ABSTRACT OF THE DISCLOSURE

The specification describes a rolling body for a road roller which has an inner part provided with tines or the like and a casing which can be fixed around the inner part for smooth rolling.

The invention relates to rolling bodies for road rollers or similar implements used, mainly, for the compression of road metal and other materials.

In practice such implements may be divided up into so-called self-propelled road rollers driven by their own engine, and so-called trailer rollers which are drawn by a tractor without having their own engine. Furthermore a distinction is made in the case of both types of rollers between rollers whose compacting action is only due to their static weight, that is to say static rollers and others in which one or more rolling drums are caused to vibrate by means of suitable means, that is to say so-called dynamic or vibratory rollers in which the compacting action of the static weight is added to by the supplementary compacting action of the dynamic energy of the vibrating means transferred into the ground. Furthermore rollers are divided up in accordance with the arrangement of the rolling bodies, for instance tandem rollers, three-roller rollers, twin-roller rollers, duplex-roller rollers, three-axle rollers and other less usual types. A further classification is made in accordance with the type of roller surface, for instance smooth rolling bodies, and rollers carrying uneven ground engaging means such as tines, grids and belts including the rolling bodies known in Germany as Glattradwalzen, Schaftusswalzen, Gitterradwalzen and Gürtilradwalzen. In what follows such implements are, for purposes of simplicity of expression, referred to only as road roller without there being any intention to limit the invention to a customary type of road roller with smooth rolling bodies.

Having regard to the many applications of such road rollers for compacting applications of all types and on account of the varying constitution of the materials to be compacted from materials which have no cohesion and those in which cohesion plays the predominant role, with all transitional forms between them, it is often necessary to provide a number of different roller types for a multiple layer compaction operation in readiness, each type only, in practice, being suitable for a special application forming part of the operation. As an alternative it may be possible to modify a roller by the attachment onto its rolling bodies of particular accessories.

In accordance with one of a number of prior art proposals a smooth rolling body of a roller was to be provided with tines in order to make it suitable for the compaction of ground with high moisture contents. The same applies in principle for the attachment of foot-plates for engaging the ground, segments of grid wheels, or other projections to the surface of a smooth rolling body in order to be able to use it temporarily as a belt rolling body, grid rolling body or other special-purpose rolling body. The difficulty in the case of such conversion operations lies on the one hand in that the smooth surface of the rolling body must not be damaged by the accessories fitted on it, that is to say so that the rolling body can again be used for smooth rolling, and on the other hand, more especially in the case of nonstationary rolling bodies, the radial distance between the rolling body and the rolling frame is made so small for design reasons that the attachment of tines or other projections or normal size is not possible owing to the large increase in diameter of the rolling body which would be entailed. Moreover, this modification of the rolling body surface requires a comparatively large amount of time for conversion and there is also the danger of damage to the smooth rolling body surface, such damage making it impossible to use the road roller for normal smooth rolling for a period of time.

One object of the present invention is to provide simple conversion means which can be easily and rapidly used to convert a road roller from smooth rolling to rolling by means of tines, or vice versa. A further object of the invention is to provide for the carrying out of such conversion in such a manner that the road roller in either condition, that is to say equipped for smooth rolling, or for rolling with projections is fully equivalent to a roller particularly built for one of these two operations. A further object of the invention is to make possible the performance of such a conversion as many times as may be desired.

The present invention consists in a road roller comprising a round basic rolling body provided with an uneven ground engaging means, a round ground engaging smooth casing, and attachment means for temporarily fixing the casing around the uneven ground engaging means for smooth rolling of the ground. The smooth casing can, if required, be made up of two or several casing parts or segments, though it can also be made in one piece.

With a road roller in accordance with the invention it is comparatively simple, and only requires simple tools, to carry out conversion for rolling with the smooth casing to rolling using the rolling body with projections, or vice versa. It is not necessary to damage the smooth casing surface by the use of sockets, holes, welds or otherwise and it is also not necessary to move the road roller to a workshop. There is little difference between the outer diameter of the rolling body with and without the casing, this being important for self-propelled road rollers.

