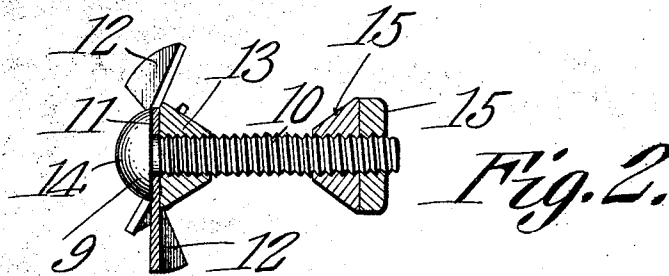
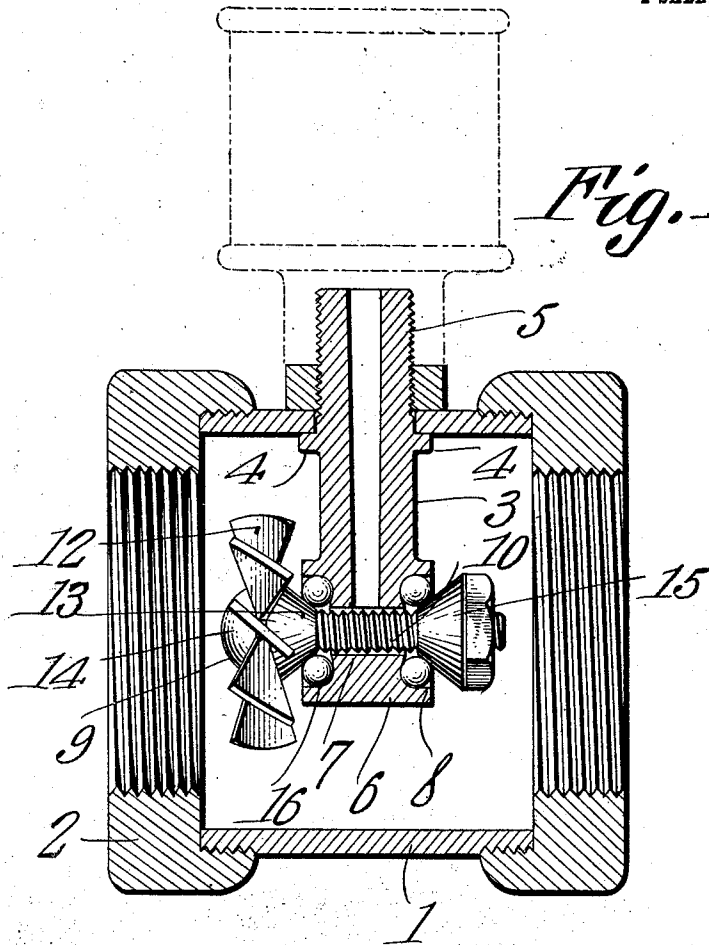


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APPLICATION FILED DEC. 10, 1909.

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Patented Nov. 1, 1910.
2 SHEETS-SHEET 1.



Witnesses

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Fig. 3.

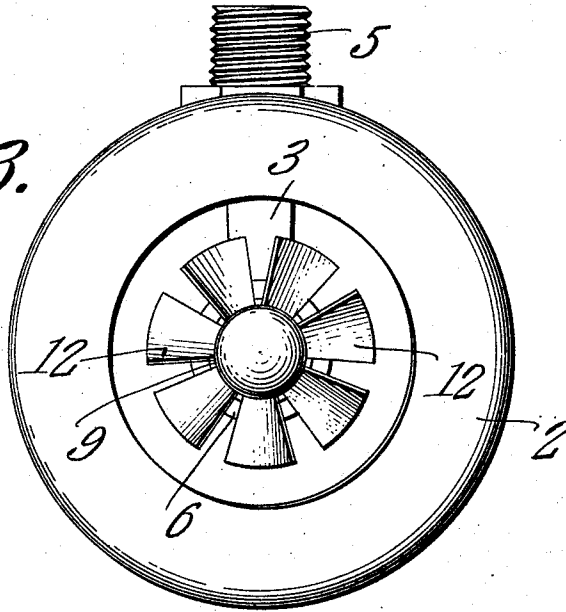
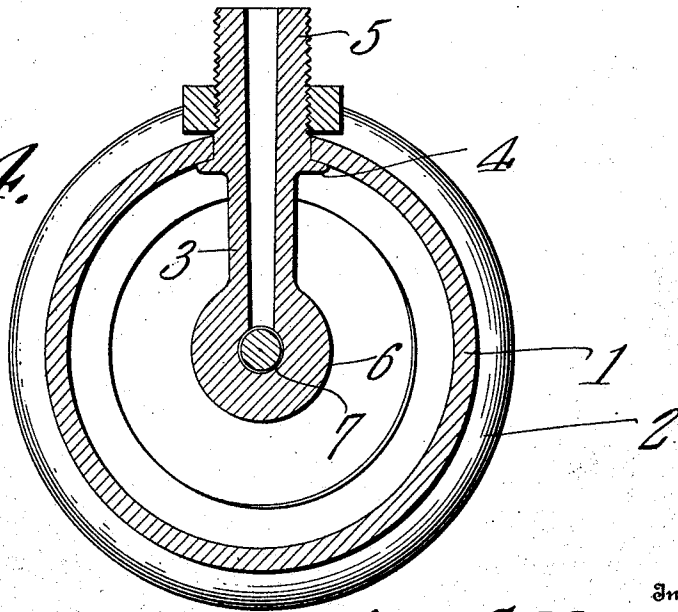


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM S. MORGAN, OF ANTIGO, WISCONSIN, ASSIGNOR TO MARY H. MORGAN, OF ANTIGO, WISCONSIN.

