May 21, 1929. M. R. MOON 1,713,709

COMPRESSED FLUID GENERATOR

Filed Dec. 23, 1925 2 Sheets-Sheet 1

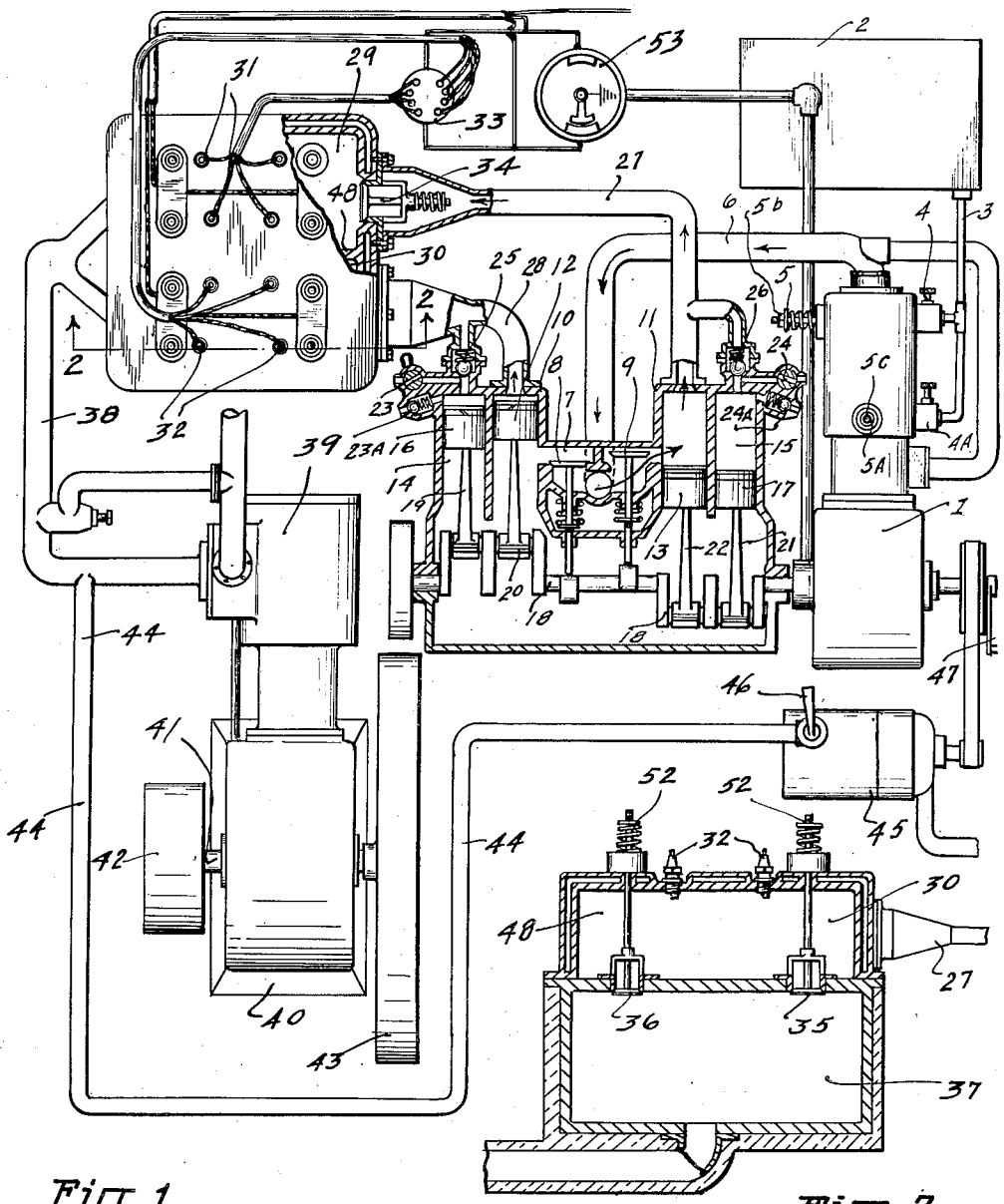


Fig. 1

Fig. 2

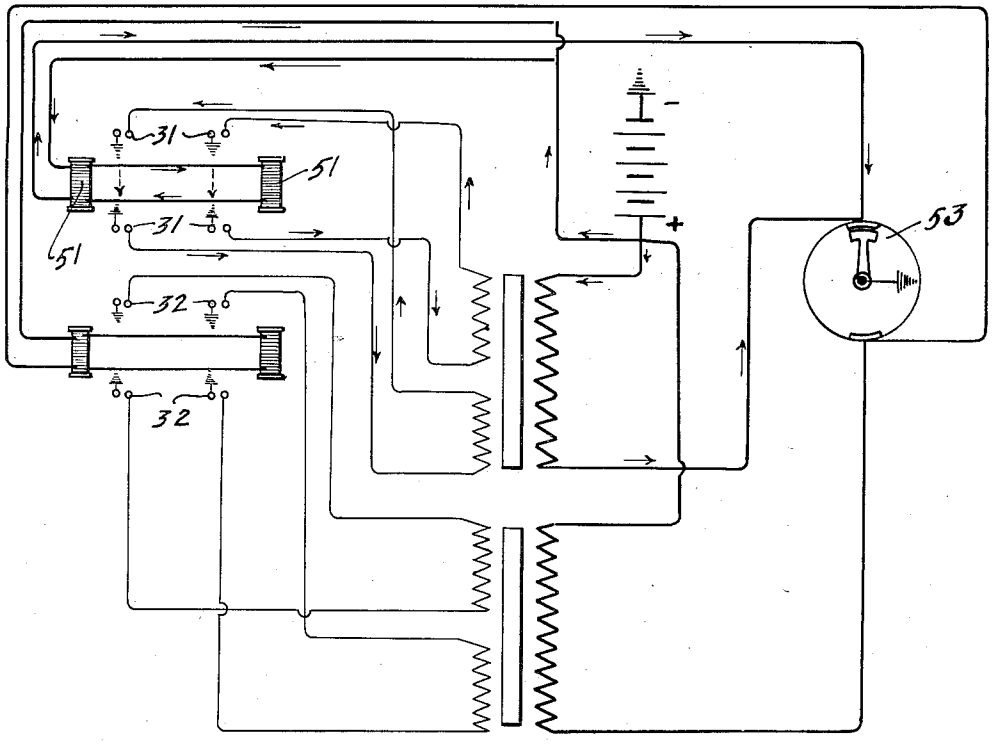
Inventor
MORRIS R. MOON
Attorney
Thomas Bilyeu

May 21, 1929. M. R. MOON 1,713,709

COMPRESSED FLUID GENERATOR

