

PUBLISHED

MAY 25, 1943.

BY A. P. C.

B. BOULOGNE ET AL
MEANS FOR PREVENTING WABBLING OF VEHICLES
PROVIDED WITH PNEUMATIC SHOCK ABSORBERS
Filed Oct. 12, 1940

Serial No.

361,006

Fig. 1

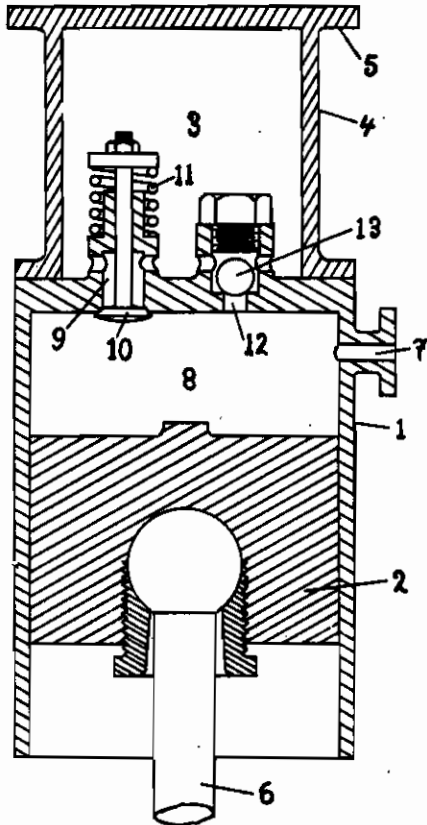


Fig. 2

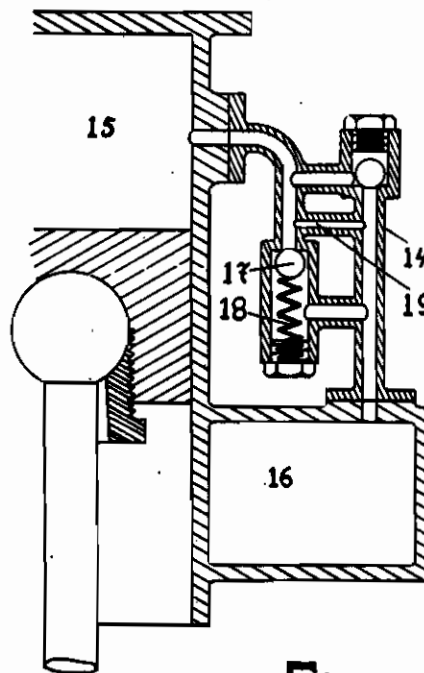


Fig. 3

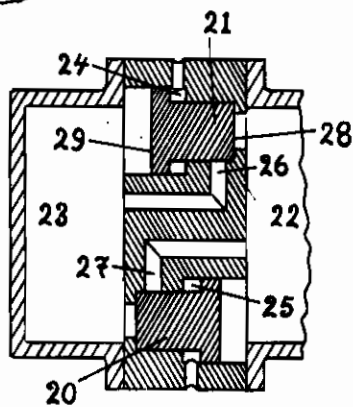
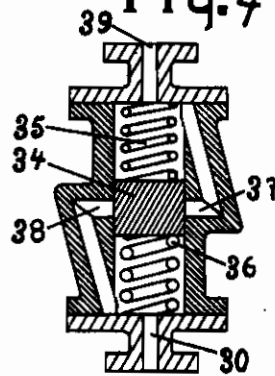


Fig. 4



Boulougne Boulogne
Antoine Pierre Boulogne

ALIEN PROPERTY CUSTODIAN

MEANS FOR PREVENTING WABBLING OF VEHICLES PROVIDED WITH PNEUMATIC SHOCK ABSORBERS

Baltus Boulogne and Antonie Pieter Boulogne,
Pengalengan near Bandoeng, Java, Netherlands
East Indies; vested in the Alien Property Custodian

Application filed October 12, 1940

This invention relates to devices for preventing wabbling of vehicles provided with pneumatic shock absorbers, which support the vehicle, either instead of or in addition to steel springs.

If a wheel of a car which is supported by highly resilient shock absorbers, has gone over a raised spot (bump) in the road, the car body begins to wobble.

In order to lessen these undesired movements of the car body, the air flowing back and forth between two or more chambers of the pneumatic shock absorbing arrangement can be retarded, and besides this other means to lessen the wabbling of the car, may be used.

