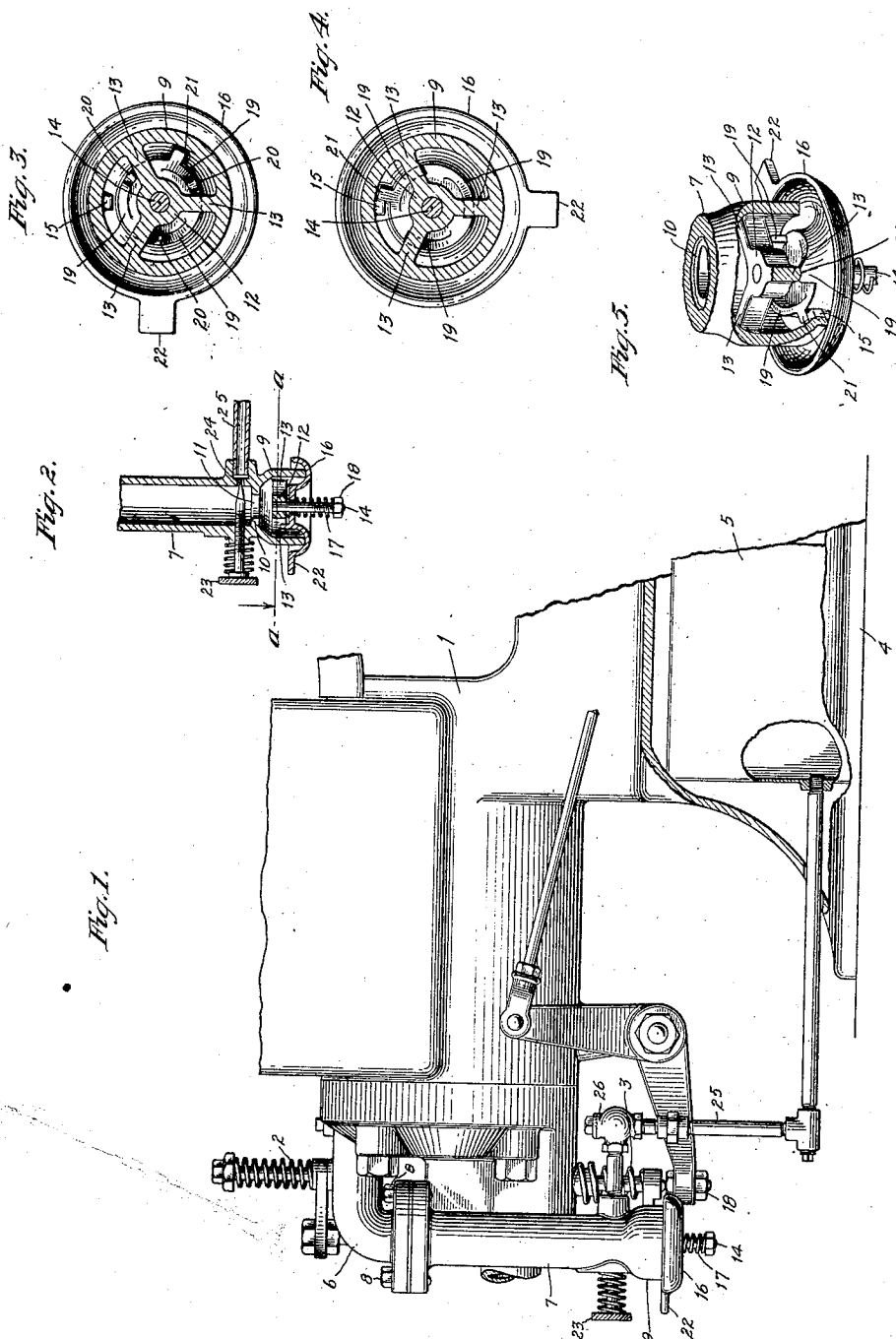


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GASOLENE ENGINE.
APPLICATION FILED JAN. 3, 1911.

1,032,979.

Patented July 16, 1912.



Witnesses:

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UNITED STATES PATENT OFFICE.

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GASOLENE-ENGINE.

1,032,979.

Specification of Letters Patent.

Patented July 16, 1912.

Application filed January 3, 1911. Serial No. 600,585.

