

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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REPLACED SHEETS	SG
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☒ Claim(s) : paged ...4... to paged ...12...	
☒ Drawing(s) : paged ...1/3... to paged ...3/3...	
☒ Abstract : paged ...13... to paged	
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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



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
part having a substantially flat upper surface and provided in
10 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;

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;

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

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



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
and 2' of FIGS. 1a, 1b, 1c, the end parts 5 and 5' of the
20 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

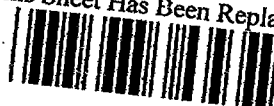
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1 of fibers and a heat-hardenable binder so as to form a one-
piece integral element. The chip or fiber forming mixture can
be for example a not flowable mixture of comminuted ligno-
cellulose-containing particles, such as comminuted and dried
5 wood chips, bagasse fibers, etc. which are admixed to a heat-
hardenable binder having a thermosetting basis such as a
melamine-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
15 tool has a lower part suitable for producing the guides of
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.
5 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
10 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
15 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

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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.



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ABSTRACT OF THE DISCLOSURE

A guide for supporting transporting pallets and to be located between the legs of the transporting pallet has a one-piece integral body composed of fibers with a heat-hardenable binder, and both end parts of the body have a density which is greater than a density of the central part. The high density of the end parts can be provided by narrowings formed in the region of the end parts and extending either at one side or at both sides of the longitudinal axis of the body. A device for making the guide is formed to increase density of the end parts of the guide.

