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(54) **TRANSPORT SLAB AND METHOD USING IT**

TRANSPORTPLATTE UND VERWENDUNGSVERFAHREN DAFÜR

PLAQUE DE TRANSPORT ET PROCÉDÉ L'UTILISANT

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(56) References cited:
US-A- 5 613 447 **US-B1- 6 374 753**

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Description

[0001] The invention relates to a method for moving goods by sliding them over a substrate, comprising the following steps:

- providing a transport slab,
- placing a sliding surface of the transport slab on the substrate,
- placing the goods on a bearing surface of the transport slab,
- exerting a force on the transport slab such that this is slid over the substrate.

[0002] Such a method is known, inter alia from US-A 5 613 447. In this publication a transport slab that consists of a polymer is used for transporting goods with the aid of a fork-lift truck with a push/pull device. An example of a fork-lift truck of this type is disclosed in US-A 4 624 620. The goods that are accommodated on the transport slab can be slid onto the forks of the fork-lift truck by means of the push/pull device or can be pushed off these.

[0003] It is known to make such slabs of plastic, as mentioned above, or of cardboard. Cardboard has the disadvantage that it has poorer ability to withstand moisture. In the moist state cardboard loses cohesion, as a result of which it can tear when it is gripped and a pull is exerted on it. Plastic has the disadvantage that the costs are relatively high.

[0004] The aim of the invention is, therefore to provide a method that does not have these disadvantages. This aim is achieved in that a transport slab is used that is made of a rubber material. The embodiment where the rubber material is a recycled material, for example obtained from used car tyres, is particularly advantageous. The material concerned can be devulcanised rubber material, or ground rubber material that has been made up to a cohesive whole by means of an adhesive. Other materials can also be added.

[0005] Major advantages can be obtained by this means. It is known that the quantity of car tyres discarded annually is increasing. Up to now no good recycling for such discarded car tyres has been found. By now using the raw material obtained from these car tyres for the transport slabs concerned it is possible for the price thereof to remain low and a solution for the waste problem associated with the discarded car tyres is also within reach. It is particularly advantageous if the rubber concerned is devulcanised rubber from car tyres.

[0006] The invention also relates to a transport slab made of a rubber material for use in the method described above, having a bearing surface on which the goods can be accommodated, a sliding surface that can be slid over the substrate and at least one edge that can be gripped by a transport member for sliding the slab over the substrate.

[0007] Although reference has been made to a transport slab above, the invention relates to any type of trans-

port member that has a fairly small thickness compared with the transverse dimensions, such as a transport sheet, transport mat and the like. The surface dimensions are approximately the same as those of a standard pallet for road transport.

[0008] As mentioned, the rubber material can be obtained from discarded car tyres. In this context the material can be either the variant where such rubber material has been devulcanised or the variant where such rubber material has been ground and has been made up to a cohesive whole by means of an adhesive and the like.

[0009] The recycled rubber is preferably obtained from a vulcanised synthetic rubber, where the vulcanised synthetic rubber has been prepared by vulcanisation of a synthetic rubber selected from the group comprising polyisoprene, polybutadiene, poly(styrene-butadiene), poly(styrene-isoprene), ethene-propene copolymers (EPM), ethene-butene copolymers (EBM), ethene-propene-diene copolymers (EPDM), styrene-butadiene-styrene terpolymers (SBS), styrene-isoprene-styrene terpolymers (SIS), styrene-ethene-butadiene-styrene polymers (SEBS) and styrene-ethene-propene-styrene polymers (SEPS), where the synthetic rubber preferably has a Mooney viscosity [ML(1+4), 100 °C] according to ASTM D-1646 of 5 to 200.

[0010] Reference is made to the state of the art as disclosed in US-B 6 374 753. This publication relates to a pallet that has been produced from a mixture of fragments of material that have been obtained by grinding or otherwise comminuting rubber tyres. Fragments of plastic waste material are also incorporated in the mixture. Epoxy-based material is added to the mixture of such fragments of material as a bonding agent, as a result of which a mixture that can be formed is obtained. The mixture that can be formed thus obtained is then introduced into a mould that has the desired shape of the pallet.

[0011] Apart from the fact that the state of the art as disclosed in US-B 6 374 753 does not relate to a transport slab that is used when sliding goods, but to a pallet, this known pallet consists of a different material.

