No. 787,254. PATENTED APR. 11, 1905.

D. B. YOUNG.

ROTARY CARBURETER.

APPLICATION FILED MAY 25, 1904.

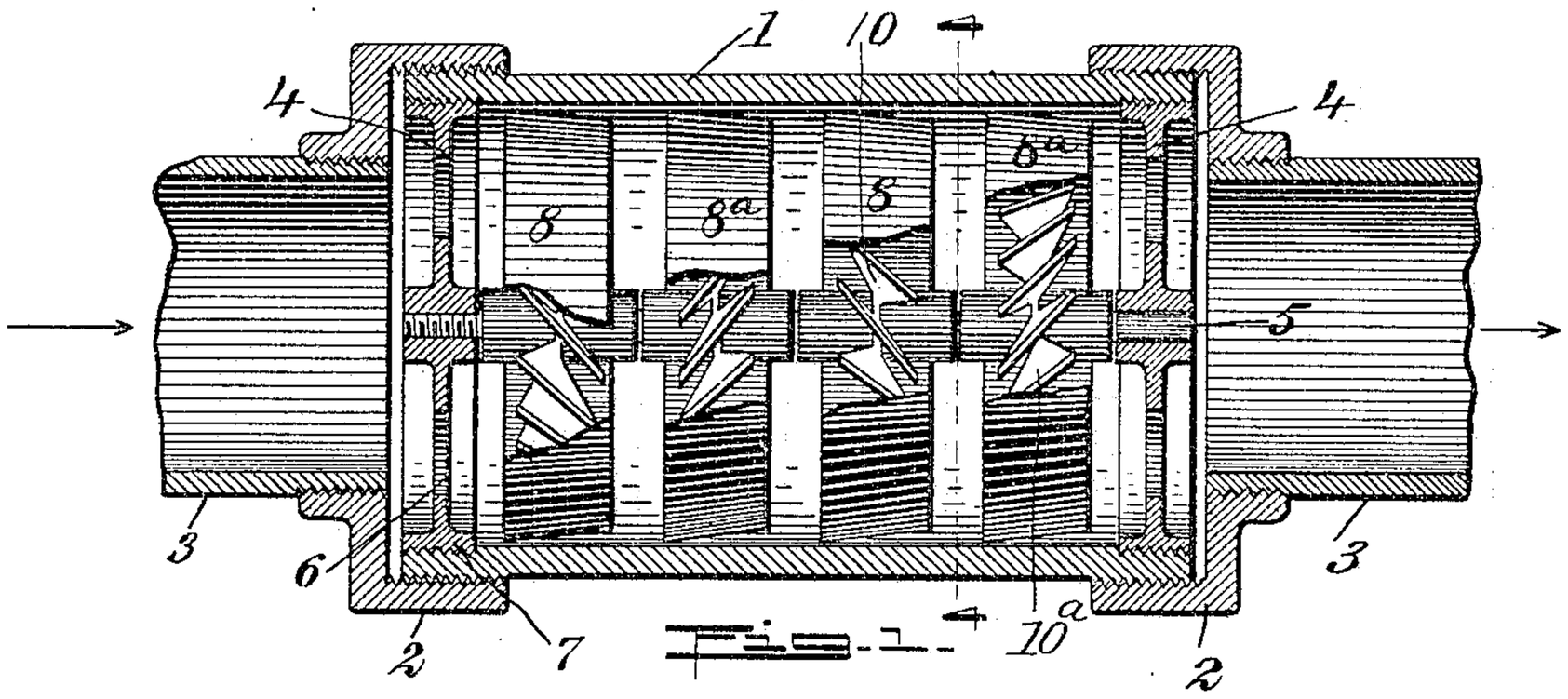


Fig. 1.

Fig. 3.

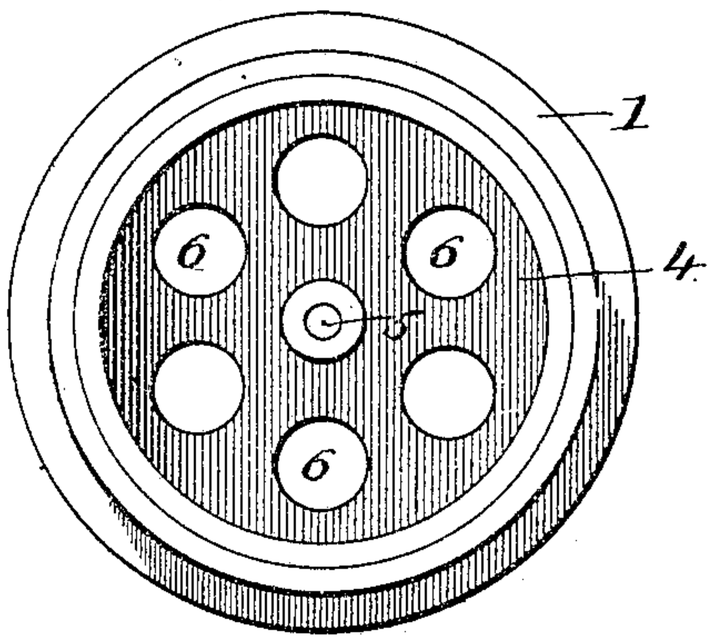


Fig. 2.

