

April 21, 1925.

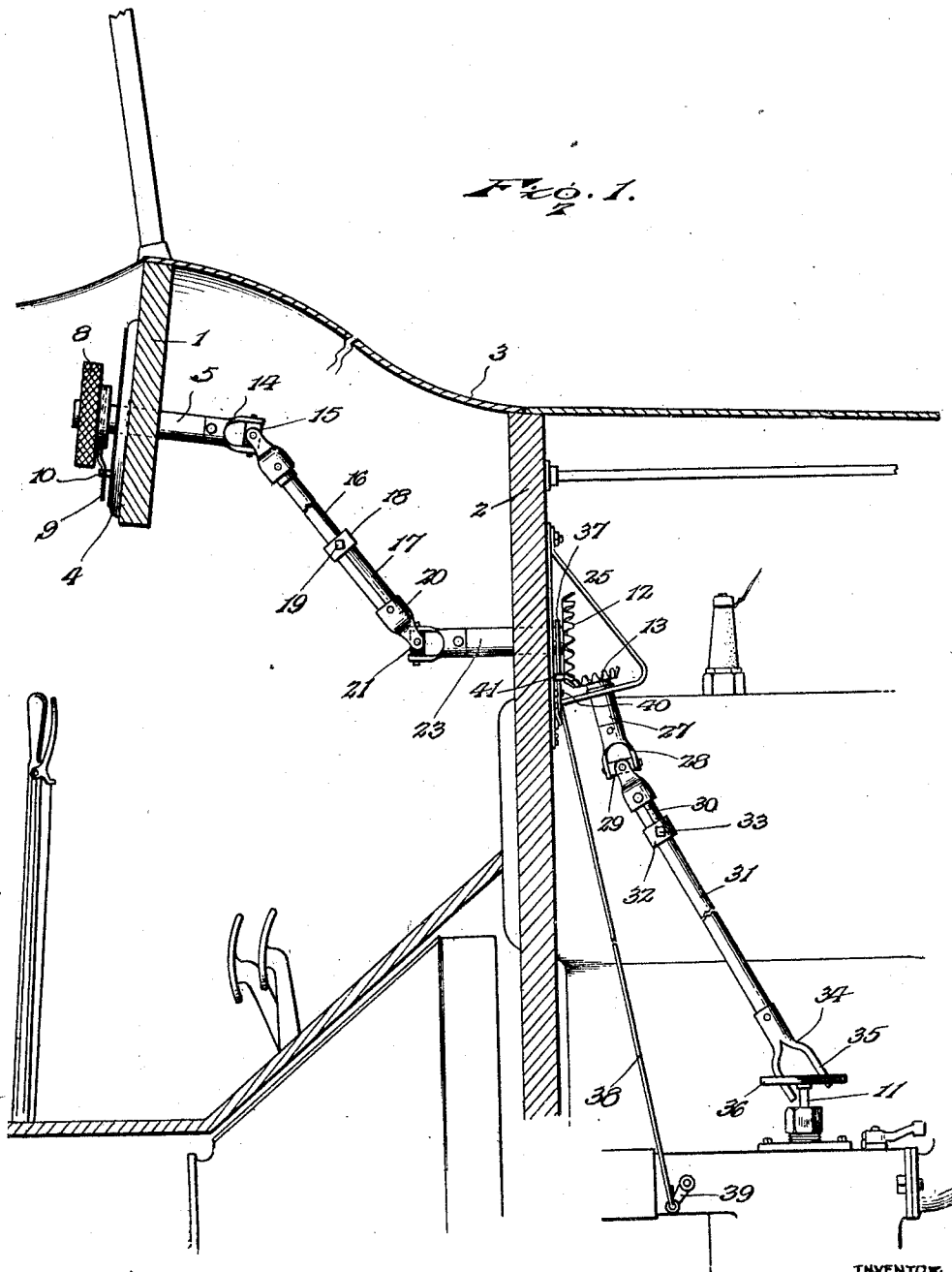
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CARBURETOR ADJUSTING MECHANISM

Filed Jan. 24, 1924

2 Sheets-Sheet 1



By

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2 Sheets-Sheet 2

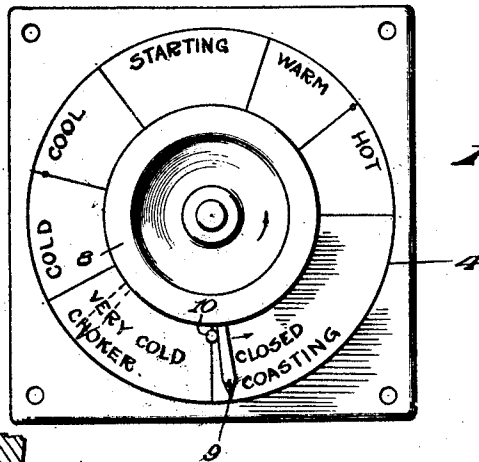


Fig. 2.

