PATENT SPECIFICATION

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Complete Accepted: Dec. 12, 1922.

COMPLETE SPECIFICATION.

Improvements in and relating to Carburettors.

I, GEORGE CONSTANTINESCO, of "Carmen Sylva", Beechwood Avenue, Oatlands Park, Weybridge, in the County of Surrey, a subject of the King of Great Britain and Ireland, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The present invention relates to carburettors and has for its object to construct such devices in an extremely simple manner, to control the petrol flow so that the correct mixture is supplied at all speeds and further to ensure that the petrol flow is stopped when the ignition is cut off.

In the carburettor to which the invention relates the fuel passing to the jet is controlled by a needle or other valve actuated by a solenoid energised by the magneto so that the jet is closed when the ignition is cut off.

The invention also consists in a carburettor having a suitably arranged solenoid of high reactance controlling a needle valve and connected with the low tension coil of the magneto in parallel with the make and break circuit, so that a portion of the current from the magneto energises the solenoid and opens the jet when the starting switch is in the position for running and allows the needle valve to close the jet when the ignition is cut out.

The invention further consists in a carburettor having a suitably arranged solenoid of low reactance controlling a needle valve and connected in series with the low tension circuit of the armature of the magneto, which is suitably arranged for this purpose.

The invention further consists in a carburettor of the immersed jet type in which the flow from the jet depends on a constant head and variable suction the jet being closed by a needle valve when the ignition is cut off and opened by current from the magneto when the ignition is switched on.

The invention also consists in the improved carburettor hereinafter described.

Referring to the accompanying drawings:—

Fig. 1 is a section of the carburettor also showing the magneto and wiring arrangement according to one form of the invention.

Fig. 2 is a sectional plan showing the arrangement of the float.

Fig. 3 shows the wiring arrangement according to another form of the invention.

In the form of the invention illustrated in Fig. 1, the carburettor float chamber *a* is cast with a portion of the engine induction pipe *b*; the jet *c* is situated in a central position in the bottom of the chamber immediately above the throttle valve *d*. On the cover *e* of the float chamber immediately above the jet there is provided a bobbin *h* on which is wound a solenoid *f* of high reactance adapted when energised to lift by electromagnetic action of alternating current a steel armature *g* whose lower end forms a needle valve which normally closes the jet *c* when the ignition is cut out. The upward movement of the armature is limited by a suitable stop *v*. The petrol inlet *k* to the float chamber is situated at one side and is controlled by a needle valve *l* actuated by an upwardly projecting arm *m* on a horizontally pivoted stamping *n* forming the float lever. The float may consist of a piece of cork *o* attached to the free end of the lever which extends across the float chamber. A small passage *p* say of 1 m/m. diameter opening above the petrol level and communicating through the passage *q* with the induction pipe between the throttle and the engine is provided in order to create a partial vacuum, depending on the position of the throttle *d*. An aperture

[*Price* 1/-]

r is formed in the float chamber cover at one side and a slotted screw plug s is provided to vary the air pressure in the chamber for adjusting the carburettor for slow running. The jet is of fixed aperture with diameter about 5 *per cent.* of that of the choke tube. One terminal of the solenoid is earthed and the insulated terminal t is connected to the insulated terminal u of the low tension circuit of the magneto y so that the solenoid is thus in parallel with the circuit through the low tension magneto coil and starting switch w situated on the dashboard.

The operation of the above described arrangement is as follows:—

On closing the starting switch and turning over the engine the magneto energises the solenoid during the time the contact breaker is open and the needle valve therefore receives an impulse in the upward direction at each break and is kept moving up and down rapidly about a mean position above the jet to allow the petrol to flow. The flow depends on the constant head above the jet and the suction in the induction pipe. The adjustment is effected by first running the engine up to speed on open throttle to determine the correct size of jet with the air aperture into the float chamber fully open and then adjusting the air inlet in the float chamber by means of the slotted plug until the mixture is correct when the throttle is nearly closed.

With the arrangement of wiring above described the current at starting will be weak and it is necessary to employ some means of priming the carburettor. This may be effected by passing a small current from a battery through the solenoid before starting the engine, or the needle closing the jet may be lifted by mechanical means so as to allow some petrol to flow.

