

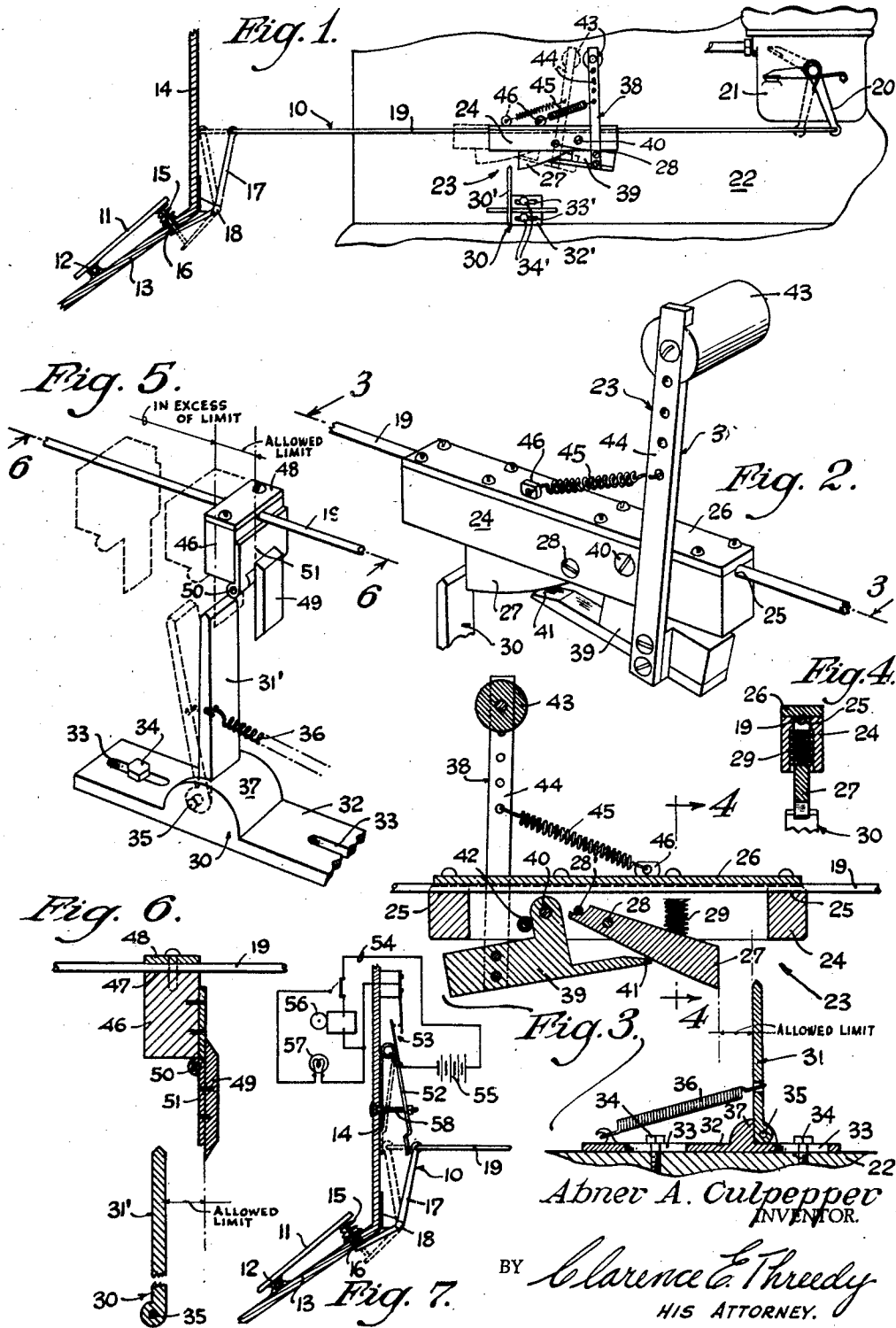
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AUTOMATIC SPEED INDICATOR

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AUTOMATIC SPEED INDICATOR

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This invention relates to speed detectors and controls and has as its principal object the provision of an automatic speed indicator for accelerator systems, which attachment will be simple in construction, economical in manufacture and highly efficient in use.

It is another object of this invention to provide an attachment for accelerator systems whereby the person operating the vehicle will be advised by the sense of feeling that he has reached a predetermined rate of speed.

Another object of this invention is to provide an attachment unit for ready assembly onto already existing control levers.