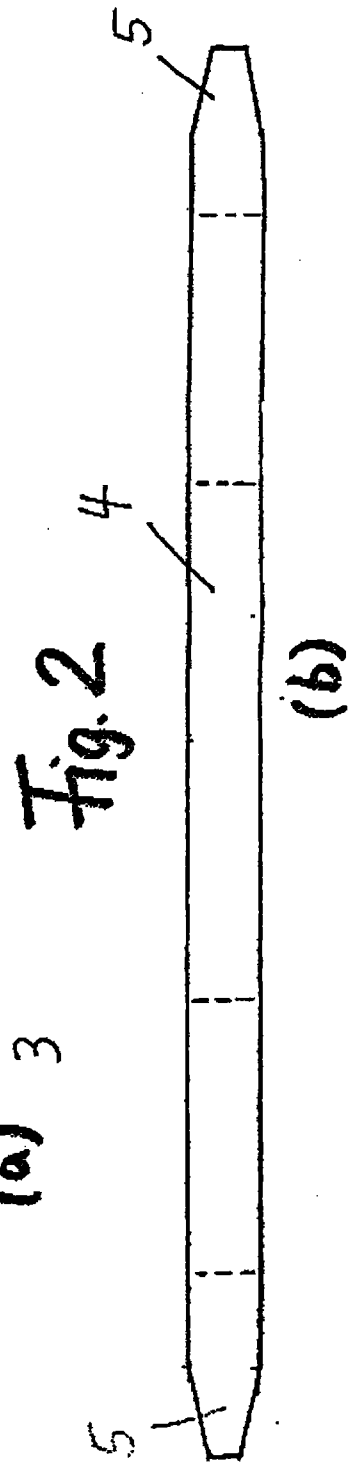
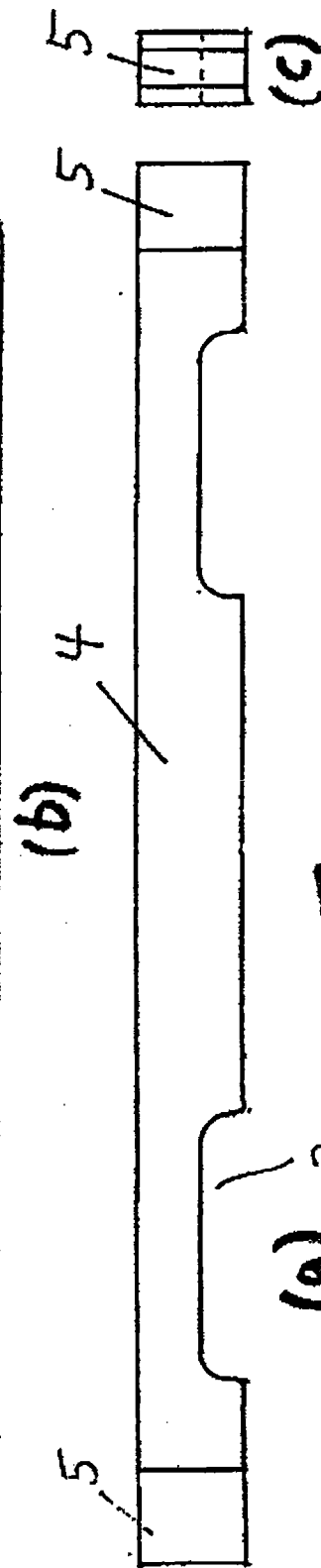
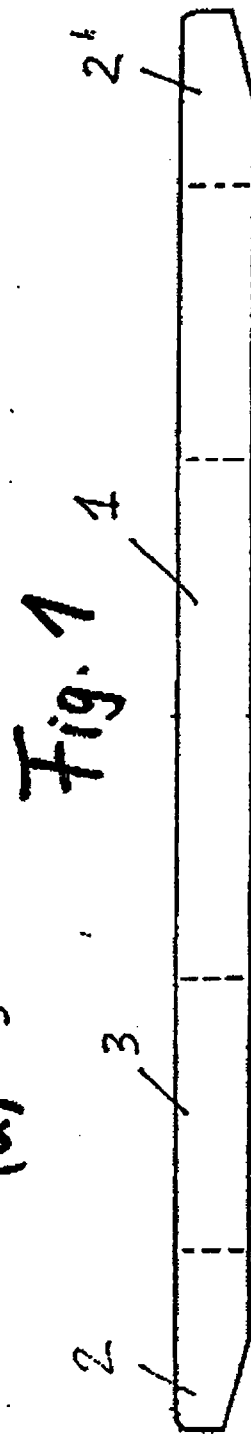
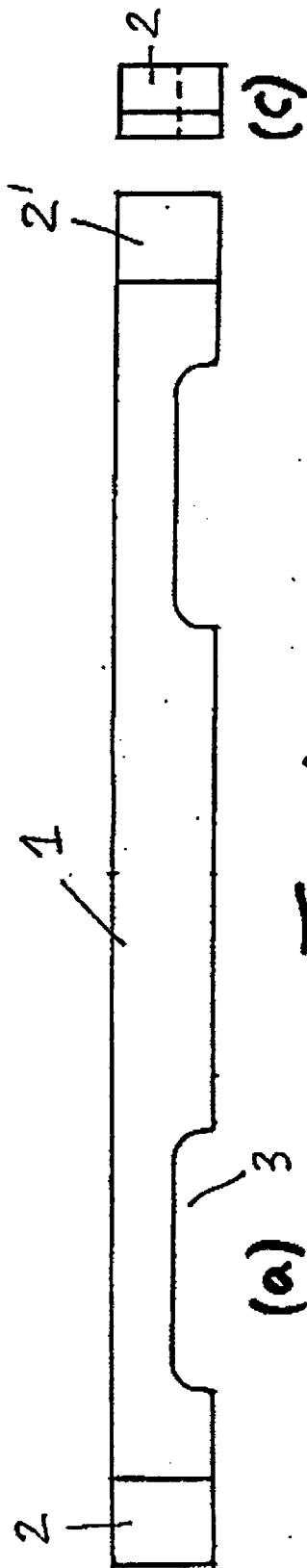
