

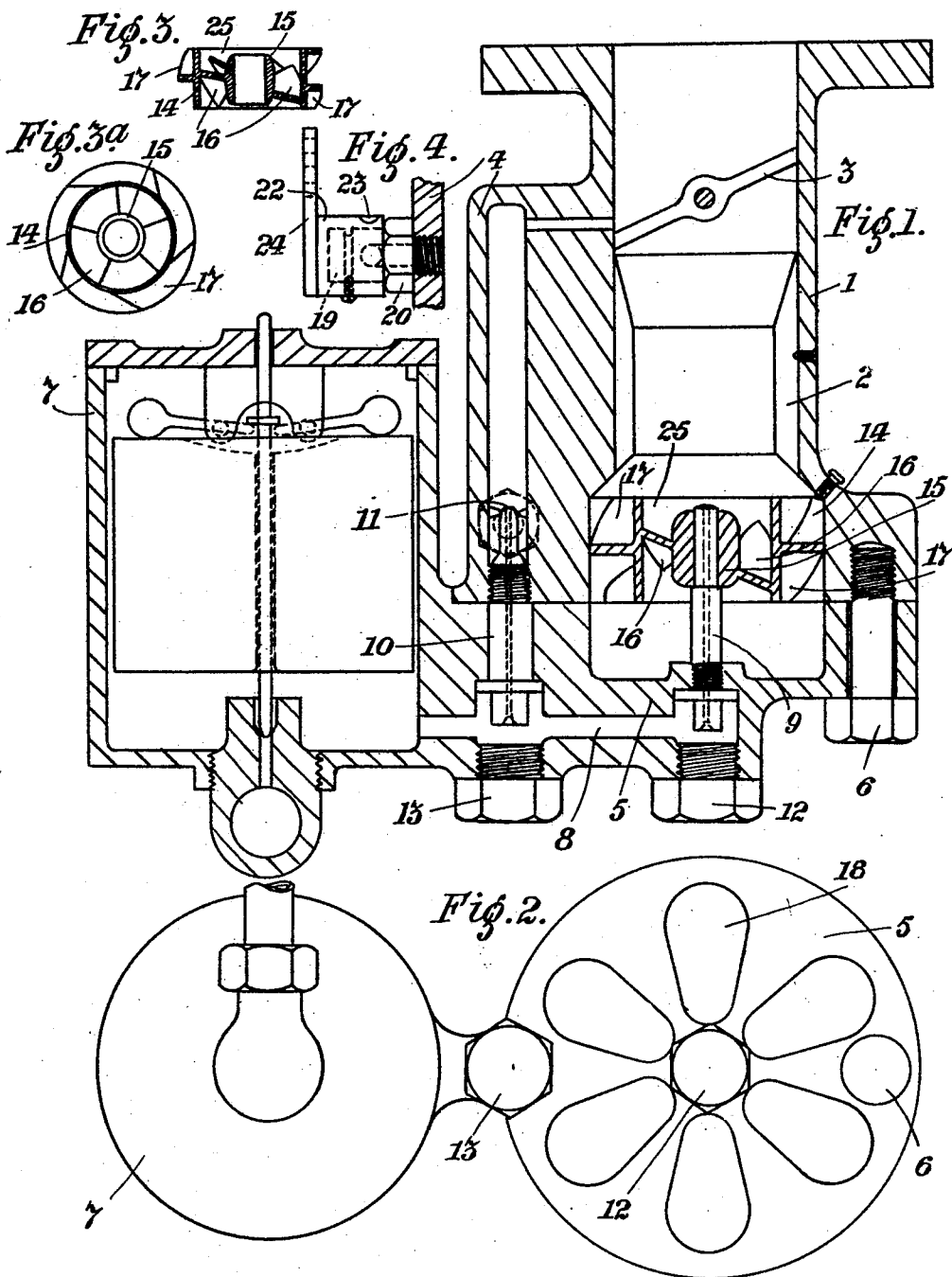
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CARBURETOR

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CARBURETOR

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This invention relates to carburetors for internal combustion engines and more especially for petrol engines.

In the specification of my co-pending patent application Serial No. 89,440, dated Feb. 19, 1926, which matured into Patent #1,731,135, granted October 8, 1929, there is described a carburetor inside which is an open-ended chamber or sleeve spaced apart from the carburetor wall and having inclined vanes inside and outside and functioning as a mixing sleeve. Air drawn into the carburetor is divided into two supplies, one of which, passing inside the mixing sleeve, picks up fuel from a main jet and finely atomizes and diffuses it, while the second supply, passing around the outside of the mixing sleeve and whirling in the opposite direction meets the first supply charged with fuel, causes further and more complete atomization and diffusion and reduces the mixture to a state of quiescence before it is induced into the engine.

According to the present invention, a carburetor for internal combustion engines comprises an upper body part, a lower body part, means for removably attaching the lower part to the upper part and a mixing sleeve slidable into the upper body part from the bottom thereof and secured in position by the fitting of the lower body part to the upper body part.

