July 28, 1942. H. LYONS 2,291,165

MOTOR GOVERNOR

Filed April 10, 1941

Fig. 1.

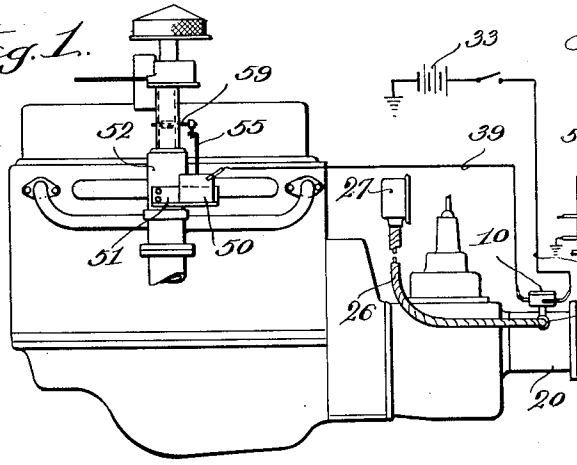


Fig. 4.

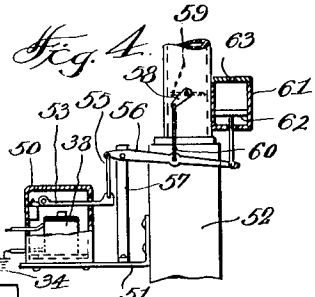


Fig. 2

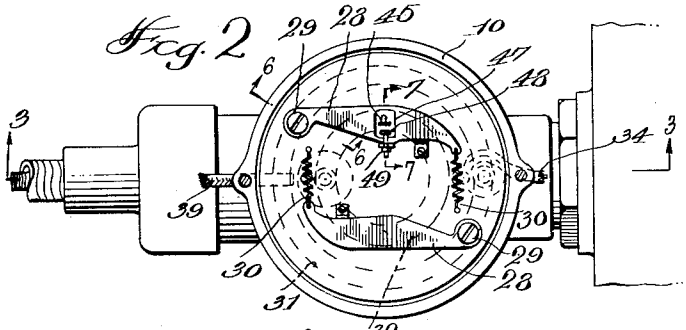


Fig. 5.

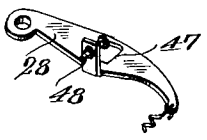


Fig. 6

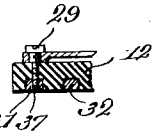
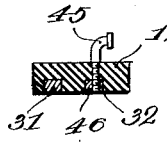


Fig. 3.

Fig. 7



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MOTOR GOVERNOR

Harry Lyons, Fayetteville, Ark.

Application April 10, 1941, Serial No. 387,958

2 Claims. (Cl. 200—80)

This invention relates to a motor governor and has for an object to provide an automatic controlling device which will not in any way interfere with the full supply of fuel to the motor of the motor vehicle except when the vehicle is about to exceed a pre-determined speed limit at which time the supply of fuel will be temporarily cut off.

A further object is to provide a device of this character which will be formed of a few strong, simple and durable parts, which will be inexpensive to manufacture, and which will not easily get out of order.

With the above and other objects in view the invention consists of certain novel details of construction and combinations of parts hereinafter fully described and claimed, it being understood that various modifications may be resorted to within the scope of the appended claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawing forming a part of this specification:

Figure 1 is a side elevation of an internal combustion motor equipped with speed control apparatus constructed in accordance with the invention.

Figure 2 is an enlarged plan view showing the governor weights and the fixed and movable contacts for energizing the electro-magnets to control the throttle valve of the carburetor.

Figure 3 is a longitudinal sectional view taken on the line 3—3 of Figure 2.

Figure 4 is a longitudinal sectional view with parts in elevation showing the electro-magnet throttle valve operating lever controlled by the magnet and dash pot for retarding movement of the throttle valve.

Figure 5 is a detail perspective view of the governor weight carrying the adjustable contact.

Figure 6 is a detail cross sectional view taken on the line 6—6 of Figure 2.

Figure 7 is a detail cross sectional view taken on the line 7—7 of Figure 2 with the governor weight removed.

Referring now to the drawing in which like characters of reference designate similar parts in the various views, 10 designates a circular housing which is closed by a cover 11. Mounted within the housing is a circular disk 12 of insulating material which is fixed to a shaft 13 by a nut 14 threaded onto the end of the shaft. The shaft extends through a tubular housing 15 formed integral with the housing 10 and is connected by meshing gears 16 and 17 with a shaft 18 which is mounted in a housing 19 connected to a gear case 20 by a threaded coupling 21. A shaft 22 in the gear case is connected to the propeller shaft 23 of the motor vehicle by meshing gears 24 and 25. Thus the insulating disk 12 is rotated at the same speed as the propeller shaft. The shaft 18 is connected to the flexible shaft 26 of the speedometer 27.

