Jan. 9, 1951 R. L. CLICK 2,537,444

CARBURETOR-VALVE-CONTROLLING MECHANISM

Filed April 25, 1949

Fig. 1

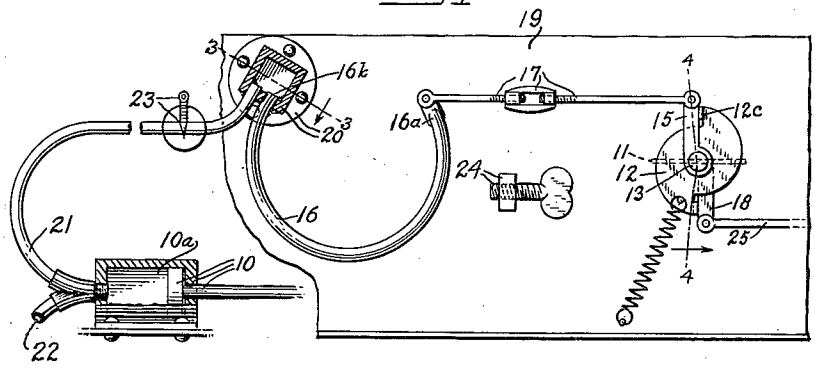


Fig. 2.

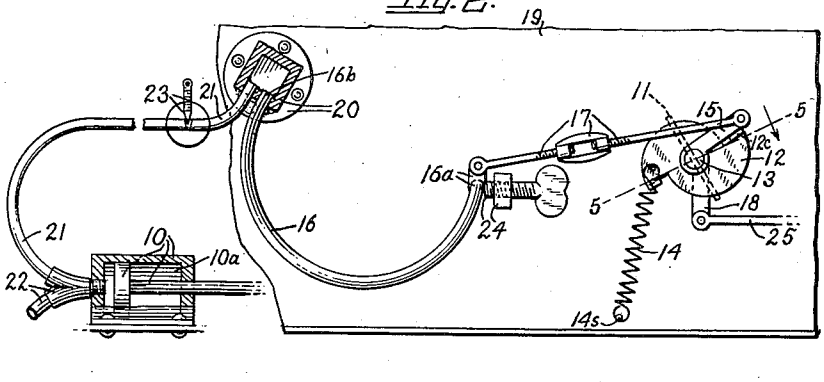


Fig. 3.

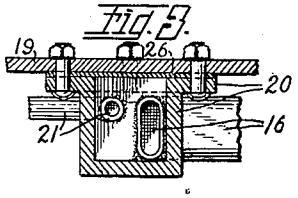


Fig. 4.

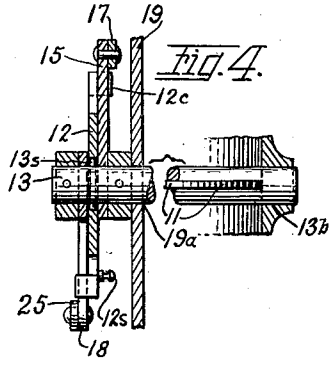


Fig. 6.

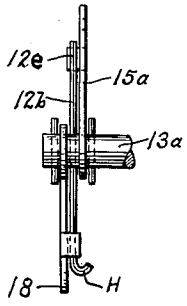
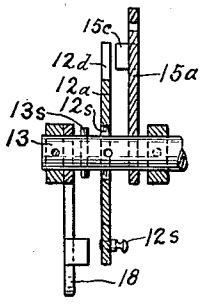


Fig. 5.



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CARBURETOR-VALVE CONTROLLING MECHANISM

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3 Claims. (Cl. 192—3)

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This invention relates to a brake-applying and carburetor-valve-controlling synchronizer; and to a fluid-pressure-actuated synchronizer for brake-applying and accelerating mechanism for motor-vehicles; so I choose to give it the shorter title Carburetor-Valve Controlling Mechanism.

The main object of this invention is to prevent accidents to motor-vehicles and their drivers under numerous road conditions and sudden emergencies such as often occur when driving motor-vehicles that lack advantage of an invention such as the one presently described; for sake of comparision, assume we are driving a vehicle equipped with this present invention, as follows:

(1) In rounding a curve or making a turn on a slippery road, we feel the vehicle is in danger of skidding, and our first impulse is to slacken the speed by applying the brake and closing the valve of the carburetor, and in doing so, we tend to stop the driving wheels from rotating and to start slipping sidewise; but this tendency is avoided by the automatic operation of the present device which keeps the carburetor open and the driving wheels turning and taking tractive engagement with the road or track while the brake is still applied; so the vehicle slowly and safely pulls away from each slippery place encountered, instead of skidding into a ditch or down a bank or into the path of another vehicle.

