K. MAYBACH.

CARBURETER.

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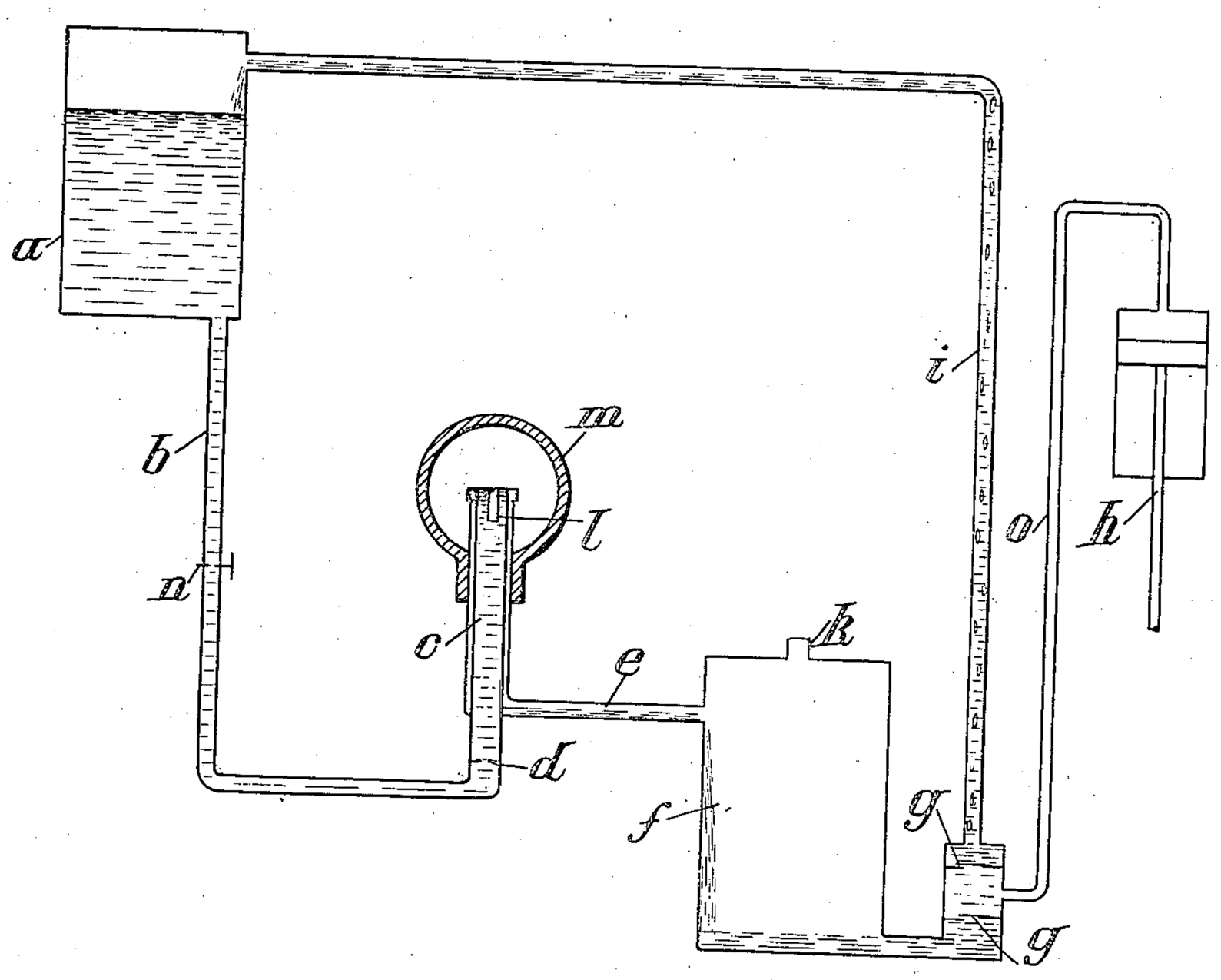
936,337.

Patented Oct. 12, 1909.



WITNESSES.

