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**Rubber track guidance system**

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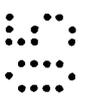
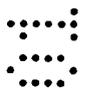
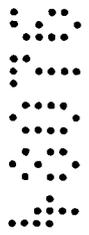
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(56) Related Art  
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## ABSTRACT

A rubber track guidance system is disclosed. The device is a continuous flexible strip (1, 5) with wings (2) and lateral grooves (3), which is adhered to the inside surface of rubber tracks (4). The system provides lateral support for the track as it rotates around wheels (6, 7). The system allows the track to resist lateral forces, and thereby prevents the track from coming off the wheels. This system could also be used on conveyor belts.



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Patents Act 1990

COMPLETE SPECIFICATION  
STANDARD PATENT

RUBBER TRACK  
GUIDANCE SYSTEM

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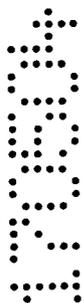
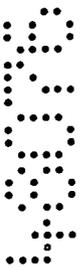
The following statement is a full description of this invention, including the best method of performing it known to me:

## RUBBER TRACK GUIDANCE SYSTEM

This invention relates to a novel guidance system for rubber tracks which are used on heavy transportable machinery inclusive of tractors and other prime movers.

5 Rubber tracks are used in place of tyres on tractors and in a typical example there are provided two rubber tracks with each track being located on an adjacent side of the vehicle. A conventional guidance system located on an internal surface of each rubber track comprises a row of rubber blocks which are integral with the rubber track or which may be individually attached  
10 thereto by use of a suitable adhesive such as rubber cement. The row of rubber blocks which were arranged in a linear arrangement maintained the rubber track on a pair of drive wheels located at the rear of the vehicle and a pair of idler wheels at the front of the vehicle with the row of blocks located in or extending into a mating groove provided between each front wheel and  
15 each rear wheel. Each block in some cases was also provided with recesses at each end adjacent the base thereof. Such recesses were normally present to provide for bending or deformation of each block when travelling around corners or in the groove located between each pair of front and rear wheels.

The conventional guidance system for rubber tracks described above  
20 had a primary purpose of preventing the rubber tracks from coming off the front and rear wheels when the tracks are subject to lateral loading. Disadvantages of such conventional guidance systems included the problem that each block when attached to the internal surface of a rubber track by adhesive was susceptible to being ripped off and if each block had end



recesses ripping or tearing of each block was exacerbated because such ripping or tearing usually commenced at these recesses.

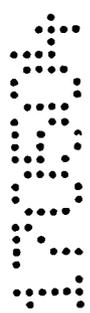
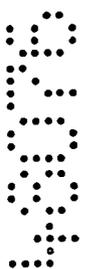
If the blocks were integral with the track then when such blocks became worn the track was normally discarded because rebuilding of the track using individually bonded blocks was not considered appropriate. Discarding of the worn track was an expensive exercise because new rubber track was a costly item.

It is therefore an object of the invention to provide a rubber track guidance system and a method of installation which may at least alleviate one or more of the above disadvantages of the prior art.

The guidance system of the invention comprises a continuous strip attachable to an underside of a rubber track wherein said continuous strip has a plurality of blocks separated by gaps or grooves located in the continuous strip. Such gaps or grooves may be formed by cutting the strip with a suitable cutting tool.

The grooves found in the strip open and close as the track moves around the rear and front wheels of the tractor and also in the relatively straight sections of track between the wheels as shown in the preferred embodiment.

The blocks may have any suitable shape but are preferably substantially cuboidal or in the form of a rectangular prism as shown in the preferred embodiment. Preferably each outer surface of each block which may comprise a pair of end surfaces and a pair of side surfaces may taper outwardly from top to bottom also as shown in the preferred embodiment.



The continuous strip may also be provided with a pair of longitudinal side flanges or wings also as shown in the preferred embodiment.

