May 31, 1932. C. S. BRISTOW 1,861,297

COMBUSTION PROMOTING DEVICE

Filed Sept. 13, 1929

Fig. 1.

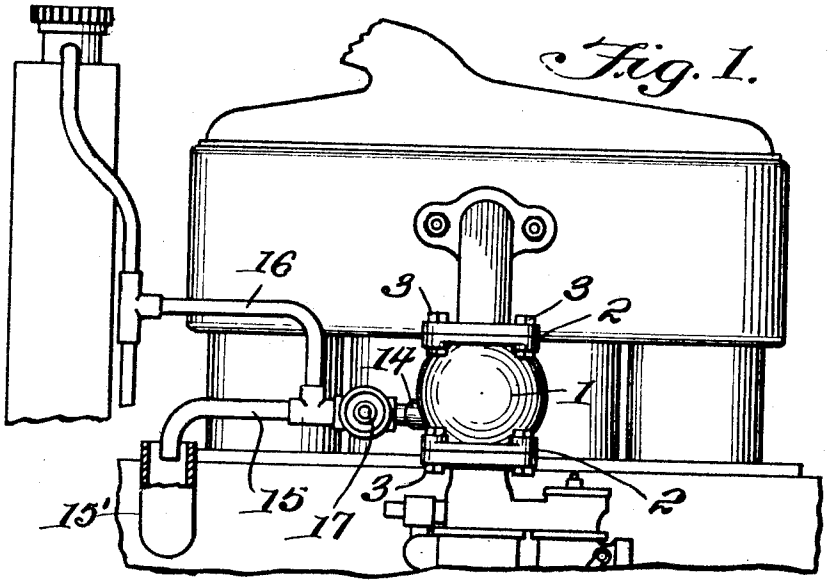



Fig. 3.

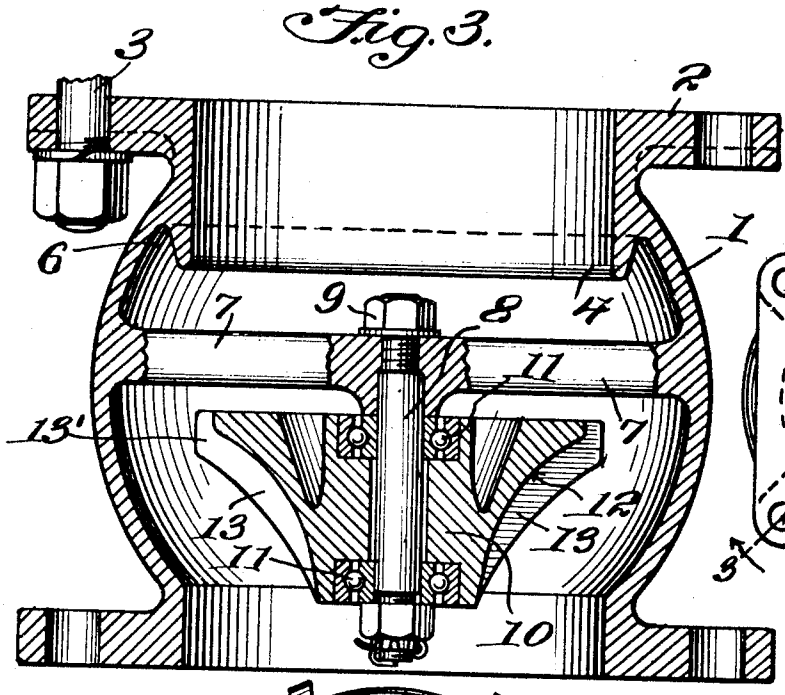



Fig. 2.

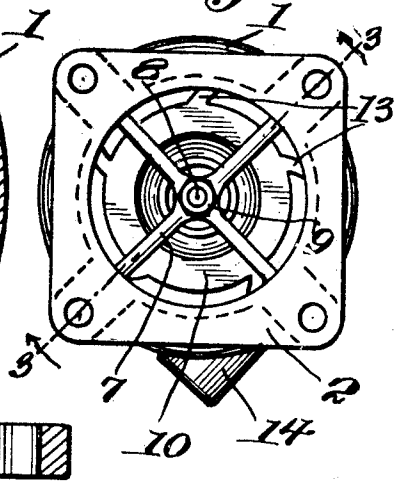
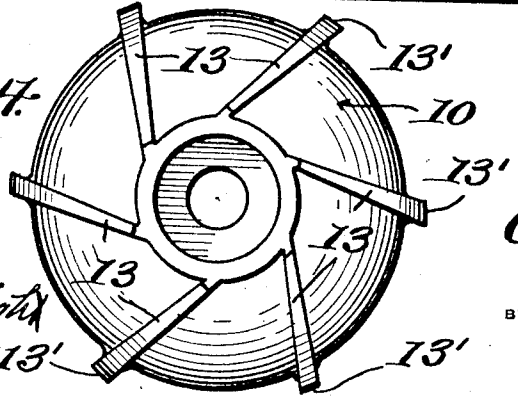



Fig. 4.




