

9609513-8 IPAS

### BACKGROUND OF THE INVENTION

The present invention relates to guides for transporting pallets which are provided with feet.

More particularly, it relates to such guides for transporting pallets which are arranged parallel to a main longitudinal axis of the transporting pallet between its feet.

The invention also relates to devices for manufacturing of such guides.

Transporting pallets with guides are known in the art, for example from German patent document DE-C-23 03 124. The guides are provided for example for improving stacking of the loaded transported pallets, since the guides increase the placing surfaces of the transporting pallets and prevent damages by the transporting pallet to the loaded product in the stack by the transporting pallet located under the same. The transporting pallets provided with the guides are frequently received during their use by floor transporting devices. It is not excluded that the forks of the floor transporting devices abut against the ends of the guides and can damage the same. Attempts have been made to provide the end sides of the guides with a protection formed for example as a cap of synthetic plastic material of an inserted web of hard wood. These known solutions are reliable as to their action. However, they require additional features to provide structural components and to mount the same.

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### SUMMARY OF THE INVENTION

Accordingly, it is an object of the present invention to provide guides for transporting pallets and a device for their manufacture, which avoids the disadvantages of the prior art.

More particularly, it is an object of the present invention to provide a guide for transporting pallets in which the protection of its end sides must not be applied subsequently after the manufacture, but is available immediately from the very beginning.

In keeping with these objects and with others which will become apparent hereinafter, one feature of the present invention resides, briefly stated, in that the guide is pressed from a mixture of fibers and a heat hardenable binder as a one-piece element, and the ends of the guide are provided with a higher density than a remaining longitudinal portion of the guides.

When the guides are provided with a higher density at their ends, they obtain a higher resistance against mechanical loading by abutments or impacts and therefore are better protected from damages.

In accordance with another feature of the present invention, the guides are provided with a one-side narrowing at their ends.

Still another feature of the present invention

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1 resides in the fact that the guides can be provided with  
narrowings at both ends of the same.

5 In accordance with the present invention, also a new  
device for producing the guides is provided. The new device  
includes a press which has a pressing tool lower part  
including a stationary central part and a frame which  
surrounds the central part and is liftable and lowerable, a  
pressing tool upper part formed as a flat plate, and a central  
10 part having a substantially flat upper surface and provided in  
the vicinity of the frame with continuously increasing raised  
portions.

With the device described hereinabove, the guides in  
accordance with the present invention can be produced.

15 The novel features which are considered as  
characteristic for the invention are set forth in particular  
in the appended claims. The invention itself, however, both  
as to its construction and its method of operation, together  
with additional objects and advantages thereof, will be best  
understood from the following description of specific  
embodiments when read in connection with the accompanying  
drawings.

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BRIEF DESCRIPTION OF THE DRAWINGS

FIGS. 1a, 1b and 1c are a side view, a plan view and a front view of a guide for transporting pallets in accordance with the present invention;

5 FIGS. 2a, 2b and 2c are view substantially corresponding to the views of FIGS. 1a, 1b, and 1c, but showing another embodiment of the guide in accordance with the present invention;

10 FIG. 3 is a view showing a pressing tool upper part of a device for producing the inventive guide of FIG. 1 in accordance with the present invention;

FIG. 4 is a view showing a pressing tool lower part of FIG. 3 with a placed pressing tool upper part; and

15 FIG. 5 is a view showing a pressing tool for producing the guide of FIG. 2 in accordance with the present invention.

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### DESCRIPTION OF THE PREFERRED EMBODIMENTS

5 A guide for transporting pallets in accordance with a first embodiment of the invention is shown in FIGS. 1a, 1b and 1c and has a main part which is identified as a whole with reference numeral 1. At opposite ends of the main part 1 as considered in the longitudinal direction, end parts 2, 2' are provided. The end parts 2 have 2' a higher density the main part 1. This higher density can be achieved by providing a narrowing on each of the ends of the guide or more  
10 particularly in each of the end parts 2 and 2'. The main part 1 of the guide is provided at a lower side with several recesses 3. The recesses 3 form a space for lateral insertion of forks of floor transporting devices.

15 A guide for transporting pallets shown in FIGS. 2a, 2b and 2c has generally a similar construction to guide shown in FIGS. 1a, 1b, 1c. The guide of FIGS. 2a, 2b, 2c also has a main part which is identified with reference numeral 4. The guide also has the end parts which are identified with reference numerals 5 and 5'. In contrast to the end parts 2  
20 and 2' of FIGS. 1a, 1b, 1c, the end parts 5 and 5' of the second embodiment are formed as narrowings which narrow at both sides of the guide as considered as the plan view. In other words, each end part 5, 5' narrows on the plan view from both sides in a transverse direction of the guide.

25 The guides are produced by pressing from a mixture

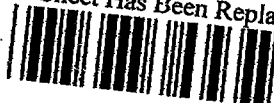
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1 of fibers and a heat-hardenable binder so as to form a one-  
piece integral element. The chip or fiber forming mixture can  
be for example a not flowable mixture of comminuted ligno-  
cellulose-containing particles, such as comminuted and dried  
5 wood chips, bagasse fibers, etc. which are admixed to a heat-  
hardenable binder having a thermosetting basis such as a  
melamina-ureaformaldehyde or phenolformaldehyde resin.  
Instead of the comminuted and dried wood or bagasse fibers,  
also fibers of other materials can be utilized such as for  
10 example glass fibers or stone wall alone, or several fibers of  
different materials can be mixed together, and added to a  
corresponding for example organic binder.