In another form of the invention shown in Fig. 3 the solenoid f is placed in series with the low tension coil of the magneto so that all the current from the armature of the magneto passes through the solenoid. In this form of the invention the reactance of the solenoid must be small in order that the working of the magneto may be satisfactory at high speeds.

On switching off the ignition the armature of the solenoid falls and closes the jet; and it will be seen that with the apparatus arranged as above described as the petrol is immediately cut off when the ignition is cut out the engine can be driven by the road wheels or propeller without any petrol being drawn into the engine, the correct mixture being immediately supplied when the ignition is again switched on. The engine can thus be used as an air brake with full open throttle.

The invention is especially suitable to carburettors with reversed immersed jets of the type above described but it will be readily seen that it may also be applied to carburettors with the ordinary jets if desired.

It should be noted that the steel needle is subjected to the action of alternating magnetic impulses, but the needle, owing to its inertia, is kept clear of the petrol jet while the magneto is running, having an oscillatory motion about a mean position clear of the petrol jet.

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

1. A carburettor having a suitably arranged solenoid of high reactance controlling a needle valve and connected with the low tension coil of the magneto in parallel with the circuit in which the starting switch is situated so that current from the magneto energises the solenoid and opens the jet when the starting switch is in the position for running and allows the needle valve to close the jet when the ignition is cut out substantially as described.

2. A carburettor as claimed in Claim 1 having a suitably arranged solenoid of low reactance controlling a valve, the solenoid being placed in series with the low tension coil of the magneto substantially as described.

3. A carburettor of the immersed jet type in which the flow from the jet depends on a constant head and variable suction the jet being closed by a needle valve when the ignition is cut off and opened by current from the magneto when the ignition is switched on substantially as described.

4. The improved carburettor hereinbefore described and illustrated in the accompanying drawings.

Dated the 12th day of September, 1921.

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Fig. 1.