C. S. Bristow
INVENTOR

BY Victor J. Evans
ATTORNEY

J. T. L. Wright
WITNESS

Patented May 31, 1932 1,861,297

# UNITED STATES PATENT OFFICE

CLAUDE S. BRISTOW, OF LONG BEACH, CALIFORNIA

## COMBUSTION PROMOTING DEVICE

Application filed September 13, 1929. Serial No. 392,400.

This invention relates to a combustion promoting device for internal combustion engines, the general object of the invention being to provide means for securing more miles per gallon of fuel, preventing overheating of the parts of the engine and decreasing the dilution of the oil in the crank case, practically eliminating the formation of carbon in the cylinders, reducing the amount of carbon monoxide in the exhaust and otherwise increasing the efficiency of the engine.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claims.

In describing the invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:—

Figure 1 is an elevation showing the invention in use on an engine.

Figure 2 is a top plan view of the device.

Figure 3 is a vertical sectional view therethrough.

Figure 4 is a bottom plan view of the rotor.

In these views, the numeral 1 indicates a substantially spherical shaped casing having its upper and lower ends open, with flanges 2 at said ends so that the device can be placed between the inlet manifold and the carbureter and attached to these parts by bolts 3 which pass through the flanges of the carbureter and manifold. The upper and lower internal walls of the device are of cylindrical form, with the lower end of the upper wall extending into the spherical-shaped body to provide an annular flange 4 which has an upwardly and outwardly sloping outer wall which merges into the upper end of the internal wall of the body so as to leave an annular groove 6 at this point. A spider 7 is located within the body at a point slightly above the center thereof and its central part has an opening therein to receive the upper end of a shaft 8 which is threaded to receive a nut 9 which holds the shaft in the spider. A portion of the upper end of the shaft is also threaded to a part of the spider. A rotor 10 is rotatably supported on the shaft and anti-friction members 11 are provided for reducing friction. The rotor is of tapered formation with its large end uppermost and its sides curving inwardly, as shown at 12.

A plurality of blades 13 is formed on the rotor, each blade gradually increasing in width from the lower end of the body to a point adjacent the upper end thereof and this upper end is straight and vertical, as shown at 13'. The blades are tangentially arranged on the rotor in the usual manner so that the rotor will be revolved as the explosive mixture passes through the body from the carbureter to the intake manifold.

The body is formed with a tangential port 14 so located that the vapors passing into the port will impinge the blades of the rotor. A pipe 15 connects this port with the breather 15' of the crank case, the pipe having a loose fit in said breather and a branch pipe 16 connects the pipe 15 with the top part of the radiator of the motor so that the vapors from the radiator and the crank case will be drawn into the device by the piston suction of the engine when the valve 17 in the pipe 15, is open.

From the foregoing it will be seen that the stream of explosive mixture drawn from the carbureter into the engine cylinders by the piston suction will strike the rotor and thus cause the same to rotate at a high speed and the piston suction will also draw vapors from the crank case and radiator into the device. The vapors and explosive mixture are thoroughly mixed together by the revolving rotor and the centrifugal action will throw the heavy particles against the walls

of the body, while the thoroughly mixed vaporized portions of the mixture will pass through the device into the manifold. The heavier portions thrown against the walls of the body will move up the walls thereof into the groove 6 and as the baffle 4 prevents such portions from entering the manifold, such portions that are not vaporized will drop from the baffle or flange and be again acted on by the rotor.

Thus the mixture, including the mixture of fuel and air from the carbureter and the vapors from the crank case and radiator, will be thoroughly mixed before it enters the cylinders and practically all the unvaporized portions will be prevented from entering the cylinders and as the mixture is thrown against the walls of the device by the rotor, the mixture enters the cylinders in a cool condition, thus preventing overheating of the parts of the engine.

As before stated, this invention will increase the efficiency of the engine, greatly reduces the consumption of fuel, prevents crank case dilution, thus keeping the oil pure and eliminating frequent changing of oil, greatly reducing formation of carbon, reduces carbon monoxide in the exhaust and otherwise increases the efficiency of the engine.

It is thought from the foregoing description that the advantages and novel features of the invention will be readily apparent.

It is to be understood that changes may be made in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claims.

What I claim is:—

1. A device of the class described comprising a substantially spherical-shaped body having its upper and lower ends open, means for connecting the upper end of the device with a manifold of an internal combustion engine and its lower end with the carbureter of the engine and a rotor in the body of substantially frusto-conical shape with its large end uppermost and having blades on its exterior surface whereby the passage of the combustible mixture through the device will rotate the rotor and said rotor will, through the action of centrifugal force, cause the mixture to be thrown against the walls of the body, each blade gradually increasing in width from the lower end of the rotor to a point adjacent the upper end thereof, with the top of the blade straight and vertical.

2. A device of the class described comprising a substantially bowl-shaped body having its upper and lower ends open, a depending flange at the upper end of the device forming an annular groove between itself and the top part of the internal wall of the body, a spider in the body, a depending shaft supported by the spider, a rotor of substantially frusto-conical shape rotatably supported on the shaft with its large end uppermost, the circumferential wall of the rotor curving inwardly, blades on said circumferential wall gradually increasing in width from the lower end to the upper end, the blades having their lower ends arranged in advance of their upper ends, with the upper ends of the blades straight.

In testimony whereof I affix my signature.

CLAUDE S. BRISTOW.