J. M. SAILER.

CARBURETER.

APPLICATION FILED JAN. 2, 1909.

984,109. Patented Feb. 14, 1911.

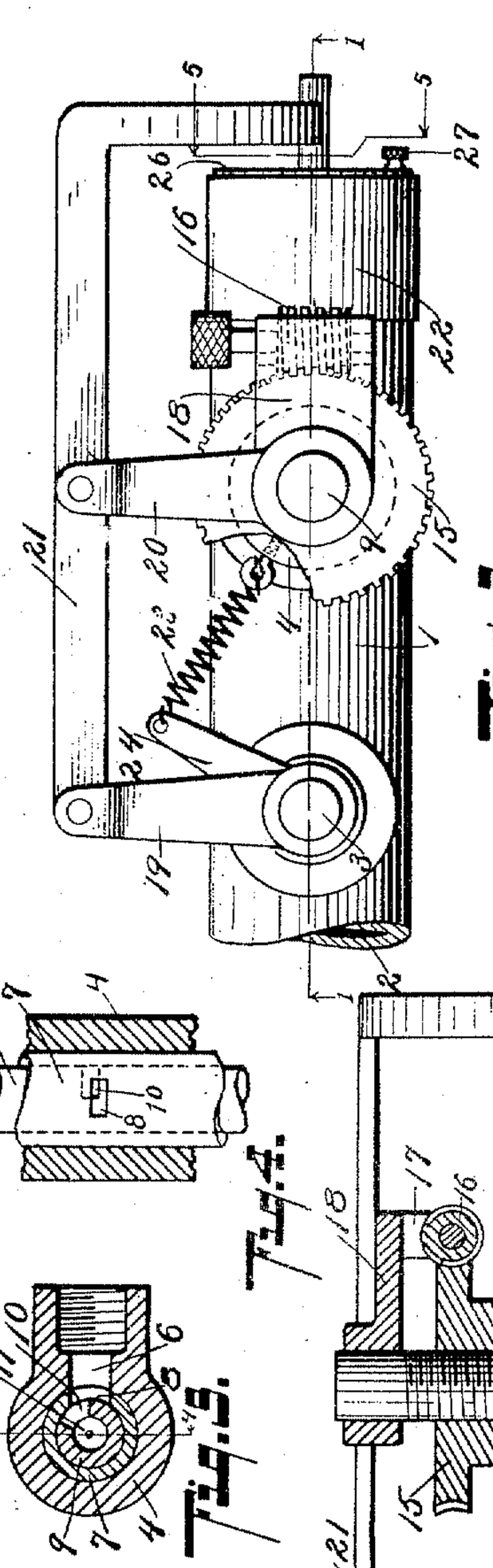


Fig. 2.

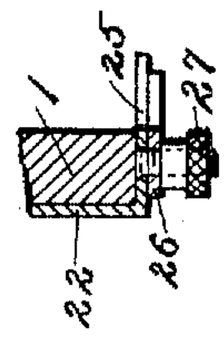


Fig. 5.