Filed Dec. 23, 1925 2 Sheets-Sheet 2

Fig. 5



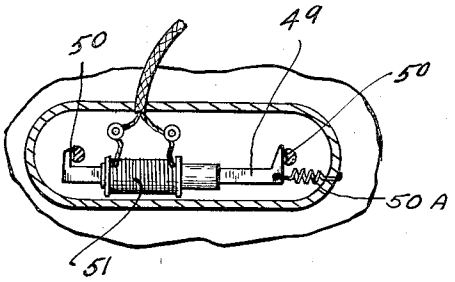


Fig. 3

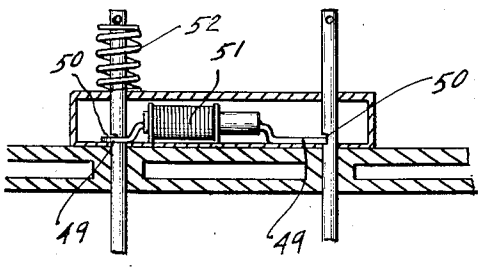


Fig. 4

Inventor
Morris R. Moon

Attorney
Thomas Bilyeu

Patented May 21, 1929. 1,713,709

UNITED STATES PATENT OFFICE.

MORRIS R. MOON, OF PORTLAND, OREGON.

