

T. WRIGHT.
 PRESSURE GENERATOR.
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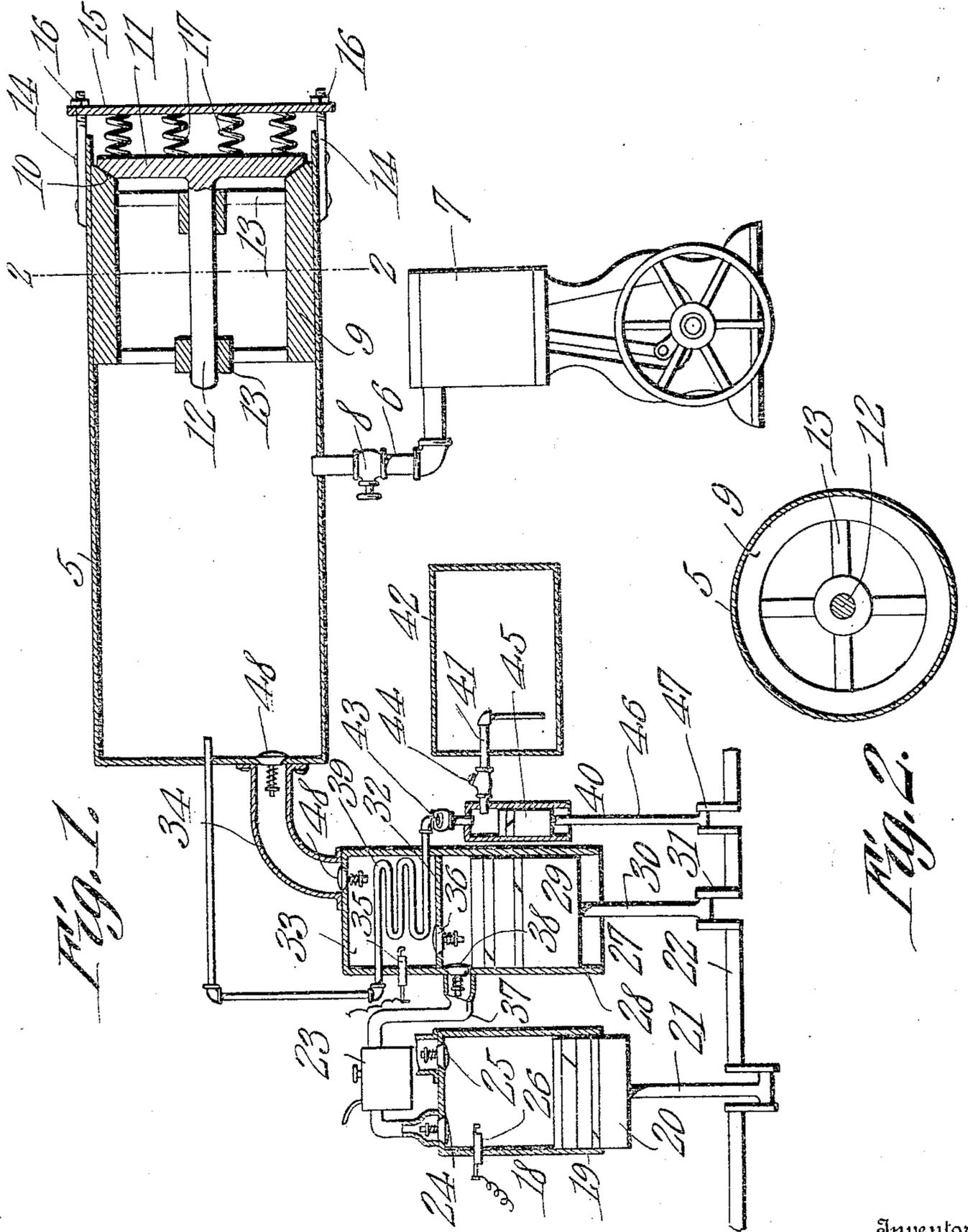


Fig. 1.

Fig. 2.

Witnesses

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THOMAS WRIGHT, OF JERSEY CITY, NEW JERSEY.

PRESSURE-GENERATOR.

956,465.

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To all whom it may concern:

Be it known that I, THOMAS WRIGHT, a citizen of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented a new and useful Pressure-Generator, of which the following is a specification.

This invention relates to improvements in apparatus for producing motive fluid for actuating prime movers, but more particularly one in which a mixture of air and a combustible vapor or gas is exploded, and passed into a storage tank or reservoir, to which the prime mover is connected, together with a steam generator which is also connected to the storage tank, the heat produced by the explosion being utilized to generate steam.

It is the object of the present invention to provide an apparatus of the kind stated, which is simple in structure, and reliable and economical in operation, and to this end it consists in a novel construction and arrangement of parts to be hereinafter described and claimed, reference being had to the drawings hereto annexed in which—

Figure 1 is an elevation of the apparatus partly in section. Fig. 2 is a transverse section on the line 2—2 of Fig. 1.

