

A. SCHMIDT.
FUEL MIXER.
APPLICATION FILED FEB. 18, 1910.

977,229.

Patented Nov. 29, 1910.

Fig. 2.

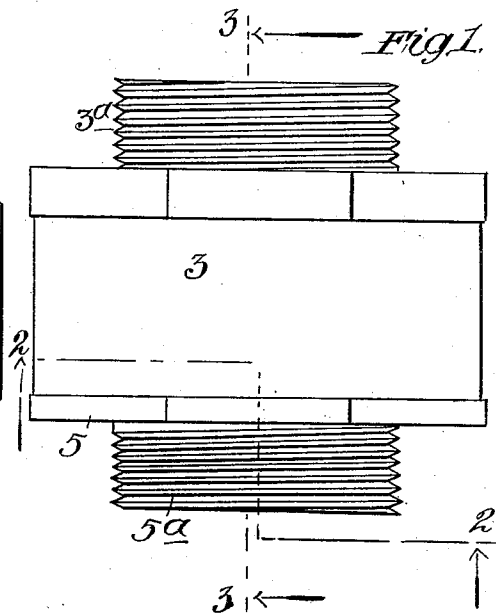
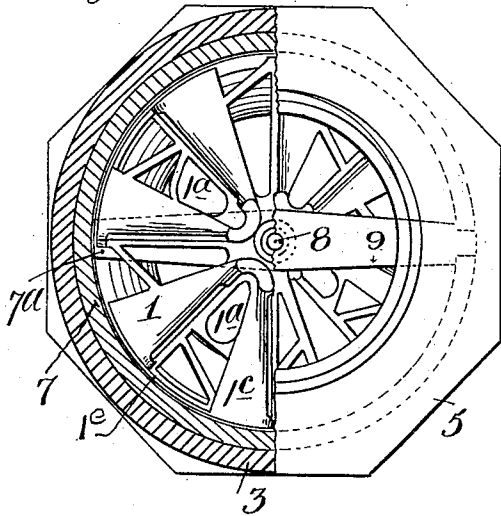


Fig. 3.

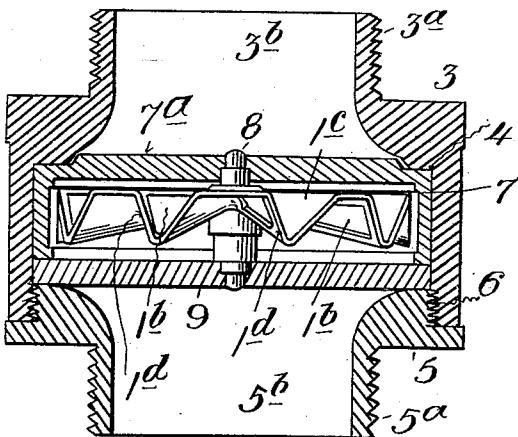
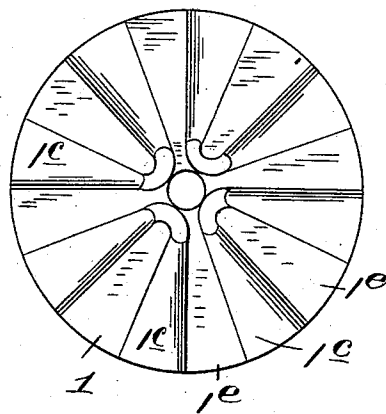


Fig. 4.



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UNITED STATES PATENT OFFICE.

ALFRED SCHMIDT, OF LAKE HOPATCONG, NEW JERSEY.

FUEL-MIXER.

977,229.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ALFRED SCHMIDT, a citizen of the United States, and resident of Lake Hopatcong, in the county of Sussex and State of New Jersey, have invented certain new and useful Improvements in Fuel-Mixers, of which the following is a specification.

The object of my invention is to provide means for automatically causing the more perfect breaking up and comminution of liquid fuel, such as gasoline, and mixing the same with air for use as a fuel supply for internal combustion engines, to the end that the fuel mixture will be more homogeneous and gaseous than where the liquid fuel is drawn into the engine without mechanical mixing, as where drawn direct from the carbureter.

