J. A. MAHR.

ACCELERATOR PEDAL.

APPLICATION FILED MAR. 10, 1919.

1,320,561.

Patented Nov. 4, 1919.

2 SHEETS—SHEET 1.

Fig. 1

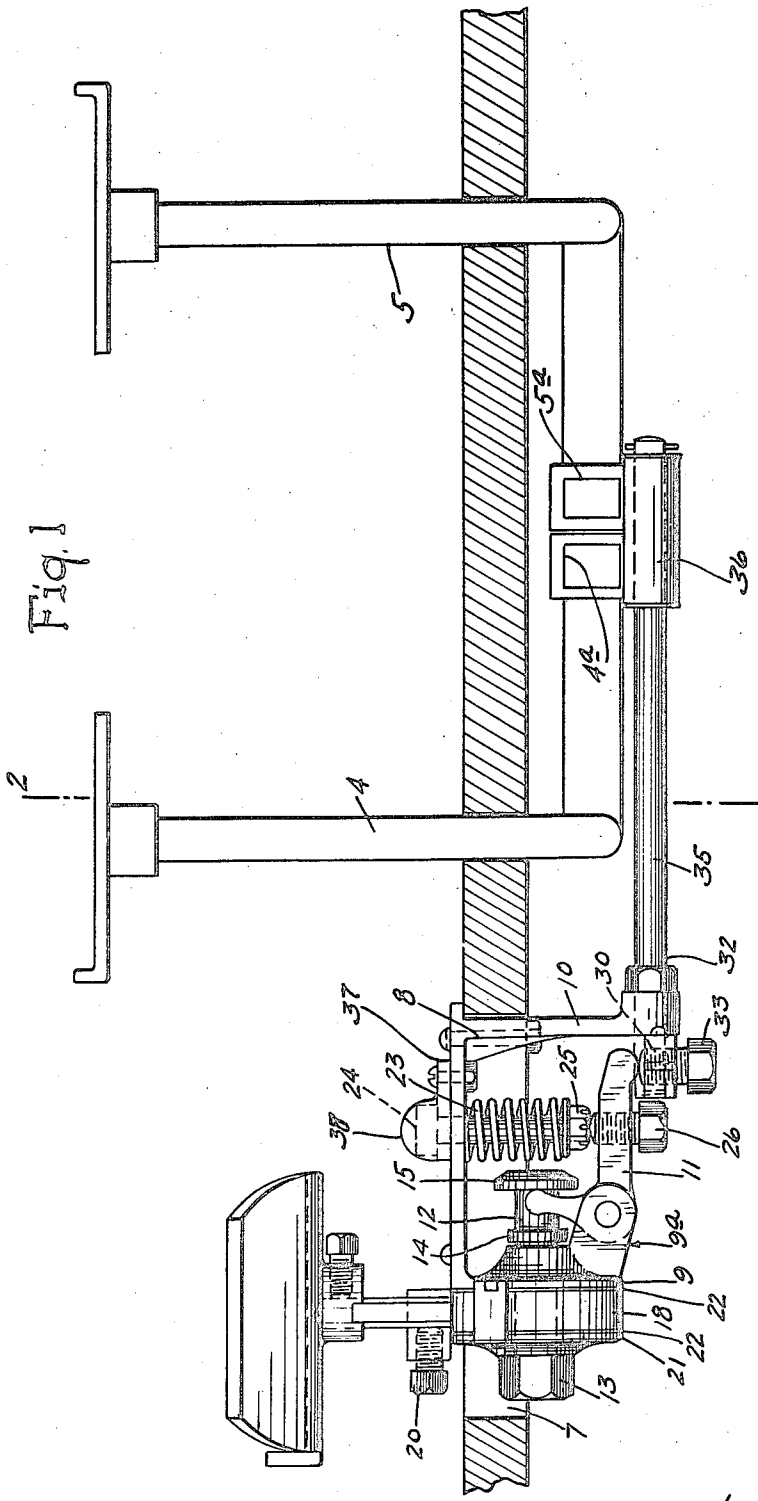
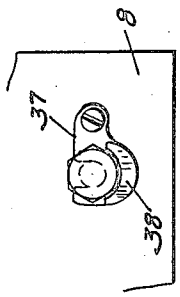


