

J. E. WHEELER.
AIR INLET DEVICE FOR EXPLOSIVE ENGINES.
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1,176,117.

Patented Mar. 21, 1916.

Fig. 1.

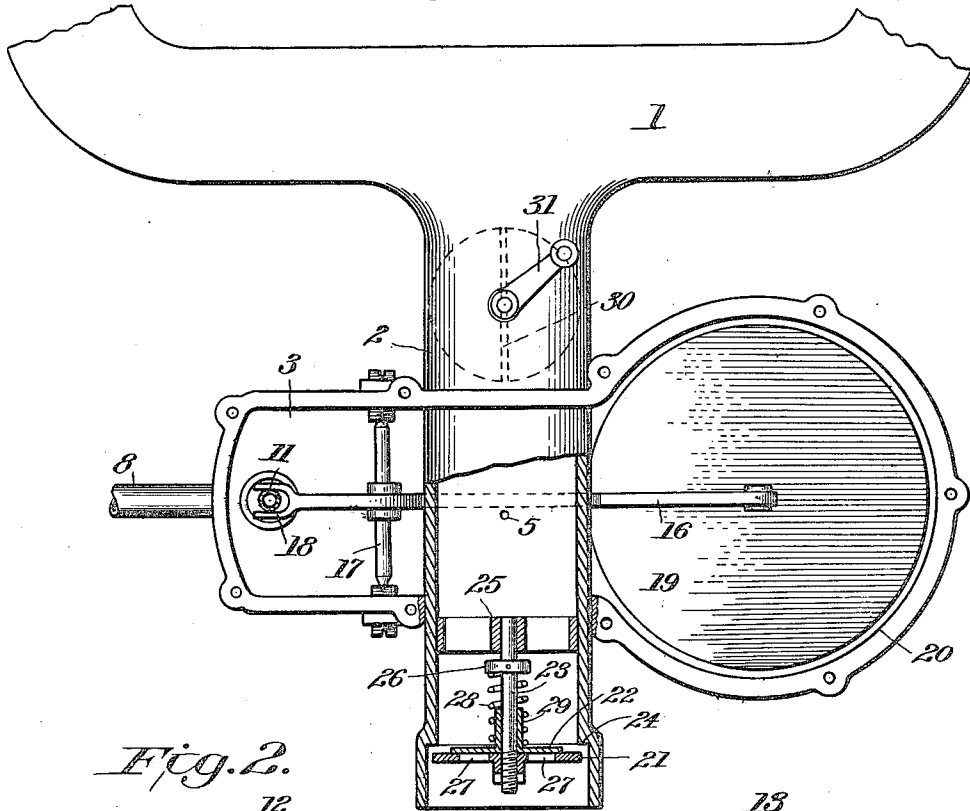
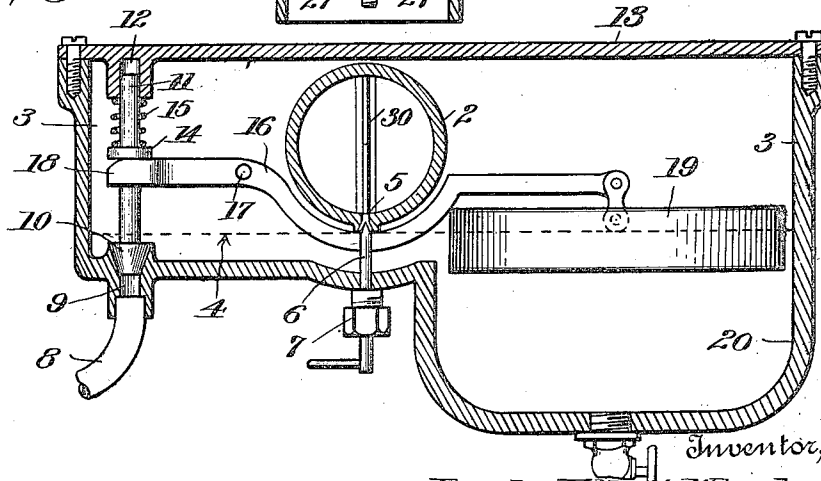


Fig. 2.



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AIR-INLET DEVICE FOR EXPLOSIVE-ENGINES.

1,176,117.

Specification of Letters Patent.

Patented Mar. 21, 1916.

Application filed August 31, 1915. Serial No. 48,173.

To all whom it may concern:

Be it known that I, JOSEPH ELBERT WHEELER, a citizen of the United States, residing at Clifton Forge, in the county of Alleghany and State of Virginia, have invented certain new and useful Improvements in Air-Inlet Devices for Explosive-Engines, of which the following is a full, clear, and exact specification.

This invention relates to air inlet valves for carbureters for internal combustion engines especially designed for use on cars operated by gas engines on railway tracks, automobiles, and the like and has for one of its objects to provide for the more effective operation of such carbureters through a better mixture of the air and gasoline and to reduce waste to a minimum.

Other objects will appear as the description proceeds.

The invention will be first hereinafter described in connection with the accompanying drawings, which constitute a part of this specification, and then more specifically defined in the claims at the end of the description.