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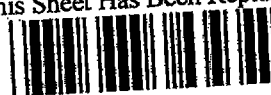
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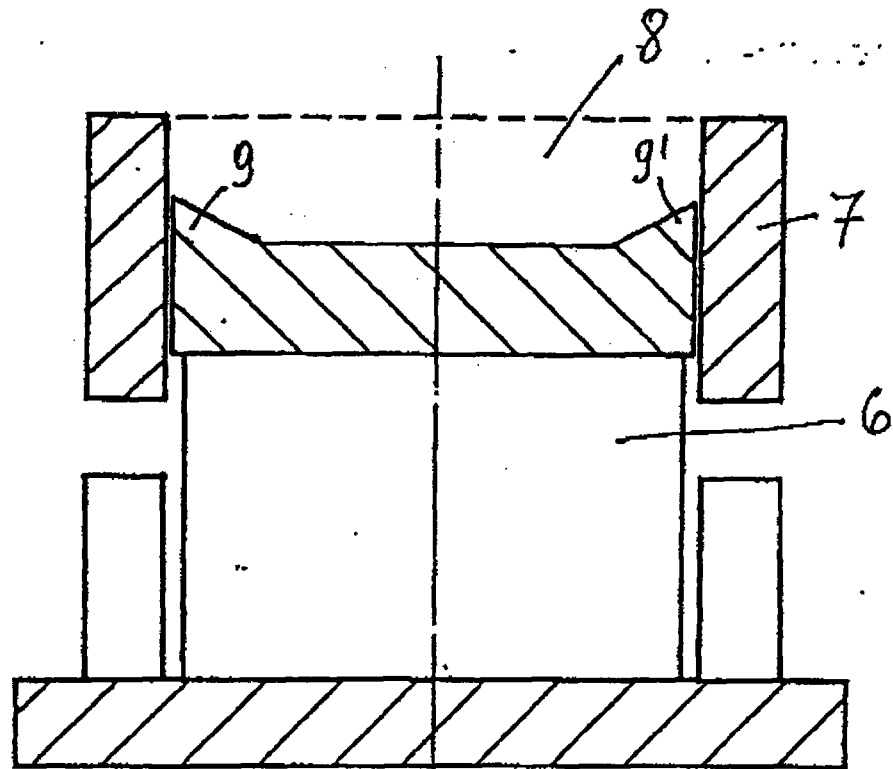


