

Jan. 13, 1925.

1,522,504

C. T. FABIAN

GASOLINE COMBUSTION ENGINE

Filed April 17, 1922

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Fig. 1.

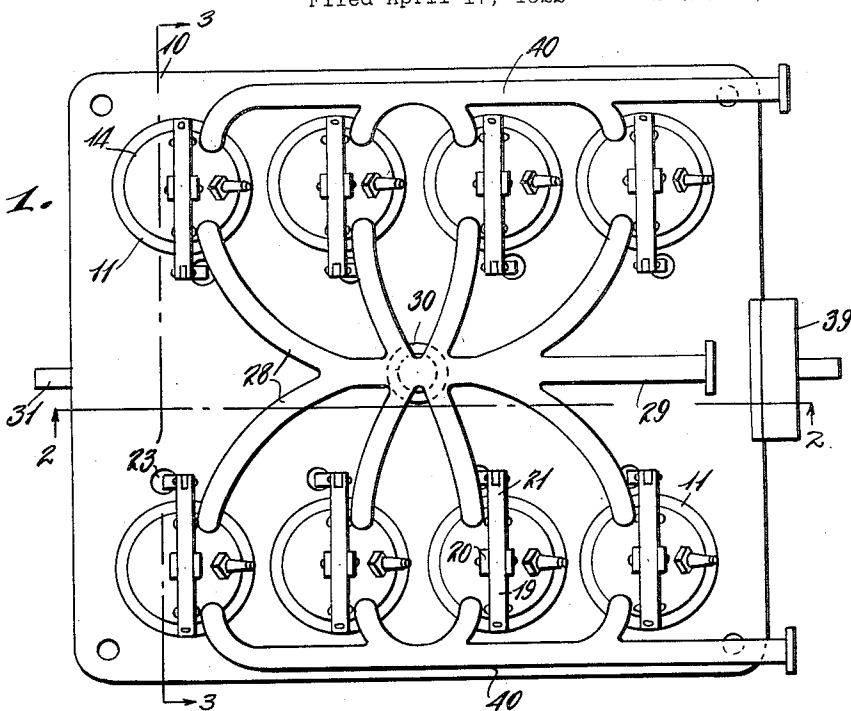
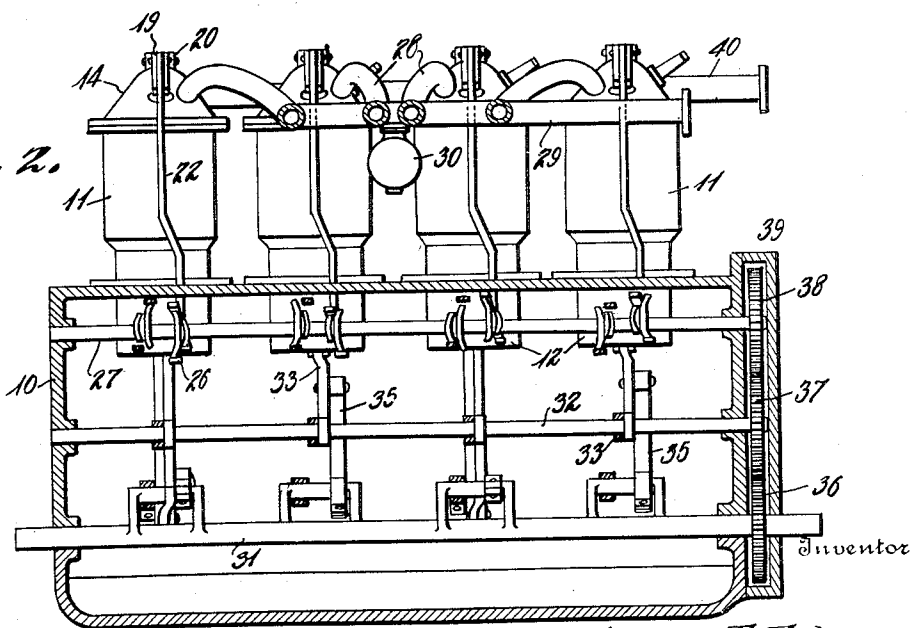


Fig. 2.



