

July 3, 1928.

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1,675,995

GOVERNOR CONTROLLED MECHANISM FOR INTERNAL COMBUSTION ENGINES

Filed Feb. 19, 1927

2 Sheets-Sheet 1

Fig. 1.

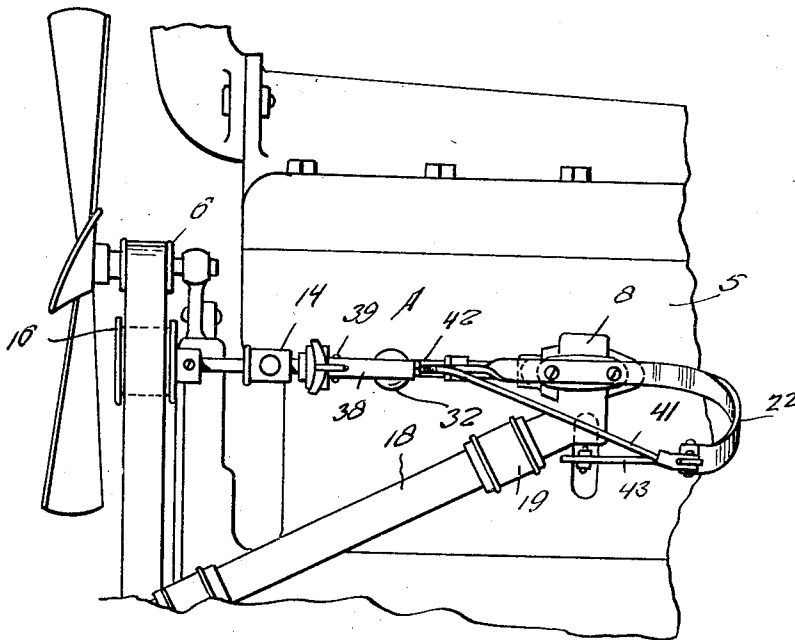
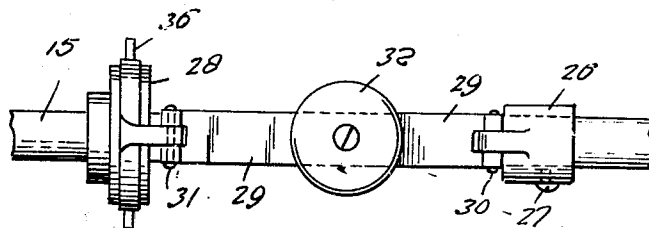


Fig. 4.



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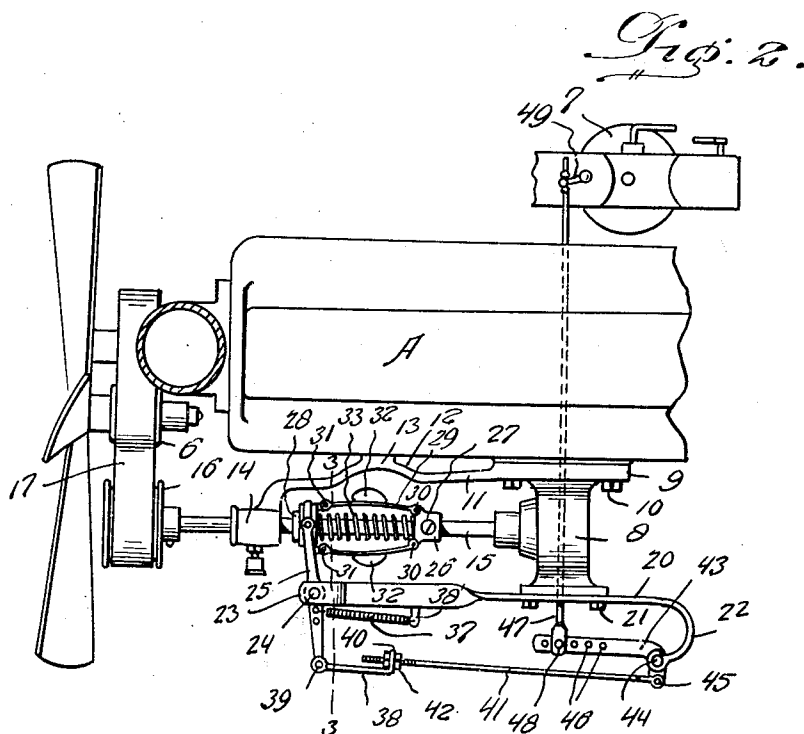
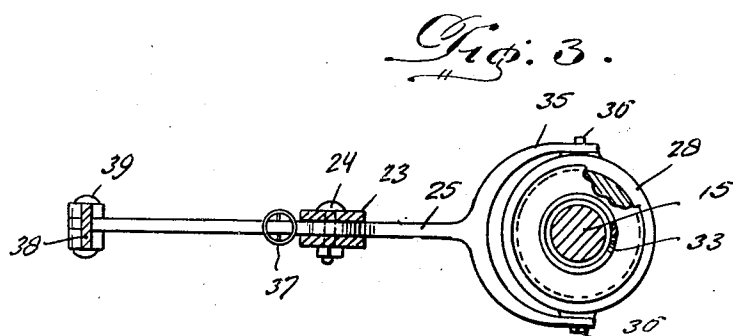
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE.