Reference may be made to a preferred embodiment of the invention shown in the attached drawings wherein

5           FIG 1 is an end elevation of the guidance system of the invention;  
             FIG 2 is a side elevation of the guidance system shown in FIG 1;  
             FIG 3 is a plan of the guidance system shown in FIG 1;  
             FIG 4 is an isometric view of the guidance system shown in FIG 1;  
 and

10           FIG 5 is an isometric view showing the guidance system attached to a pair of drive wheels located at the rear of a tractor (not shown) and a pair of idler wheels located at the front of the tractor.

As shown in the drawings, the guidance system 10 is in the form of a continuous strip 11 having a plurality of blocks 12 having an upper surface  
 15           13, a pair of side surfaces 14 tapering outwardly from top to bottom as shown in FIG 1 and a pair of end surfaces 15 which taper outwardly from top to bottom as shown in FIGS 2-3.

Each block 12 is separated by a gap 16 having a concave lower surface 17. The strip 11 also has a pair of opposed side flanges or wings 18.

20           It will be noted that each wing 18 tapers inwardly from a region 17A adjacent the row of blocks 12 to an outer region to form a relatively narrow edge 18A.

In FIG 5 the strip 11 is shown bonded to an internal surface 19 of rubber track 20. This may be achieved in any suitable manner by use of rubber cement or other suitable adhesive. The blocks 12 of the strip 11 in

use as shown in FIG 15 extend into a groove 21 located between a pair of drive wheels 22 located at a rear end of a tractor (not shown). The strip 11 also extends into a similar groove (not shown) located between a pair of idler wheels 23 located at a front end of the tractor. The rubber track 20 also has an outer surface 24 which may have attached thereto or have integrally moulded therewith surface treads (not shown) well known in the art.

In use the strip 11 has the following advantages when compared to the prior art:

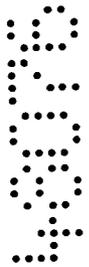
- (i) reduces the high level of stress on the conventional rubber track generated by high loads being resisted by individual blocks bonded to the track by adhesive wherein the area of contact between each block and the track is relatively small;
- (ii) provides a stronger and more durable guidance system in the form of a continuous strip because the requirement for individual blocks is eliminated;
- (iii) eliminates or reduces the requirement for recesses in each block which incur excessive concentrated stress; and
- (iv) the use of tapered surfaces 12 and 14 and also the use of tapered wings 18 reduce stress concentrations being imposed on strip 11 during use.

Thus in use the continuous track of the invention distributes loads imparted to the track over a significantly greater area when compared to the case of individual blocks. This distribution of the load is also facilitated by the provision of the wings 18. These loads include high lateral forces exerted on

the track when tractors or prime movers are working across steep slopes or making sharp turns.

The strip 11 may be formed from a plurality of sections or components which are formed together in an appropriate manner. The strip 11 may also

5 be formed of any suitable flexible material but is suitably rubber.



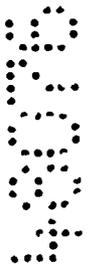
THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A guidance system for a rubber track which is used for transportable machinery which is in the form of a continuous strip made of flexible material attachable to an underside of the track having a plurality or row of blocks separated by gaps or grooves which open and close in use during movement of the track.
2. A guidance system as claimed in claim 1 wherein the continuous strip has a pair of side flanges or wings whereby each wing is located laterally of the plurality of blocks.
3. A guidance system as claimed in claim 2 wherein each wing tapers inwardly from a region adjacent the row of blocks to an outer region to form a relatively narrow edge.
4. A guidance system as claimed in any preceding claim wherein each block is substantially cuboidal or forms substantially a rectangular prism in shape.
5. A guidance system as claimed in claim 4 wherein each block has a pair of side surfaces that taper outwardly from top to bottom.
6. A guidance system as claimed in claim 4 or 5 wherein each block has a pair of end surfaces that taper outwardly from top to bottom.
7. A guidance system as claimed in any preceding claim wherein each groove has a concave base surface.
8. A rubber track for transportable heavy machinery which forms an endless belt having the guidance system of any preceding claim attached thereto.