COMPRESSED-FLUID GENERATOR.

Application filed December 23, 1925. Serial No. 77,254.

My invention has for its object, the generation of power from the use of hydrocarbon material by the compressing of the same in a primary compressor of the double acting type, the passing of the same from the primary compressor to a secondary compressor where the same is further compressed and mixed with other material, as air. From the secondary compressor, the material is then delivered to an explosion chamber, where the same is ignited, exploded, and delivered into a storage chamber from where the same is drawn for use in the operating of a prime mover for the generation of power.

A further object of my invention, consists in the arrangement of the parts to utilize a minimum of space and to construct the same of the fewest number of parts and in the arrangement of the units composing the same in the most simple and efficient manner.

A further object of my invention, consists in the disposition of spark plugs in the explosion chamber in such a manner as to give a uniform explosion within the same, which not only intensifies the explosion, but at the same time explodes all of the material therein, in the most efficient manner.

A further object of my invention, consists in providing an explosion chamber constructed in such a manner that there are no reciprocating parts, as pistons, disposed within the chamber and therefore tends to eliminate the incident leakage that occurs, wherein the explosion takes place within a cylinder having piston and piston rings reciprocating therein.

With these and incidental objects in view, the invention consists in certain novel features of construction and combination of parts, the essential elements of which are set forth in the appended claim, and a preferred form of embodiment of which is hereinafter shown with reference to the drawings which accompany and form a part of this specification.

In the drawings:—

Fig. 1 is a diagrammatical lay-out, partially in plan, and partially in section of the assembled device.

Fig. 2 is a cross section view, taken on line 2—2 of Fig. 1, looking in the direction indicated.

Fig. 3 is a plan view, partially in section of the outlet valves from the explosion chamber.

Fig. 4 is a side elevation, partially in section of the mechanism shown in Fig. 3.

Fig. 5 is a diagrammatical lay-out of the electric system for my mechanism.

Like reference characters refer to like parts throughout the several views.

1 is the primary compressor of the double acting type, and 2 is the storage tank for the hydrocarbon material for furnishing power and which is to be compressed and exploded within the explosion chamber. A suitable piping connection 3, conducts the hydrocarbon material from the tank 2, to the compression chamber of the primary compressor. Valves 4 and 4^A disposed at either end of the cylinder permit of the admission of the material into the cylinder. Valves 4 and 4^A, permit of the closing of the supply of hydrocarbon material to the interior of the cylinder. Air inlet valves 5 and 5^a, permit of an admixture of air into the cylinders in quantities that may be regulated by the attendant, through the adjustment of nuts 5^b and 5^c. The compressed material in its initial stages passes through the outlet pipe 6, into the inlet chamber 7, from which chamber, valves 8 and 9 admit the compressed material into the cylinders 10 and 11. Pistons 12 and 13 operating within these cylinders are adapted to further compress the material to be admitted therein from the primary compressor. Disposed adjacent the cylinders 10 and 11, are auxiliary cylinders 14 and 15, and pistons 16 and 17, disposed therein and adapted to being actuated by a crank. The object of these cylinders is to compress air for admission into the compressed hydrocarbon gas in quantity as desired for the most efficient operation. A main crank shaft 18, mounted within suitable bearings, disposed below and adjacent the cylinders 10, 11, 14 and 15, and the pistons therein are operated by the piston rods 19, 20, 21 and 22. The piston within the primary compressor is also operated from this same crank shaft, through suitable bearings and piston rod connections. Mixing valves 23 and 24, are disposed adjacent the cylinders 14 and 15, the same being adapted to admit air into the cylinders and to regulate the amount of the same; this may be accomplished by manual manipulation and when the valve is once set the same will be adapted to deliver a like amount of air into the compressed material until the valves are changed by the attendant.