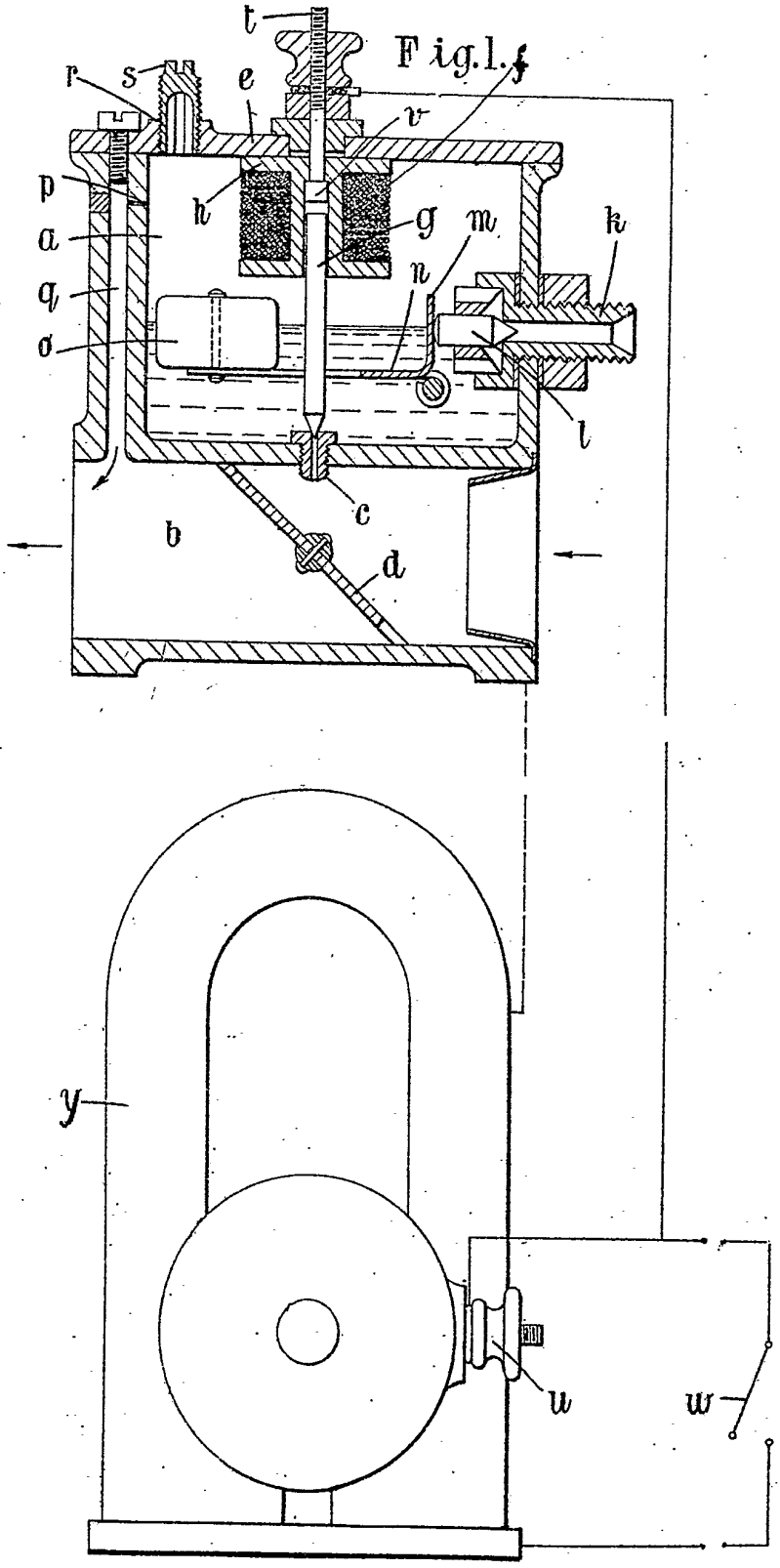


Fig. 2.

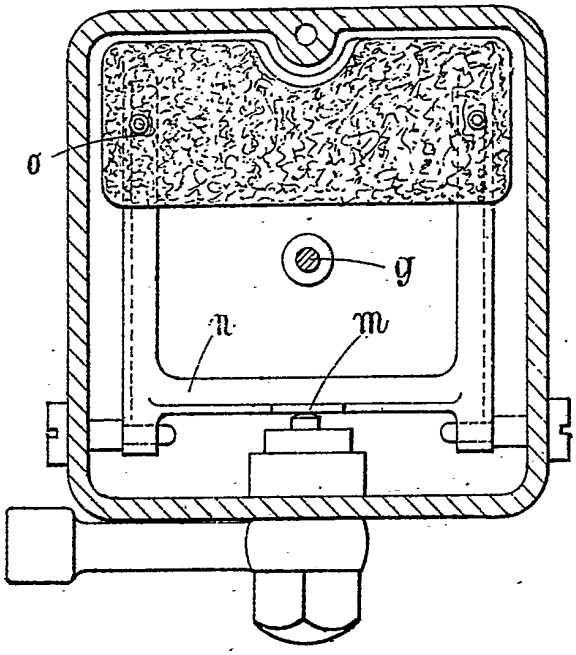
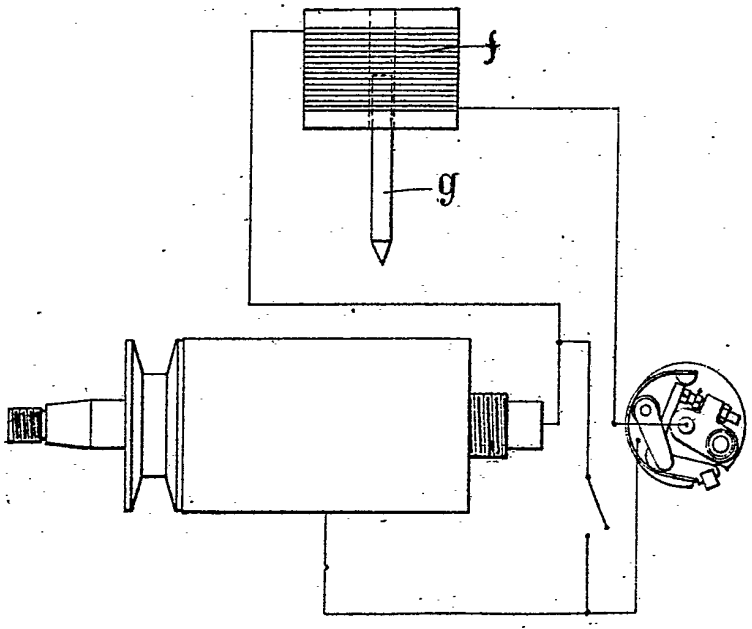


Fig. 3.