Fig. 3

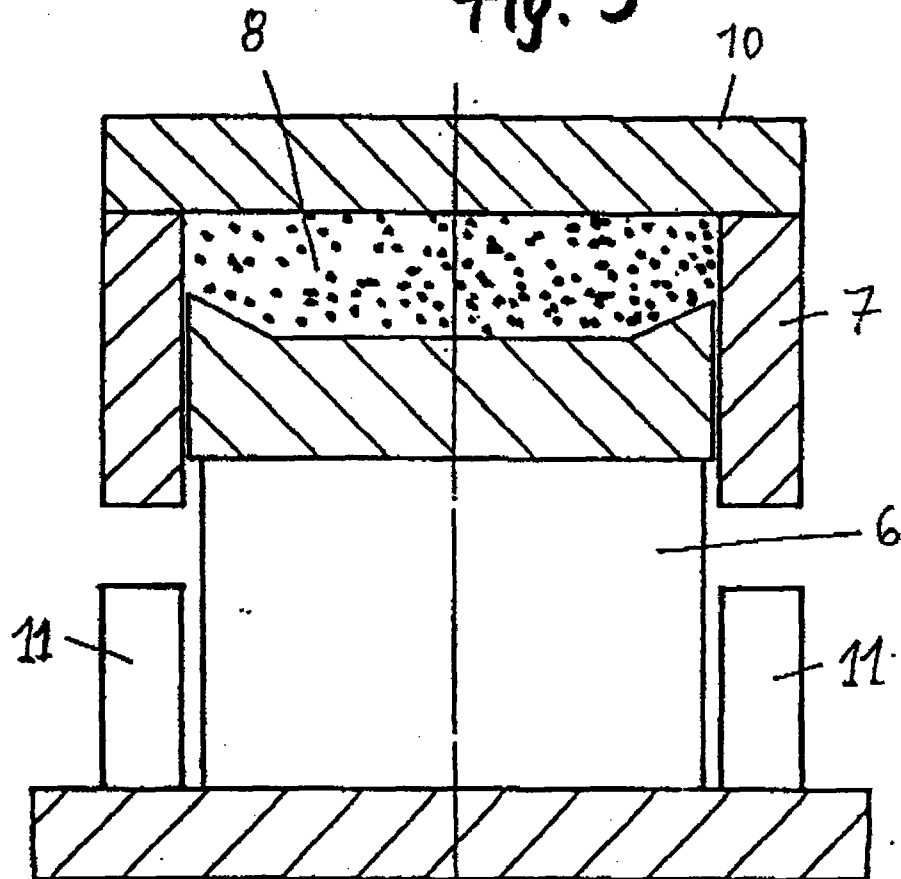


Fig. 4

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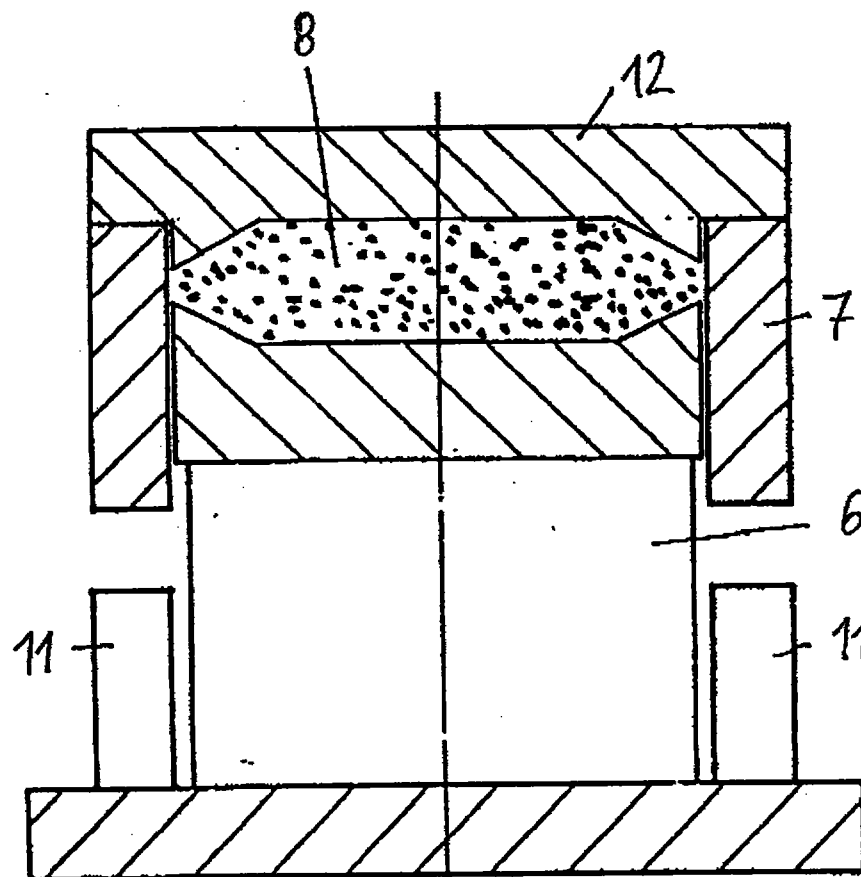


Fig. 5

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GUIDES FOR TRANSPORTING PALLETS AND DEVICE FOR
MANUFACTURING THE SAME

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.

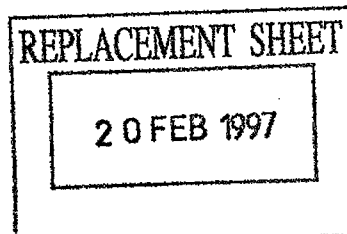
More particularly, it is an object of the present invention to provide a guide for transporting pallets in which the protection of its end sides must not be applied subsequently after the manufacture, but is available immediately from the very beginning.

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

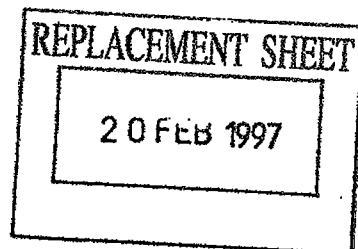


resides in the fact that the guides can be provided with narrowings at both ends of the same.

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 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.

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.



BRIEF DESCRIPTION OF THE DRAWINGS

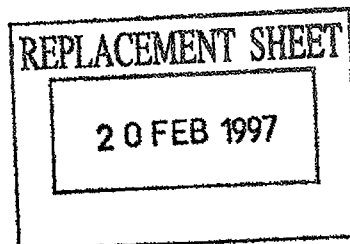
FIGS. 1a, 1b and 1c are a side view, a plan view and a front view of a guide for transporting pallets in accordance with the present invention;

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;

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

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

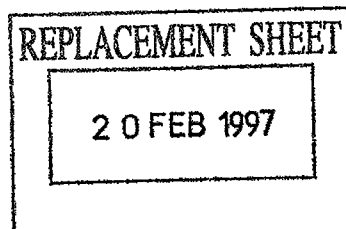


DESCRIPTION OF THE PREFERRED EMBODIMENTS

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 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.

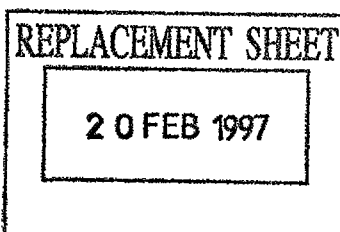
A guide for transporting pallets shown in FIGS. 2a, 2b and 2c has generally a similar construction to guide shown in FIGS. 1a, 1b, 1c. The guide of FIGS. 2a, 2b, 2c also has a main part which is identified with reference numeral 4. The guide also has the end parts which are identified with reference numerals 5 and 5'. In contrast to the end parts 2 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.