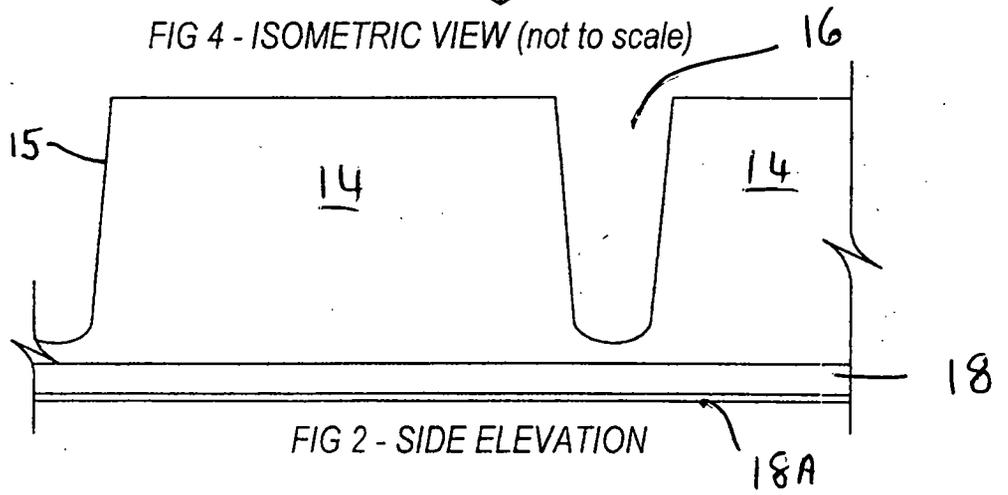
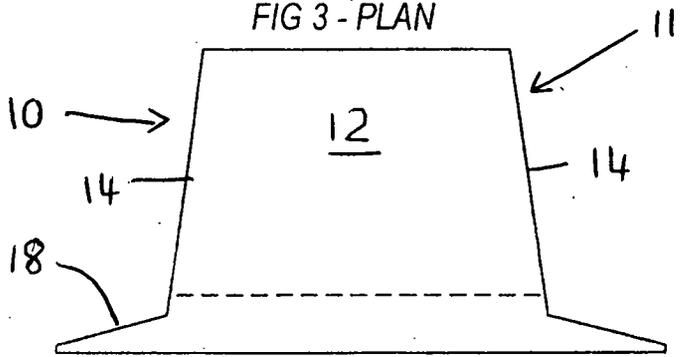
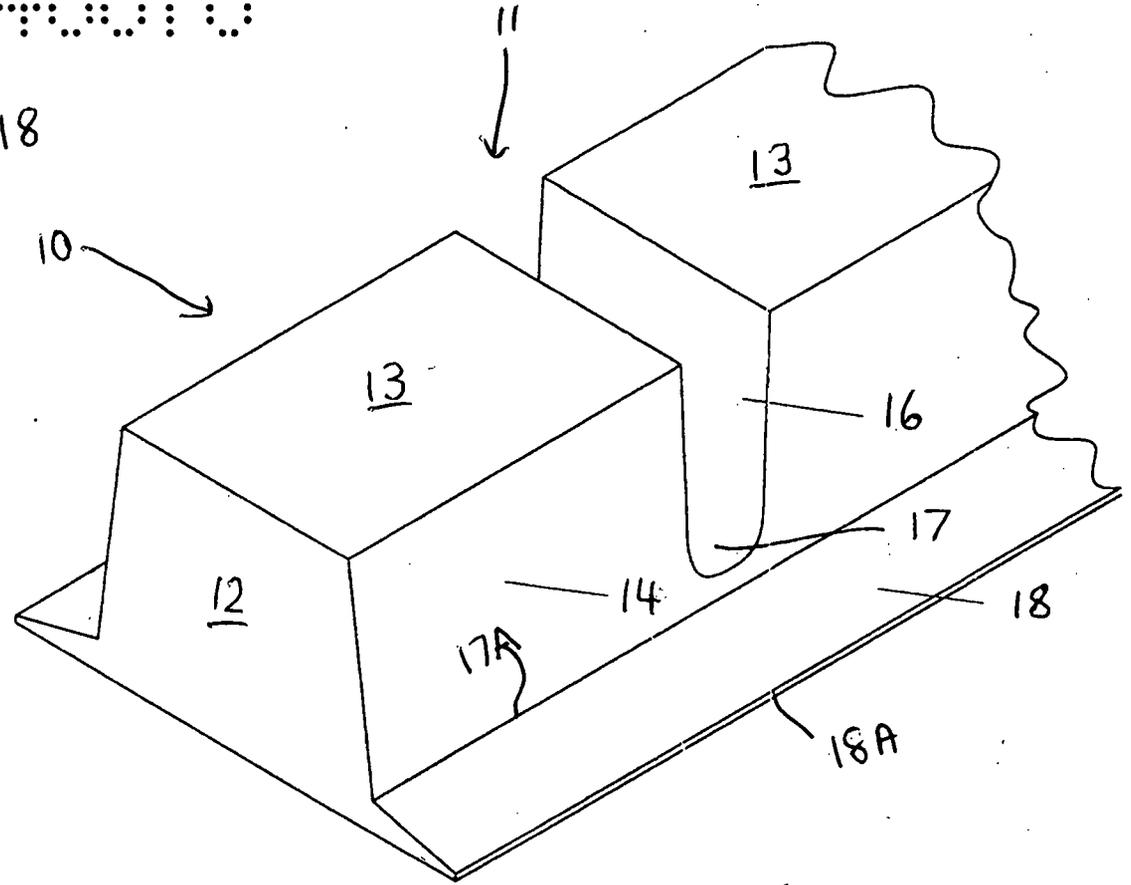
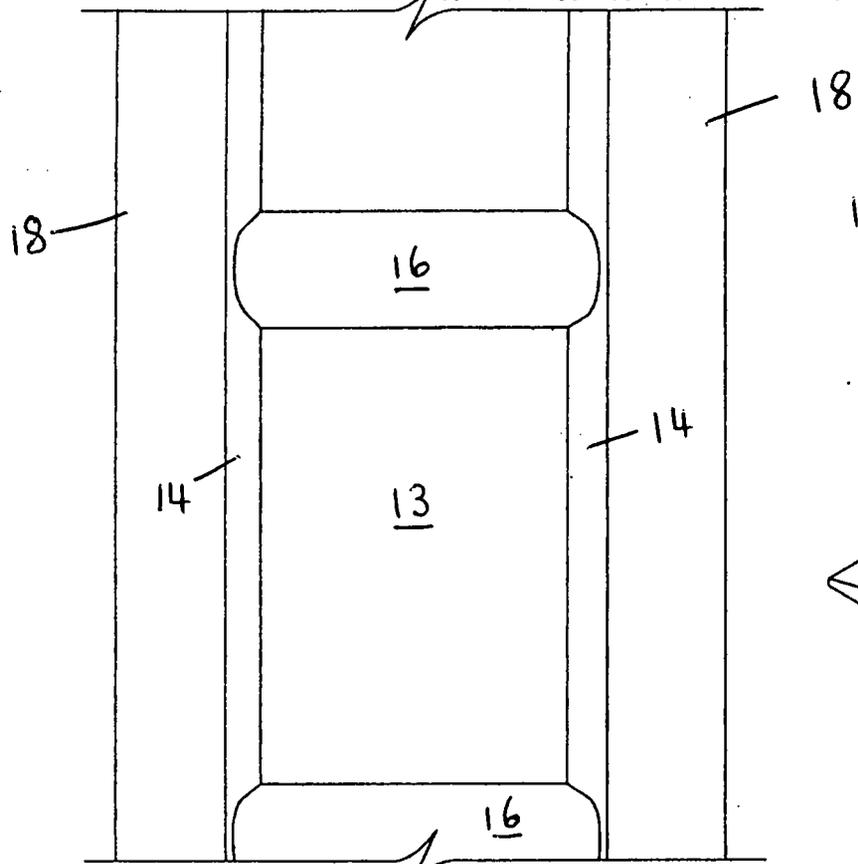
9. A rubber track as claimed in claim 8 wherein the guidance system which forms said continuous strip is bonded to the endless belt.