Fig. 1a



INVENTOR

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BY HIS ATTORNEYS

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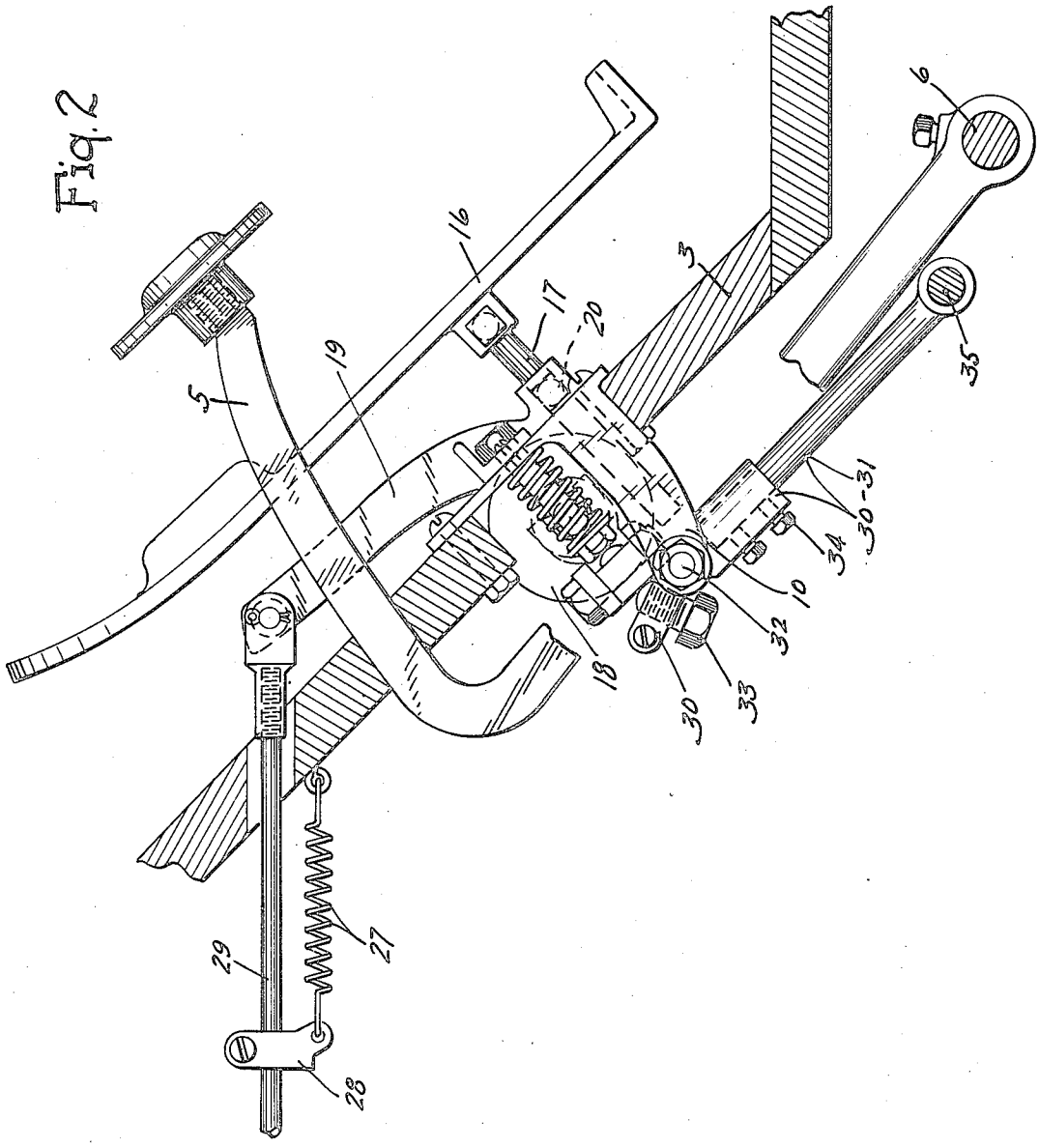
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2 SHEETS—SHEET 2.

Fig. 2



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UNITED STATES PATENT OFFICE.

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ACCELERATOR-PEDAL.

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To all whom it may concern:

Be it known that I, JULIUS A. MAHR, citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Accelerator-Pedals; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to so-called accelerators, such devices, as is well known, being in the nature of foot operated pedals which operate the throttle valves, and hence, control the speed or exerted force of internal combustion engines of automobiles. These accelerator pedals, as hitherto arranged, are under spring strain to move into a position to close the throttle valve so that when the foot is removed from such pedal, the gasolene supply from the carbureter to the engine will be cut down to such an extent that the engine will either stop or throttle down to a very slow running idle speed.

