Oct. 31, 1933. G. W. PIERCE ET AL 1,932,802

SELECTIVE CONNECTION ATTACHMENT FOR CARBURETORS AND GOVERNORS

Filed May 18, 1931

FIG. 1

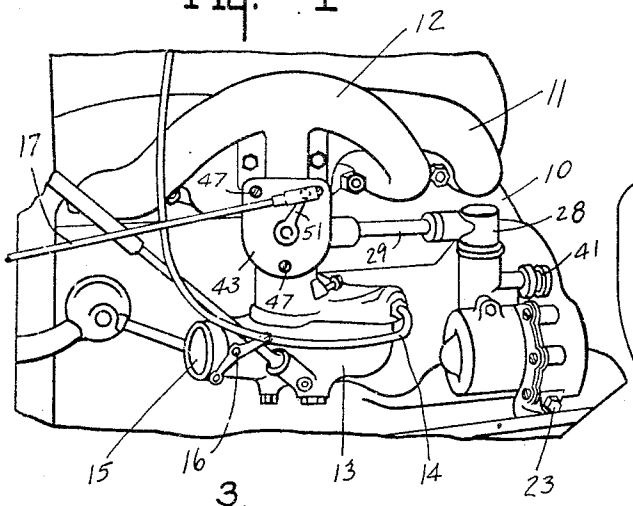


FIG. 4

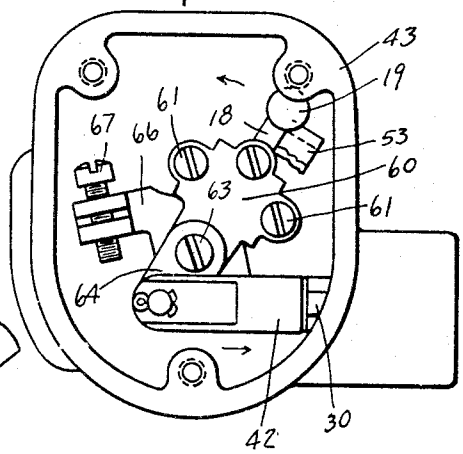


FIG. 2

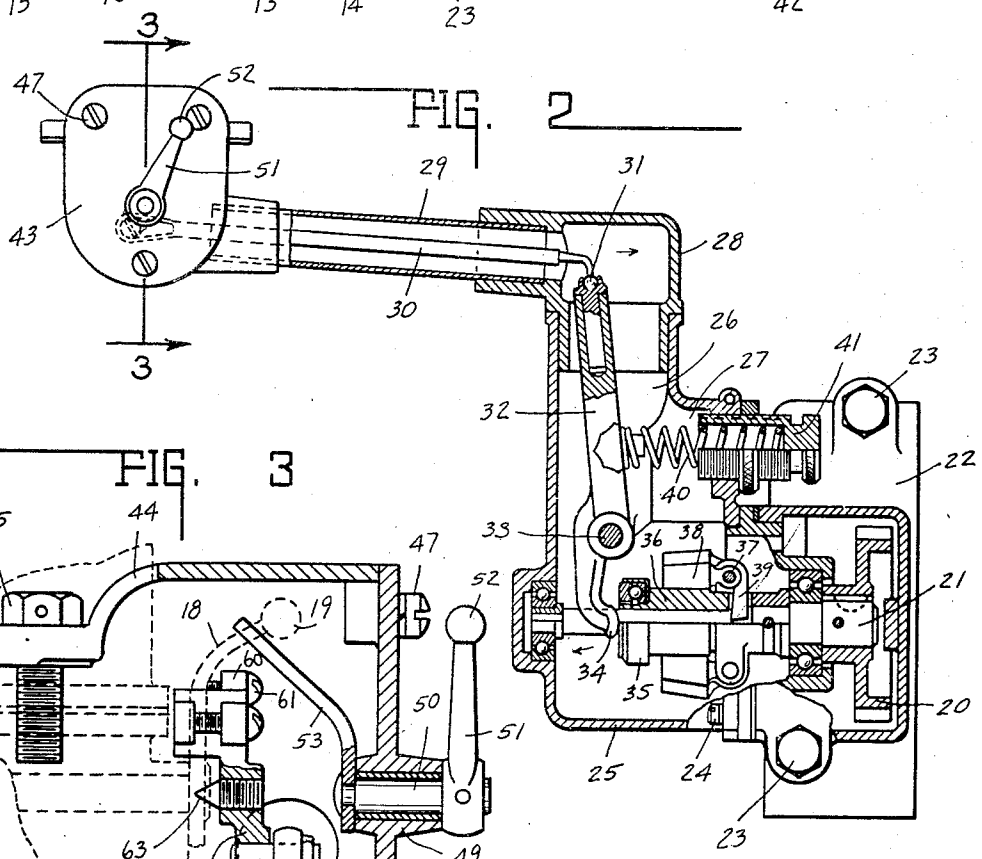


FIG. 3

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SELECTIVE CONNECTION ATTACHMENT FOR CARBURETORS AND GOVERNORS

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3 Claims. (Cl. 137—140)

This invention relates to an attachment for automatically governing the fuel supply to an internal combustion engine for preventing excessive speeding thereof.

The chief object of this invention is to provide an attachment to the standard control for an internal combustion engine of the Model A Ford type which will permit manual operation up to a predetermined amount of fuel supply and which will thereafter render the manual control ineffective such operation being obtained by the interpositioning of a speed governing operable mechanism between the manual control and the immediate fuel control member.

The full nature of the invention will be understood from the accompanying drawing and the following description and claims:—

In the drawing, Fig. 1 is a perspective view of a portion of a Model A Ford engine, with the invention applied thereto.

Fig. 2 is an enlarged elevational view, parts being broken away and shown in central section view, the governor parts and the connection therefrom to illustrate the same in detail.

Fig. 3 is an enlarged transverse sectional view through the attachment and is taken on line 3—3 of Fig. 2 and in the direction of the arrows.

Fig. 4 is a front elevation of the attachment, the cover being removed.

In the drawing, 10 indicates an internal combustion engine of the Model A Ford type having the exhaust manifold 11, and the intake manifold 12. Said intake manifold is supplied with fuel by the carburetor 13, 14 indicating the fuel line thereto, 15 the air intake and 16 the choke. 17 indicates the usual manual control member usually connected to the carburetor throttle which is indicated by the numeral 18 in Figs. 3 and 4 and terminates in a ball 19.

