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(56) Documents Cited
GB 2215059 A GB 2213266 A GB 1226055 A
US 5452523 A US 5430951 A US 4351113 A

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(54) Method and means for measuring the height of a vehicle

(57) A scale (10) is attached to a vehicle body (11) having a given standard height. A point on the scale (10) corresponding to the standard height measurement is initially at a predetermined distance from the ground. The height of the vehicle body (11) when in a different state is then obtained by determining the scale measurement then at said predetermined distance from the ground.

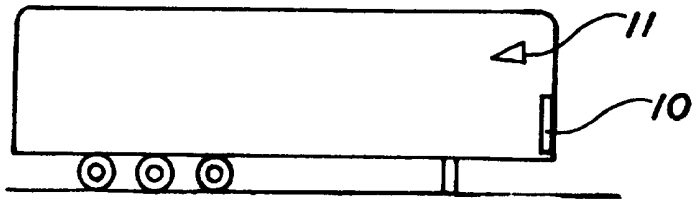

FIG 1

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At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

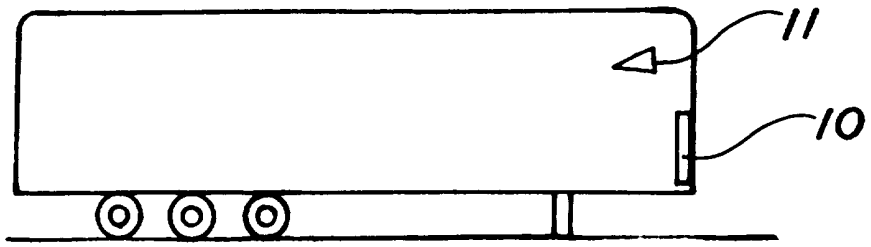

FIG 1

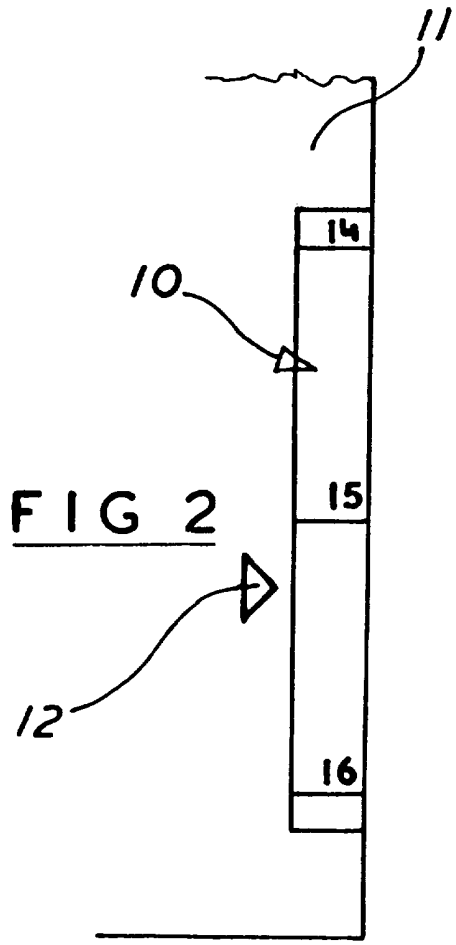

FIG 2

METHOD AND MEANS FOR MEASURING THE HEIGHT OF A VEHICLE

Field of the Invention

This invention relates to a method and means for measuring the height of a vehicle.

It is a legal requirement in Europe that a driver of a LGV should know the height of his vehicle and it is likely that similar measures will be introduced in this country. However, the height of the vehicle will vary in dependence on the weight of the load being carried and, in the case of articulated tractor and trailer units, will depend on the height of the coupling on the tractor, which is not standard.

It will thus be appreciated that, without a ladder and a long tape measure, it is not possible for a driver or operator to know the exact height of his vehicle at any given time. There have recently been several large insurance claims involving consequential losses as a result of incidents in which LGV's have damaged railway bridges and insurance companies are now insisting that there should be some way by which the driver of a LGV should know the

box height, i.e. the total height of the vehicle at its highest point, accurately.

It is accordingly an object of the present invention to provide a simple and effective method of measuring the height of a vehicle.

It is a further object of the present invention to provide a simple and effective means for measuring the height of a vehicle.

Summary of the Invention

According to a first aspect of the present invention there is provided a method of measuring the height of a vehicle body, which method comprises:-

a) measuring the height of the vehicle body when on level ground so as to obtain a standard height measurement,

b) providing a scale marked with height calibrations,

c) fixing the scale to the body of the vehicle, when still on level ground and in the condition in which the standard height measurement was obtained, in such manner that a point on the scale corresponding to the standard height measurement is at a predetermined distance from the ground, and

d) thereafter obtaining a reading from the scale corresponding to said predetermined distance from the ground.