The operation of such accelerator pedals has required constant application of the foot to the pedal and this constant application is tiresome, especially in long runs. Moreover, holes and rough roads tend to shift the position of the foot on the accelerator pedal, and, consequently, to vary the speed or power of the engine in ways not desired.

I have found it highly desirable to provide an accelerator detainer, that is, a device for frictionally, or otherwise, holding the accelerator pedal in whatever position it may be set; but this provision makes it imperative that other means be provided, whereby whenever the clutch is released or the brakes set, the accelerator pedal be also released from its detainer so that it may then, in the usual or other suitable way, be automatically restored to its position for throttling down the engine.

With the above general statements in mind I will now describe a commercial form of my invention as the same has been applied to standard automobiles.

The invention is illustrated in the accompanying drawings wherein like characters indicate like parts throughout the several views. Referring to the drawings;

Figure 1 is a view in elevation with some parts sectioned, looking at the mechanism from the front and in a direction downward at approximately 45 degrees;

Fig. 2 is a vertical longitudinal section taken approximately on the line 2—2 of Fig. 1; and

Fig. 1ª is a fragmentary detail in plan.

The numeral 3 indicates the inclined portion of the foot board of the automobile and the numerals 4 and 5 indicate, respectively, the brake and clutch operating pedals, the said pedals being independently mounted in the customary way on a shaft 6 and having the usual brake and clutch actuating connections, not shown.

In the application of my invention I cut a hole through the foot board 3 at 7, and in this hole and depending therefrom, is a bearing bracket 8 bolted or otherwise rigidly secured to the foot board 3. At one side, this bracket 8 has a rigid depending disk-like friction plate 9 and at its other end has a depending bearing arm 10. The friction plate 9 has a projecting lug 9ª to which a small bell crank 11 is pivoted. Extended axially through the friction plate 9 with freedom for slight axial movements, is a combined clamping and pivot bolt 12 that constitutes part of the accelerator pedal detainer. At one end, this bolt 12 is provided with a nut 13 and at its other end, it is provided with projecting shoulders 14 and 15. The short upwardly projected end of the bell crank 11 is bifurcated and its prongs work between the said shoulders 14 and 15.

The accelerator pedal, as preferably constructed, comprises a foot piece 16 provided with a depending stem 17 that is adjustable axially through an offset portion of the disk-like hub 18 of an accelerator lever proper 19. The said stem 17 is rigidly but adjustably secured to the projecting portion of the hub 18 by a set screw 20. The purpose of making the stem 17 adjustable is to adjust the foot piece 16 to proper distance for different operators, but this foot piece, when adjusted, operates as a rigid part of the lever 19. The disk-like hub 18 of said accelerator lever 19 is pivotally mounted on the bolt 12 and is frictionally clamped between the clamping plate 9 and a laterally movable disk-like clamping plate 21 that is placed on said bolt 12 next to the nut 13.

Preferably, friction washers of leather or similar material indicated at 22 are placed on the bolt 12 immediately adjacent to the opposite faces of the disk-like hub 18.

The numeral 23 indicates a coiled spring placed around a thrust bolt 24 and compressed between the top plate of the bracket 8 and a nut 25 on the lower end of said bolt. This bolt 24 is capable of slight vertical endwise movement, and at its lower end, it is spring-pressed downward, by spring 23 against a set screw 26 that is adjustable in the long arm of the bell crank 11. Normally, the spring 23 acts through the bolt 24, presses down on the long arm of the bell crank 11, forces the short end of said bell crank against the shoulder 15 of the bolt 12 and causes the disk-like hub 18 of the accelerator lever 19 to be frictionally clamped between the friction plates 9 and 21. This frictional contact is sufficient to hold the accelerator lever in whatever position it may be set, against the tension of the accelerator retracting spring. This accelerator retracting spring, in the drawings, is indicated at 27 and is anchored to the foot board 3 and to a clip 28 on the accelerator rod 29. This accelerator rod 29 is pivoted to the free end of the accelerator lever 19 and has the customary connections to the throttle valve carbureter of the engine.

The detainer trip which operates to throw the friction detainer out of action in a manner already generally stated, comprises a lever 30—31 that is pivoted to the bracket 10 by a stud 32. At its short front end, the section 30 of this lever is provided with a set screw 33 that engages the extreme end of the long arm of the bell crank 11. In the construction illustrated, the lever section 31 is in the form of a rod rigidly but adjustably secured to the main section 30 by set screws 34. At its free rear end, the lever section 31 is provided with a long lateral projection 35, the extended end of which is shown as equipped with a rolling sleeve 36 that immediately underlies the closely adjacent portions of 4^a and 5^a of the brake and clutch levers 4 and 5, respectively.

