Aug. 16, 1927. 1,639,579

U. TELECSKY

GASEOUS FUEL MIXER

Filed Oct. 14, 1926 2 Sheets-Sheet 1

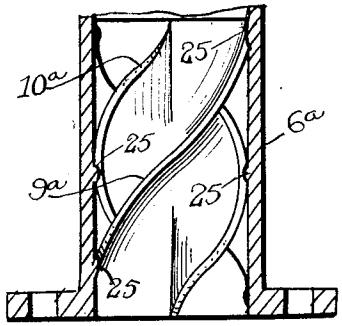


Fig. 1a.

Fig. 1.

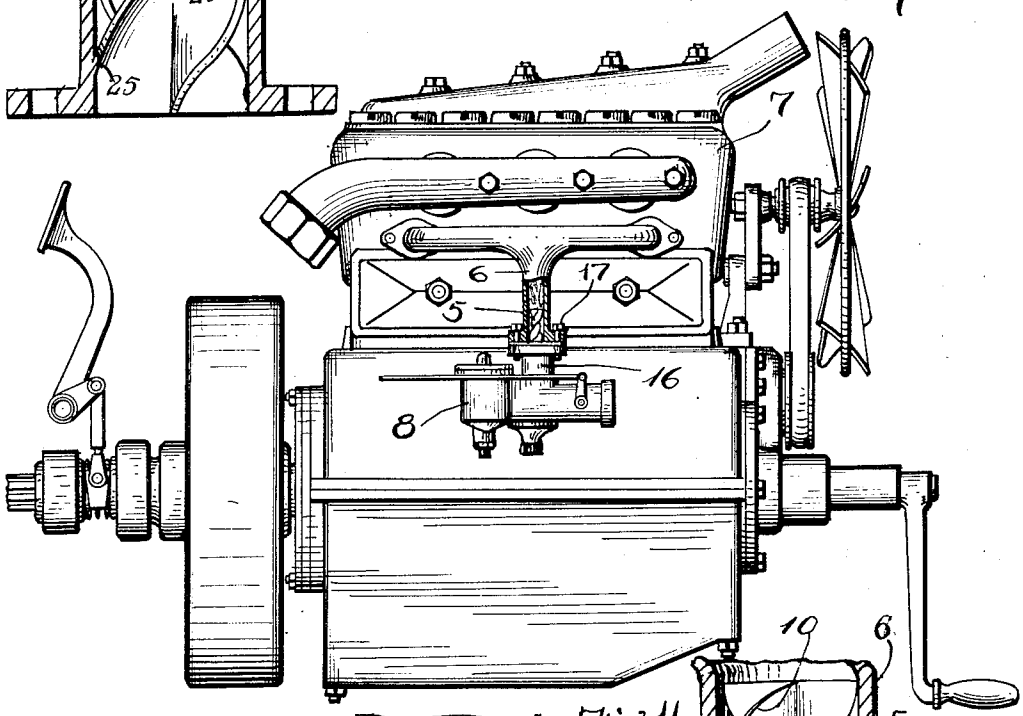


Fig. 11.

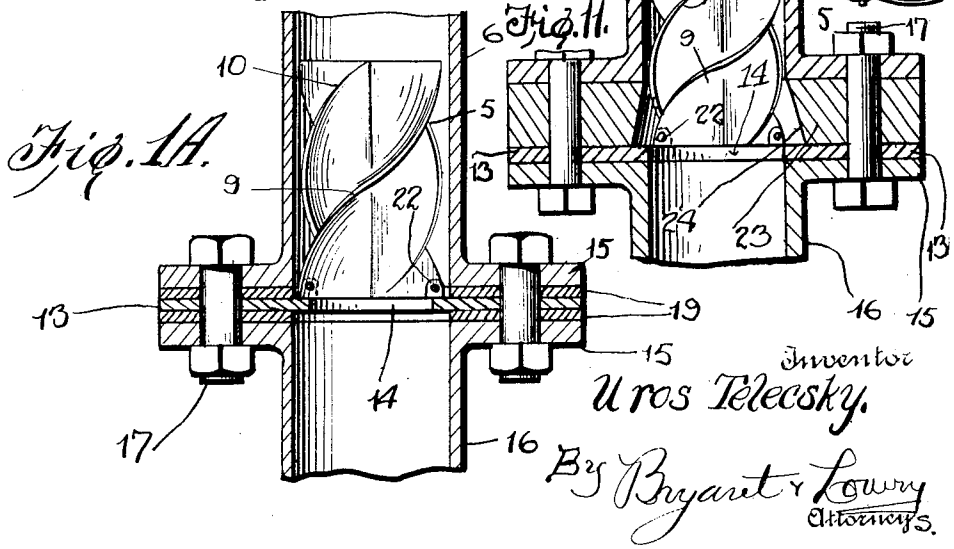


Fig. 1A.

