J. G. HEASLET.

FOOT PEDAL CONTROL.

APPLICATION FILED SEPT. 4, 1915.

1,171,845.

Patented Feb. 15, 1916.

2 SHEETS—SHEET 1.

Fig. 1.

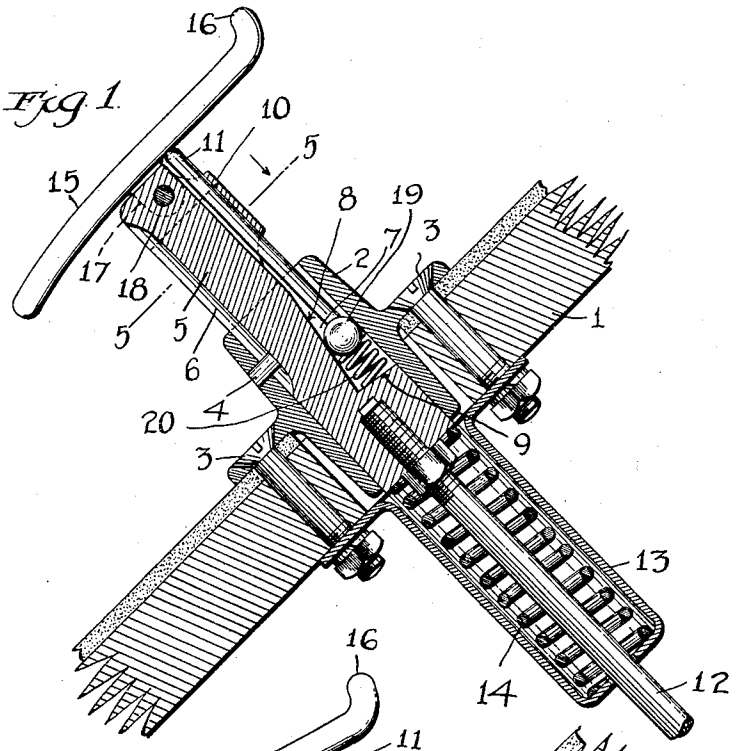
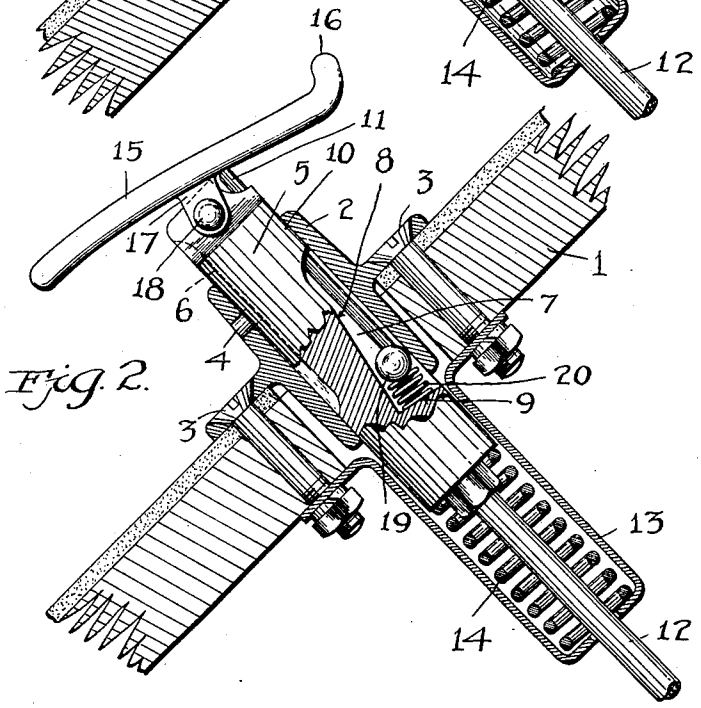


Fig. 2.



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Fig. 3.