After the scale has been fixed to the body of the vehicle, the scale will move with the body of the vehicle relative to the ground depending on, for example, the loaded weight of the vehicle. In order to determine the height of the vehicle when it has been loaded, or when a trailer is attached to a different tractor unit, or when any other circumstances have changed, the driver will merely measure said predetermined distance from the ground and the reading obtained from the scale will then tell him the height of the vehicle.

After the driver has determined the height of the vehicle from the reading obtained from the scale, a record of the height is preferably recorded by the driver on a height recorder or record sheet kept in the driver's cab. A measurement will thus be taken before each journey carried out by the vehicle.

Measuring the predetermined distance from the ground is preferably effected using a tape measure which is provided with a marking at said predetermined distance. In order to avoid possible confusion (and to ensure that the tape measure is not used for other purposes), the marking at said predetermined distance may be the only marking on the tape measure.

The scale may be in the form of a metal or plastic strip marked with graduations, possibly with both Imperial and metric measurements.

If a plastic strip is used, it may be a flexible, adhesive backed strip which is marked with both Imperial and metric units and may be provided in the form of a roll of such length that it is sufficient for a wide range of vehicle heights, a section of the roll bearing the appropriate graduations being cut from the roll and attached to the vehicle at the required height.

If a metal strip is used, it may again be marked with both Imperial and metric units and provided in the form of a roll of such length that it is sufficient for a wide range of vehicle heights. A section of the roll bearing the appropriate graduations will again be cut from the roll and attached to the vehicle by means of, for example, double-sided adhesive tape, at the required height.

If the vehicle is a tanker or is otherwise not of flat-sided form, an elongated bracket may first be attached to the vehicle and then the scale attached to this bracket.

According to a second aspect of the present invention there is provided means for measuring the height of a vehicle body by the method defined above, said measurement means comprising:-

a) a scale marked with height calibrations,

b) means for fixing the scale to the body of the vehicle in such manner that a point on the scale corresponding to a standard height measurement of the vehicle is at a predetermined distance from the ground, which standard height measurement has been obtained by measuring the height of the vehicle when standing on level ground,

c) a measure for obtaining a reading from the scale corresponding to said predetermined distance from the ground, and

d) means for recording said reading.

The means for recording the reading is preferably in the form of a driver's log, height recorder or record sheet and the measure is preferably a measuring tape marked to indicate said predetermined distance.

Brief Description of the Drawings

Figure 1 shows a trailer vehicle to the body of which a scale has been fitted, and

Figure 2 shows the scale.

Description of the Preferred Embodiment

As shown in the drawings, a scale 10 is fixed to the body of a trailer vehicle 11 when the trailer vehicle 11 is standing on level ground. Prior to the fixing of the scale 10 to the trailer body 11, the height of the trailer body 11 is measured. This measurement is referred to herein as "the standard height measurement". A distance of six feet from the ground is then measured and a mark (shown as 12 in Figure 2) is made on the vehicle body. This mark 12, six feet from the ground, provides a datum point to which the actual height of the vehicle can be related.

The scale 10 is obtained from a roll or length of either adhesive-backed flexible plastic strip or metal strip which is marked along one edge with Imperial measurements and along the opposite edge with metric units. For convenience, only the Imperial measurements are shown in Figure 2 and it is to be noted that the numberings of the feet and inches run from the top of the strip downwardly. Imperial measurements are shown since the heights of bridges are indicated in this country in Imperial units.

For a vehicle body having a measured height (unloaded) of between 15 and 16 feet, say 15 feet 3 inches, the length of strip which is used may carry markings running from 14 to 16 feet so that, once the height of the vehicle has been measured and the standard height measurement has been obtained, the required section of the adhesive-backed strip will be cut from the roll or length.

If, for another vehicle, the "standard height measurement" was 12 feet 2 inches, the section cut from the roll or length might extend from 11 feet to 13 feet, i.e. about one foot either side of the "standard height measurement".

The scale 10 will then be fixed to the side of the trailer body 11 with the mark 12 providing the datum point in line with the reading on the scale 10 corresponding to "the standard height measurement". Thus, in the example given above, the scale reading of 15 feet 3 inches will be in line with the mark 12.

If the scale 10 is formed of adhesive-backed plastic strip, it will be secured directly to the side of the vehicle whereas, if the scale 10 is in the form of a metal strip, it can be secured to the side of the vehicle using a heavy-duty, double-sided adhesive, or by means of screws or pop rivets.

If, of course, there is no suitable flat surface on the vehicle body 11 to which to secure the scale 10, a bracket (not shown) having a suitable flat surface will first be secured to the side of the vehicle body 11.

