This invention relates to pedal or lever operated devices for controlling brakes and accelerators of motor road vehicles. The object of my invention is to provide a construction in which the brake and accelerator can be operated from a common member. A further object of my invention is to provide a means whereby the brakes are applied automatically when the pedal is released so that the brake will remain applied during such time as the vehicle is not under the control of a driver.

According to my present invention a combined brake and accelerator control comprises a loaded member operating between a pair of abutments one of which is connected to the accelerator and the other to the brakes, the said member being loaded so as to apply pressure to the abutment appropriate to the brakes for the purpose of applying the brakes, a manually controlled lever or pedal being provided and adapted to be operated to move said member against the influence of its load for the purpose of operating the accelerator or for maintaining it in a neutral position.

The preferred form of my invention consists of a pair of slidable members formed with abutments at ends separated from but opposed to each other, a slidable plunger or pressure applying member being guided between said pair of abutments and adapted to be selectively engaged with the abutments for moving one away from the other, one of the slidable members carrying an abutment being connected to an accelerator and the other being connected to the brakes or means for operating the brakes, the said plunger or pressure applying member being connected to spring loaded toggle links adapted to pass through a dead centre position constituting a neutral position when moving from one abutment to the other, supplementary spring means being provided adapted to urge the plunger or pressure applying member with a predominance of pressure against the abutment appropriate to the brakes.

In order that my invention may be clearly understood and readily carried into effect I have appended hereto two sheets of drawings illustrating an embodiment thereof and where-in,

Fig. 1 is a side elevation view showing the device in the neutral position.

Fig. 2 is a sectional side elevation view showing the device operating the accelerator.

Fig. 3 is a sectional side elevation showing the device operating the brakes.

Fig. 4 is an end elevation view of Fig. 1 with the foot pedal omitted.

Referring to the drawings, the device illustrated is operated from a foot pedal 1 pivoted at 2 in a bracket 3 and connected by a link 4 to a stirrup shaped member 5 the free ends of the side limbs of which are connected to a plunger or pressure applying member 6 accommodated in a tubular housing 7. A pin 8 slidable in a pair of diametrically opposite slots 9a in the housing 7 constitutes the pivotal connection between the stirrup shaped member 5 and the plunger 6 so that a connecting rod and piston like action is provided between the pedal 1 and plunger 6.

The housing 7 is closed at its ends by caps 9 through which slide a pair of rods 10 and 11 connected respectively to the accelerator and the brakes. The rod 11 is formed with a head 12 slidable in the housing 7 and having interposed between it and the appropriate cap 9 a coiled compression spring 13 which urges the rod 11 to the position which will maintain the brakes off, a suitable abutment for instance a nut 14 on the rod 11 limiting the inward movement of such rod.

The accelerator rod 10 is formed with a head 15 between which and a sleeve like guide 16 on the appropriate head 9 is interposed a coiled compression spring 17 which urges the rod 10 inwards to an extent limited by a suitable abutment on such rod, for example a nut 18. By employing adjustable nuts 14 and 18 the amount of sliding action on the rods 10 and 11 can be regulated.

When the plunger 6 is mid-way between the heads 12 and 16 the springs 13 and 17 maintain such heads slightly spaced each side of the plunger 6 so that if the plunger 6 is moved in one direction the accelerator is operated and in the other direction the brakes are operated. The operation of the brakes preferably entails a greater effort or load than the operation of the accelerator and for this purpose a coiled compression spring 19 is interposed between the plunger 6 and the cap 9 appropriate to the accelerator rod 10, this coiled compression spring being effective until the spring 13 of the brake rod 11 is fully compressed as shown in Fig. 3. To provide an easy operation of the accelerator rod 10 the plunger 6 is connected to a toggle link device having a break arm spring action. Two pairs of toggle links 20 are provided for this purpose, a pair on opposite sides of the housing 7. The inner ends of these links
are pivoted to the pin 8 to which the stirrup shaped member 5 is connected and the outer ends of these links are bridged by a pair of pivot pins 21 slidable in slots 23 formed in two parallel bars 22 and the inner ends of these links are connected across them a pair of tension springs 24 from which it will be apparent these springs assist in maintaining the plunger 6 in the neutral position. When the pedal 1 is pressed by the foot to operate the accelerator the links 20 will move from the dead centre position shown in Fig. 1 and their springs 24 will considerably reduce the effort required on the part of the operator to overcome the influence of the compression spring 19. In practice it is preferable to have the combined effort of the springs 24 only slightly less than the effort of the spring 19. This will result in a heavy load being applied to the brake rod 11 if the pedal 1 is released, but too sudden a load can be avoided by the pressure of the foot against the pedal 1.