Wm. D. Bell

Chas. Kaufmann

INVENTOR.

Karl Maybach

by Gartner & Stewart

Attys.

UNITED STATES PATENT OFFICE.

KARL MAYBACH, OF PARIS, FRANCE.

CARBURETER.

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To all whom it may concern:

Be it known that I, KARL MAYBACH, a citizen of the German Empire, residing at Paris, in France, have invented certain new and useful Improvements in Carbureters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to a carbureter and it consists in a carbureter characterized by the feature that the mixing proportion of air and combustible remains the same with all number of revolutions of the motor and even with sudden changes notwithstanding the oscillations and the inclined position of the car.

In the carbureters hitherto known the level of combustible, in order to prevent its overflowing in case of oscillations and of an inclined position of the car, had to be placed some millimeters beyond the nozzle mouth. The consequence of this was that the mixing proportion of air and combustible did not remain constant with irregular revolutions of the motor which would be the case if the interior of the level would lie at the end of the nozzle mouth. A further inconvenience of the float arrangement hitherto employed in carbureters is to be seen in the fact that the whole column of combustible between the float and nozzle mouth becomes moved at each suction stroke and therefore has to be rendered more slow. This was the reason of a heavy throw out or spraying of combustible when the higher number of revolutions suddenly was changed into a lower number. The reason of this was the inertia of the column of combustible in motion. Several attempts have been made to prevent this irregularity by regulating the openings for the air suction or those of the combustible. The previous arrangements have been very complicated and do not work with exactitude, especially when the number of revolutions was changed suddenly. These inconveniences are completely obviated by the present invention in which the position of the level of combustible is placed at the highest point of the nozzle, and in which the rocking motion of the column of combustible is changed into a continual equal motion. For this purpose the nozzle projects into the combustible rising continually through an open tube. The overflowing combustible is repumped into a collector so that the non consumed part is in constant circulation. The flow to this overflow tube is so regulated, that in no case more combustible rises than is consumed.

The present invention is illustrated on the accompanying drawing by a diagrammatic view.

The combustible flows from the collector or other supply *a* through the tube *b* to the open tube *c* and rises within the same. This rise is regulated by a throat *d* of such dimension that only the quantity of combustible corresponding to the highest intensity of work is allowed to pass. The overflowing combustible passes into overflow tube *e*, leading to a collector *f* provided with an aperture *k* leading to the open air. Owing to this aperture there is always atmospheric pressure at the point of outflow. The collector *f* is in connection with an airpump *h* reconducting the combustible into the collector *a* through the pipe *i* by means of the suction and pressure valve *g* and the tube *o*. The combustible thus circulates completely and fills the overflow tube *c* constantly up to its highest point. A tubular discharge device or nozzle *l*, exactly adjusted, projects into the tube *c* and is attached to the cover of the tube *e*, the thickness of which and the distance from tube *c* are so small that the level of the combustible is practically placed at the highest point of the nozzle. The latter is surrounded by an air suction nozzle *m* or other conductor for the fluid to be carbureted. The conductor tube *b* may be provided with a cock *n* or the like by means of which the flow of combustible may be stopped. The said cover of tube *e* thus constitutes a barrier acting to divert the main body of the liquid stream flowing out of tube *c*, while only a limited flow into the nozzle or conductor *m* takes place through the discharge device *l*.

The manner of working of the carbureter of the invention is the following: The motor draws air through the nozzle *m* by means of suction, at the same time combustible through the nozzle *l*. Even with the slightest suction effect the outflow of combustible always remains proportional to the quantity of air, for the reason that the level of combustible is placed onto the highest point of the nozzle. There is not only a constant supply of combustible effectively available at all times at the point of discharge of the nozzle

l, but any spraying of the combustible or other undue and irregular ejection thereof at the nozzle, produced by the body of the combustible in the means forming the supply for said nozzle, is entirely avoided. This spray is an inconvenience in all carbureters with float regulation.