Inventor
Uros Telecsky.
By Bryant & Lowry
Attorneys.

Aug. 16, 1927. 1,639,579

U. TELECSKY

GASEOUS FUEL MIXER

Filed Oct. 14, 1926 2 Sheets-Sheet 2

Fig. 2.

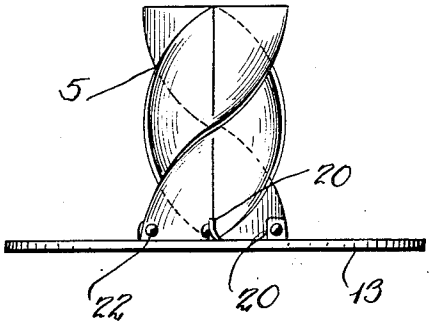


Fig. 5.

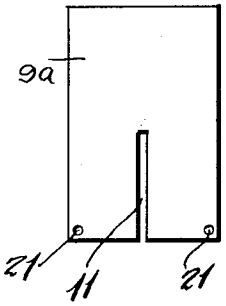


Fig. 6.

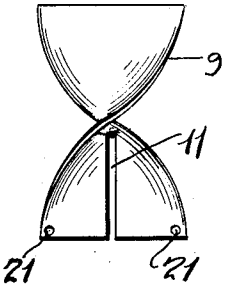


Fig. 3.

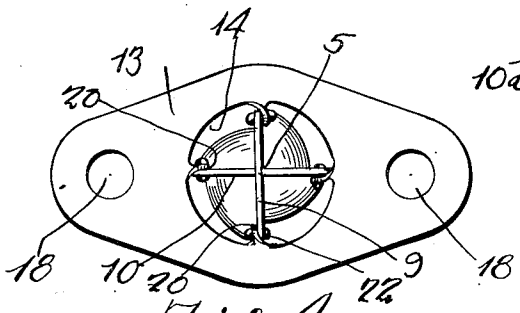


Fig. 7.

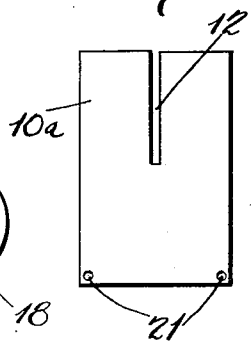


Fig. 8.

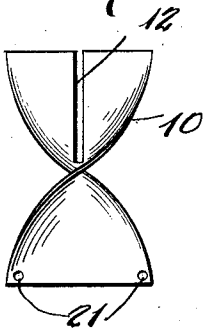


Fig. 4.

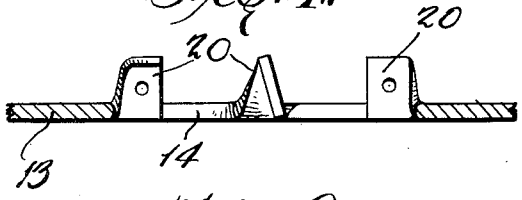


Fig. 10.

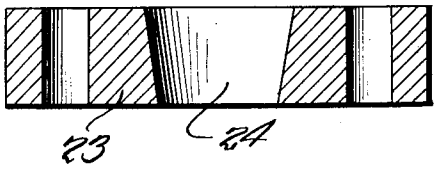
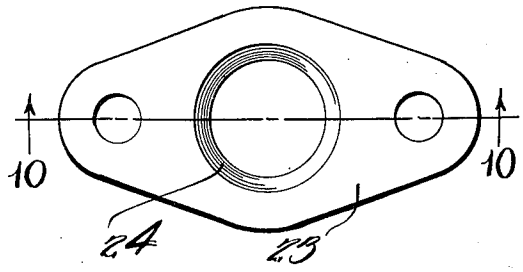


Fig. 9.



Inventor

U nos. Telecsky.

By Bryant & Lowry

Attorneys

Patented Aug. 16, 1927. 1,639,579

UNITED STATES PATENT OFFICE.

UROS TELECSKY, OF AKRON, OHIO.

GASEOUS-FUEL MIXER.

Application filed October 14, 1926. Serial No. 141,572.