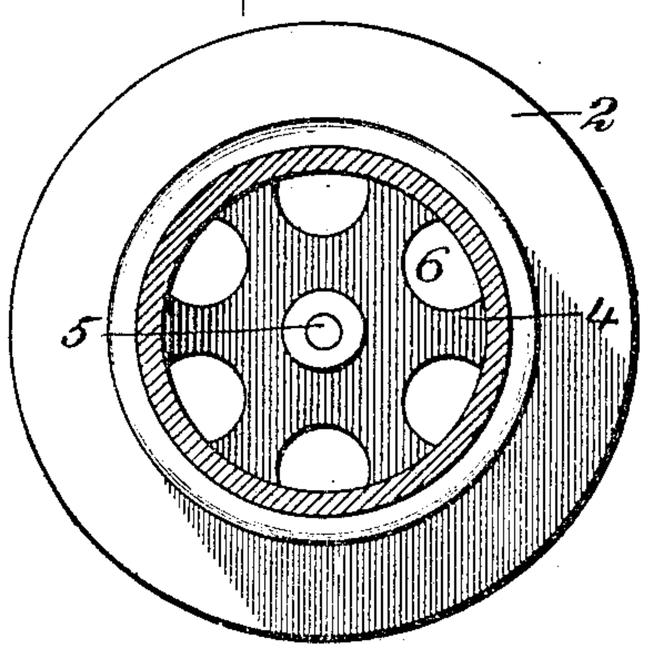


Fig. 4.

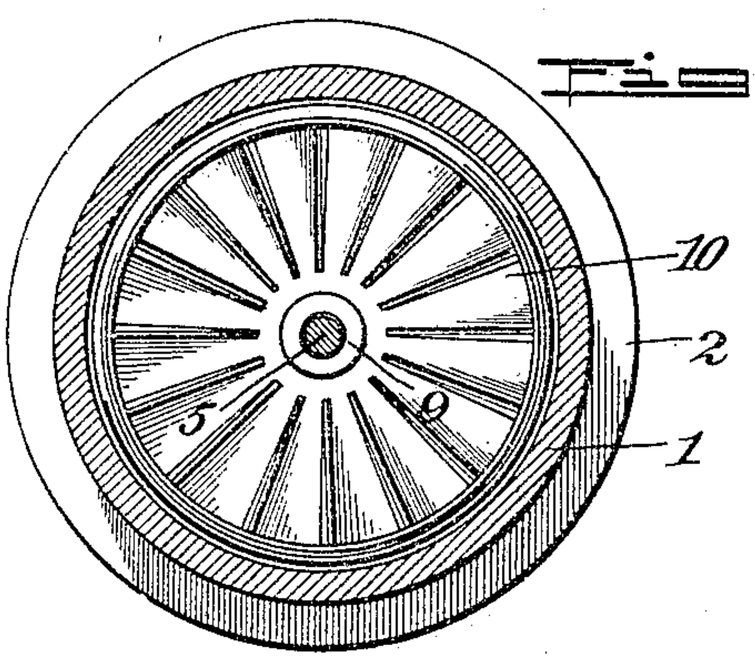
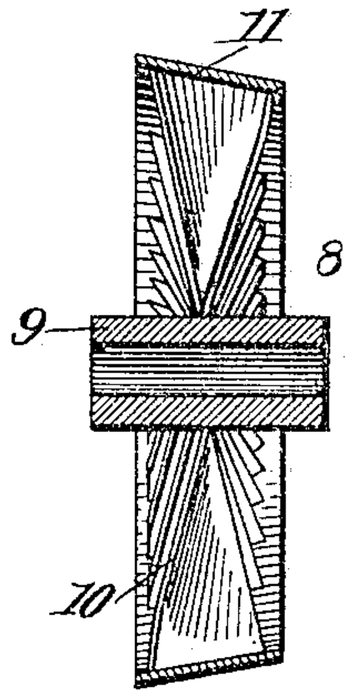


Fig. 5.



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No. 787,254. Patented April 11, 1905.

UNITED STATES PATENT OFFICE.

DAVID B. YOUNG, OF CULVER, INDIANA, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE CULVER NOVELTY COMPANY, OF CULVER, INDIANA.

ROTARY CARBURETER.

SPECIFICATION forming part of Letters Patent No. 787,254, dated April 11, 1905.

Application filed May 25, 1904. Serial No. 209,697.

To all whom it may concern:

Be it known that I, DAVID B. YOUNG, a citizen of the United States, and a resident of Culver, in the county of Marshall and State of Indiana, have invented a new and Improved Rotary Carbureter, of which the following is a full, clear, and exact description.

This invention relates to rotary carbureters, and has special reference to carbureters for use upon the intake-pipes of gasolene or oil engines.

A principal object of the invention is to provide a carbureter of simple and inexpensive construction which may be applied to the intake-pipe of a gasolene-engine and which will be operated by the passage of the mixture of air and gas therethrough to effect perfect and homogeneous mixing of the air and hydrocarbon vapor which form the ingredients of the explosive mixture to be ignited in the cylinder of the engine.

