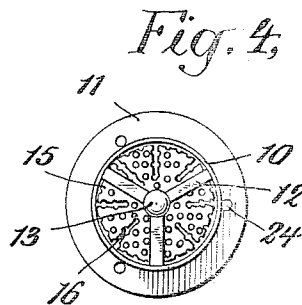
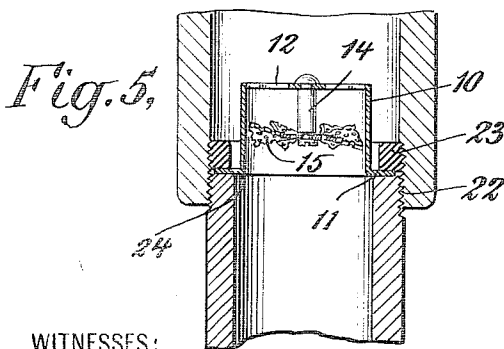
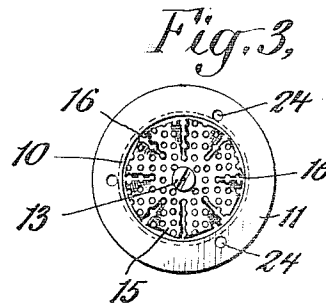
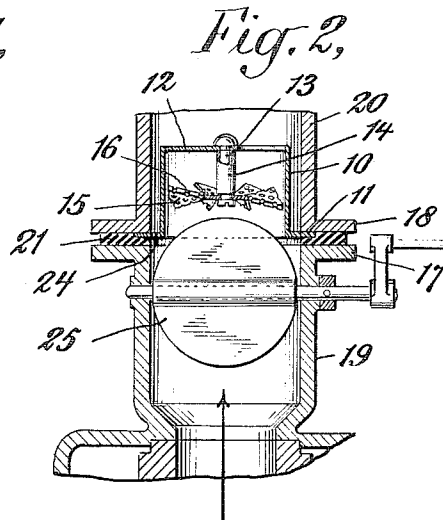
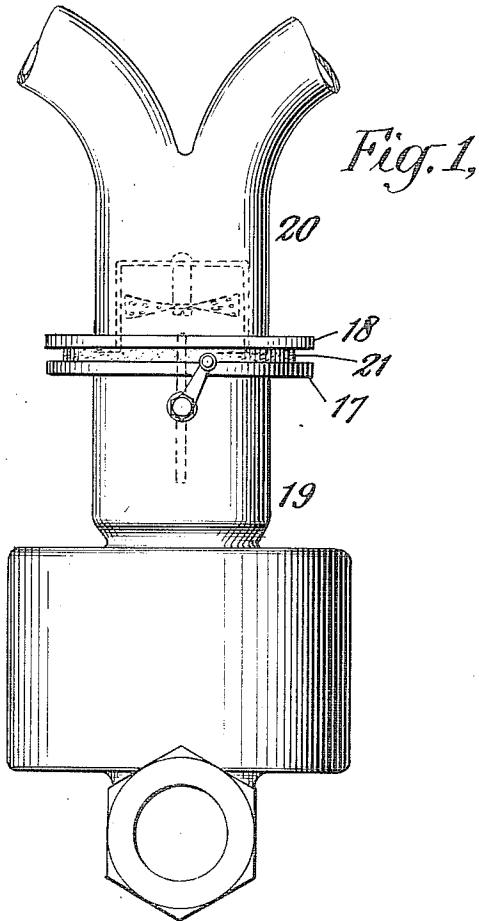


H. W. WEBB & E. H. STICKELS.
MIXER FOR GASEOUS FLUIDS.
APPLICATION FILED MAR. 8, 1910.

971,332.

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WITNESSES:

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UNITED STATES PATENT OFFICE.

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MIXER FOR GASEOUS FLUIDS.

971,332.

Specification of Letters Patent. Patented Sept. 27, 1910.

Application filed March 8, 1910. Serial No. 547,989.

To all whom it may concern:

Be it known that we, HARTWELL W. WEBB, a citizen of the United States of America, and a resident of Cresskill, county of Bergen, and State of New Jersey, and EDWARD H. STICKELS, a citizen of the United States of America, and a resident of Edgewater, county of Bergen, and State of New Jersey, have invented certain new and useful
10 Improvements in Mixers for Gaseous Fluids, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

Our invention relates to improvements in
15 mixers for gaseous fluids, and particularly to a mixing device adapted to be employed in conjunction with a carbureter for preparing a gaseous charge for fuel and similar purposes.