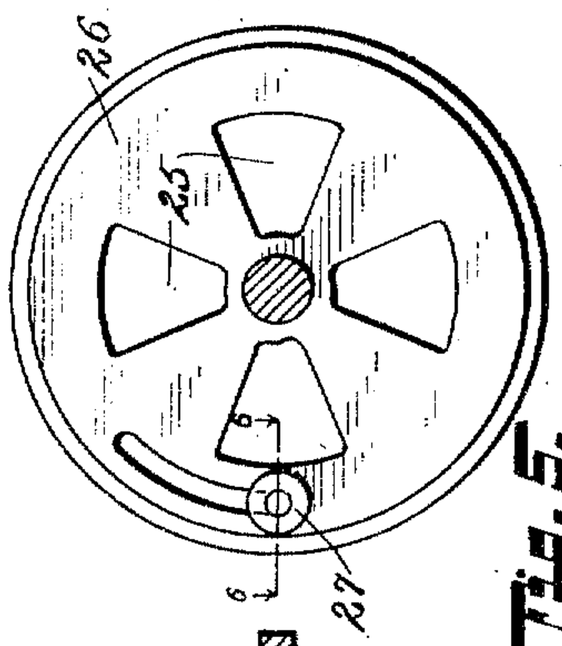
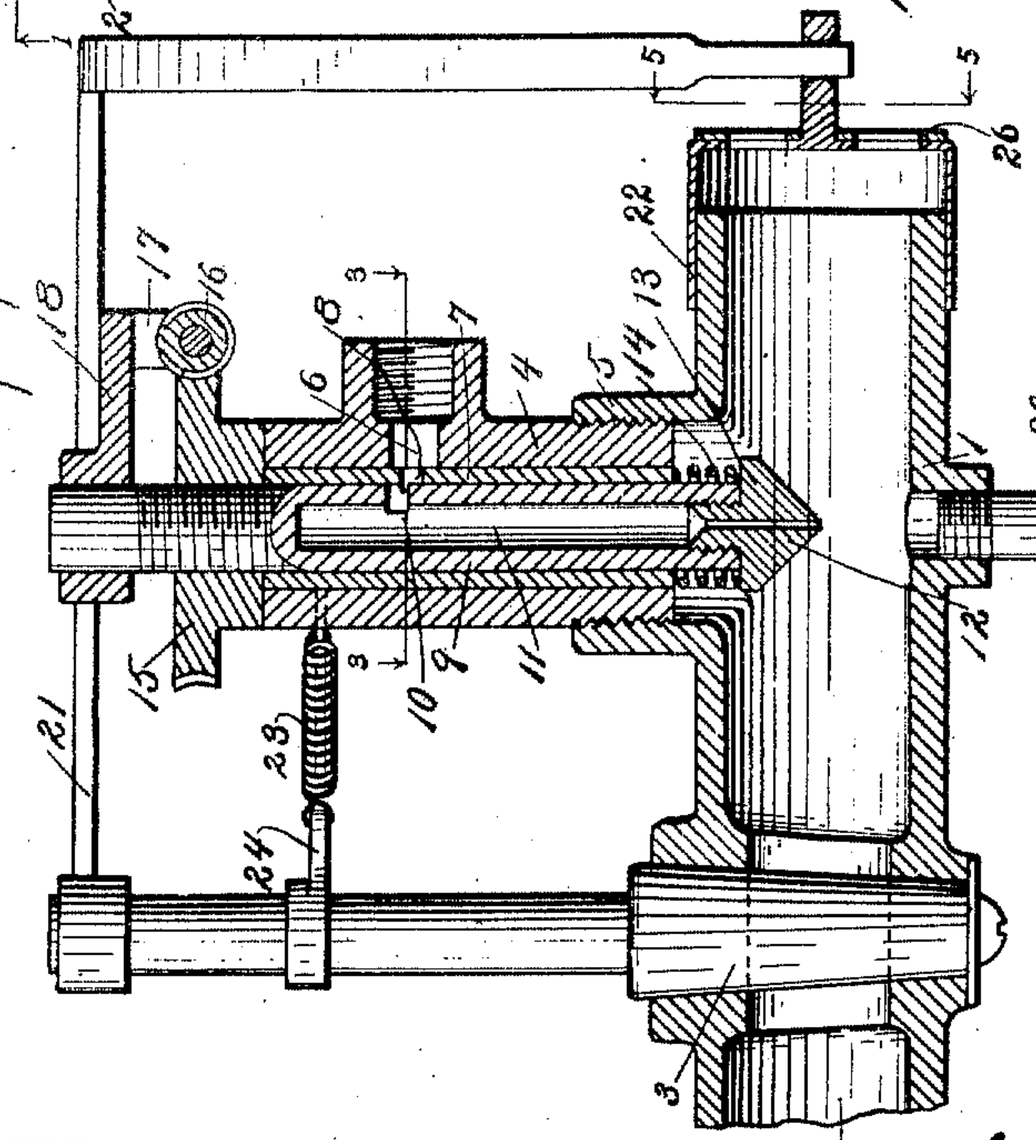


Fig. 6.

