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CARBURETOR

Filed June 20, 1924

Fig. 1.

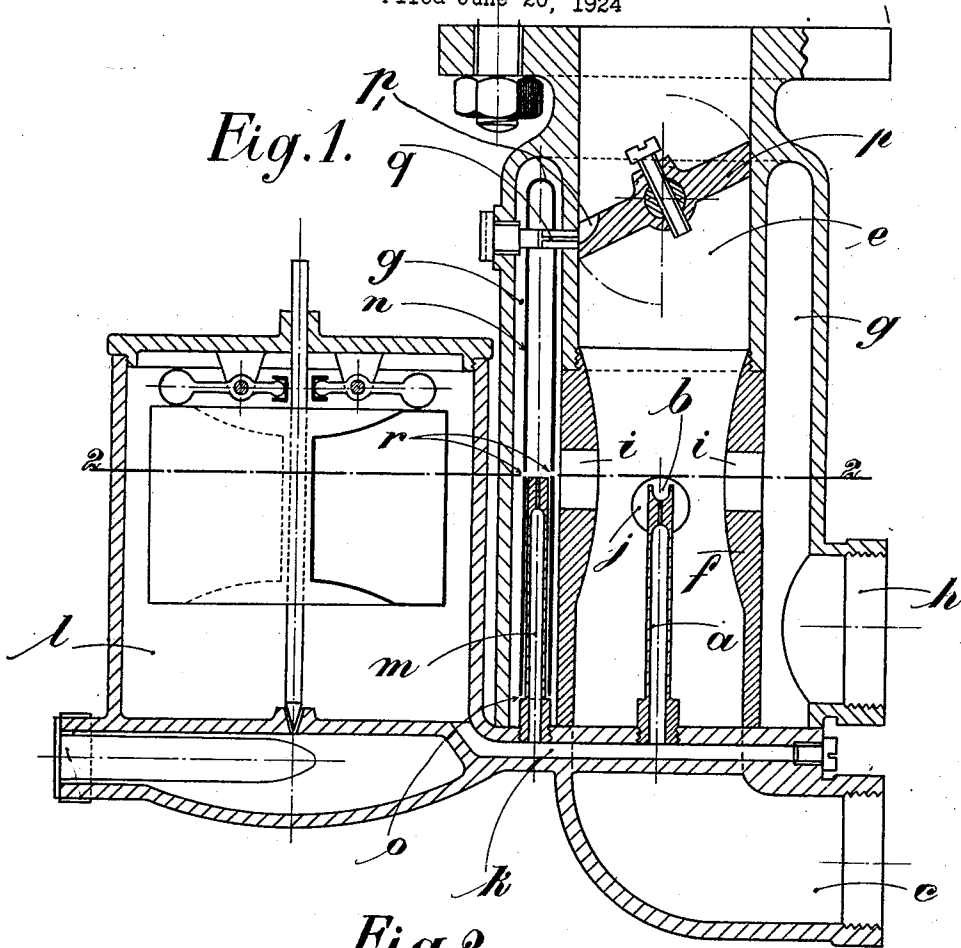
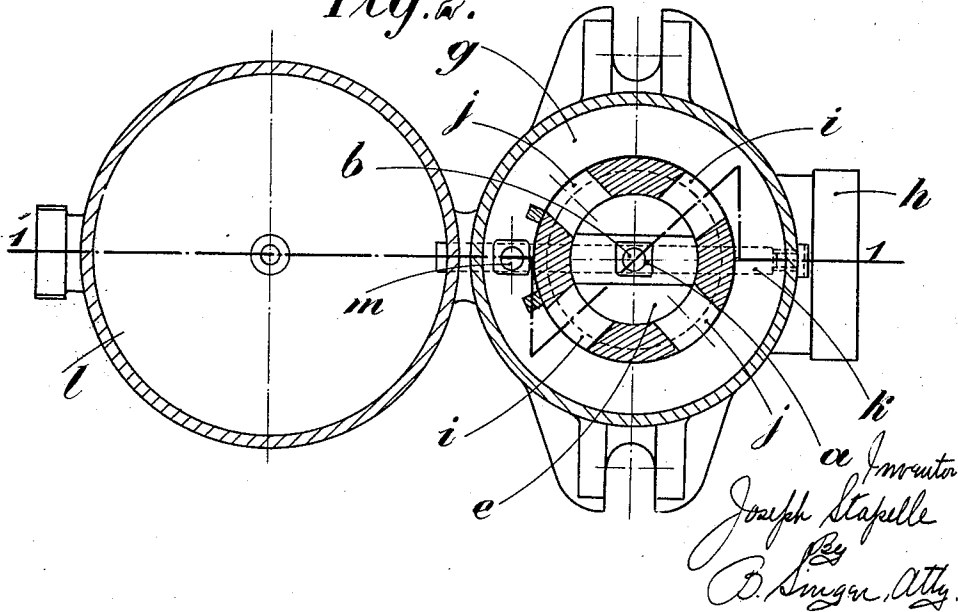


Fig. 2.



