W. E. LINCOLN.

POWER GENERATOR.

APPLICATION FILED MAY 10, 1918.

1,288,940. Patented Dec. 24, 1918.

Fig. 1.

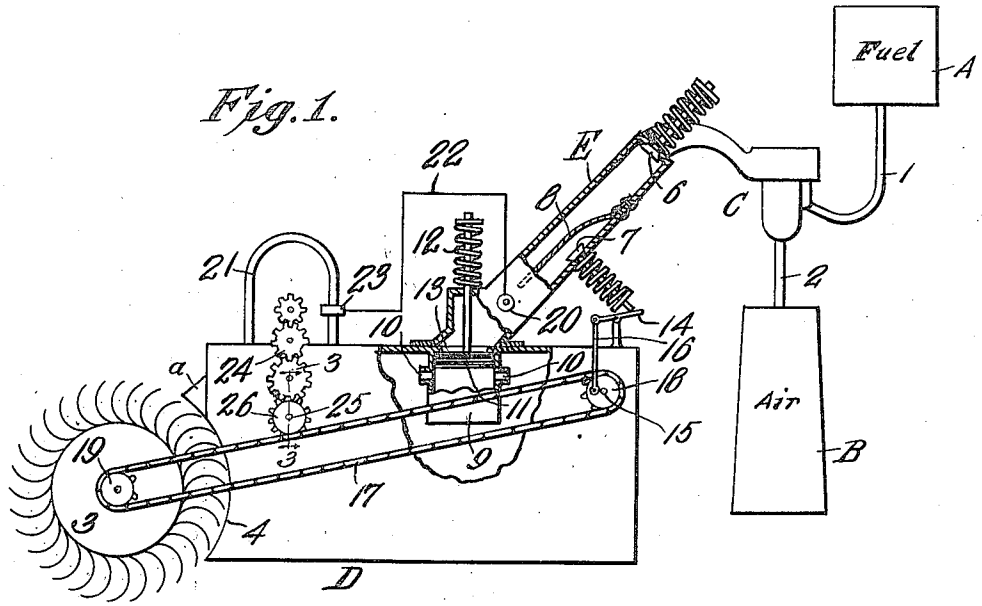


Fig. 2.

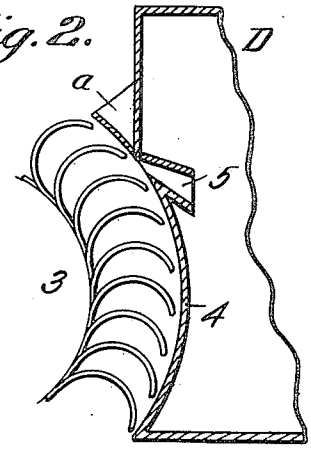
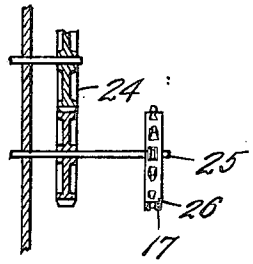


Fig. 3.



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WALTER E. LINCOLN, OF BELVIDERE, ILLINOIS.

POWER-GENERATOR.

1,288,940. Specification of Letters Patent. Patented Dec. 24, 1918.

Application filed May 10, 1918. Serial No. 233,776.

To all whom it may concern:

Be it known that I, WALTER E. LINCOLN, a citizen of the United States, residing at Belvidere, in the county of Boone and State of Illinois, have invented certain new and useful Improvements in Power-Generators, of which the following is a specification.

The primary object of this invention is to devise simple means for generating fluid pressure to be subsequently expanded for driving a mechanism whereby power is developed to be used for operating machinery or any other manner required in the industrial arts.

The main feature of the invention resides in a tank for receiving successive charges of fluid pressure which are generated by explosions of a gaseous mixture, the pressure thus generated being utilized for operating a turbine or other type of power wheel from which motion may be taken for operating any part to be driven.

A further purpose of the invention is the provision of a mechanism which combines in a unitary structure devices for developing and utilizing power, and means for supplying a gaseous mixture and exploding the same whereby the expanding gases are utilized as motive power for operating the part to be positively driven.

The drawing illustrates a preferred embodiment of the invention, however, it is to be understood that in adapting the same to meet different conditions, various changes in the form, proportion, and minor details of construction may be resorted to without departing from the nature of the invention as claimed hereinafter.

In the drawings:—

Figure 1 is a diagrammatic view of power generating means embodying the invention, portions being broken away to show more clearly the relation of the working parts,

Fig. 2 is a detail view of a portion of the turbine or motor wheel and a portion of the tank containing the motive medium,

Fig. 3 is a sectional detail of the driving mechanism on the line 3—3 of Fig. 1 showing the parts on a larger scale.

Corresponding and like parts are referred to in the following description and indicated in the several views of the drawing by like reference characters.

In the drawings the letter A designates a tank for containing a hydrocarbon or liquid fuel of any nature. The reference letter B indicates a tank for containing air under pressure, said tank being kept charged in any manner. The letter C represents a carbureter and is connected with the fuel tank A by means of a pipe 1 and with the air tank B by means of a pipe 2. These parts may have any relative arrangement found most convenient in the construction and installation of the mechanism.

A tank D of any construction and design is provided with a chamber E, which is connected thereto in any convenient way. A turbine wheel 3 is located at one end of the tank and is adapted to be mounted in any manner. A portion of the tank D is depressed as indicated at 4 so as to conform to the circumference of the turbine or power wheel 3. The depressed portion 4 of the tank D has an outlet 5 through which the fluid pressure escapes in a jet so as to impact against the buckets or blades of the turbine and impart a rotary movement thereto. The outlet 5 may be of any form but it is to be understood that the same must be so disposed as to deliver the jet in a manner to cause rotation of the turbine or power wheel 3.