Referring to the drawings, 5 denotes a tank or reservoir in which the motive fluid is stored, said tank being connected by a pipe 6 to the prime mover 7, which may be similar in structure to an ordinary reciprocating steam engine. In the pipe 6 is a valve 8 for controlling the flow of motive fluid to the engine. One end of the tank is open, and in this end is mounted a cage 9 having at its outer end a seat 10 for a safety valve 11, said valve having a guide stem 12. Across the interior of the cage extend cross bars 13 having guide openings in which the stem 12 works. To the open end of the tank are secured screw-threaded stems 14 which carry a plate 15 held on the stems by nuts 16 screwed on the latter. The plate is spaced from the valve 11, and between the valve and the plate are interposed coiled springs 17 which serve to hold the valve normally seated. The tension of the springs is adjustable by the nuts 16. If the pressure in the tank rises to a point sufficient to overcome the tension of the springs, the valve opens, and relieves the excess pressure, after which the valve is again seated by the springs.

At 18 is indicated an internal-combustion engine the cylinder of which is denoted by the reference numeral 19. The piston 20 of this engine is connected by a rod 21 to a crank shaft 22. The explosive mixture is supplied to the engine from a carbureter 23. The inlet valve 24 and the exhaust valve 25 of the engine may be operated in the usual, or in any preferred manner, and the charge is exploded by an igniter 26. The structure of the engine is immaterial to the invention, and for this reason a more detailed description thereof is thought unnecessary.

Located adjacent to the cylinder 19, on one side thereof, and extending parallel thereto, is a pump 27 the cylinder of which is indicated at 28. The pump piston 29 is connected by a rod 30 to a crank 31 on the shaft 22, said crank being set 180 degrees from the crank to which the rod 21 is connected. The cylinder 28 has a partition 32 whereby it is divided into two chambers, in one of which the piston 29 works. The other chamber, which has been designated by the reference numeral 33, is an explosion chamber, this chamber being connected by a pipe 34 with the tank, and said chamber being also provided with an igniting device 35. In the partition 32 is a valve 36 which opens into the chamber 33.

The chamber in which the pump piston 29 works is connected by a pipe 37 to the carbureter 23, and at the inlet end of the pipe into the chamber, is a check valve 38 which opens into said chamber.

The explosion chamber 33 contains a coiled pipe 39 which passes through the wall thereof, and leads at one end to the tank, and at the other end to a pump 40 the cylinder of which is entered by the aforesaid pipe and also by a pipe 41 leading to a tank or other source of water supply 42. Between the coil and the pump is a check valve 43 and between the pump and the tank is a check valve 44. In the cylinder of the pump 40 works a piston 45 which is connected by a rod 46 to a crank 47 on the shaft 22.

The operation of the apparatus is as follows: The engine 18 when running, operates the pumps 27 and 40. At the suction stroke of the piston 29, the mixture of air and combustible vapor or gas from the carbureter enters the pump chamber, and at the compression stroke of said piston, this mixture is forced into the explosion chamber 33 where it is ignited by the device 35. The

exploded charge passes into the tank 5 by the way of the pipe 34, the inlet and outlet ends of said pipe being provided with check valves 48 to prevent return of the charge 5 into the explosion chamber. By the intense heat produced by the explosion in the chamber 33, steam is generated in the coil 39, and it passes into the tank 5. The pump 40 keeps the coil 39 supplied with water from 10 the tank or other source 42. The tank 5 is thus charged with a motive fluid under high pressure, which is employed to run the engine 7 upon opening the valve 8.

What is claimed is:—

15 1. The combination of a reservoir, a cylinder containing a partition dividing the interior thereof into a pump and an explosion chamber, the pump chamber being connected to a source of explosive mixture, and the ex- 20 plosion chamber being in communication with the reservoir, a valve in the partition opening into the explosion chamber, a steam generating coil located in the explosion chamber, and communicating with the res- 25 ervoir, a piston working in the pump cham-

ber for supplying the explosion chamber with successive charges of an explosive mixture, means for operating the piston, and means for igniting the charges.

2. The combination of a reservoir, a cylinder containing a partition dividing the in- 30 terior thereof into a pump and a combustion chamber, the pump chamber being connected to a fuel source, and the combustion chamber being in communication with the reser- 35 voir, a valve in the partition opening into the combustion chamber, a steam generating coil located in the combustion chamber, and communicating with the reservoir, a piston working in the pump chamber for supplying 40 fuel to the combustion chamber, means for operating the piston, and means for igniting the fuel.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature 45 in the presence of two witnesses.

THOMAS WRIGHT.

Witnesses:

J. A. JOHNSON,
CHAS. HILLIARD.