(2) When driving up a hill, if for any reason the motor vehicle is stopped, and if the emergency-brake is not sufficient, or if the driver does not think it necessary to use the emergency-brake, the pressure from the foot-brake will accelerate the motor enough to keep the motor running while the operator shifts to low gear and starts again up-hill.

(3) If, in cold weather, or if for any reason the motor is running badly on a take-off, and has not warmed up or is inclined to stop when the foot is taken off the accelerator-pedal, to apply such foot to the brake-pedal, as often happens at a stop-signal or light, this device gently but effectively, thru the brake-pressure, spurs or accelerates the carburetor to action.

Therefore; a further object of this invention is to provide an effective and practical means to automatically open the carburetor by simply applying the brakes either gently or tightly, so the motor of the vehicle keeps running even when the brakes are applied; also to provide means operatable at the instrument-board to quickly render said practical means operative or inoperative to suit various conditions of the road

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and climatic effect on the specific gravity of the hydraulic fluid used; also to provide for making the brake-accelerator connection independent of operation or control by the accelerator-control mechanism heretofore known and in use.

Other objects and important features are pointed out or implied in the following detail or description, in connection with the accompanying drawings in which:

Fig. 1 is a somewhat diagrammatic view of a motor-vehicle-attachment, as one form of my invention, combined with parts of the brake-actuating mechanism and accelerator-actuating mechanism of a motor-vehicle, the accelerator-valve being in the carburetor-closing position.

Fig. 2 is a diagrammatic view of the same device shown in Fig. 1, but the carburetor-valve being near the wide-open position while the fluid-pressure-piston of the brake-mechanism is advanced, as when applying fluid-pressure for the brake-mechanism and carburetor-opening mechanism.

Fig. 3 is an enlarged fragmental sectional view taken along the line 3—3 of Fig. 1.

Fig. 4 is an enlarged fragmental sectional view taken along the line 4—4 of Fig. 1, with a fragment of a carburetor added.

Fig. 5 is an enlarged sectional "exploded" view similar to Fig. 4, but showing a modification of some of the elements.

Fig. 6 is an enlarged fragmental sectional view similar to Fig. 4, but showing another modification of some of the elements.

In rather broad terms, the invention is an attachment for a motor-vehicle that includes a brake-pressurer appliance 10 and a carburetor-accelerator-valve 11; and is the combination of an oscillatory unit 12—13, 12a—13, or 12b—13a that includes an abutment-element 12, 12a or 12b and a shaft 13 or 13a mounted for oscillatory movements in bearings 13b and 19a and normally united with said carburetor-accelerator-valve, yielding means 14 normally engaged with said unit for normally securing said carburetor-accelerator-valve 11 in its carburetor-closing position, (see Fig. 1), said abutment-element comprising a radial projection that includes an abutment 12, 12d or 12e. An actuating arm 15 or 15a is journaled on said shaft and is normally substantially against said abutment, and retractable pressure-operated means 16—17 is provided for attachment to and operation by said brake-pressure appliance for swinging said arm 15 or 15a on said shaft so as to press against and cooperate with said abutment 12, 12a or 12b, for moving

said carburetor-accelerator-valve 11 from its normal carburetor-closing position, as in Fig. 1, to various non-closing positions.

The invention also includes accelerator-controlling means (at 18), operable to secure said oscillatory unit with its carburetor-accelerator-valve in various non-closing positions against pressure of said yielding means or spring 14 while said pressure operated means is retracted.

The said retractible pressure-operated means (16—17), constitutes a sub-combination comprising a fluid-containing flexible springy arcuate tube 16 having a closed end-portion operatively connected to said actuating arm 15 and having its other end (at 16b) in open communication with the master brake cylinder which is a pressure-fluid container 10a of said brake-pressure appliance 10, whereby when said brake-pressure appliance is operated and increases pressure to various degrees in said arcuate tube 16 so as to cause said closed end 16a to move toward said actuating arm 15, the latter is thereby caused to move the link 17 and thereby to move said carburetor-accelerator-valve 11 to its various non-closing positions according to the said various degrees of pressure in said arcuate tube 16.

More specifically, the invention comprises an attachment for a motor-vehicle such as described above, and comprises the combination of a plate 19 that is attachable to said motor-vehicle, the shaft 13 or 13a being mounted for oscillatory movements and having said carburetor-accelerator-valve 11 united therewith in an axially fixed relation to said plate. Said fluid-containing flexible springy arcuate tube 16 has its open end secured in a fixed relation to securing means 20 on said plate 19. A fluid-conducting tube 21 has one end in open communication with a tube 22 of the brake-pressure-appliance, while its other end is in open communication with said springy arcuate tube 16, so the latter receives pressure from said brake-pressure appliance 10 simultaneously with fluid pressure received by said brake through the tube 22; and the adjustable link 17 and arm 15 or 15a comprise means operatively connected to the closed end of the said arcuate tube 16 and said shaft 13 or 13a for cooperating with the latter for opening said carburetor-accelerator-valve when said arcuate tube 16 expands (or tends to straighten) by pressure simultaneously applied to said arcuate tube 16 and to said brake by said brake-pressure appliance 10.