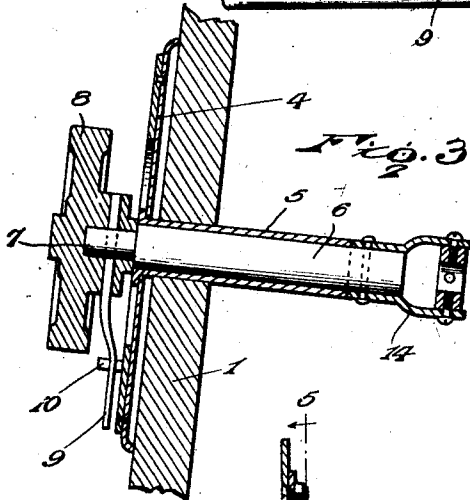


Fig. 3.

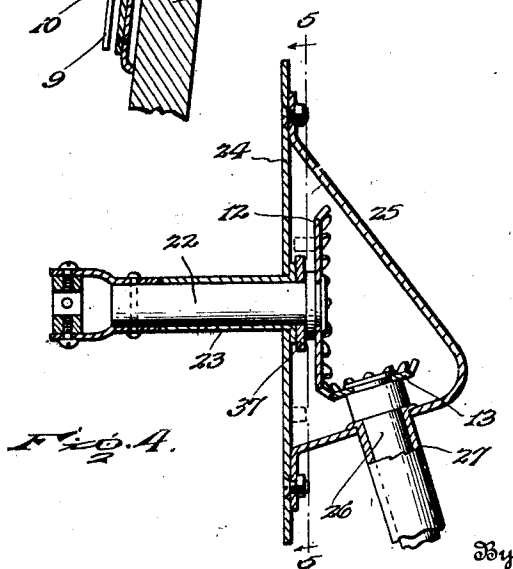


Fig. 4.

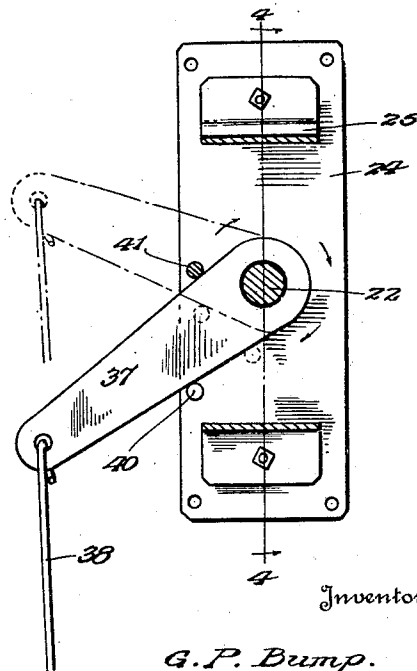


Fig. 5.

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UNITED STATES PATENT OFFICE.

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CARBURETOR-ADJUSTING MECHANISM.

Application filed January 24, 1924. Serial No. 688,237.

To all whom it may concern:

Be it known that I, GEORGE P. BUMP, a citizen of the United States, residing at La Crosse, in the county of La Crosse and State of Wisconsin, have invented certain new and useful Improvements in Carburetor-Adjusting Mechanisms, of which the following is a specification.

This invention relates to means for adjusting the carburetor of an automobile engine and has for its object the provision of mechanism which may be easily operated by the chauffeur from the seat of the vehicle and which will facilitate accurate adjustment of the carburetor according to weather conditions or the temperature of the engine so that the engine may be operated with a maximum quantity of air and a minimum volume of fuel under any given circumstances. The invention also has for its object the provision of means whereby the opening movement of the carburetor valve will be limited, and also has for its object the provision of means whereby the choker valve of the carburetor will be automatically closed when starting the engine in cold weather. The invention also seeks to provide a carburetor-controlling mechanism which may be easily adjusted to the space available upon any type of car without requiring any substantial reconstruction of any of the parts. The invention is illustrated in the accompanying drawings and resides in certain novel features which will be hereinafter first fully described and then more particularly pointed out in the appended claims.

