H. S. MUSTIN.

MOTOR CONTROL.

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993,540.

Fig. 1.

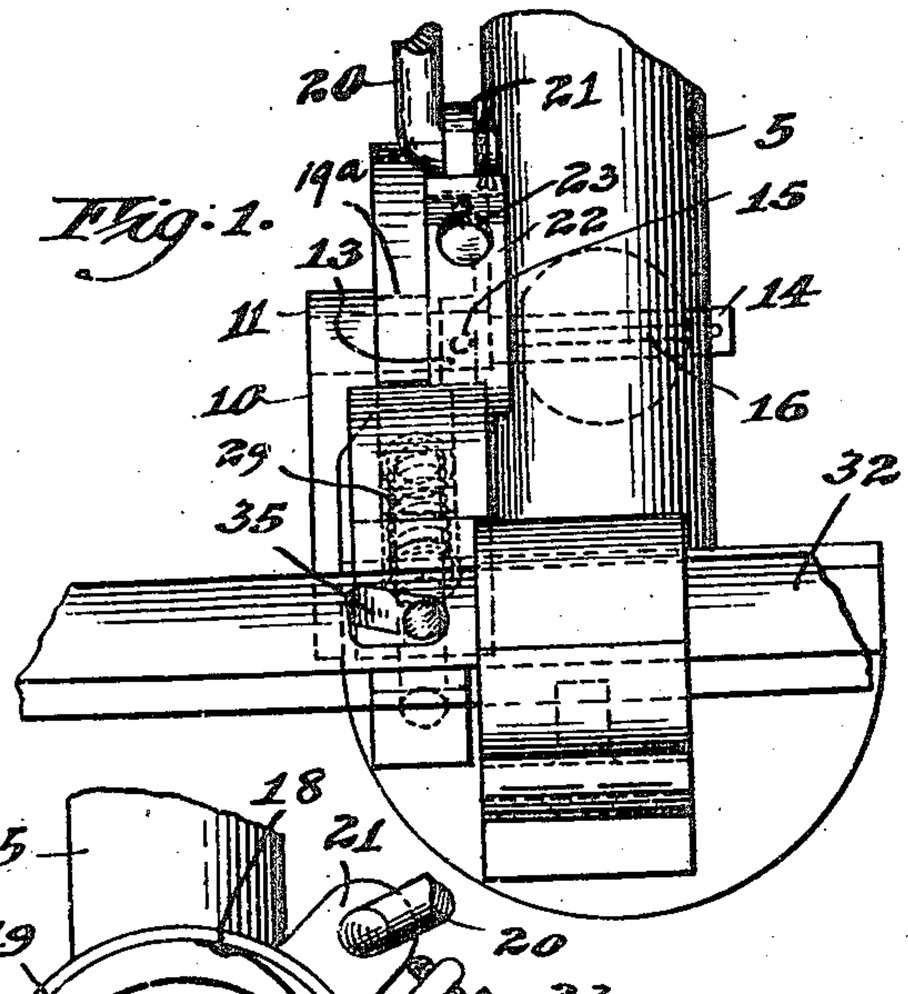

Fig. 2.

