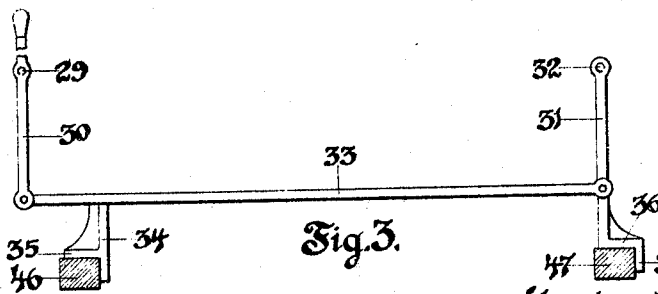
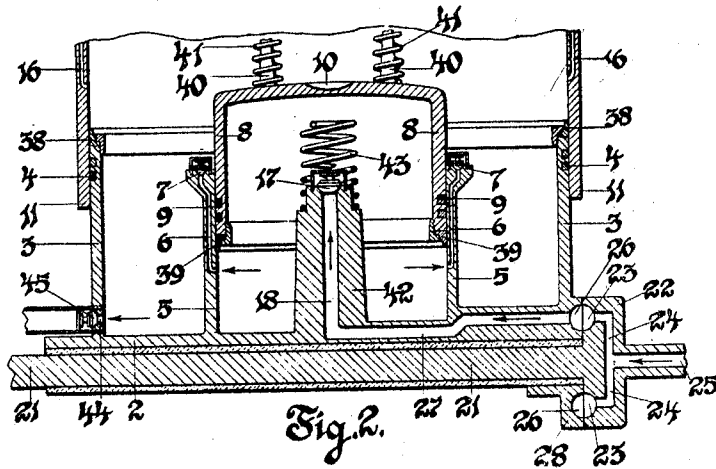
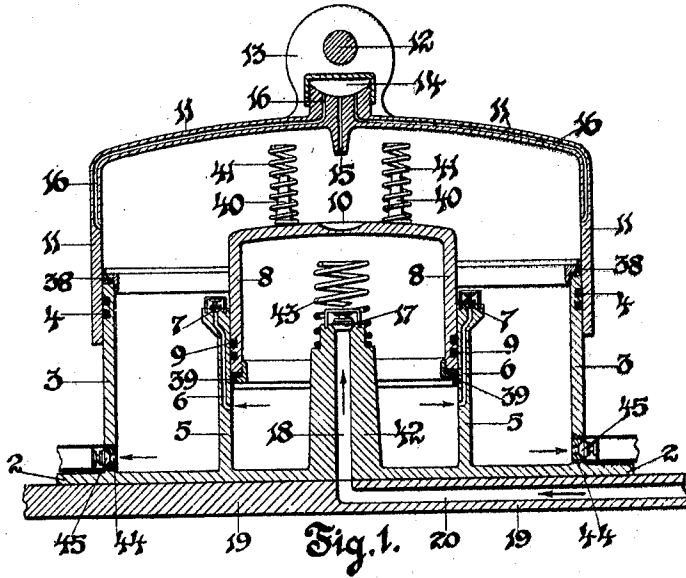


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PNEUMATIC SHOCK ABSORBER FOR VEHICLES.
APPLICATION FILED OCT. 19, 1911.

1,036,856.

Patented Aug. 27, 1912.



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UNITED STATES PATENT OFFICE.

GUSTAV KANTER, OF MURTOA, VICTORIA, AUSTRALIA.

PNEUMATIC SHOCK-ABSORBER FOR VEHICLES.

1,036,856.

Specification of Letters Patent. Patented Aug. 27, 1912.

Application filed October 19, 1911. Serial No. 655,557.

To all whom it may concern:

Be it known that I, GUSTAV KANTER, a subject of the Emperor of Germany and King of Prussia, and a resident of Hamilton street, in the post-town of Murtoa, in the county of Borung, State of Victoria, Commonwealth of Australia, have invented certain new and useful Improvements in or Relating to Pneumatic Shock-Absorbers for Vehicles, of which the following is a specification.

This invention relates to pneumatic shock absorbing devices interposed between the vehicle body and the wheels thereof and preventing the conveyance of road or other shocks from the wheels to the said body.

The object of the invention is to provide a device particularly for use in conjunction with an automatic pneumatic vehicle wheel, such as that disclosed in concurrent application for patent filed prior hereto by the present applicant. By the invention a storage reservoir is provided for surplus air pumped by the vehicle wheels which air when excessive in the reservoir may be led therefrom and utilized for any other purposes desired. But in order that this invention may be better understood reference will now be made to the accompanying sheet of drawings which is to be taken as part of this specification and read herewith:—

Figure 1 is a sectional view of this invention receiving air through a dead or fixed axle. Fig. 2 is a sectional view of this invention receiving air through a live or revolvable axle. Fig. 3 is a view of a collapse preventer.

This invention includes a casing having a base plate 2 upstanding above which is an outer collar 3 provided with piston rings 4 and a cup leather 38. Also upstanding above the base plate is an inner collar 5 having air outlet passages 6 formed therein, each controlled by a non-return valve 7. Within the inner collar 5 is a minor cover 8 provided with piston rings 9 and a cup leather 39 and also having in its top a depression or saucer 10. Upstanding from the minor cover 8 are a plurality of studs 40 around each of which is a minor cushioning spring 41. Around the outer collar 3 is a major cover 11 having at or near its top a pivot pin 12 mounted in a lug 13. At the top of the major cover 11 is a lubricating cup 14 from which passes a minor vertical lubricating passage 15. A lubricant drips

from this passage into the saucer 10. Also passing from the lubricating cup 14 are major lubricating passages 16.