This invention relates to improvements in gaseous fuel mixers for internal combustion engines, and has more particular reference to a device of this kind adapted to be formed integral with or removably mounted in the intake manifold of the engine and so constructed as to cause the fuel to whirl or rotate for thoroughly breaking up and mixing the air and liquid fuel immediately prior to its admission into the cylinders of the engine.

A further object is to provide a fuel mixer through the use of which complete consumption of the fuel charges supplied to the engine cylinders, is insured, and whereby the engine is readily started and runs smoothly with an increase in power and speed and a minimum consumption of fuel for a given period of operation under given conditions.

A more specific object is to provide a fuel mixer of the above kind embodying a spiral bladed device of improved form adapted to be formed or mounted in the intake manifold of an engine for causing rotation or whirling of the fuel and air to effect thorough breaking up and mixing of the same.

Still another specific object is to provide a mixer of the above kind including an attaching gasket adapted to be bolted or clamped between the joint flanges of the adjacent ends of an intake manifold and the fuel outlet of an associated carbureter, and simple means for attachment of the bladed device to the gasket.

Another object is to provide an auxiliary gasket adapted to be employed in connection with the mixing device proper forming part of the present invention whereby the latter may be most effectively employed in connection with the ends of manifolds having a straight length less than that of the bladed device.

Other objects will become apparent as the nature of the invention is better understood, and the same consists in the novel form, combination and arrangement of parts hereinafter more fully described, shown in the accompanying drawings and claimed.

In the drawings, wherein like reference characters indicate corresponding parts throughout the several views,

Figure 1 is a side elevational view, partly broken away and in section illustrating a mixing device constructed in accordance with the present invention, operatively associated with the intake manifold of an internal combustion engine;

Figure 1A is an enlarged fragmentary longitudinal sectional view of the intake manifold and carbureter fuel outlet pipe shown in Figure 1, together with the associated fuel mixer;

Figure 2 is an elevational view of the fuel mixer shown in Figures 1 and 1A, removed;

Figure 3 is a top plan view of the device shown in Figure 2;

Figure 4 is a longitudinal fragmentary sectional view of the mounting gasket of the fuel mixer shown in Figures 2 and 3, with the bladed device attached therefrom;

Figure 5 illustrates, in elevation, one of the plates from which one of the blades of the bladed device of the fuel mixer, is formed;

Figure 6 is a view of the blade formed from the plate shown in Figure 5;

Figure 7 is a view similar to Figure 5 of the other plate from which the other blade of the bladed device is formed;

Figure 8 is a view similar to Figure 6 of the other blade of the bladed device which is formed from the plate shown in Figure 7;

Figure 9 is a bottom plan view of an auxiliary gasket employed in connection with the mixing device of Figure 2 when the latter is used in connection with a manifold having a relatively short straight end portion;

Figure 10 is an inverted longitudinal section of the device shown in Figure 9 taken substantially upon line 10—10 of the latter figure;

Figure 11 is a view similar to Figure 1A showing the manner of employing the device of Figures 9 and 10 in connection with the mixer of Figure 2 in a manifold having a relatively short straight end; and

Figure 12 is a fragmentary longitudinal sectional view of an intake manifold formed with an integral fuel mixer in accordance with the present invention.

Referring more in detail to the drawings, the present invention preferably embodies a spiral bladed device generally indicated at 5, adapted to be substantially fitted and rigidly secured within an intake manifold 6 of an internal combustion engine 7 so as to cause rotation or whirling of the liquid fuel and air supplied to the manifold from the

conventional carbureter 8, whereby the fuel and air are effectively broken up and mixed prior to admission into the cylinders of the engine.

The bladed device 5 consists of a pair of crossed and inter-fitted spirally twisted blades 9 and 10 respectively formed from elongated rectangular plates 9^a and 10^a that are respectively longitudinally slotted for substantially one-half their respective length from opposite ends as at 11 and 12, whereby the blades may be properly interfitted in crossed relation and secured together by soldering or the like with their ends flush at the opposite ends of the bladed device thus produced. It will thus be seen that when the bladed device 5 is rigidly mounted in the intake manifold 6 as illustrated in Figures 1 and 1^A, the upwardly flowing liquid fuel and air will be given a rotating or whirling motion so as to be effectively broken up and commingled or mixed for ready and complete consumption when subsequently admitted to the cylinders of the engine 7.

