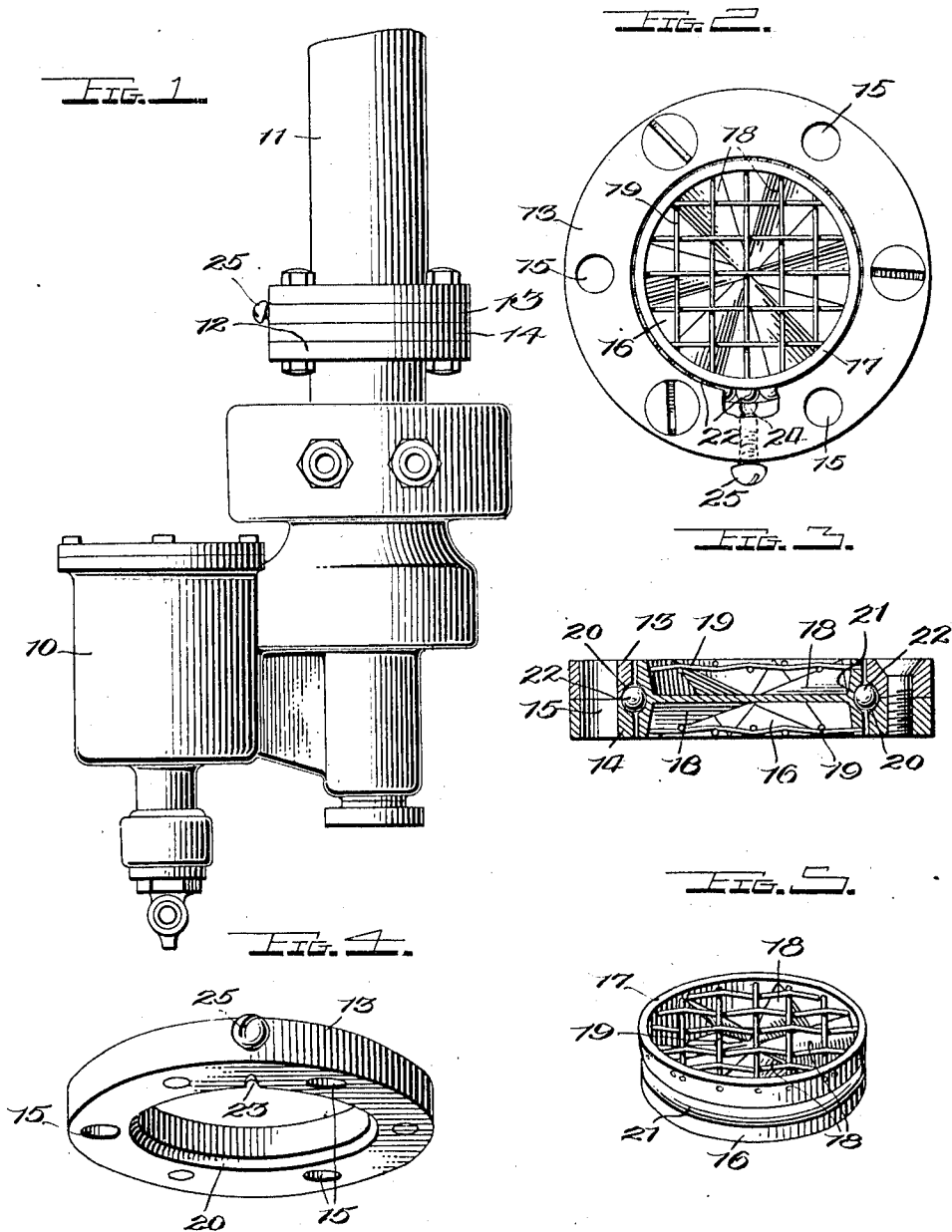


W. KELLY.
MIXER FOR INTERNAL COMBUSTION ENGINES.
APPLICATION FILED MAY 11, 1912.

1,041,096.

Patented Oct. 15, 1912.



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MIXER FOR INTERNAL-COMBUSTION ENGINES.

1,041,096.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM KELLY, a citizen of the United States, residing at Lowell, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Mixers for Internal-Combustion Engines, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to a mixer for mixing the fuel as it is being led to the cylinders of an internal combustion engine.

The primary object of the present invention is to provide a rotary mixer which will automatically mix the fuel as it is being led from the carbureter to the intake ports of the cylinders.

A still further object of the present invention is to construct a device of this character which will be inexpensive in the cost of manufacture, strong, durable, reliable in use and which may be constructed of any preferred design to fit within the intake pipes of various internal combustion engines now in use.

Other objects will appear hereinafter as the description continues.

With the above and other objects in view this invention consists generally of a pair of rings permanently secured together having a rotary fan and mixer mounted therebetween which is to be applied to the intake pipe of the gas engine.

This invention further consists of novel details of construction, combination, formation and arrangement of parts as will be hereinafter more fully described, claimed and particularly pointed out in the appended drawings in which,

Figure 1 is a side elevation of an ordinary carbureter connected to the intake pipes of ordinary combustion engines having my invention applied thereto; Fig. 2 is a plan view of the rotary mixer. Fig. 3 is a transverse section through the same; Fig. 4 is a perspective view of the lower face of the upper ring; and Fig. 5 is a perspective view of the rotary mixer.