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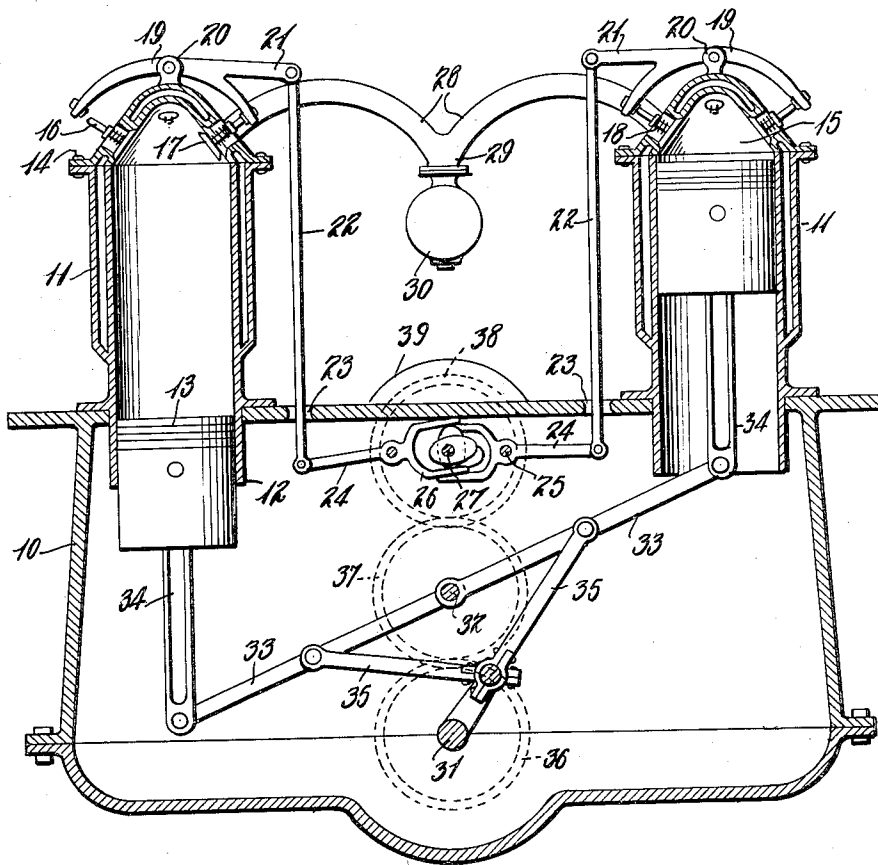
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Fig. 3.



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GASOLINE-COMBUSTION ENGINE.

Application filed April 17, 1922. Serial No. 553,472.

To all whom it may concern:

Be it known that I, CHARLES T. FABIAN, citizen of the United States, residing at Fresno, in the county of Fresno and State of California, have invented certain new and useful Improvements in Gasoline-Combustion Engines, of which the following is a specification.

This invention has reference to an internal combustion engine of the multiple-cylinder type.

An object of the invention is to provide an engine or motor having increased leverage from the crank shaft to the pistons whereby more power is obtained with less fuel consumption.

An additional object is to provide a motor of the character above specified having improved valve means and valve-operating mechanism providing for a quick feed of fuel to the explosion chamber of a cylinder and the prompt exhaust therefrom of the spent gas.

A further and additional object is to provide a motor of multiple-cylinders having the combustion chambers V-shaped to provide for the direct application of the explosive force to the head of the piston.

Various other objects and advantages of the invention will become apparent during the continuance of the following description.

In the drawings:

Figure 1 is a top plan view of the motor.

Figure 2 is a vertical, central, sectional view thereof as taken on 2—2 of Figure 1, and

Figure 3 is a vertical cross section taken on line 3—3 of Figure 1.