In the accompanying drawings, wherein similar reference characters are used to designate corresponding parts throughout the several views, Figure 1 is a plan view of a carbureter and the portion of the manifold of an internal combustion engine which is arranged adjacent the carbureter, part of the air intake pipe of the manifold being broken away to show the inlet for the gasoline thereto, and the cover of the carbureter being removed to disclose the mechanism in the same, and Fig. 2 is a vertical section taken transversely of the air intake pipe and through the gasoline inlet therein.

The manifold 1 is provided with a branch pipe 2 designed for taking in air and which extends through the float chamber 3. The pipe 2 is arranged horizontally with its lowest portion preferably at or near the normal level of the gasoline in the carbureter, as indicated by the broken line 4 in Fig. 2. This lower portion of the pipe 2 has a gasoline intake opening 5 into which an adjustable pin or needle valve 6 extends from the bottom of the carbureter, said valve being vertically adjustable by means of the nut 7.

The gasoline is fed to the carbureter from the storage tank (not shown) via pipe 8 and port 9, the latter being normally closed

by a valve 10 the stem 11 of which is guided in a socket 12 in the cover 13 of the carbureter. The valve stem 11 has a collar 14 fast thereon, and between said collar and the socket 12 a coiled spring 15 is arranged about the stem. A lever 16, pivoted at 17 within the carbureter, has one end forked, as at 18, to engage the under face of the collar 14 and embrace the stem 11. The other end of the lever 16 is connected to a float 19 arranged in a well 12 at one end of the carbureter. When the gasoline is at the normal level 4, the spring 15 holds the valve 10 firmly to its seat so as to close the port 9 and cut off a further supply of gasoline to the carbureter from the storage tank. The spring is strong enough to hold the valve 10 closed at such times in spite of jolts and jars incident to running an automobile equipped with the carbureter. When, however, a sufficient quantity of the gasoline has been consumed to appreciably lower the level of the gasoline in the carbureter, the weight of the float 19 will overcome the spring 15 and open the valve 10, permitting gasoline to enter from the storage tank until the supply in the carbureter is again at the normal level, whereupon the float 19 will rise and permit the valve 10 to close under the action of the spring 15.

The end of the pipe 2 which extends through the carbureter is open and fitted with an adjustable air intake valve comprising a rigid part 21 and a movable part 22. The rigid part 21 is adjustable on a stem 23 to and from a shoulder or seat 24 in the end of the pipe 2. Said stem 23 is fastened at its inner end to a spider 25 and has a collar 26 fast thereon. The part 21 is perforated, as is 27, and the movable part or disk 22 is pressed into engagement with the inner face of the part 21 so as to cover the perforations 27, by a spring 28 coiled about the stem 23 and abutting at its opposite ends against the disk 22 and collar 26. A sleeve 29 extends from the disk 22 around the stem 23 and into the coils of the spring 28 for guiding said disk in its inward and outward movements.

The part 21 of the air valve is preferably adjusted on the stem 23 to leave a small space between its periphery and the seat 23, as shown, and admit a certain quantity of air when the engine is started. When the engine is running, each suction stroke thereof will draw disk 22 inward away from the

part 21, thereby uncovering the perforations 27 in said part and permitting air to be sucked in through said perforations as well as around the periphery of the part 21.

5 The suction of the air through the branch pipe 2 will draw in some of the gasoline from the chamber 3 through the opening 5 on each suction stroke of the engine, and the gasoline upon entering the pipe 2 will
10 become mixed with the air therein on the way to the manifold so that by the time the manifold is reached the air and gasoline will be well mixed.

The throttle valve 30 is placed in the
15 branch pipe 2 between the carbureter and the manifold and is, therefore, adapted to simultaneously cut off the supply of air and gasoline from the manifold. It will be understood that the throttle valve 30 is controlled through the crank 31 and other usual
20 connections, not shown.

Having thus fully described my invention what I claim as new and desire to secure by Letters Patent is:—

25 1. The combination with the air intake pipe of a carbureter, said pipe having a valve seat in its outer end, of a spider in said pipe, a stem fastened at its inner end to said spider, the outer end of the stem
30 being screw-threaded and extending beyond the valve seat, a perforated disk adjustably

mounted on the screw threaded end of the stem and normally positioned slightly away from the valve seat, and a spring-pressed disk to engage the inner face of the perforated disk and cover the perforations therein, said spring-pressed disk being adapted to be drawn away from the perforated disk against the action of the spring by suction. 35

2. The combination with an air intake
40 pipe of a carbureter, said pipe having an outwardly facing valve seat in its outer end portion, of a valve arranged beyond said seat and comprising a rigid perforated disk normally spaced away from the valve seat, and a suction operated disk overlying the perforations on the inner face of the rigid disk. 45

3. The combination with an air intake
50 pipe of a carbureter, said pipe having an outwardly facing valve seat in its outer end portion, of a valve arranged beyond said seat and comprising a rigid perforated disk, means for adjustably holding said disk at
55 different distances from the valve seat, and a suction operated disk overlying the perforations on the inner face of the rigid disk.

In testimony whereof I have hereunto set my hand this 28th day of August, 1915.

JOSEPH ELBERT WHEELER.