This construction renders the fitting of the mixing sleeve in place inside the body of the carburetor a simple matter. The sleeve may be adapted to be supported by the main jet of the carburetor which is screwed into place in the lower body part and when the latter is applied to the upper body part, the sleeve is thereby positioned and it is prevented from rotating by a screw pin or such like.

In order that the invention may be clearly understood it will now be described by way of example and with reference to the accompanying drawings, whereon:

Fig. 1 is a vertical mid-section of a carburetor in accordance with this invention;

Fig. 2 is an inverted plan view of the same;

Figs. 3 and 3^a are views showing in section

and plan a modified form of mixing sleeve; Fig. 4 shows the pilot jet air valve.

Referring to the drawings, the numeral 1 denotes the body of the carburetor within which are a choke tube 2 and a throttle valve 3. At one side there is a chamber 4 for a pilot jet, fitted with vanes 11^a radiating from it.

The lower portion 5 of the carburetor is made separate from the upper portion and is adapted to be attached thereto, by means of a set pin 6. The float chamber 7 is formed in one with this lower portion 5. The lower portion is provided with a petrol passage 8 leading to the base of the main jet 9 which is screwed into the lower portion 5. The lower portion is drilled vertically so that the pilot jet 10 may be inserted from the bottom and screwed into the pilot jet chamber 4, so that it functions as a set pin in the same way as the set pin 6.

Holes are provided in the bottom of the lower part below the main and pilot jets and are adapted to be closed by screw plugs 12, 13.

A mixing sleeve 14 is arranged to be introduced into the carburetor body from below. This device is in the form of a ring having a central boss 15 adapted to fit around and be supported by the main jet 9. The central boss 15 has flat inclined vanes or blades 16 radiating from it to an outer cylindrical part 25 which, in turn, has flat inclined vanes 17 which extend to the wall of the carburetor body. The vanes 17 are inclined in opposite directions from the vanes 16.

The lower portion 5 of the carburetor has radial air intake openings 18 provided in it around the jet 9.

An air valve is provided for the pilot jet chamber 4 (Fig. 4) and comprises a tubular member 19 closed at its outer end and screwed into a hole in the wall of the chamber 4. A nut 20 locks it in place. A radial passage 21 extends from its central bore. Outside the member 19 a sleeve 22 is rotatably mounted, being held in place by a grub screw engaging a groove in the member 19. This sleeve has an aperture 23 which can be brought into register with the radial passage 21 of the member 19. 24 is a lever for turning the sleeve 22.

When the carburetor is in operation air is

drawn in through the said openings 18 and, on reaching the mixing sleeve 14, is divided into two coaxial streams, one passing up between the vanes 16 and the other passing up between the vanes 17. When the outer stream emerges from the mixing sleeve, the configuration of the body of the carburetor causes it to converge as a cone towards the axis of the carburetor body. The inner stream picks up petrol from the jet 9 and whirls the fuel so as to cause thorough atomization and diffusion of the latter. Higher up this mixture of air and fuel meets the converging outer stream of air which is whirled in the opposite direction with the result that very thorough mixing of air and fuel takes place prior to being induced into the engine.

In building up the carburetor, the mixing sleeve 14 is fitted on to the jet 9 which is screwed into the lower part 5 and is thereafter inserted into the carburetor body while the said lower part 5 of the carburetor is being attached to the upper part and secured in position. Dismantling and assembling of the carburetor can be quickly effected, the mixing sleeve 14 fitting loosely into the carburetor body. The mixing sleeve can be removed without detaching the carburetor from the manifold of the engine.

A cross section of a modified form of mixing sleeve is shown in Fig. 3, the depth of the said sleeve being comparatively small.

It will be understood that the float chamber may be made separate from the lower part 5.

I claim:—

1. In a carburetor having an upper body part, a lower body part, means for removably attaching the lower part to the upper part, a jet attached to and projecting upward from the lower part, a mixing sleeve fitting into the upper part and comprising a ring, inner and outer oppositely inclined vanes, and a central boss supported by said jet so that the mixing sleeve is secured in position by attaching the lower body part to the upper body part.
2. In a carburetor having an upper body part, a lower body part, means for removably attaching the lower part to the upper part, a jet attached to and projecting upward from the lower part, a shoulder on said jet, a mixing sleeve fitting into the upper part and comprising a ring, inner and outer oppositely inclined vanes, and a central boss supported by said shoulder so that the mixing sleeve is secured in position by attaching the lower body part to the upper body part.
3. In a carburetor having an upper body part, a lower body part, means for removably attaching the lower part to the upper part, a jet attached to and projecting upward from the lower part, a shoulder on said jet, a mixing sleeve fitting into the upper part and comprising a ring, inner and outer op-

positely inclined vanes, and a central boss situated within the ends of the mixing sleeve and so supported on said shoulder that the nozzle of the jet lies between the upper ends of said boss and sleeve and so that the mixing sleeve is secured in position by attaching the lower body part to the upper body part.

In testimony whereof I affix my signature.

HUGH HUTCHISON.

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