Fig. 4.

Fig. 3.



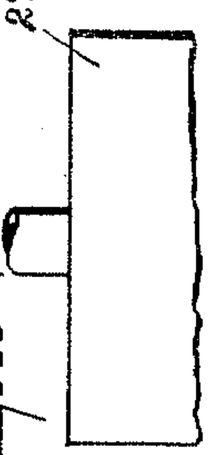


Fig. 1.

Witnesses

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UNITED STATES PATENT OFFICE.

JOHN M. SAILER, OF JANESVILLE, WISCONSIN.

CARBURETER.

984,109. Specification of Letters Patent. Patented Feb. 14, 1911.

Application filed January 2, 1909. Serial No. 470,477.

To all whom it may concern:

Be it known that I, JOHN M. SAILER, a citizen of the United States, residing at Janesville, county of Rock, State of Wisconsin, have invented certain new and useful Improvements in Carbureters, of which the following is a specification.

This invention relates to improvements in carbureters.

The main objects of this invention are; First, to provide an improved carbureter for explosion engines in which the feed is automatically controlled by the varying running conditions of the engine. Second, to provide an improved carbureter embodying these advantages which is quickly and easily adjusted. Third, to provide an improved carbureter in which the parts are simple in structure and arrangement.

Further objects, and objects relating to structural details, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined and pointed out in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawing, forming a part of this specification, in which:

Figure 1 is a detail vertical section of a structure embodying my improvements taken on a line corresponding to line 1—1 of Fig. 2, parts being shown in full lines. Fig. 2 is a detail plan of the structure appearing in Fig. 1. Fig. 3 is a horizontal section, taken on a line corresponding to line 3—3 of Fig. 1, through the fuel feed valve. Fig. 4 is a detail view partially in section, taken on a line corresponding to line 4—4 of Fig. 3. Fig. 5 is an enlarged detail taken on a line corresponding to line 5—5 of Fig. 1. Fig. 6 is an enlarged detail, taken on a line corresponding to line 6—6 of Fig. 4.

In the drawings, similar reference characters refer to similar parts throughout the several views, and the sectional views are taken looking in the direction of the little arrows at the ends of the section lines.

Referring to the drawing, the carbureter chamber 1 is connected to the engine cylinder, not here illustrated, by means of the passage 2. The throttle valve 3 of the structure illustrated is of the plug type, and is shown in the drawings in its partially open position, the fuel inlet valve also being partially open, as would be the case when the engine was running at a normal speed.

The fuel feed device preferably consists of a valve casing 4, which is threaded into a projecting nipple 5 on the side of the carbureter chamber. The valve casing is provided with a fuel inlet 6, which is connected to a suitable source of supply, which is not here illustrated, as this connection will be readily understood.

Within the casing 4 is a casing bushing 7 having a slot-like port 8 therein. The valve 9 is provided with a slot-like port 10, adapted to be brought into register with the port 8. This valve has a discharge passage 11, which is preferably provided with a conical delivery nozzle 12, projecting into the carbureter chamber, the nozzle being preferably threaded into the passage, as illustrated, and projecting at each side to form shoulders 13, on which the lower end of the spring 14 rests, this spring being provided to permit the longitudinal adjustment of the valve 9 in the bushing 7 by turning the worm nut 15, which is threaded upon the stem of the valve and seated upon the end of the casing, the spring 14 retains the nut upon its seat and permits the longitudinal adjustment of the valve. The slot-like ports in the casing and in the valve are horizontally disposed so that by adjusting the valve longitudinally, the ports are brought more or less into register, as conditions may require. This longitudinal adjustment is affected, as stated, by means of the nut 15.

The nut 15 is preferably adjusted by means of the worm 16 arranged in a suitable hanger, as 17, on the arm-like bracket 18, which is carried by the valve.