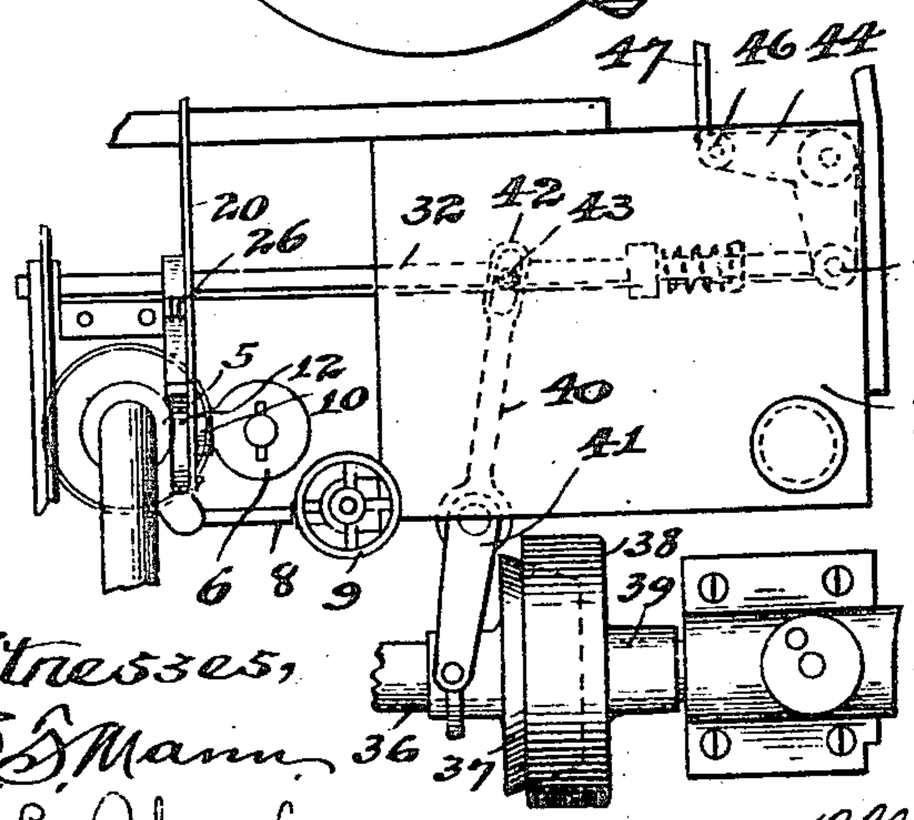

Fig. 3.

Witnesses,
F. S. Mann.
M. E. Adams.

Inventor,
Herbert S. Mustin.

By Offield, Towle & Linthicum.
Attys.

UNITED STATES PATENT OFFICE.

HERBERT S. MUSTIN, OF CHICAGO, ILLINOIS, ASSIGNOR TO AUSTIN MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

MOTOR CONTROL.

993,540. Specification of Letters Patent. Patented May 30, 1911.

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To all whom it may concern:

Be it known that I, HERBERT S. MUSTIN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Motor Controls, of which the following is a specification.

The invention relates in general to motor controls, but pertains more in particular to a motor of the explosive type wherein a carbureter and a sparking mechanism are employed.

The invention relates further to such controlling means used in combination with a clutch mechanism whereby the disengagement of the clutch operates to reduce the amount of gaseous mixture going to the carbureter and to retard the sparking mechanism.

The principal object of the invention is to provide means for setting the valve or regulating member controlling the supply of gaseous mixture from the carbureter or distributing member to the engine, so that the same will remain at any point set; or for setting the regulating member of a timing mechanism in a certain position relative to the distributing member, whereby the sparking mechanism will not be advanced or retarded; and still a further object of the invention is to so connect the controlling mechanism for the carbureter and timing mechanism with the clutch mechanism that the release of the latter will operate to control the two former.

Other objects of the invention will appear throughout the specification.

The invention in one embodiment of its use is shown in the accompanying drawings, in which—

Figure 1 is an end perspective view of a carbureter with controlling mechanism applied thereto. Fig. 2 is a side elevational view of Fig. 1. Fig. 3 is a top plan view of a clutch mechanism and carbureter with the device applied to the carbureter and connections between the same and the controlling mechanism.

Referring now more particularly to the drawing, 4 is the base portion of a carbureter of the ordinary type, having an in-take pipe 5 secured thereto, which leads from the carbureter to the explosion chamber of a gasolene engine. 6 is the float chamber for said carbureter; 7 is a supply tank, 8 a supply pipe and 9 a valve adapted to control the supply of gasolene; all of said parts being of the usual and ordinary construction.

Preferably secured to one side of the base 4 is a bearing post 10 having a journal bearing 11 formed at one end thereof. A drum 12 having a hub 13 formed centrally thereof, and journaled, at one end, in the journal bearing 11, is connected to a valve stem 14, that is pivotally mounted in the in-take pipe 5, extending transversely therethrough and secured to the hub 13 by means of the through pin 15. The valve stem carrying a butterfly valve or regulating member 16 which, in the preferred construction, extends through a slot formed in the valve stem. The valve 16 is disposed interiorly of the in-take pipe 5, it being circular in cross section and of substantially the same diameter as the diameter of the interior of the in-take pipe, so that when the valve is in a horizontal position it practically excludes the admission of the gaseous mixture from the carbureter to the explosion chamber of the engine, and when in a vertical position relative to the in-take pipe, it is at its most open movement; any position between the horizontal and vertical position effects either a partial opening or closing of the in-take pipe, as the case may be.

Within the drum 12 a spiral spring 17 is disposed that is secured at one end 18 to the interior of the drum, and at its other end 19 to a bearing stud 19ª formed integral with the post 10 or it may be secured to any suitable point which does not move relative to the drum. The normal tension of the spring 17 is to rotate the drum 12 so as to bring the butterfly valve 16 into a horizontal position; the movement of the drum being accomplished manually by means of a rod 20 or other suitable connecting means secured to a lug 21 formed upon the periphery of the drum 12. A bracket 22 is preferably secured to the base 4, carrying at one end an adjusting screw 23 that is suitably threaded and adapted to coöperate with a threaded aperture formed in the end of the bracket 22, so that the closing movement of the drum may be limited by movement of the screw 23 which is adapted to come in contact with the lug 21. Ordinarily this adjusting screw would be so positioned that when the lug 21 is in contact therewith the butterfly valve would not be quite closed, to allow a small

amount of gaseous mixture to be drawn to the engine which would continue to operate. Secured to the bracket 22 and preferably formed integral therewith, is a casing 24 having an internally recessed portion 25 in which a brake rod 26 is slidably mounted carrying a friction head 27; the casing being slightly cut away at its open head 28 so that the friction head 27 will slide therein. Interposed between the friction head and the closed end of the casing is a spring 29 which is of greater strength than the spring 17, so that when the drum 12 is moved against the action of the spring 17 and the brake applied, the tension of the spring 29 will be sufficient to overcome the tension of the spring 17 and thereby hold the drum in any adjusted position.

