Aug. 16, 1927.

1,639,265

J. A. MILLER

SPEED GOVERNOR

Filed May 11, 1925

FIG. 1.

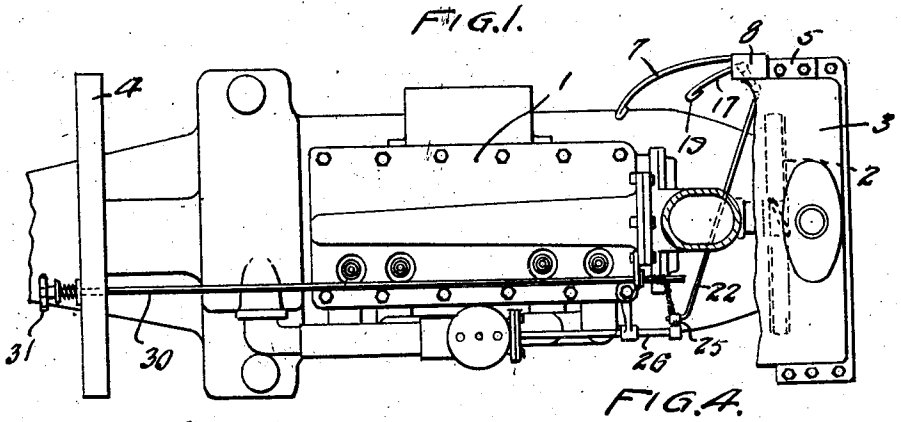


FIG. 4.

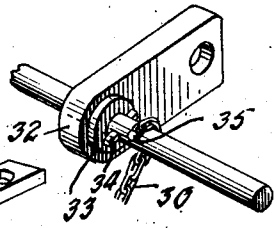


FIG. 3.

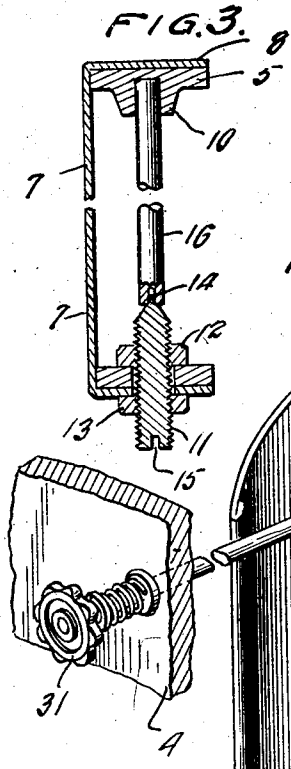
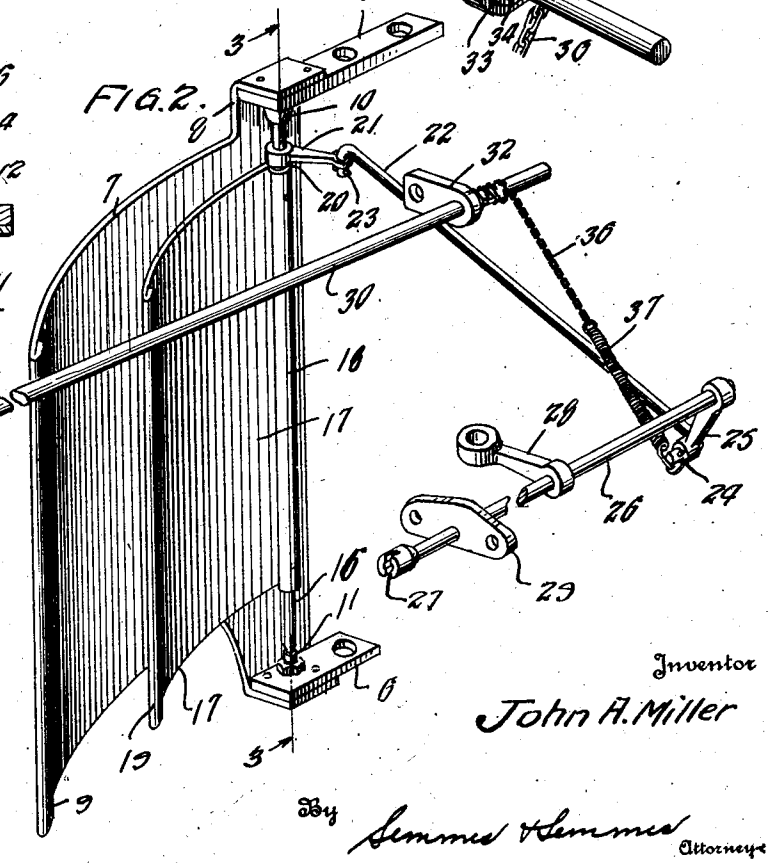


FIG. 2.



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Patented Aug. 16, 1927. 1,639,265

UNITED STATES PATENT OFFICE.