The kit (of which the scale 10 forms part) also includes a rule (not shown) and, in the particular example described herein, this rule will be a six-foot rule, which will provide the means for making the measurement required to obtain the mark 12 for the initial datum point.

The driver (or vehicle operator) will subsequently be able to determine the height of the trailer vehicle 11 merely by using the six-foot rule and noting the position on the scale 10 which corresponds to the six-foot mark on his rule. As the vehicle height varies, depending on, for example, the load being carried and the height and nature of the coupling on the tractor unit, the actual height will, at all times, correspond to the reading obtained using the rule and will thus readily be determined by this method of "reverse measurement".

The height of the trailer 11 should be measured at the commencement of each journey and after each time that a load is placed in or taken from the trailer in order that the driver an know at all times the accurate height of the vehicle. The driver is provided with a record card or log sheet and the measured height will be recorded on the card or sheet, together with the time and date on which the measurement was taken.

In order to facilitate height measurements being taken not only in the United Kingdom but also in countries in which metric measurements are used, the scale 10 is marked (as mentioned above) with standard Imperial units along one edge and with metric units along its other edge. The same measuring rule will again be used to obtain a measurement of the height of the vehicle.

If, on the other hand, the vehicle is only going to be driven in countries in which metric units are used, the scale may be marked only with metric units and the datum point might be at a height of 2

metres from the ground. The "standard height measurement" will then correspond to the mark 12 being at a height of two metres from the ground and a two metre rule will be used.

It is to be appreciated that the references to a six-foot rule and to a two-metre rule are purely illustrative. All that is required is that the rule used to obtain the position at which the scale should be attached to the side of the vehicle, i.e. the position of mark 12, should be of the same length as the rule used for reverse measurement, or have a marking at the required position.

Claims:-

1. A method of measuring the height of a vehicle body, which method comprises:-

a) measuring the height of the vehicle body when on level ground so as to obtain a standard height measurement,

b) providing a scale marked with height calibrations,

c) fixing the scale to the body of the vehicle, when still on level ground and in the condition in which the standard height measurement was obtained, in such manner that a point on the scale corresponding to the standard height measurement is at a predetermined distance from the ground, and

d) thereafter obtaining a reading from the scale corresponding to said predetermined distance from the ground.

2. A method as claimed in Claim 1, in which measuring of the predetermined distance from the ground is effected using a tape measure which is provided with a marking at said predetermined distance.

3. A method as claimed in Claim 2, in which the marking at said predetermined distance is the only marking on the tape measure.

4. A method as claimed in Claim 1, in which the scale is in the form of a metal or plastic strip.

5. A method as claimed in Claim 4, in which the scale is marked with both Imperial and metric measurements.

6. A method as claimed in Claim 1, in which the scale is in the form of a flexible, adhesive-backed plastic strip.

7. A method as claimed in any one of the preceding claims in which a bracket is attached to the vehicle and then the scale attached to the bracket.

8. A method of measuring the height of a vehicle body substantially as hereinbefore described with reference to the accompanying drawings.

9. Means for measuring the height of a vehicle body by the method of any one of the preceding claims, said measurement means comprising:-

a) a scale marked with height calibrations,

b) means for fixing the scale to the body of the vehicle in such manner that a point on the scale corresponding to a standard height measurement of the vehicle is at a predetermined distance from the ground, which standard

height measurement has been obtained by measuring the height of the vehicle when standing on level ground,

c) a measure for obtaining a reading from the scale corresponding to said predetermined distance from the ground, and

d) means for recording said reading.

10. Measurement means as claimed in Claim 9, in which the means for recording the reading is in the form of a driver's log or record sheet.

11. Measurement means for carrying out the method of Claim 1, substantially as hereinbefore described and as illustrated in the accompanying drawings.

The Patent Office

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Application No:	GB 9617274.7	**Examiner:**	Michael Walker
Claims searched:	ALL	**Date of search:**	18 October 1996

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.O): G1M (MCCC, MCCE, MCCH, MCDX)

Int Cl (Ed.6): G01B 3/02, 3/10, 5/02

Other: On-line : WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
Y	GB 2215059 A	(TSAI) see abstract	9,10
Y	GB 2213266 A	(KOREA MEASUREMENTS) whole doc.	9,10
Y	GB 1226055	(CIANCIMINO) p.1,l.59 to p.2,l.13	9,10
Y	US 5452523	(JANSEN) whole doc.	9,10
Y	US 5430951	(JACKY) figs.3,4	9,10
Y	US 4351113	(EGGERTSEN et al.) col.3,l.63 to col.4,l.30	9,10

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.