In carrying out my invention I provide a rotary fan having apertured webs between its blades, which fan is interposed in the passage between the carbureter and the engine intake valve, suitable means being provided for rotatively supporting such fan in such passageway. By preference I make the fan by pressing the same out of a sheet of suitable metal so that the blades and the webs between the blades will be integral, the openings in such webs being suitably shaped, but preferably of irregular outline, whereby as the fuel and air are drawn from the carbureter by the suction of the engine the fan will be automatically rotated, and the openings in the webs of the fan will cut up the fuel and comminute it in its passage through the fan and at the same time will thoroughly mix the fuel and air.

By stamping the fan and its webs from a single sheet of metal the fan is materially strengthened, while its weight may be relatively light, which will be of importance owing to the fact that such fan should be light in weight to freely rotate and not materially resist the flow of air while at the same time being sufficiently strong to withstand the high speed of rotation to which the fan may be subjected.

My invention comprises novel details of improvement and combinations of parts that will be more fully hereinafter set forth and then pointed out in the claims.

Reference is to be had to the accompanying drawings forming part hereof, wherein, Figure 1 is a plan view of the casing containing my improvements; Fig. 2 is a front

view of the same, partly in section on the line 2, 2, in Fig. 1; Fig. 3 is a section substantially on the line 3, 3, in Fig. 1, and Fig. 4 is a detail face view of the fan before it is perforated.

Similar numerals of reference indicate corresponding parts in the several views.

At 1 is indicated my improved fan which is provided with openings 1^a , 1^b , in the webs between the blades 1^c . The blades 1^c are inclined at a suitable angle with respect to the axis of the fan, and by preference the fan is made of sheet metal stamped or drawn to the desired shape. By this means inclined webs or walls 1^d are interposed between the blades 1^c and the transversely disposed webs 1^e , the openings 1^a being shown formed in the webs 1^e and the openings 1^b formed in the inclined webs 1^d . By this means the fan will rotate by reason of the flow of gas and air while at the same time such gas and air will pass through the openings 1^a , 1^b , and any liquid fuel drawn to the fan will be comminuted by contact of the parts of the fan surrounding the openings 1^a , 1^b , and thereby also the liquid or gaseous fuel and air drawn through the fan will be thoroughly mixed. The fan by being stamped from a single piece of material is made relatively strong and rigid while at the same time relatively light in weight, and as the parts of the perforated fan are thus all integral and united without seams, danger of breakage of the fan is overcome although the fan may rotate at relatively high speed.

The fan may be mounted upon shaft 8 in any suitable manner within any suitable casing or passageway. I have shown a suitable casing 3 provided with threads 3^a around the passageway 3^b , and having an internal shoulder 4, and at 5 is a removable cap shown connected with casing 3 by threads 6, cap 5 having threads 5^a at the passage way 5^b . The threads 3^a , 5^a permit the casing to be connected in the line of the piping between the carbureter and a gas engine. At 7 is an annular shell fitted within casing 3 and shown bearing at one end against shoulder 4, and provided with a cross bar or brace 7^a serving as a bearing for shaft 8 to which fan 1 is suitably connected.

At 9 is a cross bar or brace having a bearing adapted to receive shaft 8. Said cross bar or brace 9 is shown held in position by

its ends being clamped between the adjacent edge of shell 4 and cap 5. The foregoing provides a convenient means for removably supporting shaft 8 and fan 1 carried by said shaft, and also provides ready means for permitting access to the fan for removal, replacement and cleaning of the parts.

My invention is not limited to the particular details of construction set forth, as the same may be varied, within the scope of the appended claims, without departing from the spirit thereof.

Having now described my invention what I claim is:—

1. A fan provided with blades and webs extending in the spaces between the blades, said webs connecting the edges of adjacent blades, said webs having openings.

2. A fan provided with blades, and having laterally disposed webs between the blades provided with openings, said webs

connecting the adjacent edges of adjacent blades.

3. A fan provided with blades, webs extending from the edges of the blades, said webs being provided with openings, and webs connecting said first named webs with the adjacent blades, the second named webs being provided with openings.

4. A fan made from a single sheet of metal having integral blades and webs between the blades, said webs connecting the edges of adjacent blades, said webs extending at an angle to said blades and being provided with openings.

Signed at New York city, in the county of New York and State of New York this 16th day of February, A. D. 1910.

ALFRED SCHMIDT.

Witnesses:

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