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SPEED GOVERNOR.

Application filed May 11, 1925. Serial No. 29,445.

This invention relates to speed governors and particularly to speed governors for internal combustion engines. This application is a continuation in part of my prior application Serial No. 747,389 filed November 1, 1924.

An object of this invention is to provide a speed governor for internal combustion engines, which will effectively regulate the speed of a motor by the current of air generated.

Another object of this invention is the production for a speed governor for an internal combustion engine which will automatically regulate the air intake valve.

Another object of my invention is the production of a speed governor adaptable to motors of all types using a rotary fan for cooling purposes. The operation of the governor is such as to control the engine by the speed of the fan.

Another object of my invention is the production of a speed governor having an attachable means for regulating the action of the governor in accordance with the pressure of the air current produced by the rotary fan.

A further object of my invention is the production of a speed governor so constructed as to produce an air cushion to prevent surges or vibrations, and thus an uneven operation of the engine to which it is applied.

Yet a further object of my invention is the production of a speed governor of the air intake control type, which may be easily and quickly adjusted to any type of motor car, truck, or traction engine now in use, and so connected by a control mechanism mounted upon the dash of such vehicles that it will efficiently perform its intended function.

Still a further object of my invention is the production of a speed governor of the air intake control type, which will be highly efficient in operation, yet of marked simplicity as a whole and in respect to its component parts, so that its manufacture is economically facilitated both as regarding to parts and their assembly.

With these and other objects in view which may be incident to my improvements, the invention consists in the parts and combinations to be hereinafter set forth and claimed, with the understanding that the several necessary elements comprising my invention, may be varied in construction, proportions and arrangement, without departing from the spirit and scope of the appended claims.

In order to make my invention more clearly understood, I have shown in the accompanying drawings means for carrying the same into practical effect without limiting the improvements in their useful applications to the particular constructions, which for the purpose of explanation, have been made the subject of illustration.

In the drawings forming part of this specification,

Figure 1 is a top plan view of an internal combustion engine with radiator and dash board, illustrating my invention as applied,

Fig. 2 is a perspective view illustrating my improved governor and dash regulating means,

Fig. 3 is a vertical sectional view partly broken away illustrating the means of mounting a movable vane,

Fig. 4 is an enlarged detailed perspective view.

Referring by numerals to the drawing, 1 represents an internal combustion engine such as is used in the manufacture or assembly of automobiles, trucks, and tractors. Mounted forward of the engine is a rotary fan 2 and a radiator 3, and to the rear of the engine is mounted a dash 4 of usual or preferred type.

Mounted upon the radiator 3 at the top and bottom thereof, and to one side, are plates or brackets 5 and 6. The plates 5 and 6 support a curved wing 7 having shoulders 8 which are riveted on or otherwise secured to the brackets.

The plate 7 is curved inward toward the motor with its free end bent back, as shown at 9, in order to give strength and rigidity thereto.

Formed upon the plate 5, on the lower face thereof is a socket 10 and diametrically opposite the socket 10 in the plate 6 is mounted a bearing 11 having threaded thereupon oppositely disposed taps 12 and 13, by which the bearing may be adjusted. The bearing 11 is provided at its upper end with a socket 14 in alignment with the socket 10. The lower end of the bearing is pro-

vided with a slot 15 for the reception of a screw driver or other implement suitable to make adjustment.

Mounted between the sockets 10 and 14 is a shaft 16 secured to which is a curved vane 17 of the same general contour as the wing 7 but smaller in proportion. The vane 17 is secured to the shaft 16 by folding one edge around the shaft, as shown at 18, to which it is secured by rivets or in any other desirable manner. The free end of the vane is bent back upon itself as shown at 19, in order to impart strength and rigidity thereto.

The wing 7 and the vane 17 are in a spaced relation with respect to each other, and are of the same general contour. The vane 17, however, is smaller, hence, when a current of air is directed upon the vane the same current plays against the wing 7 which owing to its particular formation produces a back current, thereby forming a cushion against which the vane 17 presses. The action is such as to insure a smooth control and to eliminate sudden surges when the load is increased or diminished.

Mounted upon the upper end of the shaft 16 is a sleeve or collar 20 locked or keyed to a shaft 16 in any desirable manner. Integral with the collar 20 is an arm 21 the free end of which is apertured to receive the end of a rod 22 the same being held therein by a pin 23. The other end of the rod 22 engages an aperture 24 in an arm 25 mounted upon a shaft 26. The opposite end of the shaft 26 is enlarged and slotted as shown at 27 for engagement with an air inlet valve.

The shaft 26 is supported by an arm 28 bolted to the base of the engine, and a plate 29 adapted to be bolted to the air intake valve.