To all whom it may concern:

Be it known that I, FREDERICK C. ZUMDAHL, a citizen of the United States, residing at Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Gasolene-Engines, of which the following is a specification.

The object of this invention is to provide means for insuring a charge of gasolene being taken in by the suction of the piston, in starting a gasolene engine.

In the accompanying drawings, Figure 1 is an elevation, partly in section showing my improvements. Fig. 2 is a vertical section through the lower portion of the mixer. Fig. 3 is a section on dotted line *a a* Fig. 2. Fig. 4 is a section on dotted line *a a* Fig. 2 in which the cup is lowered. Fig. 5 is a perspective view, in which parts are broken away of the lower portion of the mixer, and in which the cup is lowered.

The gasolene engine to which I have applied my improvements is of an old construction and in the drawings I have only shown so much thereof as is necessary to show the connection of my improvements thereto. This engine comprises the cylinder 1, intake valve 2, exhaust valve 3, base 4 and gasolene reservoir 5 located in the base of the engine. The intake pipe 6 communicates with the intake valve in the usual manner and further illustration or description are deemed unnecessary.

To the intake pipe 6 is connected a mixing chamber comprising the pipe 7 by the screws 8, and the lower end of this mixing chamber is enlarged as at 9. A partition 10 is located at the junction of the enlarged lower end and the main portion of the mixing chamber and is provided with an opening 11. A support 12 is connected to the walls of the enlarged lower end of the mixing chamber by the arms 13 and to the support 12 is connected a screw-threaded rod 14. From the inner face of the enlarged lower end of the mixing chamber extends a projection 15.

A cup 16 has a center opening which receives the rod 14. This cup is held in connection with the lower end of the mixing chamber by the spring 17 surrounding the rod 14 and a nut 18 holding the spring in place. The upper face of the cup 16 is formed with three cam-shaped projections

19 and each formed with a recess 20 Fig. 5, at its highest point. A projection 21 extends from one of the cam-shaped projections 19. From the outside of the cup 16 extends a handle 22.

A needle valve 23 has a connection with the pipe 7 and enters the seat 24. A pipe 25 has one end connected with the pipe 7 and its other end communicates with the gasolene reservoir 4. A check valve 26 is located in this pipe connection.

In starting the engine, the cup is turned so that the cam-shaped projections are free of the arms 13 which will allow the cup to rest against the lower end of the enlarged portion of the mixing chamber as shown in solid lines Fig. 2. The needle is then opened which will allow gasolene to be drawn from the gasolene reservoir. The engine is then turned over which will draw a charge of gasolene into the cylinder and when ignited, the engine will run. As soon as the engine receives this preliminary charge of gasolene, the cup is turned so that the cam-shaped projections will contact with the arms 13 which will force the cup down and away from the lower end of the enlarged portion of the combustion chamber, until the recesses 20 receive the arms, and the projection 21 contacts with the projection 15. This movement of the cup will compress the spring 17. When the cup is lowered the air to supply the engine will enter the combustion chamber around the lower open end of the enlarged portion 9, and the suction of air through the combustion chamber will draw on the gasolene around the needle valve 23 after which the engine will continue to run. If necessary, gasolene may be poured into the cup and ignited, which will heat the combustion chamber which is often necessary in cold weather. The check valve 26 will hold the level of the gasolene to that point.

I claim as my invention—

1. In a gasolene engine, the combination of an air intake having an opening, a plate adapted to close the opening, a spring holding the plate over the opening, and cam projections for forcing the plate away from the opening against the action of the spring.
2. In a gasolene engine, the combination of an air intake having an opening, a plate adapted to close the opening, a spring holding the plate over the opening, cam projec-

tions for forcing the plate away from the opening against the action of the spring, and a stop for limiting the movement of the plate.

- 5 3. In a gasolene engine, the combination of an air intake having an open lower end, and a plate located below the lower end of the intake and supported on a vertically arranged pivot and provided with a cam
10 face whereby an oscillatory movement will move it toward and from the air intake.

4. In a gasolene engine, the combination of an air intake having an open lower end,

and a cup located below the lower end of the intake and supported on a vertically arranged pivot and provided with a cam face whereby an oscillatory movement will move it toward and from the air intake. 15

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses. 20

FREDERICK C. ZUMDAHL.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."