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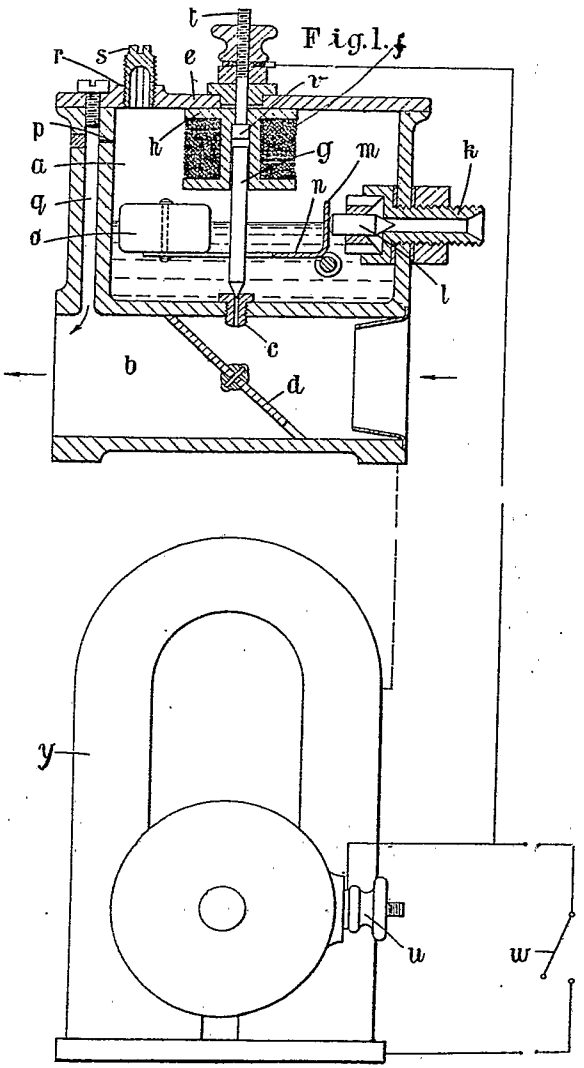


Fig. 2.

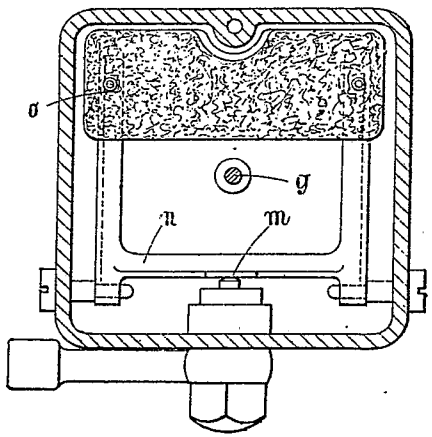
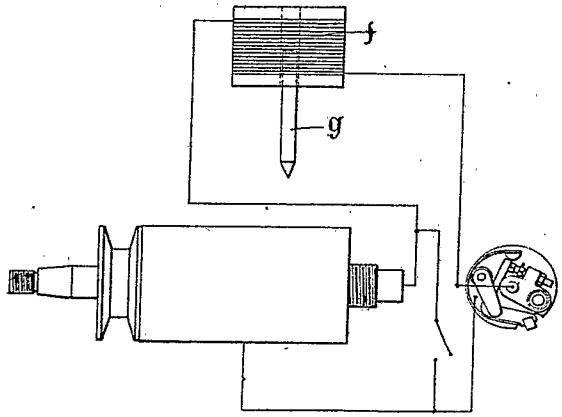


Fig. 3.



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