Such retarding is known by United States Patent 1,528,918 but the apparatus described in said patent will, especially when driving fast on uneven roads, decrease the resiliency of the shock absorbers, due to the offered resistance being dependent of the quickness of the movement of the piston in relation to the cylinder.

The object of the invention is to lessen the wabbling of pneumatic supported vehicle bodies, without or almost without decreasing the resiliency of the shock absorbers.

A further object of the invention is, in making a turn to lessen the slanting to a side of pneumatically supported vehicles.

The invention consists in an apparatus for retarding of the air which flows back and forth between two or more chambers of a pneumatic shock absorber, and causing a resistance which is independent (or about independent) of the quickness of the movements of the car body in relation to the axles.

The invention is illustrated in the drawings and hereinafter more fully described.

On the drawings, Figs. 1, 2, 3 and 4 show devices adapted for aforementioned retarding of flowing air.

Fig. 1 shows an usual shock absorber which consist in: a cylinder 1 with a piston 2, an auxiliary chamber 3 in an upper part 4, which latter is provided with a flange 5 adapted to be secured to the body of the car, a link 6 adapted to be connected to one of the axles of the car, and an inlet opening 7 for admitting compressed air into the chamber 8 above the piston. Usually the chambers 3 and 8 are communicating with each other by canals or other means.

According to the invention the canal 9, which can connects the chamber 8 to the auxiliary chamber 3, is provided with a valve 10, which valve is closed by a spring 11.

The opening 12, also serving for connecting chamber 8 to chamber 3 is provided with a non return valve 13.

When (to support the car or a part thereof) the chamber 8 is filled with compressed air, the chamber 3 will be under about the same pressure.

If the car going over a raised spot in the road begins to wobble, the air flowing out of chamber 8 into chamber 3 through opening 12 will easily open the valve 13, but in flowing back from chamber 3 into chamber 8 through canal 9 it will meet a certain resistance. This resistance is depending of the force of the spring 11, and will obstruct the wabbling of the car body.

Fig. 2 shows an apparatus 14, wherein the air flowing out of the chamber 15 into the auxiliary chamber 16, is retarded by means of valve 17 and spring 18.

The air flowing back and forth through channel 19 is not retarded.

Fig. 3 shows an apparatus for retarding in two directions the air which flows back and forth between two chambers of a pneumatic shock absorbing arrangement. This apparatus is provided with two sliding valves 20 and 21, the space 22 is in communication with an air cushion supporting a vehicle, and the chamber 23 is an auxiliary chamber increasing the resiliency of the shock absorber.

The annular spaces 24 and 25 are not under pressure.

As long as the pressure in the chamber 23 and the space 22 is about the same, the sliding valves 20 and 21 are in the position as drawn, and the canals 26 and 27 are covered by these valves.

When the pressure in space 22 is sufficiently increased, the sliding valve 21 will move to the left, and air will flow out of space 22 through canal 26 into chamber 23.

When the pressure in space 22 decreases sufficiently, the sliding valve 20 will move, and allows air to flow out of chamber 23 through canal 27 into space 22.

Fig. 4 shows an apparatus for retarding in two directions the air which flows back and forth between two chambers of a pneumatic shock absorbing arrangement. This apparatus is provided with a sliding valve 34 and springs 35 and 36.

If the car is not riding, the sliding valve 34 is kept in its middle position (as drawn) by the action of the springs, and the canals 37 and 38 are covered by the sliding valve.

Before the air can flow through canals 39, 38

and 30 it has, by its pressure, to displace the sliding valve 34 in the direction towards canal 30. For flowing back through the canals 30, 37 and 39 the sliding valve 34 must by air pressure be displaced in the reversed direction.

The degree of retarding is dependent of the force of the springs 35 and 36.

Equipments such like as here above described can also be used in flexible walled shock absorbers, which are provided with two or more air chambers.

Furthermore it is preferable that the valves are as lightly as possible.

This invention is also designed to act as stabilizer, eliminating the greater part of the side sway or listing of a vehicle, encountered on sharp turns or uneven roads.

It is also evident that various changes, modifications, variations and substitutions might be resorted to without departing from the spirit and scope of the invention.

BALTUS BOULOGNE.
ANTONIE PIETER BOULOGNE.