heating channel is formed, having an inlet below at 9 and an outlet above at 10.

This is a sufficient description to illustrate a type of generator to which my improvement is applicable. The shell 1 has as part of its structure removable outer walls, three of which are designated by 11, as shown clearly in Fig. 3. The fourth marked 12 embodies my improvement. It is hollow and is formed with a partition 13, extending from below, and terminating short of its top. This partition divides the cavity of the wall into an inner passage 14, and an outer passage 15, which communicate over the top of the partition. 16 are ribs in these passages. The lower end of the inner passage 14, communicates with the inlet 9 of the heating channel of the generator. With the outer passage 15, at any point in its length, the inlet pipe 17 for the exhaust gases communicates. This inlet pipe is here shown as connected with the bottom of the passage, but it may be connected higher up as indicated at 18. With the top of the hollow wall 12, the exhaust gas outlet pipe 19 is connected. In said wall is seated the valve 20, which is adapted to be operated in suitable manner, as, for example, by hand, from the exterior. This valve is so formed that when turned to the position shown in Fig. 1, the exhaust gases will pass it from the outer passage 15, and flow down the inner passage 14, and enter the generator at 9. Thence they flow through the generator and out at 10, and thence past the upper part of the valve 20 to the outlet pipe 19.

When the valve is turned to the position shown in Fig. 2, the exhaust gases will pass



directly up through the outer passage 15 to the outlet pipe 19, and will not enter the generator at all, as both its inlet 9 and outlet 10, are closed to them by the valve. In an intermediate position of the valve 20, a portion of the exhaust gases will pass through the generator and the remainder will pass directly out from the passage 15, through the outlet pipe 19. Thus a single valve such as 20, so constructed and disposed, is capable of controlling the flow of the heating medium for all conditions, and materially simplifies this type of generator. A further advantage to be noted lies in the hollow wall 12, with its double passage; its outer passage 15 through which the gases may be directly diverted, being far enough removed from the generator proper, to materially reduce its heat when for any purpose it has to be worked with.

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

1. In a gas-generator for explosive engines, a shell formed with suitable interior channels for the oil and for the heating medium; an entrance connection for the heating medium communicating with the inlet to the heating medium channel in the shell; an outlet connection communicating with the exit from said heating medium channel, and also communicating with the entrance connection; and a valve seated in the communications of the outlet connection constructed and arranged with relation to said connections whereby the valve is adapted to close or open one while opening or closing the other or to partially open both.

2. In a gas-generator for explosive engines, a shell formed with suitable interior channels for the oil and for the heating medium, the channel for the heating medium having an inlet below, and an exit above; a wall on one side of said shell, formed interiorly with an outer and an inner passage communicating above, the lower end of the inner passage communicating with the inlet of the channel in the shell for the heating medium; an inlet pipe for said heating medium communicating with the outer wall-passage; an outlet pipe for the heating medium communicating with said outer wall-passage and also communicating with the exit of the channel in the shell for the heating medium; and a valve seated in said wall, disposed and fashioned to open or close the communication between the outer and inner passages and the communication between the exit of the heating medium channel in the shell and the outlet pipe, while closing or opening the communication between the outer wall-passage and the outlet pipe, or to partially open or close all of said communication.

3. In a gas-generator for explosive engines, a shell formed with suitable interior chan-

nels for the oil and for the heating medium, the channel for the heating medium having an inlet below and an exit above; a hollow wall forming one side of the shell, said wall having within it a vertical partition dividing it into an outer and an inner passage which communicate over the top of the partition, the lower end of the inner passage communicating with the inlet of the channel in the shell for the heating medium; an inlet pipe for said heating medium communicating with the outer wall-passage; an outlet pipe for the heating medium communicating with the upper end of said outer wall-passage, and also communicating with the exit of the channel in the shell for the heating medium; and a valve seated in said wall disposed and fashioned to open or close the communication between the outer and inner passages and the communication between the exit of the heating medium channel in the shell and the outlet pipe, while closing or opening the communication between the outer wall-passage and the outlet pipe, or to partially open or close all of said communication.

4. In a gas-generator for explosive engines, a shell formed with suitable interior channels for the oil and for the heating medium, the channel for the heating medium having an inlet below and an exit above; an outer and an inner passage extending vertically along one side of the shell and communicating above, the lower end of the inner passage communicating with the inlet of the channel in the shell for the heating medium, an inlet pipe for said heating medium communicating with the outer passage, an outlet pipe for the heating medium communicating with said outer passage and also communicating with the exit of the channel in the shell for the heating medium and a valve to open or close the communication between the outer and inner passages and the communication between the exit of the heating medium channel in the shell and the outlet pipe, while closing or opening the communication between the outer passage and the outlet pipe, or to partially open or close all of said communication, said inner passage being directly interposed between the shell and the outer passage to entirely space the same and serving to protect the shell from the heat of the products when passing directly through the outer passage.

5. In a gas-generator for explosive engines, a shell formed with suitable interior channels for the oil and for the heating medium; an entrance connection for the heating medium communicating with the inlet to the heating medium channel in the shell, an outlet connection communicating with the exit from said heating medium channel and also communicating with the entrance connection and a valve arranged in the outlet con-



nection directly adjacent the exit from the  
heating medium channel and constructed  
and arranged with relation to said connec-  
tions whereby the valve is adapted to close  
5 or open one while opening or closing the  
other or to partially open both.

In testimony whereof I have signed my

name to this specification in the presence of  
two subscribing witnesses.

GOMER W. PRICE.

Witnesses:

WM. F. BOOTH,  
S. CONSTINE.