All of the aforesaid is standard Ford construction. Meshing with a gear of the engine is a gear 20 keyed to shaft 21 so that shaft 21 is rotated by and with the engine. A detachable cover plate of the Ford construction is removed and a substitute cover plate 22 is suitably secured in place thereof as at 23. The base portion 22 detachably supports as at 24 a housing 25 which includes a tubular extension 26 transverse to the shaft 21 and a parallel extension 27. An elbow conduit 28 is supported at one end by portion 26 and at its other end supports a tube 29.

Mounted in the tube 29 is an actuating rod 30, one end of which terminates in a ball joint connection 31 associated with a lever 32 pivoted at 33 and terminating in a bifurcated arm portion 34. Bifurcated arm portion 34 normally bears against a running collar 35 which not only rotates with the shaft 21 but is slidable longitudinally thereon. Collar 35 is shifted longitudinally by the sleeve 36.

The counterweights 38 pivotally supported at 37 each have an actuating arm 39 that is operative to shift longitudinally said sleeve and thus tilt the control lever 32 on its pivot 33.

In order to adjust the loading of the governor lever, there is provided a spring 40 in the tubular portion 27, one end of which bears against the lever and the other end of which bears against an adjustable construction 41.

As the governor shaft 21 rotates, the sleeve 36 tends to move toward the left due to the action of the counterweights and this is in opposition to and results in the compression of spring 40. When the proper predetermined speed is obtained, the spring 40 is suitably compressed and the lever moves clockwise about pivot 33 and this pulls the actuating rod or member 30 toward the right—see Fig. 2. The actuating rod 30 terminates in a coupling member 42.