Reference now being had to the accompanying drawing wherein I have shown a specific embodiment of the present invention, the numeral 10 indicates an ordinary carbureter which is coupled to the intake pipes 11 of the combustion engine as illustrated at 12. It is a well known fact that

carbureters supply the proper amount of fuel to be fed to the cylinders but they do not properly mix the same and the main object of this invention is to provide a rotary mixer between the carbureter and the intake pipe of the engine, whereby the fuel will be properly mixed before entering the cylinder.

This mixer comprises two rings 13 and 14 each of which have alining apertures formed therein for receiving countersunk screws whereby the same may be securely held together. These rings are of any desired construction and are adapted to be secured within the coupling 12 where the intake pipe is connected to the carbureter and they are provided with alining apertures 15 through which the bolts of the coupling may be inserted in securely holding the same within the intake pipes of the engine. Mounted within these rings is a rotary mixing member 16 which thoroughly mixes the fuel as it is directed from the carbureter to the cylinders of the engine. This rotary mixer comprises a peripheral rim 17 having mounted therein a plurality of radially extending blades 18 and the outer edges of the rotary member are each provided with a wire mesh 19. It is obvious from this construction that as the fuel leaves the carbureter it will enter the mixer and thereby rotating the same and the fan and wire mesh will thoroughly mix the fuel before entering the intake pipe of the engine.

The peripheral rim 17 of the mixer is of such a diameter as to fit snugly within the opening formed by the rings 13 and 14 and is connected thereto by means of a roller bearing which will permit the rotary member to freely turn as the fuel passes there-through. The inner edge of each of the rings is provided with a segmental angular groove 20 which when connected together form a semi-circular annular groove for receiving the ball bearings. The outer periphery of the rim 17 of the rotary member is provided with a semi-circular groove 21 and mounted between these semi-circular grooves are ball bearings 22. It will be seen from this construction that the rotary member is allowed to freely rotate between the rings 13 and 14 and the roller bearings provide means for retaining the same within the rings and also provide means to allow the same to freely rotate when in use.

To provide means for lubricating the

roller bearings a diagonally extending aperture 23 is formed within the upper ring 13 and its inner end thereof registers with a recess 24 formed within the upper face of the lower ring 14 so that as when the oil is applied thereto it will be directed to the central portion of the annular grooves forming the race way for the ball bearings. This diagonally extending aperture 23 has mounted on the inner periphery thereof screw threads for receiving an air tight screw 25 so as to prevent any air from entering the intake pipe when the mixer is in use. As the oil is applied to the opening 23 it will be directed to the ball race by means of gravity and as the rotary member is rotated the oil will be properly fed to the bearings.

It will be manifest that this mixer may be made of brass or any approved metal and it is of course to be understood that other minor details or changes as to form and construction may be resorted to that come within the scope of the present invention without departing from the spirit thereof.

What I claim is:—

1. In a device of the character described, the combination of a pair of rings forming a casing, of a mixer rotatably mounted therein, means for rotatably securing the periphery of said mixer within said rings and radiating blades mounted within said mixer, substantially as described.

2. In a mixer, the combination of a pair of rings, of a rotary member comprising a rim, a fan mounted within said rim and means for rotatably connecting the periphery of the rim of said rotary member within the interior of said rings, substantially as described.

3. In a mixer, the combination of a pair of rings detachably secured together to form a casing, a rotary member comprising a rim, the exterior diameter of said rim being less than the interior diameter of said rings, antifrictional bearings mounted between the outer periphery of said rim and the inner periphery of said rings, substantially as and for the purpose described.

4. In a mixer for internal combustion engines, the combination of a casing, of a mixer mounted therein, said mixer compris-

ing a rim, radiating blades mounted within said rim and made integral therewith, wire meshes for inclosing said blades and means for rotatably connecting said rim with said casing, substantially as described.

5. In a mixer for internal combustion engines, the combination of a casing comprising two sections, each of said sections having an annular segmental groove formed therein, a rotary member comprising a peripheral rim having an annular semicircular groove formed therein, bearing elements mounted within said annular groove, a fan mounted within said rotary member, and means for securing the sections of said casing together, substantially as described.

6. In a device of the character described, the combination of a sectional casing, of a rotary member mounted therebetween, said rotary member comprising a peripheral rim having radiating blades mounted therein and formed integral therewith, a wire mesh mounted within each end of said rim for inclosing said blades, the outer periphery of said rim having an annular semicircular groove formed therein, the said casing having an annular semicircular groove formed on the inner periphery thereof, bearing elements within said annular grooves and means for detachably securing the said casing within the intake pipe of the engine, substantially as described.

7. In a mixer for internal combustion engines, the combination of a sectional casing comprising two sections, means for detachably securing said sections together, means for securing the casing to the intake pipe of the engine, a rotary member mounted within said casing, said rotary member comprising a rim rotatably mounted within said casing, radiating blades mounted within said rim and formed integral therewith, a wire mesh mounted within the inner periphery of said rim immediate each end thereof, substantially as described.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

WILLIAM KELLY.

Witnesses:

DORA A. CHASE,
W. H. SAVAGE.