A further object of my invention is the provision in an accelerator control accessory of a device for informing the person operating a vehicle that he has reached a predetermined rate of speed and yet will permit him to accelerate the vehicle in excess of such predetermined rate of speed.

Other objects will appear more fully hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawing in which:

Fig. 1 is a fragmentary side elevational view, partly in section, of an accelerator system for an automotive vehicle and embodying my new attachment;

Fig. 2 is an enlarged perspective view of my new attachment;

Fig. 3 is a vertical sectional detail view of the attachment as viewed from line 3—3 in Fig. 2;

Fig. 4 is a cross sectional view as seen from line 4—4 in Fig. 3;

Fig. 5 is a perspective view of a modified form of attachment embodying my invention;

Fig. 6 is a vertical sectional detail view through the modified form as seen from line 6—6 in Fig. 3; and

Fig. 7 is a vertical sectional view illustrating schematically an auxiliary attachment for my new invention.

In the operation of motor vehicles of the present-day design, the movement of the vehicle is so smooth and gliding that passengers as well as driver are unaware of the excessive and hazardous speed at which they are traveling. This is especially true of the driver who, although he may occasionally glance at the speedometer, is so pre-occupied with traffic conditions and directional markers, etc., that he is not conscious of

the fact that he is exceeding the speed-limit laws. With local as well as general speed laws fixed at a predetermined rate of speed, no driver desires to wilfully violate the set pace, and if he is informed of the fact that he has reached the allowed maximum speed he will immediately reduce his speed to comply with regulations.

It is an object of my invention to provide a means whereby the driver will be constantly assured of a warning should he forget himself by cruising without watching his speed. Since the actual instrumentality employed in accelerating the speed of the vehicle is in contact with the driver when the warning is most desired, I have provided an attachment for the accelerator system which will affect its operation in such a manner as to employ the sense of touch of the driver to warn him of his having advanced the accelerator system to a point which will produce the speed allowed and yet will permit him to increase the speed beyond the allowed rate should an emergency require.

Referring to the drawing, in Fig. 1 I have illustrated a typical arrangement of accelerator system 10 which consists of a foot pedal 11 hingedly mounted as at 12 on a floorboard 13 adjacent a dashboard 14. The pedal is held in withdrawn condition by a spring 15 and is associated with a push rod 16 which engages a rocker arm 17 pivotally arranged as at 18 on the dash 14. The opposite end of the rocker arm 17 is connected to a rod 19, the opposite end of which is connected to a lever 20 which controls a valve (not shown) in the carburetor 21. Numerous arrangements of accelerator systems have been employed and in each there is always a movable link, similar to the rod 19, which is movable in a plane relative to the motor block 22.

In carrying out the objects of my invention, I provide a simple and inexpensive attachment 23 for the accelerator system 10. This attachment preferably includes a mounting block 24 which is formed to provide a groove 25 into which is clamped the movable link or rod 19 by screwing a plate 26 down upon the block 24. A detent in the form of a feeler finger 27 is pivotally mounted as at 28 on the block 24 and is urged by a light spring 29 into an extreme extended condition as shown, where the inner end of feeler finger 27 abuts a stop 28'. The block 24 and its associated parts are movable with the rod 19 as and when the accelerator pedal 11 is depressed and/or released. To complete the attachment 23 I provide an abutment 30 against which the de-

tent 27, when extended, will abut, thus limiting the further movement of the rod 19 and pedal 11.

The abutment 30 is fixed upon a stationary object in the vehicle, such as on the motor block 22, at a position in the path of movement of the feeler finger 27 and is normally spaced therefrom the distance that rod 19 is required to travel in order to actuate the lever 20 and open the valve of the carburetor 21 to a point which will result in a predetermined speed of travel of the vehicle. As illustrated, in Fig. 3 the rod 19 and block 24 are shown in normal or idling position and must move from left to right when the speed of the motor is accelerated. The abutment 30 shown in Fig. 3 is a yieldable type abutment 31 which consists of a base 32 which has formed therein a pair of elongated slots 33 through which stud bolts 34 may be affixed to the stationary block 22. A yieldable abutment finger 31' is pivotally attached as at 35 to the base 32 and is urged by a spring 36 against a stop 37 to dispose the finger 31' in the path of movement of the feeler finger 27. The base 32 is adjustable with respect to the motor block 22 in the direction of movement of the rod 19 and thus may be placed in any desired position in the range of its adjustment to permit a shorter or longer movement of the feeler finger 27 before the latter engages the abutment finger 31'.