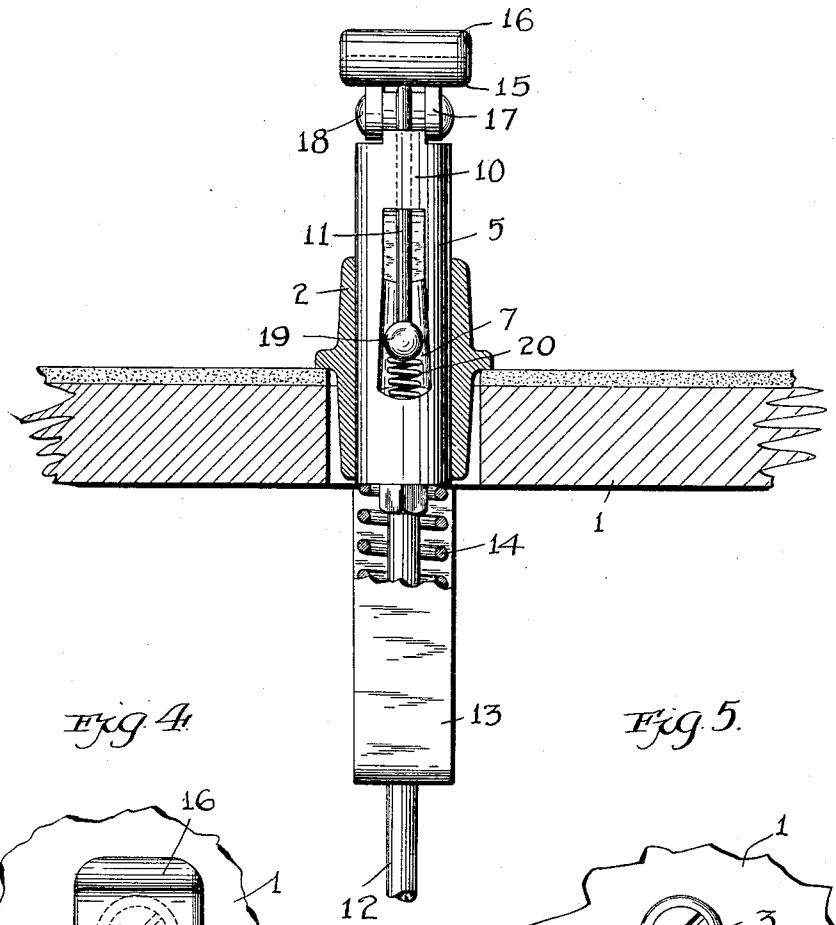


Fig. 4.

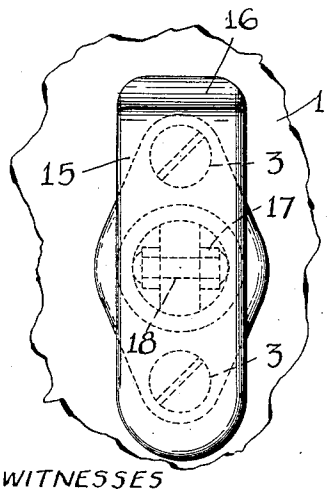
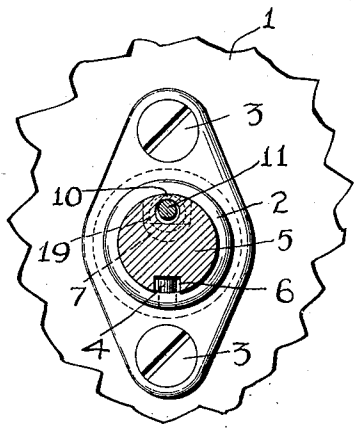


Fig. 5.



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FOOT-PEDAL CONTROL.

1,171,845. Specification of Letters Patent. Patented Feb. 15, 1916.

Application filed September 4, 1915. Serial No. 48,945.

To all whom it may concern:

Be it known that I, JAMES G. HEASLET, a citizen of the United States of America, and resident of Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Foot-Pedal Control, of which the following is a specification.

This invention relates to an improvement in foot pedal throttle controlling means, as the same are employed in motor vehicles.

In the operation of internal combustion motors, it is desirable to have fuel supply controlled by both a hand lever and a foot pedal. The hand lever is usually operated to fix the fuel supply at a normal volume; where a larger volume is required to meet conditions of abnormal load, etc., the foot pedal is employed. Such foot pedal is operated against the tension of a spring, hence the pressure of the foot must always be exerted against such tension, with a variable degree of pressure according as a greater or less volume of gas is required.

In practice it has been found difficult to regulate such foot pressure, so as to maintain a uniform supply of fuel to the motor, particularly is this so where the road bed is rough or uneven. The jolting of the car presents serious obstacles to the exercise of uniform foot pressure, and where the pressure of the foot is variable, an unequal supply of gas is delivered to the motor, resulting in a surging action of the motor which is undesirable.