Formed by the outer collar 3 and the major cover 11 between the inner collar 5 and the minor cover 8 is an outer chamber. Formed in the outer collar 3 are outlet passages 44 each controlled by a non-return valve 45. The said passages communicate with the outer chamber. Formed by the inner collar 5 and minor cover 8, and within the same is an inner chamber. Upstanding within the inner chamber is a pillar 42 on the top of which reposes a non-return inlet valve 17. This controls a delivery port 18 in the said pillar. Communicating with the delivery port 18, when (Fig. 1) a dead axle such as 19 is used, is an axle delivery port 20. Supported by the pillar 42 is also a major cushioning spring 43. Any number of pillars and springs 43 may be used.

When a live axle (Fig. 2) such as 21 is used a collar 22 is provided thereon. Around said axle in the said collar is formed an annular groove 23 with which communicate subsidiary radial ports 24. These communicate with a major delivery port 25 in the axle. When a live axle is used there is also provided upon the outer collar 3 a subsidiary collar 28 provided with an annular groove 26. Communicating with the groove 26 is a delivery port 27 which conveys air from the groove to the delivery port in the pillar within the inner chamber.

In addition to the foregoing with motor or like vehicles there may be pivoted to any suitable part of the vehicle by a pivot pin 29, a lever 30 locked in any desired position in any well known way. Should four absorbers be used, two above the front axle and two above the back axle of a vehicle, (although any number may be used) the said lever 30 may be pivoted in close proximity to the driver's seat. A lever 31 is then pivoted by a pivot pin 32 to any suitable part of the vehicle near the rear thereof. Connecting the levers 30 and 31 is a link 33 having near its front end a depending portion 34 from which projects a finger 35. Protruding from the lower end of the lever 31 is an elbow 36 having a foot 37. Upon a vehicle stopping the driver by the lever 30 causes the finger 35 to engage the front axle of the vehicle or a protuberance 46 projecting therefrom while the elbow 36 engages the rear axle or a protuberance 47 projecting

from the vehicle. Or should only one absorber be used the lever 30 may be bell cranked and provided with a depending portion and finger. Upon the driver wishing to start the vehicle the lever 30 is again operated disengaging the finger 35 and elbow 36, which permits the vehicle body and the major cover or covers 11 to descend forcing air from the outer chamber. This air may be utilized to start the engine.

With this invention the vehicle body may be supported by the pin 12 and air is admitted to the absorber from the axle whether it be a live axle or a dead axle, into the inner chamber. Upon a predetermined pressure being reached air escapes from the inner chamber into the outer chamber. In each case the covers 8 and 11 are elevated to a greater or lesser extent. Upon a shock being communicated to the absorber the covers rise or fall around the inner and outer collars 3 and 5. When a predetermined pressure is reached in the outer chamber either through an over supply or by reason of the rising and falling of the outer cover 11, air escapes by the non-return valves 45. This air may be directed where and as desired and used for any purpose. It may be heated and expanded, used for power, assimilated with oil, spirits or the like and used as an illuminative, or be utilized in other ways such as for sounding an alarm signal.

While the inner chamber is being filled with air the minor cover rests upon the major cushioning springs and the major cover upon the minor cushioning springs.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In improvements in or relating to pneumatic shock absorbers for vehicles, a casing consisting of an outer collar and an inner collar, a minor cover moving vertically in relation to the said inner collar and a major cover moving vertically in relation to the outer collar, said minor and major covers being relatively movable.

2. In improvements in or relating to pneumatic shock absorbers for vehicles, an inner collar having a sliding minor cover and forming therewith an inner chamber, an outer collar having a major sliding cover and forming therewith an outer chamber, said minor and major covers being relatively movable, means for forcing air into the inner chamber and means for admitting air from the inner chamber to the outer chamber.

3. In improvements in or relating to pneumatic shock absorbers for vehicles, an

inner collar having air outlet passages therein, non-return valves controlling said passages, a minor cover moving vertically in relation to the said collar, an outer collar inclosing said inner collar, a major cover moving vertically in relation to said outer collar, a lubricating cup above said major cover and lubricating passages leading from said cup.

4. In improvements in or relating to pneumatic shock absorbers for vehicles, an axle having a delivery port therein, an inner chamber communicating with said port, an outer chamber inclosing said inner chamber, and means for communicating air from the inner chamber to the outer chamber.

5. In improvements in or relating to pneumatic shock absorbers for vehicles, an axle having a port, radial ports communicating with said port, a collar on the axle having an annular groove communicating with the radial ports, an outer chamber above said axle, a collar protruding from said chamber, an annular groove in said collar, an inner chamber within said outer chamber, a port communicating with the annular groove of the outer chamber collar and the said inner chamber.

6. In improvements in or relating to pneumatic shock absorbers for vehicles, a casing consisting of an outer collar and an inner collar, a minor cover moving vertically in relation to said inner collar, a major cover moving vertically in relation to the outer collar, minor cushioning springs interposed between said minor and major covers, and major cushioning springs to support the minor cover.

7. In improvements in or relating to pneumatic shock absorbers for vehicles, an inner collar having a sliding minor cover and forming therewith an inner chamber, minor cushioning springs carried by said minor cover, a pillar having therein a delivery port within said chamber, a non-return valve controlling said port, a major cushioning spring supported by said pillar, an outer casing having a major sliding cover and forming therewith an outer chamber, means for forcing air into the inner chamber through the delivery port and means for admitting air from the inner chamber to the outer chamber.

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

GUSTAV KANTER.

Witnesses:

CECIL MC SLAVERN,
GEORGE A. U'REN.