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CARBURETOR

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The purpose of the invention is to provide a carburetor, intended more specially for automobile engines, which in particular will enable a more thorough mixture of the carbureted air and fuel and easier starting and acceleration to be obtained, at the same time insuring a much smaller fuel consumption.

For the above purpose the invention consists essentially in combining with an adjustable air intake around and lengthwise of the main jet, a second air intake, also adjustable, but coming in laterally, around and approximately at the level of the funnel shaped outlet of the said main jet, allowing the air to enter in one or several streams, currents, or waves, these streams of air being emitted by holes, slits or windows cut radially in the walls of the choke tube at the same or at different levels and directed perpendicularly to the axis of the said main jet.

Accessorily, and in combination with the above essential arrangement, the invention also consists in providing an auxiliary jet or idling and compensating jet which is surrounded by a sleeve forming an annular air supply conduit at its base and if necessary towards the top of the jet, and making a carbureting chamber above the said jet which communicates with the outlet from the carburetor above the shutter or butterfly throttle valve.

As an example, the construction of a vertical carburetor built according to the invention is shown on the accompanying drawing, in which:

Fig. 1 is a vertical axial section of the carburetor taken on the line 1—1 of Figure 2.

Fig. 2 is a horizontal section taken on the line 2—2 of Figure 1.

The carburetor shown has a main nozzle *a* the outlet opening of which widens out like a funnel, this nozzle being placed in the axis of the intake conduit *e* provided with a venturi *f*, which conduit is supplied with air by a lower opening *c*. Around the conduit *e* is an annular chamber *g* communicating with the atmosphere by an opening *h*.

About on a level with the outlet *b* of the jet *a* openings, slits or windows are cut in the walls of the conduit *e* such as *i j*, prefer-

ably in pairs diametrically opposite, but which can be advantageously at different levels.

The conduit *k* bringing the liquid fuel from the float chamber *l* to the main nozzle *a*, also supplies the auxiliary nozzle *m*. The latter is placed in the annular chamber *g* and is surrounded by a tubular sleeve *n* with holes through the lower part forming air intakes. Above the nozzle *m* this sleeve forms a carbureting chamber which communicates with the suction tube *e* above the butterfly valve *p*, through a connecting tube *q* and a recess *p'* in the valve.

The openings, slits, windows or nozzles *i j* are directed perpendicularly to the nozzle *a*.

The number, the shape, the area, and the position of these openings will be suitably determined by tests.

The operation of the carburetor thus formed is as follows:

Under the effect of the rarefaction caused in the vertical conduit *e* by the suction of the engine, the air necessary for carbureting enters into the said conduit through the lower opening *c* and also through the lateral openings *i j*.

The air drawn in through the lower opening to the conduit *e* rises, flowing parallel to the nozzle *a*, and carries away the stream of liquid emitted by the said nozzle at the same time atomizing the liquid. On the other hand, the air drawn in through the openings *i j*, the direction of which is perpendicular to the said nozzle, forms perpendicular streams, currents or waves of air flowing against each other, for the purpose of thoroughly mixing the carbureted fuel and finely dividing the spray carried away by the vertical current of air.

The openings *i j* are placed at slightly different levels so as to increase the length of the zone in which the mixing action of the lateral air currents is exerted.

The use of an annular chamber *g* for supplying air to the lateral windows *i j*, enables the latter to be removed from the influence of exterior air currents which would act differently on each one on account of the motion of the vehicle and the action of the fan.

Moreover, the use of a single intake tube *h* to the said chamber enables the area of the air passage to be easily adjusted.

The sleeve *n* is provided with air intake openings *r*, which are here shown as approximately at the height of the compensating nozzle *m* and which provide lateral air currents analogous to those around the main nozzle.

The invention finally provides that the chamber *g* and the conduit *e* may be supplied with compressed air previously heated by any appropriate means.

What I claim is:

1. A carburetor comprising a body having an outer wall and an inner wall spaced from the outer wall to form an auxiliary air chamber therebetween and also having a main air inlet opening communicating with the lower end of the mixing chamber formed by said inner wall, and an air inlet opening communicating with the said auxiliary air chamber, a fuel supply nozzle arranged in said mixing chamber, the wall of said mixing chamber having air inlet openings leading from the auxiliary air chamber, an idling fuel supply nozzle arranged in said auxiliary mixing chamber, a tube in said auxiliary mixing chamber communicating at its upper end with the mixing chamber and having its lower end arranged around and spaced from said idling fuel supply nozzle and provided with air intake openings.

2. A carburetor as claimed in claim 1, including also a butterfly valve in said mixing chamber and a duct which establishes communication between said tube and said mixing chamber and a butterfly valve so arranged in said mixing chamber that said duct establishes such communication irrespective of whether said valve is in closed or open position.

In witness whereof I affix my signature.

JOSEPH STAPELLE.