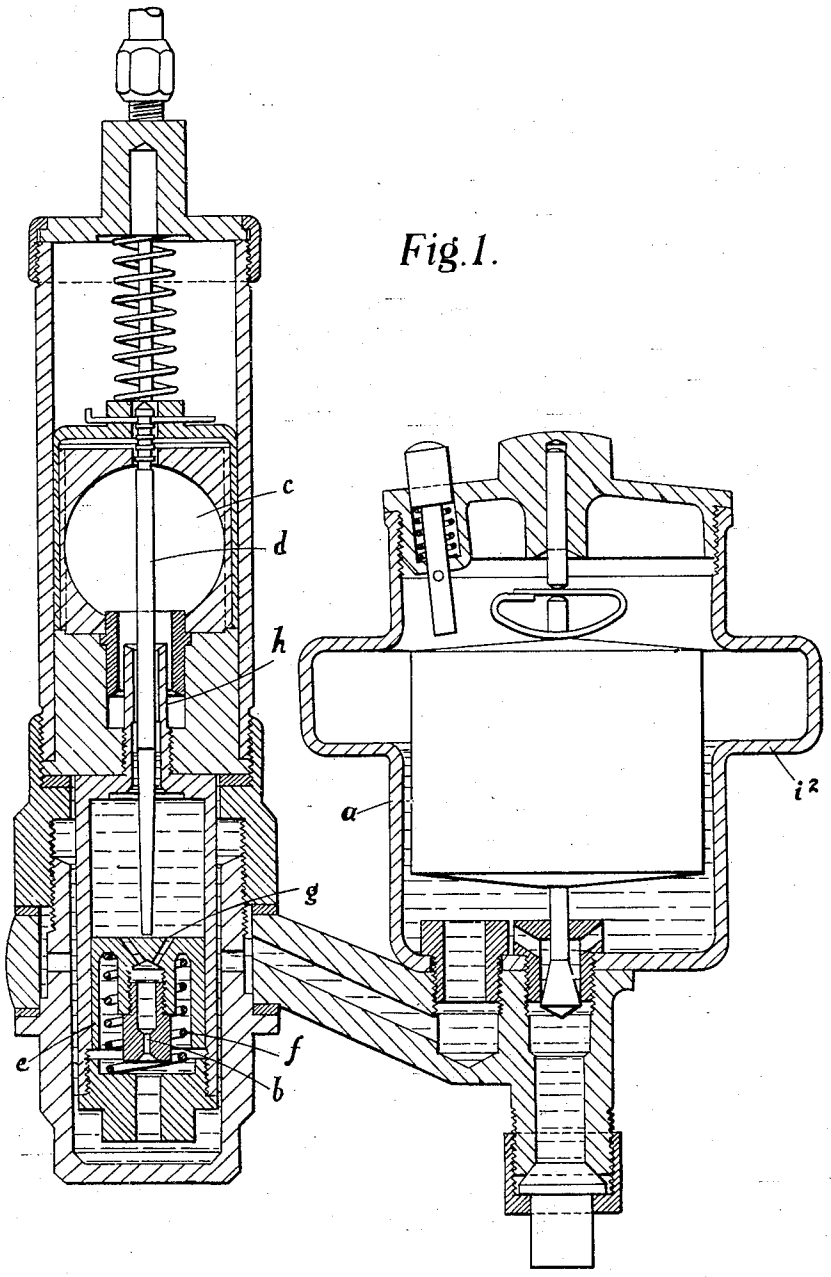
Sept. 6, 1932. C. BROWN 1,875,557

CARBURETOR FOR INTERNAL COMBUSTION ENGINES

Filed Dec. 26, 1929 2 Sheets-Sheet 1

Fig. 1.



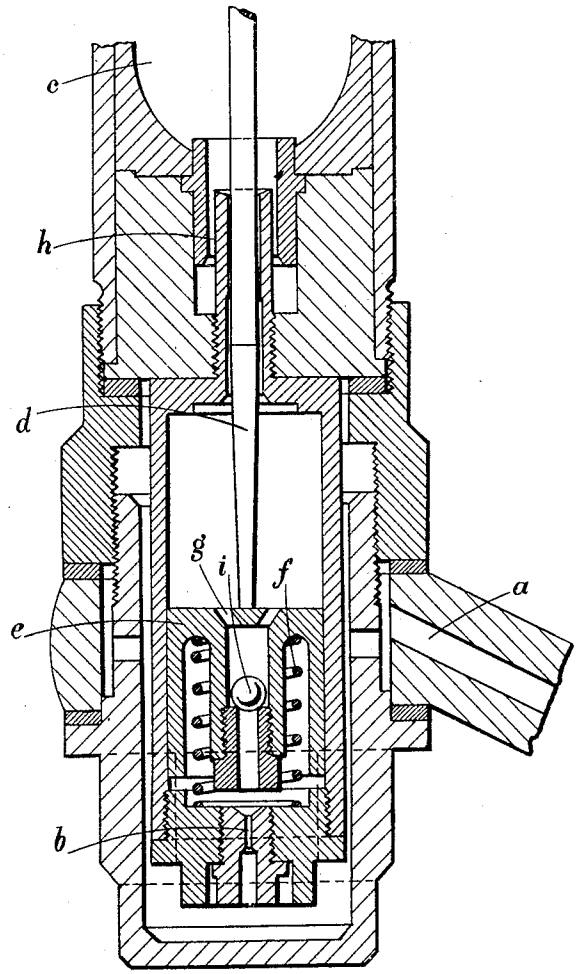
INVENTOR
Clement Brown
BY
B. Singer
ATTORNEY