In the drawings:

Figure 1 is a side elevation of my improved carburetor-controlling mechanism in its working position, parts of an automobile being shown in section so that the arrangement and operation of the mechanism may be more readily comprehended;

Fig. 2 is an elevation of the dial and operating knob which are mounted upon the instrument board of the vehicle;

Fig. 3 is a central longitudinal section of the dial and operating knob with the parts immediately adjacent the same;

Fig. 4 is a vertical longitudinal section of a portion of the gearing forming a part of the apparatus together with the bracket by which the gearing is supported, and

Fig. 5 is a detail section on the line 5—5

of Fig. 4, the line 4—4 in this figure indicating the plane and viewpoint of Fig. 4.

In the drawings, the reference numeral 1 indicates the instrument board of an automobile, 2 the dash and 3 a part of the cowl. In carrying out my invention, I secure upon the instrument board 1 a dial 4 having certain legends displayed thereon in a circular series and having an opening there-through concentric with the said circular series of legends. Fitted in the said central opening of the dial and extending through an alined opening in the instrument board is a bearing sleeve or barrel 5 through which a shaft member 6 is rotatably fitted. The rear end of this shaft is reduced, as shown at 7, and the operating knob 8 is secured upon the said reduced end, a pointer 9 being associated with the knob and projecting radially therefrom and from the shaft member to play over the legends upon the dial. Adjacent its lowest edge, a stop pin or stud 10 projects from the dial into the path of the pointer so that the movement of the dial is limited to one complete rotation, less the thickness of the said pin or stud. The elements which connect the shaft section 6 with the carburetor valve 11 include gears 12 and 13 having a predetermined fixed ratio so that the carburetor valve can only be given a predetermined number of turns in its opening movement, and flooding of the carburetor through excessive opening of the valve will be thereby avoided. In the particular embodiment of the invention illustrated in the accompanying drawings, the diameter of the gear 12 is twice the diameter of the gear 13 so that the carburetor valve will be given two complete turns with one complete turn of the knob 8, but the gears may have any other ratio which experience and any peculiar circumstances or conditions may suggest or determine.

Secured to the forward end of the shaft member 6 is a yoke 14 constituting one member of a universal joint 15 whereby a shaft section 16 is operatively connected with the shaft section or member 6. The shaft member 16 has a telescopic engagement with a shaft section 17, and these sections 16 and 17 are secured in any desired axial relation by a clamping collar 18 fitted about the end of the outer or tubular member 17 and carrying a set screw 19 which is engageable

through a suitable opening in said section with the inner shaft section 16. The shaft section 17 carries a yoke 20 which constitutes one member of a universal joint 21 whereby the said shaft section 17 is operatively connected with a shaft section 22 extending through the dash 2 of the vehicle and equipped at its forward end with the gear 12. The shaft member 22 is rotatably fitted in a bearing sleeve 23 which is inserted through a suitable opening provided therefor in the dash 2 and through the back member 24 of a bracket 25 which is securely fastened upon the dash, as shown and as will be readily understood. The gear 12 may be secured to the front end of the shaft section 22 in any desired manner, and the shaft will be prevented from moving rearwardly endwise through the bearing sleeve 23 by any convenient or preferred means. It is to be noted, in this connection, that the yoke members of the universal joints carried by the shaft sections 6 and 22 abut the adjacent ends of the respective bearing sleeves 5 and 23 so that endwise movement of the said shafts through their respective bearings will be effectually prevented. It will also be noted that the construction described constitutes a flexible shaft connection between the knob and the gear 12 so that the shaft may be readily disposed so as to fit within the available space in any vehicle between the instrument board and the dash.

The gear 13 which meshes with and is driven by the gear 12 is secured on the upper end of a shaft section 26 which is rotatably fitted through a bearing sleeve 27 secured in and depending from the lower end of the bracket 25 and upon the lower end of the said shaft section 26 is secured a yoke 28 constituting one member of a universal joint 29 whereby the said shaft section is operatively connected with a shaft member 30 fitting telescopically around an aligned shaft member 31, a clamping collar 32 with a set screw 33 corresponding to the collar 18 and set screw 19 being provided to secure the members 30 and 31 in any position of longitudinal axial adjustment. The lower end of the shaft member 31 has fixed thereto a fork 34 the tines 35 of which engage suitable openings provided therefor in a cross head 36 at the upper end of the stem of the carburetor valve 11 so that, when rotation is imparted to the shaft members, it will be transmitted through the head 36 to the valve stem and the valve will be opened or closed according to the direction of the movement.