The guides are produced by pressing from a mixture



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 wood chips, bagasse fibers, etc. which are admixed to a heat-hardenable binder having a thermosetting basis such as a melamine-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 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 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'. This is the region where a higher density must be obtained in

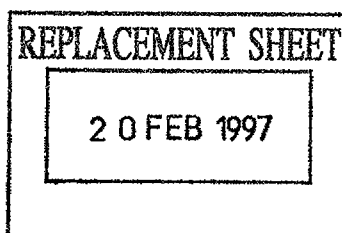


the guide.

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.

It will be understood that each of the elements

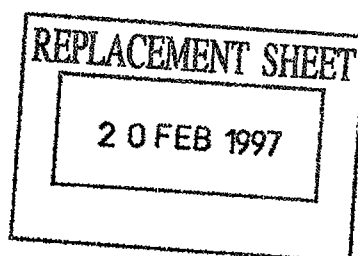


described above, or two or more together, may also find a useful application in other types of methods and constructions differing from the types described above.

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.

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 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.





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CLAIMS

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

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

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

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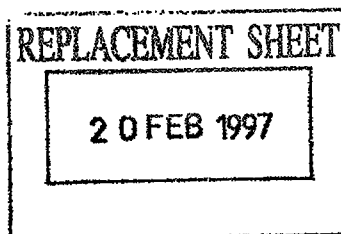
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4. A device for manufacturing a guide to be arranged between feet of a transporting pallet, the device comprising a pressing tool having an upper tool part and a lower tool part which form a filling space for a mixture of fibers and a heat-hardenable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

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



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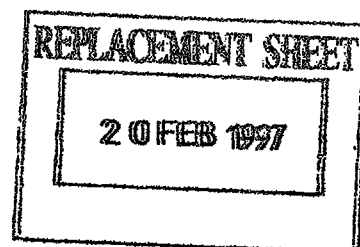




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6. A device as defined in claim 4, wherein at least one of said tool parts has a surface which faces the other of said tool parts and is provided with two lateral raised portions, so that upon pressing of the mixture of fibers and a heat-hardenable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

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



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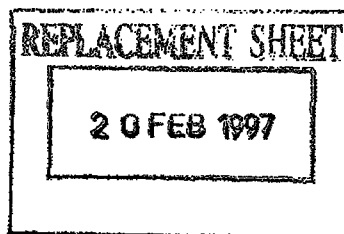


GUIDES FOR TRANSPORTING PALLETS AND DEVICE FOR
MANUFACTURING THE SAME

ABSTRACT OF THE DISCLOSURE

A guide for supporting transporting pallets and to be located between the legs of the transporting pallet has a one-piece integral body composed of fibers with a heat-hardenable binder, and both end parts of the body have a density which is greater than a density of the central part. The high density of the end parts can be provided by narrowings formed in the region of the end parts and extending either at one side or at both sides of the longitudinal axis of the body. A device for making the guide is formed to increase density of the end parts of the guide.

