R. M. ANDERSON.

CARBURETING APPARATUS.

APPLICATION FILED APR. 25, 1914.

**1,333,149.** Patented Mar. 9, 1920.

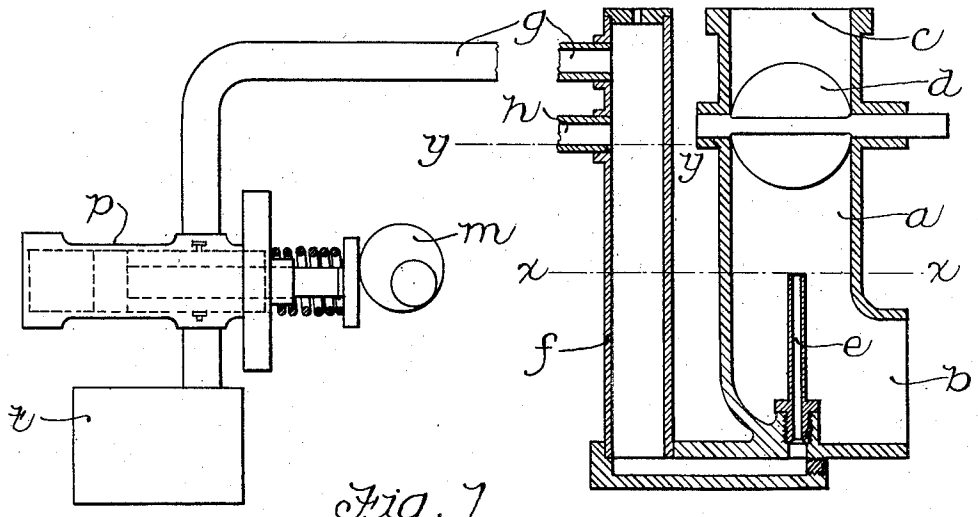



Fig. 1

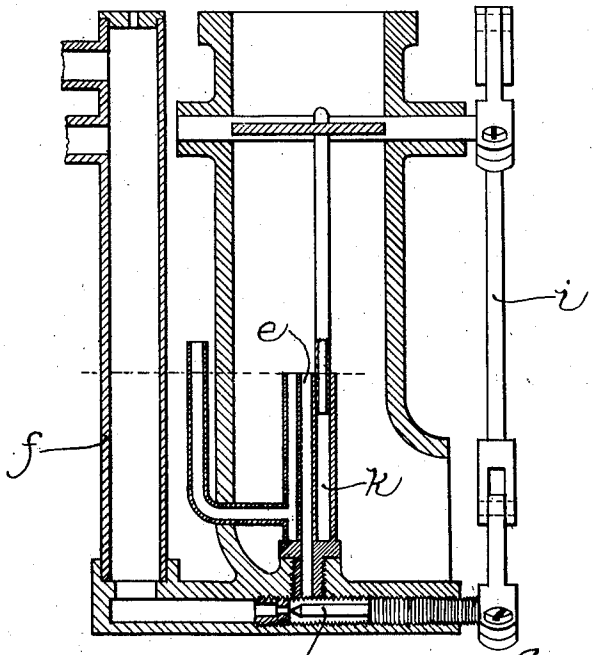



Fig. 2

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# UNITED STATES PATENT OFFICE.

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## CARBURETING APPARATUS.

1,333,149. Specification of Letters Patent. Patented Mar. 9, 1920.

Application filed April 25, 1914. Serial No. 834,298.

*To all whom it may concern:*

Be it known that I, RAYMOND M. ANDERSON, a citizen of the United States, and resident of Chicago, in the county of Cook and State of Illinois, have invented certain new aud useful Improvements in Carbureting Apparatus, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to carbureting apparatus for operation on internal combustion engines and is concerned with certain improvements, to the end of producing a highly efficient mixture for combustion.

While it can be seen that my invention may be used advantageously on either a constant speed engine or a variable speed engine, it will appear, as this description proceeds, that certain features are provided for taking care of varying conditions which are created by variations in the speed of the engine.

In view of the filing of applications divisional hereof, I am herein concerned only with an improved fuel feed wherein I provide means whereby the ordinary suction flow may be augmented by a gravity flow; and I provide novel means for putting this idea into practice. As will appear, the gravity flow forms a greater proportion of the entire flow at the lower suctions than at the higher suctions, so that the desirable thinning of the mixture as the suction increases is secured. Since the relation of the suction to the speed depends upon the load, I shall refer to the varying effects in terms of suction, which affects the carbureter in the same way and to the same extent at any point, whether that suction is due to a decreased load and an increased speed, or whether it is due to an increased load and a decreased speed.

In the accompanying drawings,

Figure 1 illustrates the carbureting apparatus of my invention in vertical section and more or less diagrammatically; and Fig. 2 illustrates similarly a modified form thereof.

I have shown a simplified form of carbureting chamber and supply well. The carbureting chamber *a* has the air inlet *b* and the mixture outlet *c*, the latter being controlled by a throttle *d*. The fuel nozzle *e* is disposed in the carbureting chamber and is connected with the supply well *f*, to which liquid fuel is fed by means of the pipe *g*, and in which a level is determined by the outlet *h*. The pipe *g* leads from a pump *p*, operated by cam *m* of the engine with which the carbureting chamber is connected, whereby fuel is drawn from a suitable source of supply *t*. It will now be seen that, when the engine is standing still, the gasolene will occupy the position indicated by the line *x*—*x* and there will be a supply for starting purposes. As soon as the engine is started, more fuel will be pumped in, by way of the pipe *g*, and the level in the well *f* will rise to the line *y*—*y*. Thus, while the engine is running, there is a constant head amounting to the distance between the levels *x*—*x* and *y*—*y*, and this head results in a gravity feed from the nozzle *e*, entirely independent of suction. However, this feed is supplemented by the feed due to suction and aspiration, and I, therefore, provide means for supplying a richer mixture at the low suctions and a leaner mixture at the high suctions, with a gradual change from limit to limit, since the gravity feed, which is constant, amounts to a much larger proportion in the total feed at the low suctions than it does in the larger total feed at the higher suctions.

In Fig. 2, I illustrate somewhat the same arrangement except that I provide mechanical means *i* for connecting the throttle and a valve *j* controlling the fuel feed from the well *f* to the nozzle *e* and, in addition thereto, a well *k* which takes the overflow after the engine has stopped and which feeds this into the manifold above the throttle by means of a jet leading to the throttle as shown, when the engine is next started.

I claim as new and desire to secure by Letters Patent:

In combination, a carbureting chamber having an air inlet and a mixture outlet, a fuel nozzle leading into said chamber, a well connected with said nozzle, means for maintaining a level of liquid fuel in said well above the outlet of said nozzle, a well receiving the overflow from said nozzle, and a second nozzle leading from said well to a point above the throttle.

In witness whereof, I hereunto subscribe my name this 23rd day of April, A. D. 1914.

RAYMOND M. ANDERSON.

Witnesses:

JOHN A. DIENNER,

LESLIE W. FRICKE.