Preferably there is a radial clearance between an inner face of the smooth casing and the uneven ground engaging means.

The uneven ground engaging means can conveniently be in the form of tines and the attachment means can be independent of them.

A road roller in accordance with the invention can also comprise centring webs in the casing engaging the inner part of the rolling body.

Preferably the attachment means are arranged so as not to interrupt the smooth outer surface of the casing.

One embodiment of the invention is now described with reference to the accompanying drawing. The drawing shows a tined rolling body for a road roller.

FIG. 1 is a section through a rolling body in accordance with the invention on the line A-B of FIG. 2.

FIG. 2 is an end view of the rolling body.

In accordance with the embodiment of the invention shown a tined rolling body, for a road roller, consisting of a cylindrical basic body 1 and permanently attached tines 2 is enveloped by two smooth halves 3 and 3a of a casing which are temporarily attached in such a manner as to cover over the tines 2 and thus convert the tined rolling body into a smooth rolling body for a road roller. The halves 3 and 3a of the casing have webs 4 and 4a which abut against centring faces 5 on the basic body 1. To avoid damage in use the webs 4 and 4a engage parts of the tubular part of the basic body which are of re-
duced diameter, no reference numeral being provided to indicate these parts of reduced diameter. The tines 2 do not engage the casing halves 3 and 3a so as to support them or carry them.

In order to provide a firm but temporary connection between the casing halves 3 and 3a and the basic body 1 there are provided screws 6 whose inner ends are connected with the basic body 1 and whose outer ends are connected with pocket-like parts 7 and 7a permanently attached to the casing halves 3 and 3a. Additionally the casing halves 3 and 3a are provided with flanges 8 and 8a which cooperate with screws 9 for attachment of the casing halves 3 and 3a together and to provide a slight resilient compression action on the basic body 1. With such a construction it is possible to convert the lined rolling body into a smooth rolling body as often as may be required.

It is of course to be understood that the invention is not limited to the form of construction described above and shown in the drawing, but includes all variations coming within the scope of the claims below. The invention is primarily intended for application to road rollers but can also be applied to machines and implements operating with rollers similar to those of road rollers. It is therefore to be understood that the term road roller is to include all machines or implements operating with rolling bodies similar to those of road rollers. The construction shown with a smooth casing made in two casing halves is particularly advantageous and practical but it is not intended to exclude the use of a smooth casing made up of several parts or, under certain circumstances, the use of a one-piece smooth casing, the arrangement and attachment of these parts to the basic rolling body being similar to the means described above for attachment of the two casing halves.

I claim:

1. In a road roller the combination of a smooth wheel roller with a sheeps foot or like roller comprising a sheeps foot roll body and a cylindrical smooth casing made in at least two segmental casing parts adapted to be fixed in position around said sheeps foot roll body with a radial clearance between the inner face of said smooth casing and the outer ends of the sheeps feet of said sheeps foot roll body, and attachment means at each side of said roller for temporarily fixing said smooth casing around said sheeps foot roll body, said attachment means being independent from said sheeps feet of said sheeps foot roll body.

2. In a road roller according to claim 1, in which centering webs are provided arranged on the inner face of said smooth casing and abutting against centering faces on said sheeps foot roll body.

3. In a road roller according to claim 1, in which centering webs are provided arranged on the inner face of said smooth casing and abutting against centering faces on said sheeps foot roll body, said attachment means having screws whose inner ends are adapted to be connected with said sheeps foot roll body and whose outer ends are adapted to engage in pocket-like parts permanently attached to said segmental casing parts of said cylindrical smooth casing.

4. In a road roller according to claim 1, in which centering webs are provided arranged on the inner face of said smooth casing and abutting against centering faces on said sheeps foot roll body, said attachment means having screws whose inner ends are adapted to be connected with said sheeps foot roll body and whose outer ends are adapted to engage in pocket-like parts permanently attached to said segmental casing parts of said cylindrical smooth casing.

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JACOB L. NACKENOFF, Primary Examiner

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