Traced more in detail, the operation of the mechanism described is as follows:

Normally, the brake and clutch levers will be raised so that they will not act upon the tripping lever which is made up of the noted parts 30, 30, 35, and consequently, the spring 23, acting on bell crank 11 and through clamping bolt 12, will cause friction plates 9 and 21 to hold lever hub 18 under such friction that the accelerator lever will remain in whatever position it may be set, leaving the operator free to take his foot off from the foot piece 19. The operator can, of course, change the setting of the accelerator lever, and consequently, the speed or power of the engine at any time simply by putting his foot on the plate 6 and thereby changing the position of the accelerator lever.

If at any time the operator depresses either the brake lever to set the brakes or the clutch lever to release the clutch, or both thereof, the depressed lever or levers, acting on the lever extension 35, will rock the tripping lever 30—31, thereby pressing upward the long arms of the bell crank 11 and releasing lever hub 18 from the clamping action of the clamping plates 9 and 21, and thereupon, instantly, the spring 27 will become effective to throw accelerator lever 19 into position to close the throttle valve.

At times, it may be desirable to throw the automatic mechanism entirely out of action so that the accelerator will operate in the ordinary well known manner. This may be accomplished in various different ways, but in practice, I have accomplished the result by providing a latch piece or detainer 37, pivoted to the bracket 8 and having a notched end that is adapted to be swung under the head of the bolt 24 as best shown in Fig. 1^a, to thereby hold the said bolt raised and the spring 23 out of action. This latch 37 is shown as provided with an upstanding flange 38 that may be engaged with the foot to readily move the said ledge to and from an operative position.

Normally the said latch will be out of line with the bolt-head but it may be readily engaged under the bolt-head with the bolt raised by depression of either one of the pedals 4—5.

What I claim is:

1. In a controlling mechanism of an engine-propelled vehicle, a throttle valve accelerator, a detainer operative to hold said accelerator set in different positions, and means for automatically throwing said detainer out of action and thereby releasing said accelerator.

2. In a controlling mechanism of an engine-propelled vehicle, a throttle valve accelerator, a detainer operative to hold said accelerator set in different positions, and means for automatically throwing said detainer out of action and thereby releasing said accelerator when the brakes are set or the clutch released.

3. In a controlling mechanism of an engine-propelled vehicle, the combination with a throttle valve accelerator under yielding strain to throttle the engine, a clutch pedal, a frictional detainer for holding said accelerator set in different positions, and a detainer trip subject to said clutch pedal and operative, when said clutch pedal is depressed to throw said detainer out of action and release said actuator.

4. In a controlling mechanism of an engine-propelled vehicle, the combination with a throttle valve accelerator under yielding

strain to throttle the engine, a brake pedal, a frictional detainer for holding said accelerator set in different positions and a detainer trip subject to said brake pedal and operative, when said brake pedal is depressed to throw said detainer out of action and release said actuator.

5. In a controlling mechanism of an engine-propelled vehicle, the combination with a throttle valve accelerator pedal under spring strain to throttle the engine when released, a frictional spring-pressed detainer normally operative on said accelerator pedal to hold the same set in different positions, a clutch pedal and a detainer trip subject to said clutch pedal and operative, when said clutch pedal is depressed, to trip said detainer out of action and release said accelerator.

6. In a controlling mechanism of an engine-propelled vehicle, a throttle valve accelerator, a detainer operative to hold said accelerator set in different positions, and means for automatically throwing said detainer out of action and thereby releasing said accelerator, and means operative at will, to lock said detainer out of action and thereby leave said accelerator free for operation in the customary manner.

7. In a controlling mechanism of an engine-propelled vehicle, the combination with a throttle valve accelerator under yielding strain to throttle the engine, a clutch pedal, a frictional detainer for holding said accelerator set in different positions, and a detainer trip subject to said clutch pedal and operative, when said clutch pedal is depressed to throw said detainer out of action and release said actuator, and means operative at will, to lock said detainer out of action and thereby leave said accelerator free for operation in the customary manner.

In testimony whereof I affix my signature in presence of two witnesses.

JULIUS A. MAHR.

Witnesses:

CLARA DEMAREST,

EVA E. KÖNIG.