As indicated most clearly in Fig. 1 the chamber E is disposed exterior to the tank D and relatively at an acute angle thereto. The chamber E is provided with a valve 6 by means of which the gaseous mixture is admitted thereto. The inlet valve 6 is located at the outer end of the chamber E. A valve 7 is disposed in a side of the chamber E and preferably in the lower wall thereof. The valve 7 constitutes a relief so as to provide for admission of a charge of explosive mixture into the chamber E. A shield or baffle 8 extends over the valve 7 and is disposed in a manner to cause the incoming gaseous mixture to pass to the lower end of the chamber without escaping through the opening controlled by the relief valve 7. The baffle or shield 8 is connected at its upper end to the lower

wall of the chamber E at a point distant from the valve 7 and its lower end terminates a short distance from the lower end of the said chamber.

A cylinder 9 is located within the tank D and is connected at its upper end to the top of the tank and is opened at its lower end. Outlets 10 are formed in the sides of the cylinder 9 a short distance from the upper end thereof. A piston 11 operates in the cylinder 9 and normally occupies a position at the upper end thereof. The piston 11 is held in normal position by means of an expansible helical spring 12 mounted on the projecting end of the stem of the piston. The cylinder 9 is in communication with the lower end of the chamber E. A portion of the top of the tank D overhangs the upper end of the cylinder 9 and constitutes a stop 13 which limits the upward movement of the piston. Under normal conditions the piston 11 occupies a position above the outlets 10 hence said piston separates the chamber E from the interior of the tank D.

The relief valve 7 is adapted to be positively operated, and for this purpose a rocker arm 14 is provided, and is adapted to be operated from a shaft 15 by means of a link 16. A sprocket chain 17 connects a sprocket wheel 18 secured on the shaft 15 with a sprocket wheel 19 secured on the shaft of the turbine or power wheel 3. In this manner movement is transmitted from the turbine to the shaft 15.

The gaseous mixture is exploded by means of a spark plug 20 which is included in an electric ignition system the latter including a magneto 21 of any type or make. A lead wire 22 connects the timer 23 of the magneto with the spark plug 20. A train of gearing 24 is adapted to transmit power to the magneto for driving the same. This train of gearing includes a shaft 25 to which is secured a sprocket wheel 26 the latter being disposed so as to be engaged by the upper run of the sprocket chain 17.

The parts being disposed substantially as indicated in Fig. 1 and as set forth herein the operation may be briefly stated as follows:—

The liquid fuel such as gasolene is stored in the tank A and air under pressure is contained in the tank B. Upon opening the valve 7 the air pressure from the tank B will pass into the chamber E through the carbureter C, and as the air passes through the carbureter it will take up a portion of the fuel in the manner well understood so that a gaseous mixture will pass into the chamber E through the opening controlled by the valve 6. The parts are so timed that when the chamber E receives a proper charge of the gaseous mixture the relief valve 7 closes and at this instant the circuit is closed thereby producing a spark which explodes the gaseous mixture in the chamber E and the resultant expanding gases force the piston 11 downward in the cylinder 9 past the outlets 10 to permit the gases to pass from the chamber E into the tank D to charge the latter. As soon as the chamber E has been relieved of the expanding gases the valve 7 is again opened thereby permitting the piston 13 to return to normal position and the valve 6 to open mechanically or automatically by the pressure derived from the tank B so that the chamber E received a second charge which is again exploded in the manner stated.

The valve 7 is positively operated whereas the valve 6 is opened by the pressure derived from the tank B and C at such times when the relief valve 7 is open. The valve 7 is actuated periodically and closes the instant the chamber E received a proper charge of gaseous mixture thereby preventing any waste of pressure or fuel. The charge delivered into the tank D by the expanding gases escaping thereinto passes out through the nozzle or outlet 5 in a jet which strikes the buckets or blades of the turbine and imparts a rotary movement thereto.

The foregoing description and the drawings have reference to what may be considered the preferred, or approved, form of my invention. It is to be understood that I may make such changes in construction and arrangement and combination of parts, materials, dimensions, et cetera, as may prove expedient and fall within the scope of the appended claims. An extension *a* confines the gas and prevents waste thereof.

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

1. In means of the character specified, a tank, a cylinder disposed within the tank and having a lateral outlet, a chamber in communication with an end of the cylinder, a piston within the cylinder and normally cutting off communication between the cylinder and tank, means for supplying a gaseous mixture to the chamber and means for igniting the gaseous mixture, the parts being disposed whereby the resultant expanding gases actuate the piston and provide a discharge from the cylinder into the tank.

2. A fluid pressure generator comprising a tank, a cylinder disposed within the tank and having a lateral outlet, a chamber exterior to the tank and in communication at one end with an end of the cylinder, a piston disposed within the cylinder and normally cutting off communication between the cylinder and tank, means for supplying a gaseous mixture to the chamber, and means for igniting the gaseous mixture.

3. Means for generating fluid pressure, a tank, a cylinder within the tank and having a lateral outlet, a chamber in communication with the cylinder, a piston within the cylinder and normally cutting off communication between the chamber and tank, a relief valve in a side of the chamber, a baffle extending over the relief valve, an inlet valve at the end of the chamber remote from the tank, means for supplying a gaseous mixture to the chamber, and means for igniting the gaseous mixture.

In testimony whereof I affix my signature in presence of two witnesses.

WALTER E. LINCOLN.

Witnesses:

HAROLD PRITCHARD,

ERVIN SCHWEBBE.