So far as I am aware, it is novel to provide, in a tubular structure for conducting the carbureting liquid into operative proximity to the fluid to be carbureted (such structure having its discharge end projecting upwardly and open), a tubular discharge device such as *l* having less external diameter than the internal diameter of the discharge end of said structure, said structure and the discharge device having their upper ends approximately in the same plane so that the level of the liquid in the discharge device will be maintained at or near its upper end. It is also novel, so far as I know, to provide a means for diverting the main body of the liquid stream emerging from said structure and allowing only a limited portion thereof to escape into the influence of the fluid to be carbureted, comprising a barrier (in the present instance the cover of pipe *e*) closely disposed opposite to but spaced from the upwardly open end of said structure and having a limited liquid escape orifice. I therefore claim these features broadly.

The reconduction of the combustible from the collector *f* into the collector *a* can be effected automatically or by hand continually or not. The described arrangement by means of the pump *h* is especially good for this purpose. The same is arranged in such a manner that the surplus of combustible is reconducted without having been in connection with the lubricating oil of the pump, thus becoming dirty, the valves and the pump being separated sufficiently and the connection (pipe *o*) between the valves *g* and the pump *h* is sufficiently long to prevent this. The piston of the pump *h* is directed upward so that no oil is allowed to flow into the valves.

The collector *a* lies on a higher plane than the nozzle *l* so that the combustible is led to the nozzle at the natural pressure. On motor cars the collector generally lies on a lower plane than the nozzle so that the combustible of the collector must be set under pressure. This setting under pressure can be effected very easily with the arrangement of the present invention by means of the pump *h*. For this purpose such a quantity of air is pressed into the collector together with the combustible as the machine consumes combustible.

Claims:

1. In a carbureting apparatus, the combination, with means for directing the flow of the moving body of fluid to be carbureted, of a supply for the carbureting liquid, means for conducting the carbureting liquid from the supply into operative proximity to the path of flow of the moving body of fluid to be carbureted comprising a tubular structure having its discharge end projecting upwardly and open, and a tubular discharge device arranged in the upper end of said structure and having less external diameter than the internal diameter of the same, the upper ends of said structure and the discharge device being approximately in the same plane, substantially as described.

2. In a carbureting apparatus, the combination, with means for directing the flow of the moving body of fluid to be carbureted, of a supply for the carbureting liquid, means for conducting the carbureting liquid from the supply into operative proximity to the path of flow of the moving body of fluid to be carbureted comprising a tubular structure having its discharge end projecting upwardly and open, and means, comprising a barrier closely disposed to but spaced from the upwardly open end of said structure and having a relatively limited liquid escape orifice, for diverting the main body of the liquid stream flowing from said structure and allowing only a limited portion of said stream to escape into the path of flow of the moving body of fluid to be carbureted, substantially as described.

3. In a carbureting apparatus, the combination, with means for directing the flow of the moving body of fluid to be carbureted, of a supply for the carbureting liquid, means for conducting the carbureting liquid from the supply into operative proximity to the path of flow of the moving body of fluid to be carbureted comprising a tubular structure having its discharge end projecting upwardly and open, means, comprising a barrier closely disposed to but spaced from the upwardly open end of said structure and having a relatively limited liquid escape orifice, for diverting the main body of the liquid stream flowing from said structure and allowing only a limited portion of said stream to escape into the path of flow of the moving body of fluid to be carbureted, and an overflow tube depending from said barrier and inclosing the tubular structure, substantially as described.

4. In a carbureting apparatus, the combination, with means for directing the flow of the moving body of fluid to be carbureted, of a tubular conducting means for the carbureting liquid having end portions thereof extending upwardly into operative proximity of the path of flow of said body of fluid and the one arranged within the other, a tubular discharge device arranged in the top of the relatively inner end portion of

said conducting means and having its top in approximately the same plane as the top of said end portion, the other end portion having a barrier disposed closely to the discharge end of the inner end portion and carrying said discharge device, suction and pressure valves arranged in said conducting means, and a pump connected with said conducting means between said valves, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses.

KARL MAYBACH.

Witnesses:
H. C. COXE,
MAURICE ROUX.