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GOVERNOR-CONTROLLED MECHANISM FOR INTERNAL-COMBUSTION ENGINES.

Application filed February 19, 1927. Serial No. 169,598.

The present invention relates to a governor controlled mechanism for internal combustion engines and has for its prime object to provide an exceedingly compact and convenient structure which is associated with a water pump and driven by a fan belt and has a speed responsive device for controlling the throttle valve of the engine so as to regulate the speed thereof in accordance with the load thereon.

A still further important object of the invention lies in the provision of a structure of this nature which is exceedingly simple, thoroughly efficient and reliable in operation, comparatively inexpensive to manufacture and install, and otherwise well adapted to the purpose for which it is designed.

With the above and numerous other objects in view as will appear as the description proceeds, the invention resides in certain novel features of construction, and in the combination and arrangement of parts as will be hereinafter more fully described and claimed.

In the drawing:—

Figure 1 is a fragmentary side elevation of an internal combustion engine showing my improved mechanism associated therewith,

Fig. 2 is a top plan view thereof,

Fig. 3 is an enlarged detail transverse vertical section taken substantially on the line 3—3 of Fig. 2,

Fig. 4 is an enlarged detail elevation of the governor or speed responsive portion of the device.

Referring to the drawing in detail, it will be seen that the letter A denotes generally an internal combustion engine of any preferred type. By way of example, the internal combustion engine herein illustrated is of the Ford type and comprises the usual engine block 5, the fan pulley 6, and the carbureter 7 upon other usual conventional elements which it is not necessary to mention specifically herein. The numeral 8 denotes a water pump mechanism attachable by ring 9 and fastening elements 10 to the engine block 5 to be associated with the water jacket thereof in the usual well known manner. A bracket arm 11 extends integrally and forwardly from the ring 9 and is slightly

bowed intermediate its ends as at 12 and formed with an abutment 13 at the center of the bowed portion on the convex side thereof to abut a portion of the engine block and then continues forwardly and terminates laterally and outwardly in a bearing sleeve 14. A propeller shaft 15 is operatively connected with the pump mechanism 8 and extends forwardly therefrom being journaled through the bearing sleeve 14 and having fixed to its forward end a pulley 16 for engaging fan belt 17 that is trained over the belt pulley 6. A hose 18 is coupled as at 19 in any suitable manner with the pump mechanism 8 and extends downwardly and forwardly to the bottom of the radiator, not shown, in the usual well known manner. An elongated flat-like bar 20 has its intermediate portion fixed to the casing of the mechanism 8 and fastening element 21 and the rear end thereof is curved outwardly and forwardly as at 22 while the forward end thereof is twisted at right angles and bifurcated at its terminal as is denoted at 23. Pivotally mounted as at 24 in the bifurcated end 23 is a lever 25. A collar 26 is mounted on the shaft 15 being held in different adjusted positions by set screws 27. A grooved collar 28 is loose on the shaft 15. Flat springs 29 are pivotally engaged as at 30 with the collar 26 and as at 31 with the collar 28. Weight elements 32 are mounted intermediate the ends of the springs 29. A coil spring 33 is disposed about the shaft 15 to impinge against the collars 26 and 28. The collars 26 and 28 with springs 29 and the weight elements 32 form the speed responsive device. The lever 25 has one end in the form of a fork 35 the extremities of which have pins 36 extending into the groove of the groove collar 28. A spring 37 is engaged with a lug 38 projecting laterally from the bar 20 and is engaged with an intermediate portion of the lever 25 to normally hold it in the position shown clearly in Figure 2, that is, with the springs 27 substantially straight. A link section 38 is pivotally engaged as at 39 with the other end of the lever 25 and has a lateral eye extension 40 which receives the threaded end of a link section 41 which is held in different adjusted positions in relation to sec-

tion 38 by nuts 42. A bell crank lever 43 is pivoted as at 44 on the extremity of the curved end 22 of the bar 20. One end of this bell crank lever 43 is pivotally engaged
 5 as at 45 with the other end of the link section 41. The other end of the bell crank lever 43 is provided with a series of apertures 46. A rod 47 is connected with said other end of the bell crank lever 43 by a pin 48
 10 piercing one of the apertures 46. This rod 47 is connected with the crank 49 of the throttle valve associated with the carbureter 7.