Means is provided for rigidly mounting the bladed device 5 in the intake manifold 6, and this means preferably embodies a centrally apertured metallic base plate or gasket 13 to which is attached the lower end of the bladed device 5 so that the latter is in line with the central opening 14 of the gasket 13 as shown. The gasket 13 is adapted to be firmly bolted or clamped between the adjacent end or joint flanges 15 of the manifold 6 and the fuel outlet pipe 16 of the carbureter 8 that are secured together by bolts 17 in the usual manner, which bolts are adapted to also pass through the end openings 18 of the gasket 13. When the gasket 13 is formed of relatively stiff and hard metal, it may be necessary to interpose the same between a pair of conventional sealing gaskets as shown at 19 in Figure 1^A to avoid leakage at the joint.

The mounting gasket 13 is preferably stamped from sheet metal so as to provide the same with pairs of opposed equally spaced ears 20 that extend inwardly of the opening 14, and these ears 20 are twisted at right angles and directed upwardly or laterally of the gasket 13 as shown in the several views. As illustrated more clearly in Figures 2 and 3, the lower corner portions of the blades 9 and 10 flatly contact the sides of the ears 20 and are apertured as at 21 for being rigidly fastened to said ears as by riveting or the like indicated at 22. This provides a simple and durable construction which may be cheaply and easily manufactured and which permits ready and expeditious assembling and fastening of the parts together. Moreover, when the blades are attached to the mounting gasket 13 in this manner the blades need not necessarily be soldered together, the same being effectively held in proper relation and securely fastened to the mounting gasket by reason of the fact that each blade is attached to a pair of the ears 20 and is interlocked with the other blade.

It is contemplated to manufacture the present mixer of such size that the bladed device will be substantially snugly received in an intake manifold of given diameter as shown in Figures 1 and 1^A. In order to practically employ the mixer in connection with a manifold having a relatively short straight end, an auxiliary gasket 23 is employed above the mounting gasket 13 and between the meeting joined ends of the manifold 6 and the carbureter fuel outlet pipe 16, the gasket 23 being illustrated in Figures 9 and 10, and the manner of employing the same in connection with the mixer being illustrated in Figure 11. As shown the gasket 23 is relatively thick and preferably is formed of suitable cast metal so as to have a relatively long central tapered opening 24 to facilitate insertion of the bladed device therein. As shown in Figure 11, the manifold 6 has an end which is shorter than the bladed device 5 and from this end the manifold curves or bends abruptly. It is thus apparent that the mixer could not be used under these conditions with the parts clamped together as in Figure 1^A, and in order to increase the effective length of the end of the manifold so that the mixing device may be used under such circumstances, the gasket 23 is employed above the mounting gasket 13 with the bladed device 5 extending therethrough and only an end portion of the bladed device projecting into the manifold.

While the bladed device has been shown as having its lower end attached to the gasket 13, it is nevertheless to be understood that this is not essential. For instance, the bladed device, being small enough to enter the opening 14, may be attached at any point between its ends to the ears 20 by simply changing the location of openings 21 accordingly. Naturally, in such case, the bladed device would project above and below the gasket 13. While the gaskets 13 and 23 have been shown in Figure 11 as employed without the usual sealing gaskets 19, it will nevertheless be understood that such sealing gaskets may also be employed if found necessary or desirable, in this use of the invention.

From the foregoing description it is believed that the construction and operation as well as the advantages of the present invention will be readily understood and appreciated by those skilled in the art.

Minor changes may be made without departing from the spirit and scope of the invention as claimed.

The form of the invention shown in Fig. 12 embodies a pair of integrally formed inter-twining spiral blades 9^a and 10^a cast integral with and internally of the intake manifold 6^a, outermost points of the blades joining with the manifold as indicated at 25.

What I claim as new is:—

A fuel mixer for internal combustion engines comprising a spiral bladed device adapted to be introduced into the intake manifold of the engine, and a mounting gasket adapted to be firmly clamped between the joint flanges of an end of the manifold and an adjacent end of a carbureter outlet pipe, said gasket having a central fuel passage opening, said bladed device being rigidly attached to the gasket in line with said fuel passage opening of the latter, pairs of opposed equally spaced ears projecting inwardly of the opening of said gasket, said bladed device comprising a pair of cross spirally twisted blade plates having adjacent corner portions flatly contacting the sides of and secured to said ears, said blade plates being of elongated rectangular form before being twisted and having longitudinal slots respectively extending from opposite ends thereof to substantially midway the lengths thereof, whereby the adjacent ends of the blades are substantially flush when the blades are interfitted and arranged in crossed relation.

In testimony whereof I affix my signature.

UROS TELECSKY.