Figures 1a,b and c



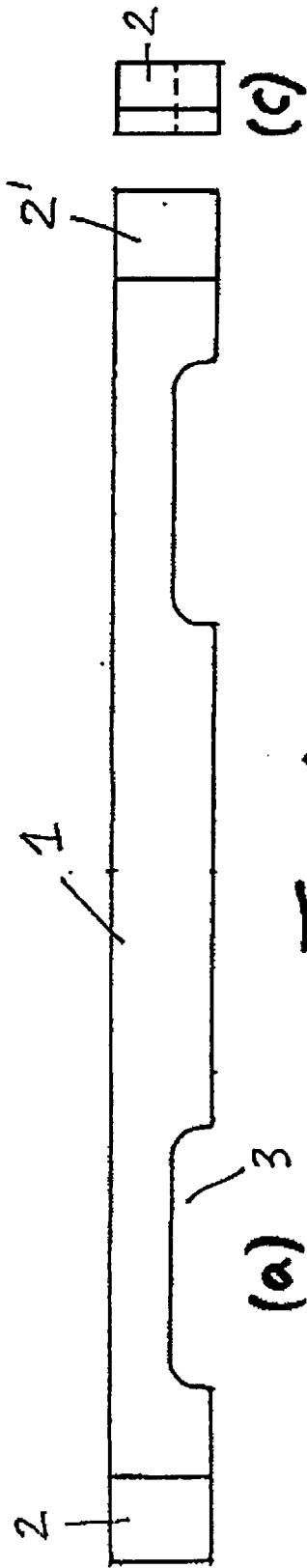
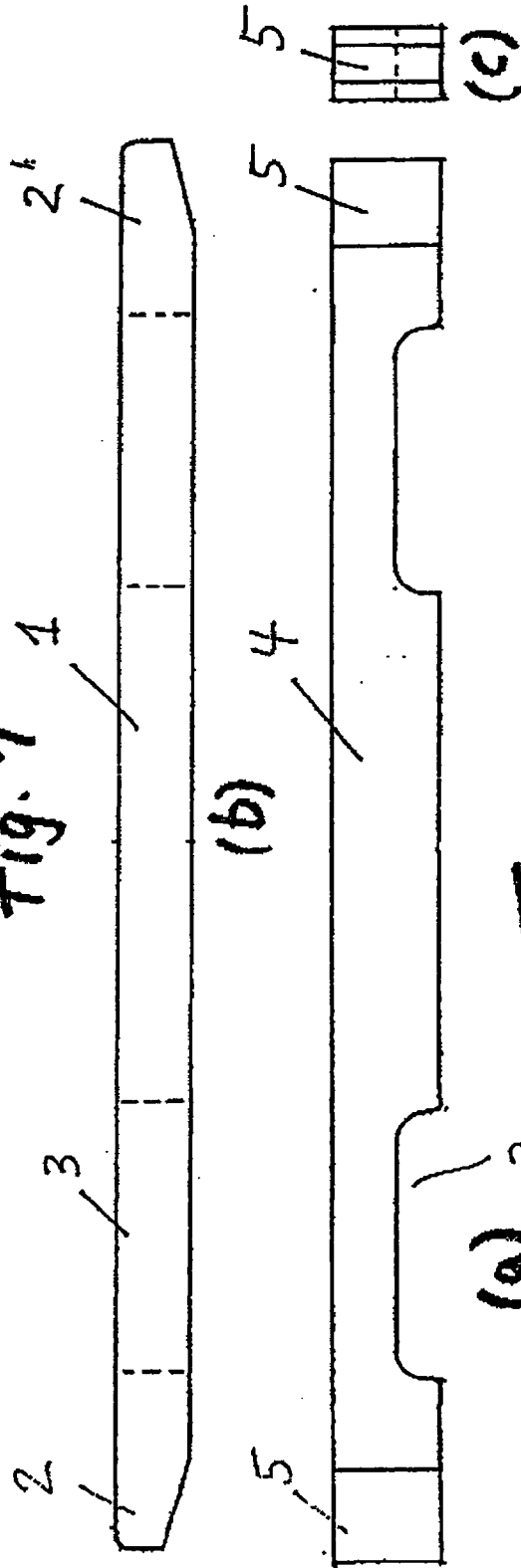


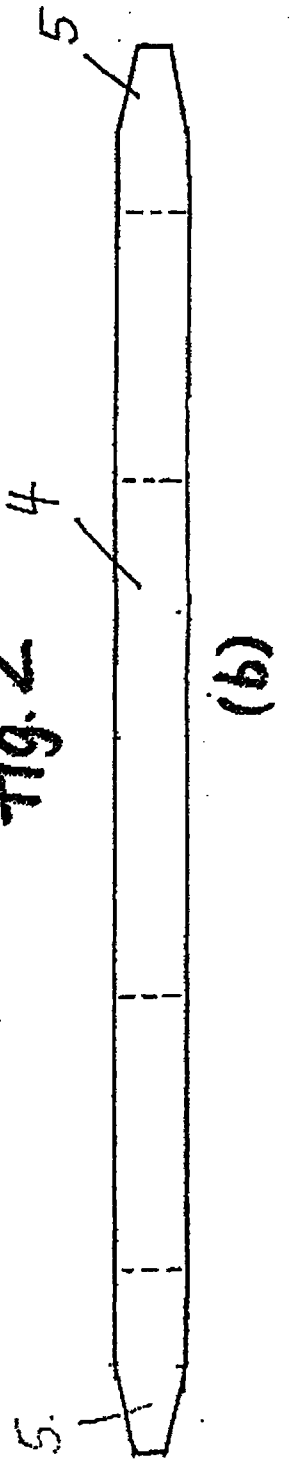
Fig. 1



(b)

(c)