As a means for releasing the brake, a bracket 30 is adapted to be secured to the base 4, one end of the bracket being provided with an elongated aperture 31 through which a plate 32 is adapted to slide. To one end of the rod 26 a block 33 is secured which carries a pin 34 adapted to extend into a pear-shaped aperture 35 formed in the plate 32; said plate 32 having a sliding movement at substantially right angles to the rod 26. In Figs. 1 and 2 the pin 34 is shown as at the smaller end of the pear-shaped aperture, in which position the brake 27 is drawn free from the drum 12 by reason of the pin sliding along the converging edges of the pear-shaped slot and thereby compressing the spring 29 in the casing 24. When it is desired to release said spring 29, the plate 32, as shown in Fig. 1, is moved to the right, which releases the spring 29, allowing the brake to come in contact with the drum 12.

The device as just described may be used as a controlling mechanism with connecting means between the operator and the device for moving the rod 26 at will to release the brake, and the connecting means 20 for setting the drum, but the preferred embodiment of the invention consists in connecting the controlling mechanism shown and described to a clutch mechanism shown in Fig. 3, in which 36 represents the main shaft of a motor (not shown), which shaft is connected to the male member 37 of a cone clutch that coöperates with the female member 38 to which member 38 an extension shaft 39 is connected and adapted to carry the gear through which the driving power is transmitted. The male member of the clutch 37 is moved into and out of engagement with the female member 38 by means of link connections 40 and 41, which are well-known in the art; the link 41 being provided with a slot 42 at one end thereof, through which slot a pin 43 projects and is secured to the sliding plate 32. The sliding plate 32 is moved longitudinally relative to the clutch mechanism by means of a bell crank 44 that is pivotally connected at one end to the plate 32 at 45; its other end 46 being pivotally connected to a rod 47 leading to the operator.

When a gasolene engine is used for propelling, such as an automobile, motor roller, or any vehicle in fact, whenever the clutch is thrown out of engagement so as to discontinue the driving of the vehicle, a racing of the engine occurs due to the fact that the engine is no longer carrying a load. This results in an excessive use of gasolene, injury to the engine itself, and a general weakening of the various parts of the vehicle, due to the excessive vibration. In the present device, when the clutch is thrown out of engagement the bar 32 is moved and through the pin and slot connection 34 and 35, respectively, the brake 27 is released, allowing the drum 12 carrying the valve 16 to instantly return to approximately a closed position, which prevents the racing of the engine and the consumption of an unnecessary amount of fuel.

While the device herein shown is applied to a carbureter, it may be equally as well and effectively applied to a timing mechanism having a distributing member and a regulating member corresponding to the carbureter and butterfly valve, respectively, so that when the engine is driven at the rate of speed necessary to carry the load, the sparking mechanism being advanced it will instantly move the regulating member, when the clutch is thrown out of engagement, so as to retard the spark.

It is obvious that a device of this character may be used upon many devices to be controlled where the mechanism operates in substantially the manner herein shown, when there is a distributing member and a regulating member conjointly used, so that the movement of the regulating member affects the supply of the distributing member, and,

Therefore, without limiting myself to the particular construction herein shown and described, I claim:

1. In a motor controlling mechanism, the combination of a distributing member and a regulating member therefor, an adjusting member secured to said regulating member, spring means normally holding said regulating member in a substantially closed position and friction means for holding or releasing said adjusting member, substantially as described.

2. In a controlling mechanism, the combination of a distributing member and a regulating member therefor, an adjusting member connected to said regulating member, spring means for normally forcing said regulating member into a closed position, and friction means for holding said regulating

member in any adjusted position, substantially as described.

3. In a motor controlling mechanism, the combination of a distributing member and a regulating member therefor, an adjusting member connected to said regulating member, spring means for normally forcing said regulating member into a closed position and friction brake means adapted to bear against said adjusting member for holding said regulating member in an adjusted position, substantially as described.

4. In a motor controlling mechanism, the combination of a distributing member and a regulating member therefor, an adjusting member connected to said regulating member, spring means for normally forcing said regulating member into a closed position, brake means adapted to bear against said adjusting member and a spring for holding said brake means against said adjusting member, said spring being of greater strength than the spring for forcing said regulating member into a closed position, substantially as described.

HERBERT S. MUSTIN.

Witnesses:
JAMES R. OFFIELD,
M. E. ADAMS.