Claims

1. Method for moving goods by sliding them over a substrate, comprising the following steps:

- providing a transport slab,
- placing a sliding surface of the transport slab on the substrate,
- placing the goods on a bearing surface of the transport slab,
- exerting a force on the transport slab such that this is slid over the substrate,

characterised by

- the use of a transport slab that consists of a

rubber material.

2. Method according to Claim 1, comprising gripping one edge of the transport slab by means of a transport member and exerting a force on the transport slab by means of said transport member for sliding said slab over the substrate. 5
3. Transport slab for use in the method according to Claim 1 or 2 in combination with sliding goods over a substrate, comprising a bearing surface on which the goods can be accommodated, a sliding surface that can be slid over the substrate and at least one edge that can be gripped by a transport member for sliding the slab over the substrate, **characterised in that** the slab consists of a rubber material. 10
4. Slab according to Claim 3, wherein the rubber material is a recycled material. 15
5. Slab according to Claim 4, wherein the recycled rubber is obtained from a vulcanised synthetic rubber, where the vulcanised synthetic rubber has been prepared by vulcanisation of a synthetic rubber selected from the group comprising polyisoprene, polybutadiene, poly(styrene-butadiene), poly(styrene-isoprene), ethene-propene copolymers (EPM), ethene-butene copolymers (EBM), ethene-propene-diene copolymers (EPDM), styrene-butadiene-styrene terpolymers (SBS), styrene-isoprene-styrene terpolymers (SIS), styrene-ethene-butadiene-styrene polymers (SEBS) and styrene-ethene-propene-styrene polymers (SEPS), where the synthetic rubber preferably has a Mooney viscosity [ML(1+4), 100 °C] according to ASTM D-1646 of 5 to 200. 20 25
6. Slab according to one of Claims 3 - 5, wherein the rubber material is devulcanised rubber. 30
7. Slab according to one of Claims 3 - 5, wherein the rubber material consists of grains or a granulate that has been made up by gluing and the like. 35 40
8. Slab according to Claim 6 or 7, wherein the rubber material is obtained from car tyres. 45
9. Slab according to one of Claims 3 - 8, wherein the dimensions are approximately the same as those of a standard pallet for road transport. 50

Patentansprüche

1. Verfahren zum Bewegen von Gütern, wobei sie über ein Substrat gleiten, die folgenden Schritte aufweisend: 55

- Vorsehen einer Transportplatte,

- Anordnen der Gleitfläche der Transportplatte auf dem Substrat,
- Anordnen der Güter auf einer Lauffläche der Transportplatte,
- Ausüben einer Kraft auf die Transportplatte, so dass diese über das Substrat gleitet,

dadurch gekennzeichnet

- **dass** die verwendete Transportplatte aus einem Kautschukmaterial besteht.
2. Verfahren gemäß Anspruch 1, das Greifen einer Kante der Transportplatte durch ein Transportelement und das Ausüben einer Kraft auf die Transportplatte durch das Transportelement zum Gleiten der Platte über das Substrat aufweisend.
 3. Transportplatte zum Verwenden in dem Verfahren gemäß Anspruch 1 oder 2 in Kombination mit dem Gleiten von Gütern über ein Substrat, eine Lauffläche aufweisend, auf der Güter aufgenommen werden können, eine Gleitfläche, die über das Substrat gleiten kann und zumindest ein Kante, die durch ein Transportelement gegriffen werden kann, um die Transportplatte über das Substrat zu gleiten, **dadurch gekennzeichnet, dass** die Platte aus einem Kautschukmaterial besteht.
 4. Platte gemäß Anspruch 3, wobei das Kautschukmaterial ein Recyclingmaterial ist.
 5. Platte gemäß Anspruch 4, wobei der Recycling-Kautschuk aus einem vulkanisierten Synthesekautschuk erhalten wird, wobei der vulkanisierte Synthesekautschuk hergestellt wurde durch Vulkanisierung eines Synthesekautschuks, der aus der Gruppe ausgewählt wurde, die umfasst Polyisopren, Polybutadien, Poly(Styrol-Butadien), Poly(Styrol-Isopren), Ethen-Propen-Copolymere (EPM), Ethen-Buten-Copolymere (EBM), Ethen-Propen-Dien-Copolymere (EPDM), Styrolbutadien-Styrol-Terpolymere (SBS), Styrol-Isopren-Styrol-Terpolymere (SIS), Styrol-Ethen-Butadien-Styrolpolymere (SEBS) und Styrol-Ethen-Propen-Styrol-Polymere (SEPS), wobei der Synthesekautschuk vorzugsweise eine Viskosität nach Mooney [ML(1+4), 100°C] gemäß ASTM D-1646 von 5 bis 200 aufweist.
 6. Platte gemäß einem der Ansprüche 3 bis 5, wobei das Kautschukmaterial devulkanisierter Kautschuk ist.
 7. Platte gemäß einem der Ansprüche 3 bis 5, wobei das Kautschukmaterial aus Körnern oder einem Granulat besteht, das durch Kleben oder Ähnlichen hergestellt wurde.