10. A guidance system substantially as herein described with reference to the accompanying drawings.

5 11. A rubber track substantially as herein described with reference to the accompanying drawings.



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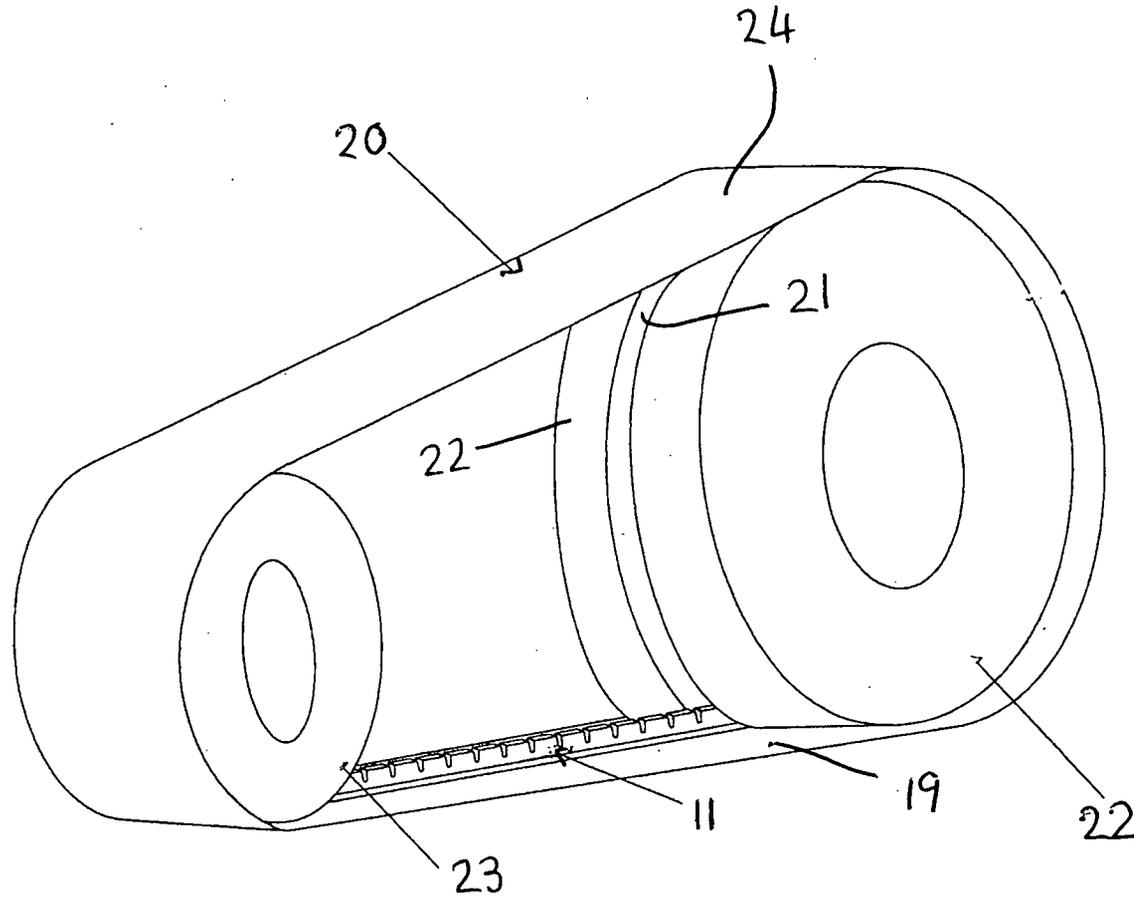


FIG 5 - VIEW OF GUIDANCE SYSTEM IN OPERATION