Dec. 12, 1933. R. H. GIBSON 1,938,655

GOVERNOR

Filed May 16, 1933

Fig. 1.

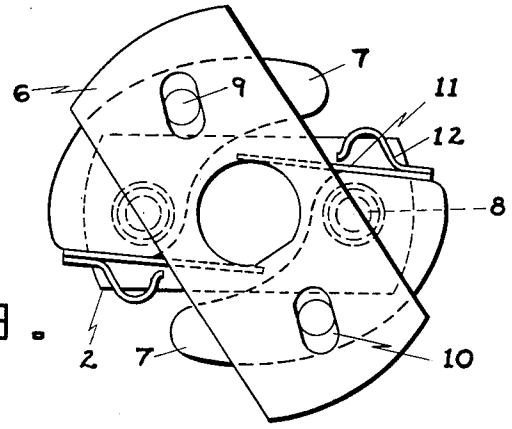


Fig. 3.

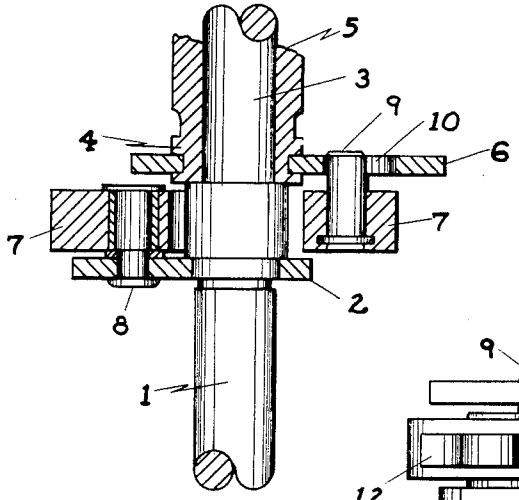


Fig. 2.

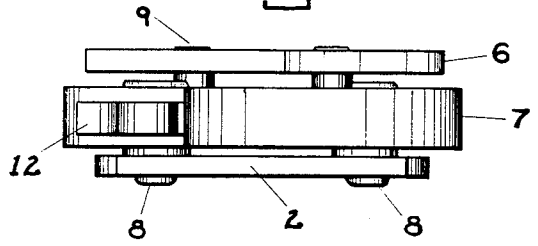
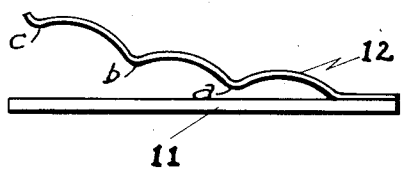


Fig. 4.



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1,938,655

GOVERNOR

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Application May 16, 1933. Serial No. 671,298

6 Claims. (Cl. 64—90.5)

This invention relates to improvements in governors and particularly to a governor of the centrifugal type for regulating the operation of an ignition timer for an internal combustion engine.

An object of this invention is to provide an ignition governor of simple construction and efficient operation so designed that it consists of relatively few parts and is capable of being easily set to take effect at a selected predetermined speed.

In its preferred form the governor consists of one or more weights restrained by springs, the action of which can be so controlled as to meet all the requirements for the advance of the instant of sparking.

The objects and advantages of the invention are fully set forth in the ensuing specification and defined in the claims, but the right is of course reserved to make changes which do not depart from the principle of the invention.

On the drawing:

Fig. 1 is a top view of the governor according to this invention;

Fig. 2 is a side view;

Fig. 3 is an axial section showing the governor mounted on a timer shaft; and

Fig. 4 shows a modification.

On the drawing the same numerals identify the same parts throughout.

The numeral 1 indicates part of the shaft of an ignition timer which carries a rigid plate or collar 2 in transverse position upon which the weights of the governor are pivotally mounted. Beyond the governor the shaft 1 is reduced somewhat in diameter as indicated at 3 and carries a sleeve 4, one end of which has the shape of a cam 5, which in practice will actuate a circuit breaker lever to open the timing circuit in the usual manner. The sleeve 4 is supported by the portion 3 of the shaft 1 but can turn to some extent thereon and one end thereof is made rigid with a plate 6 which will be maintained substantially parallel to the plate 2. The governor weights are shown at 7 and they are pivotally connected to the plate 2 by being mounted upon suitable studs 8 secured to the plate 2. Each governor weight has a fixed projecting stud 9, the extremity of which projects into a slot 10 in the plate 6. Hence as the governor weights move outward when the speed increases, the plate 6 will be shifted and so will the cam 5.