FIGS. 3 - 5 show a pressing tool for producing the  
guide in accordance with the present invention. The pressing  
tool has a lower part suitable for producing the guides of  
15 both embodiments. The lower part has a stationary central  
element 6 surrounded by a liftable and lowerable frame 7. The  
frame 7 is displaced for example by a spring force to the  
upper position shown in FIG. 3, so that the central part 6 and  
the frame 7 together form a filling space 8. A mixture for  
manufacturing the guides of the shown embodiments is filled in  
the filling space 8. The upper surface of the central part 6  
is substantially flat over its greater part. However, near  
the frame 7 it is provided with raised portions 9 and 9'.  
25 This is the region where a higher density must be obtained in



1 the guide.

FIG. 4 shows the press with a placed pressing tool upper part 10. the upper part has the shape of a flat plate. The mixture is filled in the filling space 8 as shown by dots. Then the force is applied to the upper part 10, the upper part 10 of the pressing tool moves together with the frame 7 downwardly until the frame 7 is seated on the support 11. The mixture in the filling space 8 is compacted so that in the region of the raised portions 9 and 9' it is compressed more than in the remaining regions. Thereby a solid profiled body is produced from the compressed mixture, and the compressed mixture is subjected to corresponding temperatures so as to harden the binder in the mixture.

FIG. 5 shows a press for pressing the guides shown in FIGS. 2a, 2b, 2c. In this press an upper part 12 of the pressing tool is different from the upper part of the pressing tool of FIG. 4. In particular, the lower surface of the upper part 12 which faces the upper surface of the central part 6 is provided with raised portions 13 and 13' in the regions near the frame 7. When the upper part is designed in accordance with these features with the raised portions 13 and 13', the guide pressed in the filling chamber 8 from the mixture is provided with the end parts 5 and 5' which have narrowings at both sides.

25 It will be understood that each of the elements



1 described above, or two or more together, may also find a  
useful application in other types of methods and constructions  
differing from the types described above.

5 While the invention has been illustrated and  
described as embodied in guides for transporting pallets and  
device for manufacturing the same, it is not intended to be  
limited to the details shown, since various modifications and  
structural changes may be made without departing in any way  
from the spirit of the present invention.

10 Without further analysis, the foregoing will so  
fully reveal the gist of the present invention that others  
can, by applying current knowledge, readily adapt it for  
various applications without omitting features that, from the  
standpoint of prior art, fairly constitute essential  
15 characteristics of the generic or specific aspects of this  
invention.

What is claimed as new and desired to be protected  
by Letters Patent is set forth in the appended claims.



## C L A I M S



1                    1. A guide for arranging between feet of  
2 transporting pallets, comprising a one-piece integral  
3 elongated body composed of a mixture of fibers and a heat-  
4 hardenable binder, said body having a central part and two  
5 end parts as considered in a longitudinal direction, said  
6 end parts having a density which is higher than a density of  
7 said central part.

1                    2. A guide as defined in claim 1, wherein each of  
2 said end parts of said body is provided with a narrowing at  
3 one side of a longitudinal axis of said body.

1                    3. A guide as defined in claim 1, wherein each of  
2 said end parts of said body is provided with two narrowings at  
3 both sides of a longitudinal axis of said body.

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1                   4. A device for manufacturing a guide to be  
2                   arranged between feet of a transporting pallet, the device  
3                   comprising a pressing tool having an upper tool part and a  
4                   lower tool part which form a filling space for a mixture of  
5                   fibers and a heat-hardenable binder and so that at least one  
6                   of said parts is movable relative to the other of said parts,  
7                   said upper and lower parts being formed so that upon pressing  
8                   of the mixture of fibers and the heat hardenable binder in  
9                   said space a guide is produced which has an elongated body  
10                  including a central part and two end parts formed so that  
11                  the density of said end parts is greater than the density  
12                  of the central part.

1                   5. A device as defined in claim 4, wherein said  
2                   lower part has a stationary central portion and a raisable  
3                   and lowerable frame which surrounds said central portion.

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1                   6. A device as defined in claim 4, wherein at  
2                   least one of said tool parts has a surface which faces the  
3                   other of said tool parts and is provided with two lateral  
4                   raised portions, so that upon pressing of the mixture of  
5                   fibers and a heat-hardenable binder in said space the end  
6                   parts of the body with a higher density are produced in the  
7                   region of said raised portions and the central part of the  
8                   body is produced in the region between said raised portions  
9                   due to formation of narrowings in each end part of the body  
10                  at one side of a longitudinal axis of the body.

1                   7. A device as defined in claim 5, wherein said  
2                   tool parts have surfaces facing toward one another, each of  
3                   said surfaces being provided with two lateral raised portions  
4                   so that upon pressing of the mixture of fibers with the heat-  
5                   hardenable binder in said space the end parts of the body are  
6                   produced with two narrowings at both sides of a longitudinal  
7                   axis of the body by said raised portions, while between said  
8                   raised portions the central part of the body is produced.