When the driver of the vehicle presses down on the pedal 11 there is very little resistance to this foot pressure. However, when the feeler finger 27 engages the abutment finger 31', the added resistance of the spring 36 is felt through the driver's foot and he is immediately aware of the fact that he has reached the maximum allowed speed. The accelerator can be advanced beyond the maximum allowed speed by continuing to press the foot farther down upon the pedal 11 because the abutment finger 31' will rotate about its pivot mounting 35 and thus the accelerator system is capable of being moved to its ultimate limit if necessity may require. In the latter case, the feeler finger 27 will pass the abutment finger 31' which will return to normal upright position by action of spring 36, and when the pedal 11 is released for return to normal position by the spring 15, the feeler finger 27 is free to swing over the top edge of the abutment finger 31'.

An inertia device is associated with the movable block 24 so that a fixed or non-yieldable abutment finger 30' may be employed with my attachment and still enable the rod 19 to move into its intended limit of movement beyond the movement of rod 19 required to reach a predetermined allowed speed. As shown in Fig. 1, the abutment finger 30' is a definite barrier against movement of the feeler finger 27 beyond the allowed maximum limit. In this type of abutment 30, a base 32' is employed with slots 33' and bolts 34' for adjusting the abutment into desired allowed speed ranges. In this type, however, the abutment finger 30' is formed integrally with the base 32', and when the bolts 34' are once set, a definite obstruction is placed in the normal path of movement of the feeler finger 27.

The inertia means is generally indicated at 38 and includes a trip lever 39 which is pivotally mounted as at 40 on the block 24 and has a trip finger 41 which engages the underside of the feeler finger 27. A stop 42 on the block 24 limits the movement of the lever 39 away from the feeler finger 27. A counterbalance weight 43 is provided for the trip lever 39 by extending a strut

44 upwardly from the lever 39 a distance above the pivot mounting 40 thereof. A spring 45 anchored as at 46 on the block 24 has its opposite end attached to the strut 44 to urge the latter and its weight 43 together with the trip lever 39 into normal condition as shown (in full lines).

In operation the attachment with the fixed type of abutment 30' is free to move with the rod 19 from normal position until the feeler finger 27 engages the abutment 30' and can move no farther in that direction. This, of course, is under the presumption that the advance of the rod 19 is gradual and uniform. However, should the driver desire to exceed the allowed speed limit, a slight release of the pedal 11 and then a quick and abrupt pressure upon the pedal 11 will cause the inertia device 38 to function, in which case the counterbalance weight 43 will tend to remain in its position with respect to the motor block 22 because the weight 43 will not move as fast as the block 24, and hence the trip lever 39 will rock upon its pivot 40 to lift the feeler finger 27 upward a distance sufficient to permit the finger 27 to hurdle the fixed abutment 30' (see dotted lines, Fig. 1). This allows the rod 19 to move all the way to its extreme limit of movement. The feeler finger 27 is, as before explained, so arranged that it can glide over the fixed abutment 30' upon return to normal position.

In the modified form of attachment shown in Figs. 5 and 6, only the block and feeler finger are employed in conjunction with the yieldable abutment finger 31'. In this form the block is indicated at 46 and has a groove 47 formed therein for clamping the rod 19 between the block 46 and a plate 48. The feeler finger is indicated as 49 and is pivotally mounted as at 50 on the block 46 by means of a hinge 51 and is so arranged that the feeler finger 49 will hang straight down by gravital action and be limited in its pivotal movement in a counterclockwise direction (Figs. 5 and 6) but will be free to swing in an opposite direction to sweep over the end of the abutment 31' upon returning to normal position.

As will be seen in Figs. 1, 2 and 3, the trip finger 41 of the inertia means 38 may be employed to engage the abutment member 30 so that the trip finger 41 will accomplish the purpose of the detent 27.

In Fig. 7 I have shown certain auxiliary warning means which may be used with my attachment whereby to create an audible or visible alarm as well as the warning to be sensed by the sense of feeling. In this auxiliary means there is provided an additional spring-urged lever 52 bounted on the dashboard 14 or any other suitable place where movement of the accelerator system 10 can be interrupted. Associated with the lever 52 is a switch 53 which, when the lever 52 is moved, completes a circuit 54 from a battery 55 to a bell 56 or a lamp 57, as the case may be. The lever 52 is adjustable on a screw thread 58 so as to enable a mechanic to position the lever 52 in the path of movement of the rod 19 where the alarm by the bell or the lamp will occur simultaneously with the alarm produced by the feeler finger 27, or the auxiliary warning means may be set in advance of the feeler finger 27 so as to give a prelude to the actual alarm.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction

set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to protect by Letters Patent is:

1. In a speed detector for foot-operated accelerator systems employing a movable link, an attachment for said movable link, a detent pivotally mounted on said attachment, an abutment adapted to be engaged by said detent to limit the movement of the latter and said movable link in one direction, means for mounting said abutment in the path of movement of said detent, and inertia means for said detent and adapted, upon sudden movement of said movable link, to pivot said detent out of the path wherein it may be brought into abutting relation with said abutment.