The weights 7 have the form shown in Fig. 1 with substantially straight ends adjacent the pivots 8. To these ends are affixed springs 11 which project and bear against the shaft 1. These springs resist the outward movement of the weights; and to regulate the action of these springs, a strip 12 is also affixed to the same ends of the weights 7. This strip is either rigid or to some extent flexible. One strip 12 is firmly secured at one end to each weight 7 and overlies the adjacent spring 11. Each strip 12 is bent away from the adjacent spring and then towards it so that the outer end of each strip is maintained in position near the adjacent spring 11 at a point between the two ends thereof. At the beginning of the centrifugal action, as each weight 7 moves away from the center, the spring 11 affixed thereto first bends about the point where it is connected to the weight but later on the spring will make contact with the adjacent end of the strip 12 and the point where the spring is thus flexed is changed. In other words, the leverage of the weights 7 against each of the springs 11 is altered after a given increase in the speed of the shaft 1, so that a further increase in the speed of rotation will cause the springs 11 to oppose greater resistance to the outward movement of the weights 7. By bending the strips or members 12, the action of the governor can be adjusted as desired.

Of course instead of arranging the strips 12 so that they will engage the springs 11 at only one point, a strip 12 can be utilized which has the shape shown in Fig. 4 and so bent that it has points *a*, *b* and *c* which will make contact successively with different parts of the adjacent spring 11. Thus greater and greater resistance can be offered to the bending of the springs 11 as the speed of the shaft 1 increases.

It will thus be seen that the governor is quite simple and practical and regulation of the action thereof is very easily obtained.

Having described the invention, what is claimed is:

1. A centrifugal governor comprising a shaft, a pair of plates supported by said shaft, one of which is affixed thereto, a weight pivoted to the fixed plate, the other plate being slotted, a projection carried by the weight and engaging the slotted plate, a spring secured to said weight at one end and bearing against the shaft at the other and a member mounted adjacent the spring to engage the spring near its point of attachment with the weight after initial movement of the latter.

2. A centrifugal governor comprising a shaft, a pair of plates supported by said shaft, one of which is affixed thereto, a weight pivoted to the fixed plate, the other plate being slotted, a projection carried by the weight and engaging the

slotted plate, a spring secured to said weight at one end and bearing against the shaft at the other and a member mounted adjacent the spring to engage the spring near its point of attachment with the weight after initial movement of the latter, said member also being affixed to said weight.

3. A governor comprising a shaft, a weight rotatable by said shaft, a spring carried by the weight to engage the shaft and a fixed member to engage the spring adjacent its point of attachment to the weight after initial movement of the latter, said member being flexible to enable it to be adjusted and the point of engagement of the spring thereby regulated.

4. A governor comprising a shaft, a weight rotatable by said shaft, a spring carried by the weight to engage the shaft and a fixed member to engage the spring adjacent its point of attachment to the weight after initial movement of the latter, said member also being mounted on said weight, said member being flexible to enable it to be adjusted and the point of engagement of the spring thereby regulated.

5. A centrifugal governor comprising a shaft, a pair of plates supported by said shafts, one of which is affixed thereto, a weight pivoted to one of said plates, the other plate and said weight being formed to have slotted engagement with each other, a spring secured to said weight at one end and bearing against said shaft at the other, and a member mounted adjacent the spring to engage the spring near its point of attachment with the weight after the initial movement of the latter.

6. A centrifugal governor comprising a shaft, a pair of plates supported by said shafts, one of which is affixed thereto, a weight pivoted to one of said plates, the other plate and said weight being formed to have slotted engagement with each other, a spring secured to said weight at one end and bearing against said shaft at the other, and a member mounted adjacent the spring to engage the spring near its point of attachment with the weight after the initial movement of the latter, said member also being affixed to said weight.

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