8. Platte gemäß Anspruch 6 oder 7, wobei das Kautschukmaterial aus Autoreifen erhalten wird.
9. Platte gemäß einem der Ansprüche 3 bis 8, wobei die Abmessungen annähernd dieselben sind wie die einer Standardpalette für den Straßentransport.

Revendications

1. Procédé permettant de déplacer des objets en les faisant glisser sur un substrat, lequel procédé comporte les étapes suivantes:

- prendre une plaque de transport ;
- placer sur le substrat une surface glissante de la plaque de transport ;
- placer les objets sur une surface porteuse de la plaque de transport ;
- et exercer une force sur la plaque de transport, de manière à ce qu'elle glisse sur le substrat ;

et lequel procédé est **caractérisé en ce qu'on se sert d'une plaque de transport faite d'un matériau de type caoutchouc.**

2. Procédé conforme à la revendication 1, lequel procédé comporte le fait d'agripper un bord de la plaque de transport au moyen d'un instrument de transport et le fait d'exercer sur la plaque de transport, au moyen de cet instrument de transport, une force qui fait glisser ladite plaque sur le substrat.

3. Plaque de transport conçue pour être employée dans un procédé conforme à la revendication 1 ou 2, en association avec des objets à faire glisser sur un substrat, laquelle plaque de transport comprend une surface porteuse sur laquelle peuvent être placés lesdits objets, une surface glissante que l'on peut faire glisser sur le substrat, et au moins un bord que l'on peut agripper au moyen d'un instrument de transport pour faire glisser la plaque sur le substrat, laquelle plaque de transport est **caractérisée en ce qu'elle est faite d'un matériau de type caoutchouc.**

4. Plaque conforme à la revendication 3, dans laquelle le matériau de type caoutchouc est un matériau recyclé.

5. Plaque conforme à la revendication 4, pour laquelle le caoutchouc recyclé a été obtenu à partir d'un caoutchouc synthétique vulcanisé, lequel caoutchouc synthétique vulcanisé avait été préparé par vulcanisation d'un caoutchouc synthétique choisi dans l'ensemble formé par les suivants : polyisoprène, polybutadiène, poly(styrène-butadiène), poly(styrène-isoprène), copolymères d'éthylène et de propylène (EPM), copolymères d'éthylène et de butène (EBM), copolymères d'éthylène, de propylène et de diène (EPDM), polymères triblocs poly(styrène-butadiène-styrène) (SBS), polymères triblocs poly(styrène-isoprène-styrène) (SIS), polymères poly(styrène-éthylène-butadiène-styrène) (SEBS) et polymères poly(styrène-éthylène-propylène-styrène) (SEPS), lequel caoutchouc synthétique présentait de préférence une viscosité Mooney ML(1+4) à 100 °C, mesurée selon la norme ASTM D-1646, de 5 à 200.

6. Plaque conforme à l'une des revendications 3 à 5, dans laquelle le matériau de type caoutchouc est un caoutchouc dévulcanisé.

7. Plaque conforme à l'une des revendications 3 à 5, dans laquelle le matériau de type caoutchouc consiste en des grains ou en un granulat que l'on a fabriqué par collage ou une autre opération semblable.

8. Plaque conforme à la revendication 6 ou 7, pour laquelle le matériau de type caoutchouc a été élaboré à partir de pneus de voiture.

9. Plaque conforme à l'une des revendications 3 à 8, dont les dimensions sont à peu près les mêmes que celles d'une palette standard de transport routier.

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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- US 4624620 A [0002]
- US 6374753 B [0010] [0011]