MIXING AND LUBRICATING DEVICE.

974,175.

Specification of Letters Patent.

Patented Nov. 1, 1910.

Application filed December 10, 1909. Serial No. 532,465.

To all whom it may concern:

Be it known that I, WILLIAM S. MORGAN, a citizen of the United States, residing at Antigo, in the county of Langlade and State of Wisconsin, have invented a new and useful Mixing and Lubricating Device, of which the following is a specification.

This invention has relation to mixing and lubricating devices especially adapted to be used in conjunction with internal combustion engines and it consists in the novel construction and arrangement of its parts hereinafter shown and described.

It is the object of the invention to provide a simple device of the character indicated adapted to be applied to the connection between a carbureter and engine as stated, and having means for effectually and thoroughly mixing the air and gases as they come from the carbureter prior to admission to the engine cylinder.

A further object of the invention is to provide in connection with the means as stated, means for introducing oil in fine particles to the mixture of air and gases which oil is carried by the air and gases into the engine cylinder upon the suction stroke. On the return stroke of the piston the rings take up the oil which thoroughly lubricates them, after which the oil is exploded simultaneously with the carbureted gases passing through the exhaust valve into the atmosphere, thereby doing away with all surplus burned carbon and ash and effecting a simple lubricating means which will greatly increase the efficiency of the engine.

In the accompanying drawings: Figure 1 is a vertical sectional view of the mixing and lubricating device. Fig. 2 is a side elevation of a spindle forming part of the said device, showing a disk carried thereby in section. Fig. 3 is an end view of the device. Fig. 4 is a vertical sectional view of the device cut in a plane at right angles to that illustrated in Fig. 1.

The combined mixing and lubricating device includes a barrel 1 which has sufficient internal diameter to receive the active members of the mixer and permit the air and gases from the carbureter to pass there-through. Pipe couplings 2 are mounted at the ends of the barrel 1 and may be connected with pipe sections which in turn connect with an engine and carbureter not shown.

A nipple 3 passes through the side of the

barrel 1 and is provided with a shoulder 4 which bears against the inner surface of the said barrel. The outer end of the nipple 3 is screw threaded as at 5 and may enter the boss of an oil cup indicated by dotted lines in Fig. 1. A head 6 is formed at the inner end of the nipple 3 and is provided with an orifice 7 which is concentrically arranged or approximately so with relation to the barrel 1. Ball races 8 are formed at the ends of the head 6 about the aperture 7. A spindle 9 is provided with a threaded shank 10 which passes through the aperture 7 and a disk 11 is mounted upon one end portion of the spindle 9. The said disk is provided at its periphery with a series of spirally disposed vanes 12. A conical nut 13 is screwed upon the threaded shank 10 and clamps the disk 11 against the head 14 of the said spindle 9. A conical nut 15 is also screwed upon the threaded shank 10 of the said spindle and the cone surfaces of the nuts 13 and 15 are disposed toward the ball races 8 at the end of the head 6. Bearing balls 16 are located in the said races and bear against the conical surfaces of the nuts 13 and 15 respectively.

In operation, as the air and gas are sucked or drawn through the barrel 1 and come in contact with the spiral vanes 12 of the disk 11, the said disk and the spindle 9 are rotated, and thus the vane 12 more effectually mixes the air and gas than has occurred during their passage through the carbureter. At the same time, lubricating oil from the oil cup (indicated in dotted lines in Fig. 1) mounted upon the outer end of the nipple 3 passes down through the nipple and into the aperture 7. The threaded shank of the spindle 9 engages the oil and works the same toward the head 14. As the oil moves along the conical surface of the nut 13, it passes upon the spiral vanes 12 and as the said vanes are rotating about the axis of the spindle, the oil is cast off by centrifugal force in fine particles and is taken up by the mixture of air and gas. The lubricating oil thus introduced into the mixture is carried into the engine cylinder and operates upon the parts as above stated. Thus it will be seen that a simple structure is provided for effectually mixing air and gas and at the same time introducing lubricating oil in fine particles to the same. It will also be seen that by the arrangement as set forth and the pro-

portionate sizes as indicated the passage of the air and gas through the barrel 1 will not be interrupted by reason of the presence of the spindle and its attachments within the
5 barrel.

Having described the invention, what I claim as new, and desire to secure by Letters Patent is:

A mixer and lubricator comprising a
10 barrel, a nipple supported by the barrel and passing through the side of the same and having at its inner end a head provided with an aperture surrounded at its ends by ball

races, a spindle extending through the aperture in the head and carrying a series of 15 vanes and conical nuts mounted upon the shank of the spindle and bearing balls located in the ball races and bearing against the conical surfaces of said nuts.

In testimony that I claim the foregoing 20 as my own, I have hereto affixed my signature in the presence of two witnesses.

WILLIAM S. MORGAN.

Witnesses:

M. STOUT,
E. E. BRINK.