Mounted on the insulating disk are a pair of governor weights 28 and 28' each pivoted at one end on the disk by respective pivot pins 29 and 29' and each being spring retracted at the free end by a helical spring 30.

Mounted on the underneath face of the disk are a pair of concentric spaced commutator rings 31 and 32. The larger or outermost ring 31 is supplied with current from the source of electricity 33 through the medium of a conductor wire 34 which is connected to the casing 35 of a spring-pressed carbon brush 36 which has wiping contact with the ring. The ring itself is electrically connected to the governor weight 28 through the medium of the pivot pin 29 of the weight being screwthreadedly engaged with the ring as shown at 37 in Figure 6. The smaller or innermost ring 32 is electrically connected to an electro-magnet 38 by a wire 39 which is connected to the housing 40 of a spring-pressed carbon brush 41 which has wiping contact with the ring.

The housings 35 and 40 of the brushes are removably secured in the housing 10 through the medium of screws, or other connectors, 42 passed through the base of the housing into an insulating annulus 43 which is secured to the bottom of the housing by screws 44.

A stationary switch contact 45, best shown in Figures 2 and 7, is screw-threadedly engaged as shown at 46 with the innermost ring 32. The stationary contact projects through a slot 47 formed in the governor weight which is electrically connected to the outermost ring, this slot being concentric with the pivot pin 29 of the weight. An adjustable contact 48 is threadedly engaged in a projection on the governor weight and confronts the fixed contact 45. The adjustable contact may be advanced or retracted relatively to the fixed contact to vary the gap between the contacts. A nut 49 is threaded onto the adjustable contact to hold the contact in adjusted position.

When the vehicle speed has reached a predetermined limit the governor weights 28 will have swung outwardly on their pivots sufficiently to carry the adjustable switch contact 48 into

circuit closing position with the fixed switch contact 45, to close a circuit to the electro-magnet, which circuit may be traced from the source of electricity 33, wire 34, brush 36, outer ring 31, pivot pin 29, governor weight 28, adjustable contact 48, stationary contact 45, inner ring 32, brush 41, and wire 39.

The electro-magnet 38 is housed in a casing 50 which is supported upon a bracket 51 secured to the carburetor 52. The electro-magnet has associated therewith a pivoted armature 53 which projects through an opening in the casing and is connected by a link 55 to one end of a lever 56 which is pivoted on a post 57 secured to the bracket arm 51. The lever is connected intermediate its ends to a crank 58 which extends from the throttle valve 59 through the medium of a link 60. When the electro-magnet is energized, as above described, the throttle will be closed to shut off the fuel supply. For retarding too quick action of closing movement of the throttle a dash pot 61 is secured to the side of the carburetor in any preferred manner. The piston 62 of the dash pot is connected to the free end of the lever 56. The dash pot is provided with a bleed opening 63. When the lever 56 is actuated, the piston is moved to extrude air from above it through the bleed opening 63 to retard closing movement of the throttle. When the electro-magnet is de-energized, the throttle may be again controlled by the usual hand or foot controls and upon the de-energizing of the electro-magnet and the resumption of manual control, the piston 62 of the dash pot will be moved to suck air into the dash pot through the bleed opening 63 to retard too quick opening of the throttle and thus promote smoothness of operation of the internal combustion motor.

Since the operation of the parts has been described as a description of the parts progressed, it is thought that the invention will be fully understood without further explanation.

What is claimed is:

1. A governor switch comprising, a speed responsive shaft, an insulating disk fixed on the shaft, a pair of spring retracted governor weights on the disk, outer and inner concentric commutator rings on the disk, respective stationary brushes engaging the rings, means for supplying the brush of the outer ring with electric current, a pivot for one of the governor weights engaged through the disk and fixed to the outer commutator ring, the last-named weight having an opening therein concentric with the pivot, an adjustable switch contact carried by the last-named weight overlapping said opening, and a fixed switch contact fixed to the inner ring and projecting through said opening into the path of the adjustable contact adapted to be engaged by the adjustable contact when the governor weights swing outwardly.

2. A governor switch comprising, a housing, a circular disk of insulating material mounted in the housing, a shaft responsive to motor speed fixed to the disk for rotating the disk, a pair of pivoted spring retracted governor weights on the disk, a pair of concentric spaced rings of conducting material on the disk, a brush in the housing engaging the outermost ring and adapted to be supplied with electric current, a brush in the housing engaging the innermost ring, a fixed contact on the inner ring, there being a slot in one of the governor weights through which said fixed contact projects, a pivot for the last-named governor weight electrically connected to the outer ring, and a movable and adjustable switch contact carried by the last-named governor weight adapted to engage the fixed contact.

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