The motor is constructed with a crank casing 10 of suitable sections bolted or otherwise fastened together and having mounted on the top thereof eight cylinders 11, arranged four to the block and in vertical position as illustrated. The lower end of each cylinder extends inwardly of the crank case and provides a guide or keeper 12 for the piston 13 when at the end of its downward stroke. The upper end of each cylinder is detachably secured to a head 14 hollowed out on the inside to provide a V-shape combustion chamber 15. Exhaust valve 16 and intake valve 17 are arranged on opposite side of the head and at an angle with combustion chamber as shown in Figure 3. These valves are normally kept closed by a spring 18 but are opened alter-

nately by a rocker 19 which turns in a suitable bearing 20. This rocker has an extension 21 to which is connected one end of a trip rod 22 which extends thru an opening 23 in top of the crank case and connects with one end of cam-trigger 24.

This trigger is suitably fulcrumed at 25 and is provided with a U-shaped cam-track 26. This valve arrangement is common to each cylinder and extending longitudinally of the crank case while midway between the cylinder blocks is a cam-shaft 27 provided at intervals with spaced pairs of double-cams relatively disposed at varying angles and respectively operated within the cam track of triggers 24. As these cams turn with shaft 27 the toe portions bear against the cam tracks and oscillate the trigger whereby the ends of rocker 19 are alternately moved up and down for opening the valve. At the same time the heel portion of the cams provide a support or guide to prevent clatter or lost motion. The units of each double cam device are so arranged that one cam slides over the top of yoke 26 and opens intake valve 17 while the other cam rides on the bottom and opens exhaust valve 16.

Connecting with the intake valve of each cylinder is a fuel supply pipe 28 branching off from a central manifold 29 to which is connected a carburetter 30. This carburetter may be connected up in any suitable manner with a gasoline supply tank and supplies the means whereby carburetted fuel is fed to the explosion chambers of all the cylinders from a single central source. The explosive chamber of each cylinder is, as hereinbefore noted, V-shaped and providing for a direct drive of the pistons from the force of the charge exploded within the chamber, as well as for a quick suction and exhausting of the gas.

The crank shaft 31 extends longitudinally of the crank case and is centered with respect to the opposed cylinders as will be seen in Figure 3. Above the crank shaft and in vertical alignment therewith is another shaft 32 which constitutes the main support or fulcrum for a number of levers 33, some of which extend from the right side and others from the left side of the shaft. Each lever 33 has its outer end connected to the wrist-pin bearing of a piston connecting rod 34. Each lever 33 is, moreover, connected with the crank shaft by a

link 35 which serves to turn the crank shaft when the lever 33 moves downwardly. Each lever 33 has the link 35 connected thereto at a point intermediate the ends 5 of the lever and this arrangement provides for an increased leverage between the crank shaft and the pistons.

This increase of leverage from the crank shaft to the pistons enlarges the power of 10 the motor and enables the driving force of the reciprocated pistons to be readily and efficiently concentrated on the crank shaft. Mounted on the end of the crank shaft, exteriorly of the crank case, is a driving gear 15 36 which drives cam shaft gear 38 thru the medium of intermediate gear 37. Thus, it will be seen that during the rotation of the crank shaft the valve will be automatically opened and closed in proper time by 20 the aforesaid gears in a manner readily understood.

These timing gears are enclosed in a suitable gear case 39. The spent and exhausted gases of each cylinder are discharged thru 25 exhaust manifold 40 which connects with each outlet valve of the cylinder head as shown to advantage in Figure 1.

From the foregoing it is believed that the advantage and novel features of the invention will be readily understood, and that 30 further detailed description is unnecessary.

What is claimed is:

An internal combustion engine including spaced parallel rows of cylinders, reciprocatory pistons in said cylinders, connecting 35 rods depending from the said pistons, a crank shaft centered with respect to the said rows of cylinders, a second shaft above said crank shaft and in vertical alignment therewith, a plurality of levers fulcrumed on 40 the said second shaft, certain of said levers extending from one side of the shaft and connected to the connecting rods of the cylinders of one row and the other levers extending from the opposite side of the second 45 shaft and connected to the connecting rods of the cylinders of the other row, and a separate link connecting each lever with a crank of the said crank shaft, each link being connected to the lever at a point in- 50 termediate the ends of the latter.

In testimony whereof I affix my signature.

CHARLES T. FABIAN.