In the operation of the device, the valve 9 is rotated or rocked so that its port in opening moves lengthwise of the casing port. The advantage of this is that by providing the adjustment for the portage described, very accurate regulation of the valve may be had to control the proper proportions of the air and fuel. The fuel valve and the throttle valve are connected to be operated together, preferably by providing the valves with arms 19 and 20, respectively, the arms being connected by a link 21. This link is actuated by an air-actuated member 22, which, in the structure illustrated, is cap-like in form, being reciprocatingly mounted upon the end of the carbureter, so that the suction of the

engine acting thereon will draw the cap inwardly and thus shut the valves. The parts are returned to their initial position by means of a suitable spring, as 23, which, in the structure illustrated, is connected to the valve casing 4 and to an arm 24 on the stem of the throttle valve. It will be understood that this spring can be arranged in various relations to accomplish the same results, its primary object being to return the air-actuated member.

The member 22 is provided with air inlet ports 25, which are controlled by a valve 26, an arc shaped slot and a set screw 27, being provided for securing the valve in its adjusted positions. The port regulating valve 26 is adjusted by hand. This enables the adjustment of the air openings for the air-actuated member, so that the effect of the suction thereon is regulated.

The valves, in the structure illustrated, are shown in their partially open position. In practice, the strokes of the engine are so rapid that the air-actuated member does not complete its full stroke, and, in effect, remains in a certain position, depending upon the running conditions of the engine. Below the nozzle 12 I preferably provide a drain or fuel discharge 28, which delivers to a receptacle, as 29. The object of this is to prevent any accumulation of fuel in the carbureter chamber which would vary the explosion mixture.

By my improvement, I secure a carbureter which is automatically controlled by the engine. I have illustrated the same in the accompanying drawing in detail in the form preferred by me on account of structural simplicity and economy and the convenience in assembling and disassembling the same and the convenience of adjustment. I am, however aware that the embodiment of my invention illustrated and described herein may be greatly modified in structure, and I desire to be understood as claiming the same broadly as well as the embodiment illustrated.

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

1. In a carbureter, the combination with the carbureting chamber, of a fuel feed means comprising a valve casing, having a fuel inlet, a bushing for said casing having a slot-like port therein, a valve having a slot-like port and a discharge passage provided with a delivery nozzle projecting into said carbureting chamber, a worm nut threaded upon said valve arranged to seat upon said casing, a worm for adjusting said nut carried by said valve, a spring arranged on the inner end of said valve to hold it yieldingly inward, a throttle valve, arms on said fuel and throttle valves, a cap-like air-actuated member having an air port therein, reciprocatingly mounted upon said carbureter chamber, a valve for said port, a connecting link for said arms on said throttle and fuel valve and said air-actuated member, and a return spring for said air-actuated member.

2. In a carbureter, the combination with the carbureting chamber, of a fuel feed means comprising a valve casing having a fuel inlet, a bushing for said casing having a slot-like port therein, a valve having a slot-like port and a discharge passage provided with a delivery nozzle projecting into said carbureting chamber, means for adjusting said valve, a throttle valve, arms on said fuel and throttle valves, a cap-like air-actuated member having an air port therein, reciprocatingly mounted upon said carbureter chamber, a valve for said port, a connecting link for said arms on said throttle and fuel valve and said air-actuated member, and a return spring for said air-actuated member.

3. In a carbureter, the combination with the carbureting chamber, of a fuel feed means comprising a valve casing having a fuel inlet, a bushing for said casing having a slot-like port therein, a valve having a slot-like port and a discharge passage provided with a delivery nozzle projecting into said carbureting chamber, a worm nut threaded upon said valve arranged to seat upon said casing, a worm for adjusting said nut carried by said valve, a spring arranged on the inner end of said valve to hold it yieldingly inward, a throttle valve, a cap-like air-actuated member having an air port therein, reciprocatingly mounted upon said carbureter chamber, a valve for said port, connections for said throttle and fuel valve and said air-actuated member, and a return spring for said air-actuated member.