20 Our invention consists in a novel form of supporting structure whereby the device may be employed as an attachment to existing apparatus.

In order that our invention may be fully
25 understood, we will now proceed to describe an embodiment thereof, having reference to the accompanying drawings illustrating the same, and will then point out the novel features in claims.

30 In the drawings: Figure 1 is a view in side elevation of a carbureter and pipe connection for connecting the same with an internal combustion engine, showing in dotted outline, a mixer constructed in accordance
35 with my invention, connected thereto. Fig. 2 is a view in central transverse section through the mixer and portions of the carbureter and pipe connections. Fig. 3 is a detail end face view of the mixer showing the same detached from the carbureter and
40 pipe connections. Fig. 4 is a similar end view looking in the opposite direction. Fig. 5 is a sectional view showing the mixer when applied to a threaded pipe connection
45 in lieu of the flanged connection shown in Figs. 1 and 2.

The mixer comprises, in general, but two elements, one a stationary main supporting element, and the other a rotatably mounted
50 paddle or fan wheel. The stationary element comprises a cylindrical shell 10 having an outwardly flaring flange at one end thereof, and provided with spider arms 12 at the other end thereof, and a central sup-

porting stud 13 secured to the said spider 55 arms. The fan or paddle wheel element comprises a sleeve 14 which finds a bearing upon the stud 13, and obliquely disposed perforated blades 15. The edges of the blades are preferably serrated as is shown at 60 16, the entire set of blades being conveniently struck up from a perforated blank as will be understood by reference to the drawings.

A device of this character is adapted to 65 be mounted between the flanges 17 and 18 of a carbureter 19 and a pipe connection 20 such as are commonly employed in connection with internal combustion engines. A gasket 21 is commonly employed between 70 the said flanges, and the flanged portion 11 of the cylindrical shell 10 may conveniently be nipped between the gasket and the said flanges. Where a flanged joint is not used, but in lieu thereof a threaded joint is em- 75 ployed such as is shown at 22 in Fig. 5, a collar 23 may be first screwed into place in the interiorly threaded portion, and the flanged portion 11 of the cylindrical shell 10 thereafter nipped toward it and the end of 80 the exteriorly threaded part as is shown in Fig. 5.

The device when placed in the position shown is located in the path of the incoming gaseous currents comprising carbureted air 85 or other mixture. These gaseous currents impinging upon the fan or paddle wheel will rotate the same at a high rate of speed, and the blades of the fan or paddle wheel will act upon the gaseous fluid to further mix its 90 constituent parts, thereby improving the mixture and increasing the efficiency thereof. The serrated edges of the blades and the perforations therein have considerable value in this connection as they provide a large 95 area of irregular surface which constantly crosses the path of the gaseous mixture.

The device is usually and preferably employed in a vertical position as is shown in the drawings, the flow of the gases in the 100 direction of the arrow in Fig. 2, tending to slightly lift the fan or paddle wheel, and hence to reduce the rotational friction thereof. In order to prevent any accumulation of condensed moisture or liquid from other 105 sources from collecting around the shell 10 between it and the pipe connection 20, we preferably provide the flanged portion 11

with one or more draining openings 24 which will permit liquid to drain back to the carbureter.

By making the supporting structure in the form shown, it will be noted that we are enabled to use the same in connection with the common form of carbureter in which the throttling valve 25 is disposed very near to the flange 17. As a matter of fact the throttling valve 25 in one position usually extends beyond the face of the flange, but we conveniently construct the shell portion 10 of sufficient length to cause the paddle or fan wheel to clear the same even under such conditions, as will be well understood by reference to Fig. 2 of the drawings.

While we have shown the edges of the blades serrated because this is the preferred form thereof, it may be noted that this feature is not claimed in the present application. This subject matter is contained and claimed in a separate co-pending application filed August 20, 1910, Serial Number 578,200.

What we claim is:

1. As an article of manufacture, a mixer for gaseous fluids arranged to be disposed in the path of gaseous currents to be acted upon, comprising a tubular casing having an outwardly flaring flange at one end thereof, and provided intermediate its ends with a fan or paddle wheel rotatably supported thereby.

2. As an article of manufacture, a mixer for gaseous fluids arranged to be disposed in the path of gaseous currents to be acted upon, comprising a tubular casing having an outwardly flaring flange at one end thereof, spider arms at the opposite end and a central stud supported by the said spider arms, and a rotatable fan or paddle wheel provided with a tubular bearing sleeve rotatably mounted upon the said stud.

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