One embodiment of the invention will be hereinafter described in detail, and the scope of the invention will be clearly pointed out in the appended claims. It is, however, to be understood that the structure described is only a typical embodiment of the invention, and changes therein may be made within the scope of the claims without departing from the spirit of the invention or sacrificing the advantages thereof.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a longitudinal sectional view through the carbureter and adjacent sections of the intake-pipe of an engine. Fig. 2 is an end view of the carbureter detached from the intake-pipe. Fig. 3 is an end view of the carbureter with the end cap removed. Fig. 4 is a sectional view upon the line 4 4 of Fig. 1, and Fig. 5 is a sectional view through one of the fan-wheels of the carbureter.

Referring to the drawings by the reference characters marked thereon, 1 designates the outer shell or casing of the carbureter, which consists simply of a section of pipe which is preferably of about one inch greater diameter than the intake-pipe of the engine. The shell or casing 1 of the carbureter is provided at the ends with caps 2 2, preferably threaded on the shell or casing 1 and adapted to receive sections 3 3 of the intake-pipe of the engine. In the ends of the shell or casing 1 suitable supports 4 are provided for a shaft 5, disposed axially within the shell or casing 1 of the carbureter. The supports 4 may be of any suitable structure; but they consist, preferably, of plates of metal provided with a plurality of apertures 6 for the passage of the gas and air and having an externally-threaded flange 7 at the periphery for engagement with threads formed in the interior of the shell or casing 1, as best shown in Fig. 1. One of the plates 4 has a threaded aperture in the center to receive the threaded end of the shaft 5, and the other plate 4 is provided with an unthreaded opening to receive an unthreaded end of the shaft 5.

Upon the shaft 5, between the supporting-plates 4, there are mounted a plurality of fan-wheels 8 and 8^a of special construction. Each of these fan-wheels consists, preferably, of an elongated hub 9, through which the shaft 5 passes, a plurality of inclined blades or vanes 10 or 10^a, and a peripheral rim 11, formed with a slight forward taper. The wheels 8 have their blades or vanes 10 inclined in the same direction, while the wheels 8^a have their blades or vanes 10^a inclined in the opposite direction. As the wheels 8 and 8^a are alternately arranged, the passage of the mixture of air and vapor through the carbureter will cause alternate wheels to rotate in opposite directions. The speed developed in the wheels will depend upon the rate of passage of the mixture of air and vapor, as will of course be understood; but with an ordinary engine taking gas at its full capacity the intake-pipe and the parts of the carbureter should be so proportioned that the wheels within the carbureter will make about fifteen hundred revolutions per minute.

The rapid revolution of the fan-wheels within the carbureter develops a considerable

centrifugal tendency in the mixture of air and gasolene vapor, and to counteract this centrifugal tendency the rims 11 are tapered forwardly, as shown. The amount of the taper is determined by the rate at which the wheels are intended to turn within the shell or casing of the carbureter, as will be readily understood, and in the form of the invention illustrated the taper is adapted for a rotational speed of fifteen hundred revolutions per minute.

As will be readily understood from the foregoing description and the accompanying drawings, the carbureter having alternately-arranged fan-wheels revolving rapidly in opposite directions is adapted to produce an exceedingly thorough and uniform mixture of air and hydrocarbon vapor, which is, in effect, a true gas of homogeneous composition and is adapted to explode in the cylinder of an engine with very complete oxidation of the hydrogen and carbon present therein.

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

1. The combination of a shell, a stationary shaft axially supported therein, and a plurality of wheels rotatably mounted upon the shaft, and constructed of inclined blades and forwardly-tapered peripheral rims.

2. The combination of a shell, a stationary shaft axially disposed therein, and a plurality of wheels rotatably mounted upon the shaft, and constructed of blades and peripheral rims, the blades of alternate wheels being inclined in opposite directions to the operative planes of the wheels, and the rims of all the wheels being tapered forwardly.

3. The combination with a substantially cylindrical shell, of plates mounted in the ends thereof, each formed with a plurality of apertures, a shaft rigidly supported by said plates, and a plurality of wheels rotatably mounted on the shaft, and constructed of blades and peripheral rims, the blades of alternate wheels being inclined in opposite directions to the planes in which the wheels are disposed.

4. The combination with a cylindrical shell, of plates mounted in the ends thereof, each formed with a plurality of apertures, a shaft rigidly supported by said plates, and a plurality of wheels rotatably mounted on the shaft, and constructed of blades and peripheral rims, the blades of alternate wheels being inclined in opposite directions to the planes in which the wheels are disposed, and the rims of all the wheels being tapered in the same direction.

5. The combination with a cylindrical shell, of plates mounted in the ends thereof, each formed with a plurality of openings, a shaft supported by the plates, and a plurality of wheels rotatably mounted on the shaft, each constructed with inclined blades, one of said plates having a central threaded aperture, and the corresponding end of the shaft being threaded and secured in said aperture.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DAVID B. YOUNG.

Witnesses:
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