The object of my invention is to provide means whereby a foot pedal may be automatically locked against foot pressure at any point in its movement, so long as such foot pressure exceeds the spring pressure opposed thereto, in combination with means for controlling said lock operated by foot movement. Hence during such period as the foot pedal is locked the supply of gas to the motor is uniform.

I have illustrated my invention in the accompanying drawings, designating the parts by numerals, and referring to like parts by like numerals.

Figure 1 is a vertical section of my device partly in elevation, showing the same as locked against downward pressure of the foot. Fig. 2 is the same drawing showing the device unlocked and in position to be operated by the pressure of the foot. Fig. 3 is a section taken at right angles to the section of Fig. 1, showing the plunger and foot pedal in elevation. Fig. 4 is a plan view of the foot pedal. Fig. 5 is the plan of a section taken on lines 5—5 of Fig. 1.

1 illustrates a section of the floor of a motor vehicle having a suitable aperture therein to receive the sleeve 2, the latter being secured to the floor by the bolts 3. This sleeve carries a key-pin 4 adapted to coöperate with a spline in the plunger.

5 is a plunger adapted to reciprocate within the sleeve 2, the same being provided with the spline 6 adapted to coöperate with the key-pin 4.

7 is a recess cut into the periphery of the plunger 5, said recess having the wall 8 which is at an angle to the internal peripheral wall of the sleeve 2. Said recess also has a base 9.

10 is a sleeve integral with the plunger 5 and adapted to receive a rod 11 which is mounted to reciprocate therein.

12 is a throttle connecting rod secured to one end of the plunger 5 and passing through an aperture in the casing 13, the latter being secured to the floor 1 by the bolts 3.

14 is a helical spring surrounding the throttle rod 12 and having its bearing within the casing 13 and against one end of the plunger 5, its tension being opposed to the foot pressure upon the pedal and plunger 5.

15 is a foot pedal provided with a toe-piece 16 and a bracket 17, said bracket being pivoted to one end of the plunger 5 at 18.

19 is a steel ball adapted to play within the recess 7 and between the beveled wall 8 and the internal peripheral wall of the sleeve 2.

20 is a helical spring resting on the base 9 of the recess 7 and having its bearing against the steel ball 19, such tension being directed to drive the ball between the beveled wall 8 and the internal peripheral wall of the sleeve 2. A front view of the recess 7, ball 19 and spring 20 is shown in Fig. 3, the front half of the sleeve 2 being cut away to exhibit the same.

The operation of my device is as follows:—The foot rests on the pedal 15. Said pedal is capable of a rocking movement on its pivot 18 so that by pressure on the toe piece 16 of the pedal, the pedal is rocked and caused to engage the plunger 11, which in turn is moved in the sleeve 10 and engages the ball 19, which in turn depresses

the spring 20 as indicated in Fig. 2, thus releasing the ball from its contact between the wall 8 and the internal peripheral wall of the sleeve 2. In this position the plunger 5 may be reciprocated to control the throttle, such reciprocating movement being guided by the pin 4 and spline 6. When however the operator desires to lock the plunger against downward movement at any particular point, he tilts the pedal 15 backward, thus relieving the pressure on the ball 19, which in turn by the spring 20 is driven between the wall 8 and the internal periphery of the sleeve 2, where it operates between said walls against further downward pressure as an interposed wedge; consequently any amount of pressure may be exerted by the foot against the pedal and plunger without driving the plunger farther into the sleeve 2 and hence without danger of disturbing the throttle which will remain in said position so long as the pressure of the foot on the pedal exceeds the pressure of the spring 14, which as previously stated, has its tension opposed to the pressure of the foot. As soon as the pressure of the foot is relieved sufficiently to permit said spring 14 to operate, the plunger 2 is again moved in a direction toward the pedal and the throttle valve controlled accordingly. It will be obvious therefore, that at any point in the reciprocal movement of the plunger by the operation of the foot, the same may be locked against downward pressure, so that the operator may by this means afford a positive rest for his foot, and by so doing, assure a uniform supply of gasolene to the engine. The means however of releasing the lock interposed is available by tilting the foot slightly so as to cause the ball to be released from its position where it operates as a wedge between said walls.