If it is found desirable to operate the mechanism upon an unadulterated mixture or to operate the pistons within the cylinders 14 and 15 at low or negative pressures the valves 23 and 24 may be opened and the check valves 23^a and 24^a will cease to function, whereas if the valves 23 and 24 are closed, a full charge of air will be admitted through the check valves 23^a and 24^a. Valved outlets 25 and 26, are disposed in the compression end of the cylinders 14 and 15, the purpose of which is to permit of the forcing of air into the inlets leading to the combustion chamber and to regulate the amount of air being admitted therein. Inlet conduit pipes 27 and 28, admit and conduct the mixed compressed combustible material from the secondary compressors into the explosion chambers 29 and 30. A series of spark plugs are disposed over within the compression chamber and are disposed over the representative area of the chamber, in order that an intensified and efficient explosion may be created within the explosion chamber. A distributer head 33, admits of the timing of the explosion within the series of spark plugs 31 and 32, for regulating the timed explosion within the chamber 30. The exploded material from within the explosion chamber is then passed into the receiving tank 37, through outlet valves 35 and 36; the compressed material is then conducted through piping 38, and admitted into the cylinder of the prime mover 39; which in this instance is the ordinary type of reciprocating engine. The engine 39 is provided with a suitable base 40, a crank shaft 41, a pulley 42, and a fly wheel 43. This compressed material from the storage chamber 37, is passed through suitable piping connectionss 44, to a turbine 45, which furnishes the operating power for driving the primary and secondary compressors. A valve 46, disposed within the pipe line 44, for the throttling of the motor 45, or for shutting off the operating fluid entirely, for admittance into the same. A crank 47, disposed upon the main crank shaft is provided for imparting the initial movement by manual or other manipulation, for the starting of the necessary cycle of operation in the initial stages thereof.

To maintain the compressed material within the explosion chamber and to prevent the return of the exploded material from re-entering the explosion chamber from the reservoir, I have provided a new and novel means for accomplishing the result which I will now describe. The explosion chambers are divided apart through the medium of the partition wall 48, disposed between the two explosion chambers. Within each of the explosion chambers are outlet valves. The explosion of the charge opens the outlet valves and the exploded gases pass from the explosion chamber into the receiving chamber. The valves normally are closed by the springs 52, and to prevent the valves from opening when the highly compressed fuel is fed to the chambers 29 and 30, each of the stems of the valves 35 and 36 is provided with a notch 50, in which the ends of the bar or stop 49 are urged by the spring 50^A. Each stop 49 is carried by the core of a solenoid 51. When an electric circuit is passed through the solenoids, the core and the stop are moved in a direction contrary to the urge of the spring 50^A. It will be seen by the wiring diagram, Fig. 5, that when the ignition circuit to the spark plugs is closed, the circuits to the solenoids are closed at the same time, so that when the fuel in the chambers 29 and 30 is fired, the stops are withdrawn from the notches 50, permitting the valves 35 and 36 to open and thereby allowing the fired fuel charge to pass to the storage or receiving tanks 37. After the fuel has passed to the chambers 37 the valves are closed by the springs 52 and the ends of the stops 49 are again urged into the notches 50. The circuit breaker 53, makes and breaks the circuit in each revolution of the same and is so timed that the opening and closing of the circuit for exploding of the charge and the releasing of the stop permitting the closing of the exhaust gases from the explosion chamber are properly synchronized, to accomplish this result.

While the form of mechanism herein shown and described is admirably adapted to fulfill the objects primarily stated, it is to be understod that it is not intended to confine the invention to the one form of embodiment herein shown and described, as it is susceptible of embodiment in various forms, all coming within the scope of the claim which follows.

What I claim is:

A compressed fluid generator, the combination with fuel compressing means, of an explosion chamber receiving the compressed fuel, an ignition circuit including spark plugs for igniting the compressed fuel within said explosion chamber, a storage chamber, passageways affording communication between the explosion chamber and the storage chamber, valves for closing said passageway which are opened by the force of an explosion of compressed fuel within the explosion chamber, a spring normally closing each valve, a stop engaging each valve and locking it in closed position, and electrically operated means for disengaging said stops from said valves when the electric circuit to the aforesaid spark plugs is closed.

MORRIS R. MOON.