2. In an accelerator system for automotive vehicles and including a movable link connected to a foot-operated pedal, means for impressing an additional load on said foot-operated pedal to indicate that a predetermined rate of speed has been reached by said accelerator system, said means including a block arranged on said movable link for movement therewith, a detent pivotally mounted on said block, means urging said detent exteriorly of said block to a fixed lateral condition and permitting retraction of said detent within said block, an abutment arranged on said automotive vehicle in the path of movement of said detent, when the latter is in said fixed lateral condition, said abutment being arranged in a predetermined position relative to said detent to permit a limited movement of the latter by normal foot pressure, and inertia means on said block and engageable with said detent whereby to urge said detent into retracted condition upon an abrupt application of pressure to said foot pedal to permit said movable link to travel its full normal stroke of movement.

3. In an accelerator system for automotive vehicles and including a movable link connected to a foot-operated pedal, means for impressing an additional load on said foot-operated pedal to indicate that a predetermined rate of speed has been reached by said accelerator system, said means including a block arranged on said movable link for movement therewith, a detent pivotally mounted on said block, means urging said detent exteriorly of said block to a fixed lateral condition and permitting retraction of said detent within said block, an abutment arranged on said automotive vehicle in the path of movement of said detent, when the latter is in said fixed lateral condition, said abutment being arranged in a predetermined position relative to said detent to permit a limited movement of the latter by normal foot pressure, inertia means including a trip lever pivotally mounted on said block and engageable with said detent, and a counterweight on said trip lever and adapted to urge said detent into retracted condition upon a sudden depression of said foot pedal.

4. In a speed detector for an accelerator system employing a manually operated movable link for controlling the fuel flow in an automotive vehicle, the combination of a detent pivotally mounted on said movable link, means normally

urging said detent into a fixed extended condition and permitting retraction of said detent out of said extended condition, an abutment means arranged in the path of movement of said detent when the latter is in extended condition to limit the movement of the detent and said movable link, said abutment being arranged in spaced relation to said detent to permit a predetermined movement of the latter with said movable link, and inertia means on said movable link and associated with said detent to retract the latter out of engagement with said abutment upon quick manual operation of said movable link.

5. In a speed detector for an accelerator system employing a manually operated movable link for controlling the fuel flow in an automotive vehicle, the combination of a detent pivotally mounted on said movable link, means normally urging said detent into a fixed extended condition and permitting retraction of said detent out of said extended condition, an abutment means arranged in the path of movement of said detent when the latter is in extended condition to limit the movement of the detent and said movable link, said abutment being arranged in spaced relation to said detent to permit a predetermined movement of the latter with said movable link, and inertia means for retracting said detent out of extended condition to permit continued movement of said movable link, said inertia means comprising a trip lever pivotally mounted on said movable link and in operative engagement with said detent, a counterweight arranged on said trip lever and adapted to urge the latter in the direction of said detent when the movable link is moved in excess of a predetermined uniform movement whereby to retract said detent out of said extended condition.

6. In an accelerator system for automotive vehicles and including a movable member connected to a manually operated pedal, means for limiting the movement of said pedal and movable member after a predetermined distance of movement, detent means pivotally mounted on said movable member and normally movable in a path to engage said limiting means, inertia means on said movable member and in engagement with said detent means and adapted upon a sudden operation of said pedal and movable member to withdraw said detent means from said path to permit movement of said movable member beyond said predetermined distance of movement.

7. In an accelerator system for automotive vehicles including a movable member associated with a manually operated lever for controlling the flow of fuel to the motor, means for limiting the movement of said movable member after a predetermined movement thereof, means comprising a lever on said movable member and normally movable therewith in a path of movement to engage said limiting means and a weight associated with said lever and arranged to urge the latter out of said path of movement when said manually operated lever is abruptly manipulated whereby to permit continued movement of said movable member in excess of the predetermined movement.

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