The fluid-pressure may be either air, oil or other appropriate fluid; and the chamber 20 is not only a means for anchoring the open ends of tubes 16 and 21, but is also a medium thru which the tubes 16 and 21 are in open communication with one another.

In Fig. 3, the element 20 is closed air-tight by a gasket 26 which is clamped between it and the main plate 19; and the open ends of the tubes 16 and 21 are preferably welded to the inner and outer surfaces of the unit 20.

When traveling where the function of this device is not needed or desired, it can be rendered ineffective or inoperative by closing a valve, preferably a needle-valve such as shown diagrammatically at 23; and the closing may well be effected by a flexible or jointed rod or wire, (not shown) that extends to the instrument-panel of the motor-vehicle. This valve 23 may be left partly open at all times, that it is not intended to stop running of the motor when the brake is applied for stopping the motor-vehicle, as at numerous street and highway crossings.

Under all conditions, it is desirable to prevent the valve 11 from being opened beyond certain limits, and never to the point of dead center of the elements 15 and 17; so, an adjustable stop 24 is provided for the part 16a to abut against; such stop being here shown as a nut secured on the plate 19, and a thumb screw threaded therein to be advanced or retracted to various limits; so the valve 11 is accordingly limited as to its various partly opened positions.

Whereas, Figs. 1, 2 and 4 show the ears 12c formed on the plate 12, Figs. 5 and 6 show the plate 12a and rod 12b formed without such ears, but show ears 15c on the actuating arm 15a, and show the abutments of arms 12a and 12b at 12d and 12e. In Figs. 4 and 5, keys, or studs 13s normally fit in notches or seats 12s to fix the plates or abutment-members 12 and 12a on the shaft 13; whereas, in Fig. 6 the rod or abutment-member 12b has its middle part snugly fitted in a radial opening through the shaft 13a.

Studs 12s in Figs. 4 and 5 are means to attach an end of the spring 14 whose other end is attached to a stud 14s fixed to the main plate 19. In Fig. 6, the spring-attaching means at H is a hook formed integrally with the rod 12b.

The brake-detached accelerator-controlling means 18 comprises an actuating arm similar to arms 15 or 15A pivotally connected or connectible to a link 25 that extends to the accelerator-pedal of the motor-vehicle, and is operable independently of the brake-pressure appliance.

I have no intention to limit my patent protection to the precise details in the foregoing and on the drawings, for the invention is susceptible of numerous changes and modifications within the scope of the inventive ideas as implied and claimed.

My invention is claimed as follows:

1. In an attachment for a motor-vehicle that includes a brake-pressure appliance and a carburetor-accelerator-valve; the combination of a rigid unit that includes an abutment-element and a rocker shaft fixed to one another and mounted for mutual oscillatory movements and normally united with said carburetor-accelerator-valve, yielding means normally engaged with said rigid unit in a proper relation for movably securing said carburetor-accelerator valve in its carburetor-closing position, said abutment-element comprising a radial projection that includes an abutment, an actuating arm journaled on said shaft and normally substantially against said abutment, and means comprising a springy arcuate tube that is extensible by internal fluid-pressure and is connected to and operable by said brake-pressure appliance for swinging said arm on said shaft so as to press against and cooperate with said abutment for moving said carburetor-accelerator-valve from its normal carburetor-closing position to various non-closing positions.

2. The combination defined by claim 1, and accelerator-controlling means operable to secure said rigid unit with its carburetor-accelerator-valve in various non-closing positions against pressure of said yielding means while said pressure-operated means is retracted.

3. In an attachment for a motor-vehicle that includes a carburetor-accelerator-valve and a brake and a brake-pressure appliance which latter includes a fluid-container and a piston and a tube for conducting pressure-applying fluid to

said brake; the combination of a plate that is attachable to said motor-vehicle, a shaft mounted on said plate for reciprocatory movements and having said carburetor-accelerator-valve united therewith in an axially fixed relation to said plate, a fluid-containing flexible springy arcuate tube having a closed end and an open end which latter is secured in a fixed relation to securing means on said plate, a fluid-conducting tube having one end secured to and in open communication with the first said tube while its other end is secured to and in open communication with said springy arcuate tube so the latter receives pressure from said brake-pressure appliance simultaneously with fluid pressure received by said brake; and means operatively connected to the closed end of said arcuate tube and to said shaft for cooperating with the latter for

opening said carburetor-accelerator-valve when said arcuate tube expands by pressure simultaneously applied to said arcuate tube and to said brake by said brake-pressure appliance.

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