IN THE HIGH COURT OF JUSTICE
CHANCERY DIVISION
INTELLECTUAL PROPERTY ENTERPRISE COURT

Claim No. IP-2013-000003

BETWEEN:

VPG SYSTEMS UK LTD

Claimant

-and-

AIR-WEIGH EUROPE LTD

Defendant

ANNEX 1
TO THE
STATEMENT OF GROUNDS
FOR AMENDMENT OF THE PATENT

~~1. A system for indicating the state of loading of a vehicle having suspension components comprising:~~

~~a single suspension component (3, 17, 19) of a coiled spring damper combination suspension assembly, a leaf spring suspension assembly, a trailing arm type suspension assembly or a rubber suspension assembly;~~
~~at least one inclinometer or accelerometer (11) mounted on the single suspension component (3, 17, 19), the inclinometer or accelerometer (11) being configured to measure an angular deflection of said suspension component (3, 17, 19);~~
~~a controller (100) configured to generate an output signal representative of the state of loading of the vehicle, wherein the controller (100) is configured to use the measured angular deflection to generate the output signal and~~
~~a sensory output device for indicating the state of loading in response to the output signal of the controller (100).~~

~~2. A system as claimed in claim 1 further comprising:~~

at least one reference device (12) adapted to generate a reference signal relating to the attitude of the vehicle, wherein the controller (100) is further configured to receive the reference signal and adapt the output signal representative of the state of loading to account for the variance in the or each deflection angle created by the attitude of the vehicle.

3. A system as claimed in claim 1 or 2 wherein the sensory output device comprises a display configured to show the state of loading of the vehicle.

4. A system as claimed in any preceding claim wherein the sensory output device comprises a flashing strobe light, a siren or a buzzer.

5. A system as claimed in any preceding claim wherein the controller (100) is configured to compare the angular deflection of said suspension component (3, 17, 19) to a predetermined threshold and generate the output signal when the angular deflection reaches the predetermined threshold.

6. A system as claimed in any preceding claim wherein the inclinometer or accelerometer (11) comprises a wireless signal transmitter and wherein the controller (100) comprises an associated wireless signal receiver such that the inclinometer or accelerometer (11) and the controller (100) may communicate over a wireless channel.

71. A method of monitoring the load condition of a vehicle having suspension components, comprising:

monitoring a deflection angle of at least one suspension component (3, 17, 19) of a coiled spring damper combination suspension assembly, a leaf spring suspension assembly, a trailing arm type suspension assembly or a rubber suspension assembly using an inclinometer or accelerometer (11) mounted on said single suspension component (3, 17, 19); and
generating an output signal which is representative of the load condition, wherein the monitored deflection angle is used to generate the output signal; wherein

a sensory output device indicates the load condition in response to the output signal;.

~~8. A method as claimed in claim 7 wherein the sensory output device shows the load condition of the vehicle.~~

~~9. A method as claimed in claim 7 or 8 wherein the sensory output device displays or sounds an overload warning.~~

~~10. A method as claimed in any of claims 7 to 9 further comprising:~~

~~comparing the deflection angle to a predetermined threshold and generating the output signal when the deflection angle reaches the predetermined threshold.~~

~~11. A method as claimed in any of claims 7 to 10~~ further comprising:

measuring, whilst the vehicle is empty, a tare angle of said at least one suspension component (3, 17, 19) using said inclinometer or accelerometer (11) and storing said tare angle;
measuring, whilst the vehicle is carrying a full load, a load angle of said at least one suspension component (3, 17, 19) using said inclinometer or accelerometer (11), storing said load angle and setting an upper threshold corresponding to said load angle; and
comparing, as the vehicle is loaded with a load, the deflection angle to the upper threshold and generating the output signal when the upper threshold is reached;.

~~12. A method as claimed in claim 11 further comprising:~~

~~measuring the attitude of the vehicle using a reference device (12) mounted on the vehicle;~~

~~adjusting the tare angle and the load angle for said at least one suspension component (3, 17, 19) to account for the attitude of the vehicle, using a signal generated by said reference device (12).~~

~~13. A method as claimed in any of claims 11 or 12~~ further comprising:

setting an intermediate threshold, the value of the intermediate threshold being between 30% and 98% of the value of the upper threshold; and
generating the output signal when the deflection angle reaches the intermediate threshold.

2. A method of monitoring the load condition of a vehicle having suspension components, comprising:

monitoring a deflection angle of at least one suspension component (3, 17, 19) of a coiled spring damper combination suspension assembly, a leaf spring suspension assembly, a trailing arm type suspension assembly or a rubber suspension assembly using an inclinometer or accelerometer (11) mounted on said single suspension component (3, 17, 19); and
generating an output signal which is representative of the load condition, wherein the monitored deflection angle is used to generate the output signal; wherein
a sensory output device indicates the load condition in response to the output signal;

~~14. A method as claimed in any of claims 7 to 13~~ further comprising:

monitoring the deflection angle of said at least one suspension component (3, 17, 19) at two separate time intervals;
determining the difference of the deflection angles from the two separate time intervals; and
generating a disturbance signal indicating that motion is detected if the difference is greater than a pre-determined amount.

3. A method of monitoring the load condition of a vehicle having suspension components, comprising:

monitoring a deflection angle of at least one suspension component (3, 17, 19) of a coiled spring damper combination suspension assembly, a leaf spring suspension assembly, a trailing arm type suspension assembly or a rubber suspension assembly using an inclinometer or accelerometer (11) mounted on said single suspension component (3, 17, 19); and

generating an output signal which is representative of the load condition, wherein the monitored deflection angle is used to generate the output signal; wherein

a sensory output device indicates the load condition in response to the output signal;

~~15. A method as claimed in any of claims 7 to 13~~ further comprising:

sampling the deflection angle at discrete intervals and storing the sampled data as n sample sets each comprising a number of samples, where n is an integer; and

generating a disturbance signal indicating that motion is detected if the difference between two successive sample sets is greater than a pre-determined value.