Fig. 2



(b)

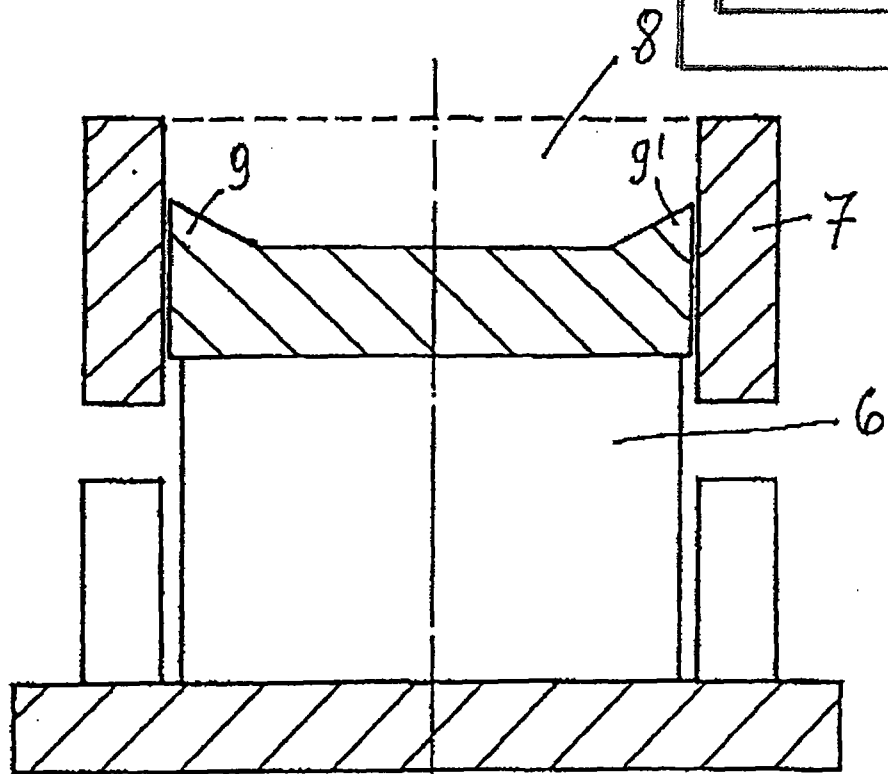


Fig. 3

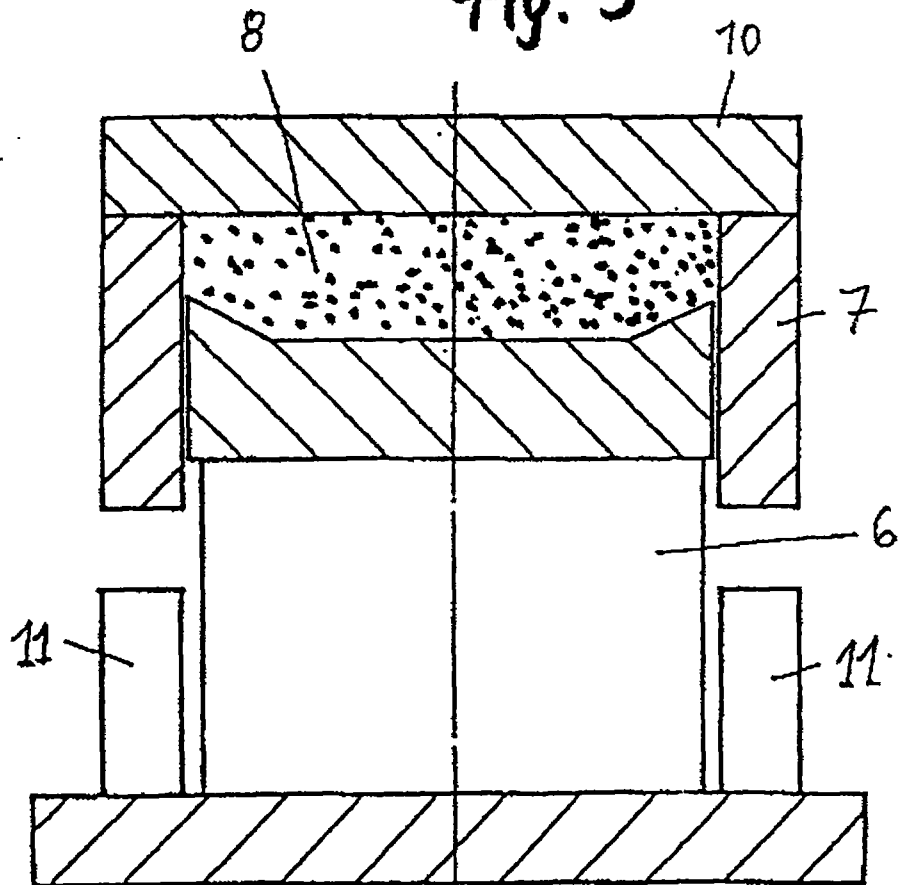


Fig. 4

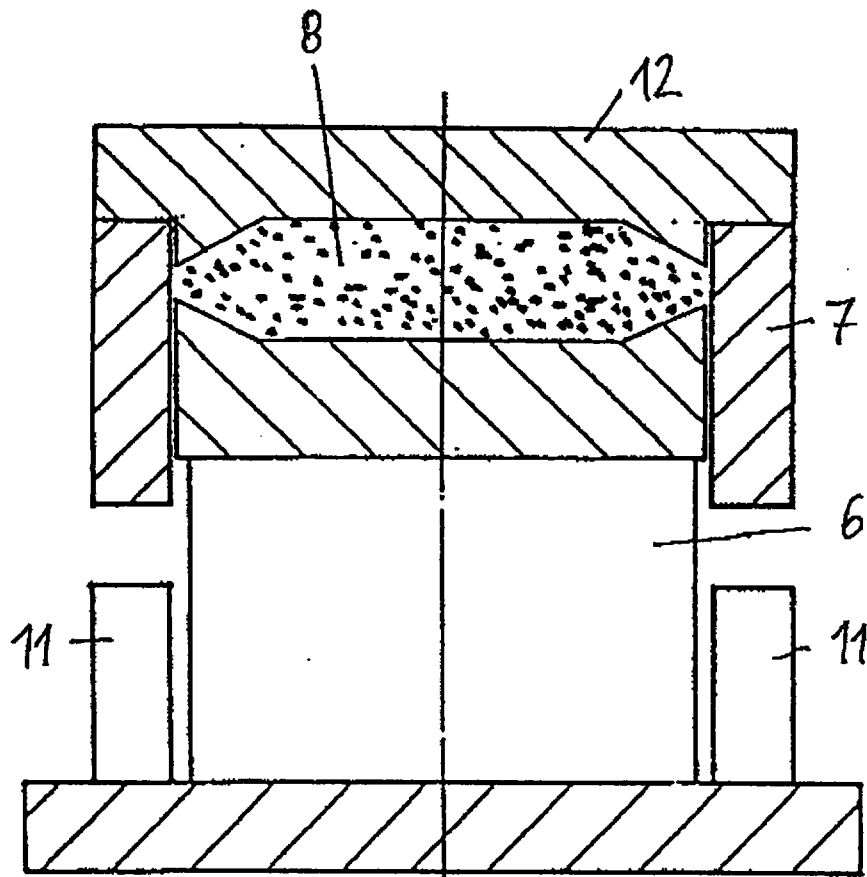
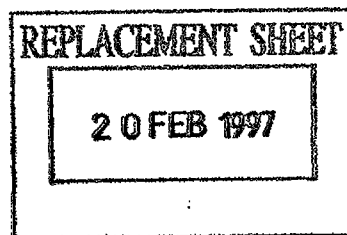


Fig. 5





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CLAIMS

REPLACEMENT SHEETS SG

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DATE OF RECEIPT 22/1/99

1. A guide for arranging between feet of transporting pallets, comprising a one-piece integral elongated body composed of a mixture of fibers and a heat hardenable binder, said body having a central part and two end parts as considered in a longitudinal direction, said central part and said end parts being composed of a same material, but the material of said end parts being compressed more the material of said central part, so that said end parts have a density which is higher than a density of said central part.

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

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

REPLACEMENT SHEET

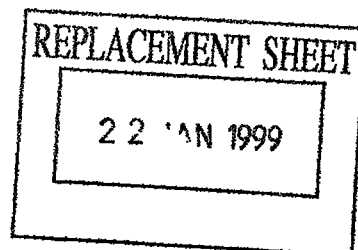
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4. A device for manufacturing a guide to be arranged between feet of a transporting pallet, the device comprising a pressing tool having an upper tool part and a lower tool part which form a filling space for a mixture of fibers and a heat-hardenable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

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





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

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