4. In a carbureter, the combination with the carbureting chamber, of a fuel feed means comprising a valve casing having a fuel inlet, a bushing for said casing having a slot-like port therein, a valve having a slot-like port and a discharge passage provided with a delivery nozzle projecting into said carbureting chamber, means for adjusting said valve, a throttle valve, a cap-like air-actuated member having an air port therein, reciprocatingly mounted upon said carbureter chamber, a valve for said port, connections for said throttle and fuel valve and said air-actuated member, and a return spring for said air-actuated member.

5. In a carbureter, the combination with the carbureting chamber, of a fuel feed means comprising a valve casing, a valve, a worm nut threaded upon said valve arranged to seat upon said casing, a worm for adjusting said nut carried by said valve, a spring arranged on the inner end of said valve to hold it yieldingly inward, a throttle

valve, arms on said fuel and throttle valves, an air-actuated member, a connecting link for said arms on said throttle and fuel valve and said air-actuated member, and a return spring for said air-actuated member.

6. In a carbureter, the combination with the carbureting chamber, of a fuel valve, a throttle valve, arms on said fuel and throttle valves, a cap-like air-actuated member having air ports therein, reciprocatingly mounted upon said carbureter chamber, a valve for said ports, a connecting link for said arms on said throttle and fuel valve and said air-actuated member, and a return spring for said air-actuated member.

7. In a carbureter, the combination with the carbureting chamber, of a fuel valve, a throttle valve, an air-actuated member having air ports therein, a valve for said ports, connections for said throttle and fuel valve and said air-actuated member, and a return spring for said air-actuated member.

8. In a carbureter, the combination with the carbureting chamber, of a fuel valve, a throttle valve, arms on said fuel and throttle valves, a cap-like air-actuated member having air ports therein, reciprocatingly mounted upon said carbureter chamber, a valve for said ports, and a connecting link for said arms on said throttle and fuel valve and said air-actuated member.

9. In a carbureter, the combination with the carbureting chamber, of a fuel valve, a throttle valve, an air-actuated member having air ports therein, a valve for said ports, and connections for said throttle and fuel valve and said air-actuated member.

10. In a carbureter, the combination with the carbureting chamber, of a fuel feed means comprising a valve casing having a fuel inlet, a bushing for said casing having a slot-like port therein, a valve having a slot-like port and a discharge passage provided with a delivery nozzle projecting into said carbureting chamber, a worm nut threaded upon said valve arranged to seat upon said casing, a worm for adjusting said nut carried by said valve, a spring arranged on the inner end of said valve to hold it yieldingly inward, a throttle valve, and actuating connections for said fuel and throttle valves.

11. In a carbureter, the combination with the carbureting chamber, of a fuel feed means comprising a valve casing having a fuel inlet, a bushing for said casing having a slot-like port therein, a valve having a slot-like port and a discharge passage provided with a delivery nozzle projecting into said carbureting chamber, a worm nut threaded upon said valve arranged to seat upon said casing, a worm for adjusting said nut carried by said valve, and a spring arranged on the inner end of said valve to hold it yieldingly inward.

12. In a carbureter, the combination with the carbureting chamber, of a fuel feed means comprising a valve casing, a valve, a worm nut threaded upon said valve arranged to seat upon said casing, a worm for adjusting said nut carried by said valve, a spring arranged on said valve to hold it yieldingly inward, a throttle valve, and actuating connections for said fuel and throttle valves.

13. In a carbureter, the combination with the carbureting chamber, of a fuel feed means comprising a valve casing, a valve, a worm nut threaded upon said valve and arranged to seat on said casing whereby said valve may be adjusted relative to said port of said valve casing for regulating the portage, a worm for adjusting said nut carried by said valve, and a spring arranged on said valve to hold it yieldingly inward and permit its adjustment through said nut.

In witness whereof, I have hereunto set my hand and seal in the presence of two witnesses.

JOHN M. SAILER. [L. S.]

Witnesses:
JOHN CUNNINGHAM,
CORA M. O'BRIEN.