What I claim is:—

1. A foot pedal throttle control embodying, in combination, a pedal mounted to be operated by foot pressure, and to control a throttle operating member, means to normally retain the pedal in such position as to maintain the throttle operating member in throttle-closing position, means for automatically locking the pedal against foot pressure, and means operated by foot movement to control said locking means.

2. A foot pedal throttle control embodying a movable member mounted to be operated by foot pressure for the purpose of controlling a throttle operating member, means for normally maintaining the throttle operating mechanism in throttle-closing position as opposed to foot pressure, means for automatically locking the movable member against foot pressure, and means operable by foot movement to control said locking means.

3. A foot pedal throttle control embodying a movable member mounted to be operated by foot pressure, a throttle-operating connection controlled by the movements thereof, a guide for said movable member, means for normally locking the movable member, against foot pressure, in any of its positions in the guide, and means, operable by foot movement, to control said locking means.

4. A foot pedal throttle control embodying a movable member mounted to be operated by foot pressure, a throttle-operating connection controlled by the movements thereof, a guide for said movable member, a locking member, means normally impelling the locking member into its locked position to preclude the operation of the movable member by foot pressure, and means operable by foot movement to release said locking member.

5. A foot pedal throttle control embodying a movable member mounted to be operated by foot pressure and provided with a surface inclined to the direction of travel of said member, a throttle-operating connection coöperating with the movable member and controlled by the movements thereof, a guide for said movable member, a spring-actuated locking member normally in engagement with the inclined surface of the movable member for locking the latter against movement by foot pressure, and means operable by foot movement to depress the locking member against the tension of its spring, thereby allowing the movable member to be moved by foot pressure.

6. A foot pedal throttle control embodying a movable member mounted to be operated by foot pressure and provided with a surface inclined to the direction of travel of said member, a throttle-operating connection coöperating with the movable member and controlled by the movements thereof, a guide for said movable member, a spring-actuated locking member positioned between the inclined surface of the movable member and the guide and normally in engagement with both whereby the application of foot pressure to the movable member wedges the locking member between the guide and the movable member and precludes movement of the latter, and means operable by foot movement to dislodge the locking member from such wedging engagement for the purpose of allowing of the actuation of the movable member by foot pressure.

7. A foot pedal throttle control embodying a fixed sleeve, a main plunger positioned for reciprocating movement therein, a throttle-controlling connection secured to one end of the plunger, means positioned between the plunger and the sleeve for normally locking the former against reciprocal movement, and a secondary plunger mounted on the main plunger and reciprocable relative

thereto, said secondary plunger being operable by foot pressure to release the locking means to allow of the actuation of the main plunger.

8. A foot pedal throttle control embodying a fixed sleeve, a plunger to reciprocate therein, the plunger being provided at one end with a throttle-operating connection and carrying at the other end thereof a pedal pivoted thereon, a second plunger carried by the first-mentioned plunger and mounted to reciprocate and to be engaged by said foot pedal in its pivotal movement, means interposed between the sleeve and plunger to lock the plunger against reciprocal movement within the sleeve, such locking means being controlled by the reciprocation of the second plunger as it is operated by said pivotal movement of the pedal.

9. A foot pedal throttle control embodying a fixed sleeve, a main plunger mounted for reciprocating movement therein, said plunger being provided at one end with a throttle-operating connection and carrying at the other end thereof a pedal pivoted thereon, a chamber formed in the wall of the plunger within the sleeve, said chamber extending longitudinally of the plunger and tapering toward the end of the plunger to which the pedal is pivoted, a ball positioned within said chamber, and a spring also positioned within the chamber for normally impelling the ball toward the smaller end thereof whereby the ball is normally maintained in contact with the wall of said chamber and the interior wall of the sleeve to lock the plunger against movement in the pedal-operated direction, in combination with a secondary plunger extending longitudinally of the main plunger and interposed between the ball and one end of the foot pedal, said secondary plunger being operable, when the pedal is pivotally moved, to engage and depress the ball against the tension of its coöperating spring for the purpose of disengaging the ball from said walls and allowing of the actuation of the main plunger in the pedal-operated direction.

Signed by me at Detroit, Michigan, this 31st day of August 1915.

JAMES G. HEASLET.

Witnesses:
R. E. SCRATCH,
ROY C. GAMBLE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."