A housing which is substantially open at opposite ends is indicated by the numeral 43 and has an arm 44 that is suitably secured to the flange connection between the carburetor 13 and the intake manifold 12 through the bolt 45, which is longer than the usual connecting bolt usually employed and which replaces said usual bolt. The carburetor and the intake form a part of the chamber together with the housing 43. The chamber is closed by the cover plate 46 suitably secured to the housing as at 47. The cover plate pivotally supports in a relatively long bearing 49, a rock shaft 50 which carries an arm 51 rigid therewith and terminating in a ball 52. The ball 52 and the shaft 50 are substantially offset approximately one inch or one and one-half inches from the usual carburetor valve control shaft, which mounts the member 18 terminating in the ball 19. The usual manual control member 17 is connected in the present invention to the ball 52 for oscillating the shaft 50 and the actuating arm 53 carried by said shaft and positioned within the housing.

A base member 60 is clampingly associated as at 61 with the operating arm 18 of the carburetor control mechanism. The clamping member 60 includes a central bearing member 63—see Fig. 3—which maintains the clamp coaxial with the carburetor control construction and the shaft 50. The depending portion 64 of the clamp construction 60 mounts a spindle or pin 65 upon

which is pivotally mounted the portion 42 of the actuating member 30 controlled by the governor. The base 60 includes an arm 66 which carries an adjustable stop in the form of a screw bolt 67 which limits the speed control movement of the base.

As the accelerator is pressed down for increased speed, the member 17 tilts the arm 51 clockwise—see Figs. 1 and 2,—and the arm 53 associated therewith disengages from the arm 18 of the carburetor control and permits movement of arm 18 in a like direction. The arm 18 follows the arm 53 by reason of the governor spring 40, exerting its effect on lever 32 and the actuating member 30. As soon as the critical speed is reached, the force of spring 40 is compensated or opposed by the counterweight actuated movement of the lever 32 and thus the governor control movement determines the position of arm 18 independent of the position of the arm 53—see Fig. 4.

In other words, if in accelerating the arm 53 is moved to the extreme position, shown in Fig. 4, and the arm 18 follows therewith due to the spring 40 in the governor, then as the speed of the engine increases due to the acceleration, the governor control will gradually become effective and will move the arm 18 in a counterclockwise direction, see Fig. 4, thus reducing the fuel supply until the fuel supply to the engine exactly corresponds to that necessary to maintain the predetermined engine speed for which the governor is set. When this condition arises, the arm 18 may be positioned in a substantially vertical position—see Fig. 4—while the arm 53 may remain in the position shown in Fig. 4. Even though the operator continues to actuate the throttle to obtain maximum engine speed, the effect of the same will not be transmitted to the fuel valve of the carburetor, since there is no co-opertion at this time between the arm 18 and the arm 53. If the operator desires to reduce the fuel supply through the manual control, the arm 51 will be moved in a counterclockwise direction due to the spring included in the usual manual throttle control. The arm 53, movable therewith, engages the arm 18 when it contacts said arm in the maximum speed position, and thereafter continued movement of the arm 51 together with arm 53 will move the arm 18 of the carburetor control valve toward the idling position and this will be in opposition to the governor spring 40. The manual throttle control spring, not shown, of necessity must be stronger than spring 40.

The invention claimed is:—

1. The combination with an internal combustion engine, a fuel mixing device and a speed responsive governor, of a fuel valve control member, manually operable means detachably and normally directly connected thereto, of a control attachment having a governor operable member, and another member for direct attachment to the manually operable means, said governor operable control member having operative connection with the first mentioned member when detached from the manually operable means, said third mentioned member having operative connection with the first mentioned members for actuating the same.

2. In combination, a tubular attachment arranged for engine anchorage, a fuel valve controlling arm enclosed thereby, speed governor responsive means terminating in the attachment and connected to said arm, a detachable cover for said attachment, a shaft extending through the cover, an arm carried by the shaft and arranged for co-operation with the fuel valve arm for manual control, and manually operable means exposed relative to the cover and arranged to actuate the shaft.

3. In combination a manually operable member normally constrained toward one position, a speed governor responsive member normally constrained toward one position, the constraint upon the first mentioned member being greater than that of the governor member, a fuel valve controlling arm normally responsive to the greater constraint, and means effective upon the engine attaining a predetermined speed for imposing a greater opposing force upon the speed responsive member, the manually operable member and arm having contact engagement permitting manual operation of first mentioned member in opposition to its constraint beyond the limit imposed by the effective means whereby disengagement occurs when the manually operable member is moved beyond the position corresponding to the predetermined speed of the engine.

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