Loosely fitted upon the forward end of the shaft section 22 is a lever 37 and to the free end of the said lever is attached the upper end of a link 38 which depends to and is connected with the handle member 39 of the carburetor choker valve. Normally the lever 37 rests upon a stop pin 40 on the base or

back member 24 of the bracket 25 so that the choker valve may rest in its normal open position. The gear 12, however, has a pin or stud 41 on its rear face which in the normal position of the parts is disposed adjacent the upper edge of the lever 37, as shown in Fig. 5, but when rotation is imparted to the gear 12, this pin or stud, after the gear has made about three-fourths of a revolution, impinges against the lower edge of the lever, as indicated by the dotted lines in Fig. 5, and thereupon swings the lever upwardly and causes the choker valve to close.

As shown in Fig. 2, the legends displayed upon or in conjunction with the dial 4 are "Closed coasting," "Hot," "Warm," "Starting," "Cool," "Cold" and "Very cold choker," the first and last quoted legends being disposed at the bottom of the dial and at opposite sides of the stop pin or stud 10. When the vehicle is not traveling and the engine is at rest, the pointer 9 will, of course, rest against the right-hand side of the stud 10 and will extend over that portion or panel of the dial which contains the legends "Closed coasting," it being obvious that the adjustment of the engine or the carburetor is the same when the vehicle is coasting as when it is not traveling at all. The knob is turned from right to left and may be set at any point of the dial or to stand at any one of the legends, according to the temperature of the engine or the weather, so as to facilitate the starting of the engine and the regulation of the mixture fed thereto to effect an economy in the use of the fuel. As the dial is rotated, the gear 12, of course, moves in the same direction and the pin 41 will move away from the upper edge of the lever 37 and will eventually come into contact with the lower edge of the same, which generally occurs at the same instant that the pointer passes over the panel of the dial containing the legends "Very cold choker." The lever 37 will then be swung upwardly as the rotation of the knob and the gear 12 continues so that the link 38 will be drawn upwardly and the choker valve closed. Of course, when the reverse movement is imparted to the knob, the lever will be permitted to gravitate to its normal position resting upon the stud 40 and the choker valve will then automatically open.

It will be readily noted that the connection between the gear 13 and the carburetor valve includes a universal joint so that the members of the shaft may be set at any desired angle to each other, and also that the lower portion of the connections are telescopic so that the apparatus may be easily adjusted to the relative positions of the engine or the carburetor and the dash and the apparatus thereby easily applied to any vehicle. The link 38 may conveniently be a

stout wire so that its ends may be easily bent to engage the parts with which they respectively operate and the necessity for extensibility of the link will be thereby overcome.

The device is very simple in its construction, compact in arrangement and may be readily applied to any vehicle. By its use, the chauffeur may adjust the carburetor without being required to leave his seat or reach under the instrument board or otherwise be subjected to any inconvenience or discomfort. The legends upon the dial show in easily understood symbols just where to place the indicator to suit various conditions in running and starting the engine and the choker valve is automatically closed when the knob is given a complete turn so that the proper mixture for starting the engine in very cold weather will be fed to the engine without requiring excessive attention on the part of the operator and without leaving any uncertainty as to the nature of the mixture.

Having thus described the invention, I claim:

1. In a carburetor-adjusting mechanism, the combination of a knob, operative connections between the knob and the valve of

the carburetor including shaft sections and intermeshing gears on the adjacent ends of the shaft sections, a lever loosely mounted upon one shaft section adjacent the gear, an operative connection between said lever and the choker valve of the carburetor, means for supporting said lever in normal position, and means carried by one of the gears to engage the lever after partial rotation of the gear and raise the lever through further rotation of the gear.

2. In a carburetor-adjusting mechanism, the combination of an operating knob, operative connections between said knob and the valve of the carburetor including shaft sections and intermeshing gears on the adjacent ends of said shaft sections, a lever loosely mounted on one of said shaft sections adjacent the gear thereon, a connection between said lever and the choker valve of the carburetor, a fixed pin disposed below the lever and normally supporting the same, and a pin on the adjacent gear normally disposed above the lever and adapted upon rotation of the gear to engage the lower edge of the lever and lift the lever.

In testimony whereof I affix my signature.

GEORGE P. BUMP. [L. S.]