Sept. 6, 1932. C. BROWN 1,875,557

CARBURETOR FOR INTERNAL COMBUSTION ENGINES

Filed Dec. 26, 1929 2 Sheets-Sheet 2

Fig. 2.



INVENTOR
Clement Brown
BY
B. Singer
ATTORNEY

Patented Sept. 6, 1932

1,875,557

UNITED STATES PATENT OFFICE

CLEMENT BROWN, OF PERRY BARR, BIRMINGHAM, ENGLAND, ASSIGNOR TO AMALGAMATED CARBURETTERS LIMITED, OF BIRMINGHAM, ENGLAND, A BRITISH COMPANY

CARBURETOR FOR INTERNAL COMBUSTION ENGINES

Application filed December 26, 1929, Serial No. 416,577, and in Great Britain January 10, 1929.

This invention comprises certain improvements in or relating to carburetors for internal combustion engines and it refers to the type of carburetor wherein provision is incorporated for regulating the ingress of fuel by or in accordance with the movements of the throttle valve. It is one of the objects of the present invention to provide for an effectual process of fuel delivery in circumstances in which in a carburetor of this type the throttle valve is opened in a substantial degree by a quick movement. We attain this object by making provision for forced delivery of the fuel in circumstances in which the action of quick opening occurs.

In order that this invention may be clearly understood and readily carried into practice reference may be had to the appended explanatory drawings in which:—

Figure 1 illustrates one embodiment of the present invention.

Figure 2 illustrates a modified embodiment of the present invention.

In a convenient embodiment of the present invention we provide at a position below the normal level of the liquid fuel in the source of supply *a* a jet *b* adapted to deliver into a chamber or cylinder which extends upwardly to a point above the normal liquid fuel level in the supply. At this point above the said level of liquid fuel the fuel is adapted to be admitted to the main draught passage *c* of the carburetor by an opening which is controlled by a taper needle *d* projecting downwardly into the vertical chamber or cylinder. This needle may be fixed to and adapted to move with a piston throttle valve moving vertically across the draught passage towards and away from the orifice which the taper member regulates. In the vertical cylinder I provide a piston *e* below which a coiled spring *f* is incorporated to normally tend to press it upwardly against the lower extremity of the taper needle. Through this piston one or more perforations *g* is or are provided of a capacity or aggregate capacity equal to or exceeding the capacity of the primary jet. The piston assumes a position below the normal liquid fuel level in the supply and normally the fuel is adapted to flow successively through the primary jet, the orifices or orifices in the piston and the delivery orifice controlled by the taper needle. But if the taper needle is caused to ascend rapidly the piston ascends with it under the influence of the spring and impels the accumulated liquid fuel above said piston through the delivery orifice *h* into the draught passage. Upon the piston being brought to rest in its upward movement by the taper needle normal conditions of supply resume.

It may be desirable to provide for a quick closing of the throttle in conditions in which the liquid fuel is not to be forced rearwardly to the source of supply. With this object in view we may if desired as shown in Figure 2 incorporate in the piston *e* a non-return valve *i* which for example may comprehend a ball valve providing for a free flow of liquid from the lower to the upper side of the piston while when the piston *e* operates in its function of impelling the excess fuel the non-return ball valve *i* is automatically closed so that the piston operates in manner similar to that obtaining in circumstances in which this non-return valve is not incorporated.

To provide for any back flow of liquid fuel however we may additionally or alternatively include an enlargement in the float chamber as indicated at i^2.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. In a carburetor, a liquid fuel well, means to supply fuel thereto, a piston fitted in the well and having a restricted duct for the passage of fuel from the well, a needle valve bearing on the piston and arranged for movement together with the piston, a spring active to cause the piston to follow the needle valve when the latter is withdrawn and thus cause the piston to force fuel thereabove into the mixing element of the carburetor and a valve to close against return movement of fuel through the piston.

2. In a carburetor, a liquid fuel well, means to supply fuel thereto, a piston fitted in the well and having a restricted duct for the passage of fuel from the well, a throttle valve,

a needle valve carried thereby so as to bear on the piston and arranged for movement together with the piston and a spring active to cause the piston to follow the needle valve when the latter is withdrawn and thus cause the piston to force fuel thereabove into the mixing element of the carburetor.

In witness whereof I affix my signature.

CLEMENT BROWN.