Mounted on the dash 4 and extending forward beyond the motor is a shaft 30 adapted to operate by a hand wheel 31. The rod 30 is supported upon its forward end by a plate or bracket 32. Mounted upon the forward end of the rod 30 and bearing against the bracket 32 is a washer 33 held in place by a pin 34. The free end of the rod 30 is provided with a lug 35 attached to which is a chain 36 connected to a spiral spring 37 which in turn is connected to an arm 25. It will be observed that by operating the hand wheel 31 mounted on the dash, the tension of the spring 37 can be regulated. The tension of the spring tends to limit the movement of the vane.

While I have shown and described the preferred embodiment of my invention, I wish it to be understood that I do not confine myself to the precise details of construction herein set forth, by way of illustration, as it is apparent that many changes and variations may be made therein, by those skilled in the art, without departing from the spirit of the invention, or exceeding the scope of the appended claims.

Having thus described the various features of my invention, what I claim as new and desire to secure by Letters Patent is:

1. A control mechanism comprising a fixed curved wing, a movable vane mounted in spaced relation to the fixed wing whereby a current of air between the vane and wing forms an air cushion, the movable vane being of the same general contour as the fixed wing, a control element, a linkage connecting the movable vane to the control element, a spring adapted to regulate the movement of the movable vane and means for increasing or retarding the action of the spring.

2. A control mechanism comprising a fixed curved wing and a movable vane mounted in spaced relation to the fixed wing whereby a current of air may be deflected between the wing and vane, the movable vane being smaller than the fixed wing, a control element, a linkage connecting the movable vane with the control element, means for retarding the movement of the movable vane and a regulating means for the retarding means coacting with the linkage.

3. A control mechanism comprising a fixed curved wing, a movable vane in spaced relation to the fixed wing, the movable vane being of the same general contour as the fixed wing though smaller, whereby a current of air deflected between the wing and vane produces an air cushion, a control element, a linkage connection between the movable vane and the control element, a spring for retarding the movement of the vane and means for regulating the tension of the spring.

4. A control mechanism comprising a fixed curved wing, a movable vane mounted in spaced relation to the fixed wing, the body of the vane being of the same general contour as the fixed wing and of smaller proportions, the relation of the movable vane being such with respect to the fixed wing as to provide a restricted space for the admission of a current of air whereby an air cushion is formed, a control element, a linkage connection between the movable vane and the control element, a spring for controlling the movable vane and means for regulating the tension of the spring.

5. A control mechanism comprising a fixed wing member, a movable vane member, the relation of the wing to the vane being such as to provide a restricted passage for a current of air, a control element and means connected with the movable wing member for operating the control element.

6. A control mechanism comprising a movable vane member, a curved wing mem-

ber mounted in spaced relation with the movable vane member to form a restricted area for the passage of an air current, a control element and means connected with said movable vane adapted to operate the control element.

7. A control mechanism comprising a movable vane member, a curved wing member having shoulder extensions bent substantially at right angles to the plane of the wing, said wing being mounted in spaced relation with the movable vane member to form a restricted passage for a current of air, a control element and means connected with said movable vane adapted to operate the control element.

8. A control mechanism comprising a movable vane member, a curved wing member of a single piece of material in the form of a cylindrical segment having shoulder extensions bent substantially at right angles to the plane of the wing, said wing being mounted externally and in spaced relation with the movable vane member to form a restricted air passage, a control element and means connected with said movable vane adapted to operate the control element.

9. A control mechanism comprising a fixed wing member, a movable vane member mounted upon a vertical support internally and in spaced relation with the fixed wing member whereby a variable gap is produced for the passage of an air current, a control element and means connected with said movable vane adapted to operate the control element.

10. A control mechanism comprising a fixed wing, a pivoted vane of substantially the same shape as the fixed wing, the pivoted vane being mounted upon a vertical rod and in spaced relation with the fixed wing to form a variable gap for the passage of air, a control element and a linkage connecting the movable vane and the control element.

11. A control mechanism comprising a fixed wing member, a movable vane member, the relation of the fixed wing to the movable vane being such as to provide a variable air passage, a control element, a linkage connecting the movable vane with the control element and a spring cooperating with said movable vane.

12. A control mechanism comprising a fixed wing, a movable vane, the movable vane cooperating with the fixed wing to form a variable air passage, a control element and a linkage connecting the movable vane with the control element.

13. A control mechanism comprising a fixed wing, a movable vane in spaced relation to the fixed wing whereby a variable restricted area for the passage of air is formed between the fixed wing and movable vane, a control element and a linkage connection between the movable vane and the control element.

14. A control mechanism comprising a fixed curved wing, a movable vane of the same general contour as the fixed wing, the vane being in spaced relation to the wing and adapted to vary the space for the passage of air, a control element and a linkage connection between the movable vane and the control element.

In testimony whereof I affix my signature.

JOHN A. MILLER.