When the device has been properly ad-
 15 justed and the engine is in operation it will be seen that as the load lightens, the speed of the engine will tend to increase so that the weight elements 32, by centrifugal force, will spread outwardly and thereby bow out-
 20 wardly the springs 29 to shift the collar 28 rearwardly, rock the lever 25 and pull forwardly on the link 38, 41, and thereby rock the bell crank lever 43. The rocking of the bell crank lever 43 as just described will pull
 25 the rod 47 so that the crank 49 is turned to close the throttle valve so that the engine will then slow down. The spring 33 will return the parts as will be quite apparent for opening the throttle as the speed decreases
 30 below the desired rate.

It is thought that the construction, operation, and advantages of this invention, will now be quite apparent to those skilled in this art without a more detailed description
 35 thereof. The present embodiment of the invention has been disclosed in detail merely by way of example since in actual practice it attains the features of advantage enumerated as desirable in the statement of the in-
 40 vention and in the above description. It will be apparent that the changes in the details of construction, and in the combination and arrangement of parts may be resorted to without departing from the spirit
 45 or scope of the invention as hereinafter claimed or sacrificing any of its advantages.

Having thus described my invention, what I claim as new is:—

1. A device of the class described including a water pump mechanism, a bracket arm
 50 extending forwardly from the water pump mechanism and terminating in a bearing sleeve, a propeller shaft for the water pump mechanism journaled in the bearing sleeve,
 55 a belt engaging pulley on the shaft, a speed responsive means controlled by the shaft and associated therewith, a bar mounted intermediate its ends on the water pump mechanism and having its rear end curved out-
 60 wardly and forwardly, a bell crank lever pivoted in the extremity of the curved rear end of the bar, the forward end of the bar being twisted and bifurcated, a lever pivoted in the bifurcated end and controlled by the
 65 speed responsive means, a link structure be-

tween the two levers, and a rod associated with the bell crank lever for controlling a throttle valve.

2. A device of the class described including a water pump mechanism, a bracket
 70 arm extending forwardly from the water pump mechanism and terminating in a bearing sleeve, a propeller shaft for the water pump mechanism journaled in the bearing sleeve, a belt engaging pulley on the shaft,
 75 a speed responsive means controlled by the shaft and associated therewith, a bar mounted intermediate its ends on the water pump mechanism and having its rear end curved outwardly and forwardly, a bell crank lever
 80 pivoted in the extremity of the curved rear end of the bar, the forward end of the bar being twisted and bifurcated, a lever pivoted in the bifurcated end and controlled by the speed responsive means, a link structure be-
 85 tween the two levers, and a rod associated with the bell crank lever for controlling a throttle valve, said link being adjustable.

3. A device of the class described including a water pump mechanism; a bracket arm
 90 extending forwardly from the water pump mechanism and terminating in a bearing sleeve, a propeller shaft for the water pump mechanism journaled in the bearing sleeve, a belt engaging pulley on the shaft, a speed
 95 responsive means controlled by the shaft and associated therewith, a bar mounted intermediate its ends on the water pump mechanism and having its rear end curved outwardly and forwardly, a bell crank lever
 100 pivoted in the extremity of the curved rear end of the bar, the forward end of the bar being twisted and bifurcated, a lever pivoted in the bifurcated end and controlled by the speed responsive means, a link structure be-
 105 tween the two levers, a rod associated with the bell crank lever for controlling a throttle valve, said link being adjustable, a lug extending laterally from the bar, and a spring engaged with the lug and with the second
 110 mentioned lever.

4. A device of the class described including a water pump mechanism, a bracket arm
 115 extending forwardly from the water pump mechanism and terminating in a bearing sleeve, a propeller shaft for the water pump mechanism journaled in the bearing sleeve, a belt engaging pulley on the shaft, a speed
 120 responsive means controlled by the shaft and associated therewith, a bar mounted intermediate its ends on the water pump mechanism and having its rear end curved outwardly and forwardly, a bell crank lever
 125 pivoted in the extremity of the curved rear end of the bar, the forward end of the bar being twisted and bifurcated, a lever pivoted in the bifurcated end and controlled by the speed responsive means, a link structure be-
 130 tween the two levers, a rod associated with the bell crank lever for controlling a throt-

the valve, said speed responsive means comprising a collar on the shaft, a set screw holding the collar in position on the shaft, a second collar loose on the shaft, a plurality of flat springs, means for pivoting the ends of the flat springs to the collars, weight elements on the flat springs intermediate their ends, and a coil spring on the shaft impinging against the two collars, the second collar being grooved and the second mentioned lever having pins extending into the groove thereof. 10

In testimony whereof I affix my signature.
HENRY G. STEARNS.