Normally only a slight pressure of the foot against the pedal 1 is required to hold the plunger 6 in the neutral position because the dead centre influence of the springs 24 will tend to resist the action of the spring 19.

In order to give an indication of the position of the pedal 1 a spring loaded ball detent device can be provided on the arm of the pedal 1, the three positions in this device being indicated at the points 25 in Fig. 1, it being understood that the upper end of the bracket 3 is provided with appropriate recesses to receive the spring loaded ball at these points.

It will sometimes be necessary to lock the plunger 6 in the neutral position, for example when the vehicle is parked or is in a garage. This locking of the plunger 6 in the neutral position can be effected by engaging one end of a small lever 26 in a recess 27 in the arcuate upper edge of the bracket 3, this engagement being maintained by a pull on a wire 28 connected to a suitable retaining device. A tension spring 29 normally maintains the lever 26 in the side position.

It will be understood that the brake operating member can be employed for operating, pneumatic, vacuum, hydraulic or electrically actuated brakes instead of being employed to apply brakes mechanically.

What we claim is:

1. A combined brake and accelerator control for motor road vehicles comprising a pair of slidable members formed with abutments at ends separated from but opposed to each other, a pressure applying member being guided between said pair of abutments and adapted to be selectively engaged with the abutments for moving one away from the other, one of the slidable members carrying an abutment being connected to an accelerator and the other being connected to brake operating means, spring loaded toggle links to which said pressure applying member is connected, said links being adapted to pass through a dead centre position constituting a neutral position when moving from one abutment to the other, supplementary spring means being provided adapted to urge the pressure applying member with a predominance of pressure against the abutment appropriate to the brakes.

2. A combined brake and accelerator control for motor road vehicles comprising a pair of slidable members formed with abutments at ends separated from but opposed to each other, a pressure applying member being guided between said pair of abutments and adapted to be selectively engaged with the abutments for moving one away from the other, one of the slidable members carrying an abutment being connected to an accelerator and the other being connected to brake operating means, spring loaded toggle links to which said pressure applying member is connected, said links being adapted to pass through a dead centre position constituting a neutral position when moving from one abutment to the other, supplementary spring means being provided adapted to urge the pressure applying member with a predominance of pressure against the abutment appropriate to the brakes.

3. A combined brake and accelerator control comprising two substantially coaxial slidable independently operated abutments one of which is adapted to be connected to the accelerator for operating it and the other to the brakes for operating them in positions in this device being indicated at the points 25 in Fig. 1, it being understood that the upper end of the bracket 3 is provided with appropriate recesses to receive the spring loaded ball at these points.

4. A combined brake and accelerator control comprising a housing, two substantially coaxial independently operated abutments slidable in said housing, guides on the ends of the housing through which slide rods carrying said abutments, one of said rods connecting one of said abutments to the accelerator for operating it and the other to the brakes for operating them, springs in said housing urging the said two abutments towards each other, one of said springs moving the brake abutment to the "off" position and the other moving the accelerator abutment to the "non-accelerating" position, a manually controlled pressure applying member interposed between said two abutments and adapted to be selectively pressed against either of said two abutments, the pressure against the accelerator abutment being effected manually, a brake actuating spring for urging said spring pressure applying member with a predominance of pressure against the abutment appropriate to the brakes, and a lever connected to said pressure applying member for moving it away from the brake abutment.

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