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(54) **DEVICE FOR THE GUIDANCE OF LENO THREADS**

VORRICHTUNG ZUR FÜHRUNG VON DREHERFÄDEN

DISPOSITIF CONÇU POUR GUIDER DES FILS DE GAZE

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EP 2 195 478 B1

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Description

[0001] The invention relates to a device for the guidance of leno threads for a leno weaving machine, with a multiplicity of guide eyes which each receive a leno thread and which are arranged next to one another in at least one row running in the direction of the weaving width.

[0002] Devices of the type mentioned in the introduction, such as are known, for example, from EP 1 277 862 A1 or WO 02/04723 A1, cooperate with needles which receive warp threads in guide eyes. The device having the guide eyes for the leno threads is moved such that the leno threads are brought alternately onto one side or the other of the warp needles, in each case a shed being formed into which a weft thread is inserted. The warp needles are designed, in the type of construction according to EP 1 277 862 A1, as lamellae which are provided with guide eyes at their ends. Guide lamellae are arranged between the lamellae. The device for guiding the leno threads is conventionally a perforated strip which is arranged in a profile rail.

[0003] The object of the invention is to provide a device of the type mentioned above, which allows to arrange the guide eyes closely next to one another, so that a dense leno fabric can be produced.

[0004] This object is achieved in that the guide eyes are formed by means of lamellae and two rods and are delimited in the direction of the weaving width by means of the lamellae and transversely thereto by means of the two rods.

[0005] By the device being formed according to the invention from lamellae and rods, it is possible to provide guide eyes which lie very closely next to one another and are separated from one another only by the thickness of the lamellae.

[0006] According to an embodiment of the invention the lamellae together with the rods and two lamella-like side parts form a frame. In this case, it is expedient if the ends of the preferably cylindrical rods are fixed in the side parts.

[0007] The device can be produced in a similar way to that known for reeds or the like. In particular there is provision for the spacing of the lamellae with respect to one another to be fixed by means of a coiled spring or a binding wire. The coiled spring or the binding wire, after assembly, may remain in the device or else be removed from it.

[0008] In a preferred embodiment, there is provision for the lamellae to be fixed at a predetermined spacing with respect to one another by means of at least one strip extending in the direction of the weaving width. In this case, there is preferably provision for a connection between the strips and lamellae to take place by means of an elastic and/or plastic deformation of, in particular, the strips, so that the article formed in this way can immediately be handled and transported.

[0009] In a further embodiment of the invention, there is provision for the lamellae to be bordered in the region of one end by a fastening profile. This likewise corresponds to the production of a reed or the like, in which the lamellae used for the reed are likewise held by means of a fastening profile. In a further embodiment, there is provision for the lamellae to be bordered at both ends by profiles. The device can thus be formed into a frame which surrounds the lamellae.

[0010] Further features and advantages of the invention may be gathered from the following description of the exemplary embodiments illustrated in the drawings and from the subclaims.

Fig. 1 shows a perspective part view of a device according to the invention,

Fig. 2 shows the part view of the device according to Fig. 1 in a kind of exploded illustration,

Fig. 3 shows the front view of the device according to Fig. 1,

Fig. 4 shows the end view of a modified embodiment,

Fig. 5 shows a further device for holding the lamellae,

Fig. 6 shows a perforated strip for leno warp threads of a weaving machine, and

Fig. 7 shows a variant of an arrangement for holding the lamellae.

[0011] The device according to Fig. 1 to 3 comprises a multiplicity of lamellae 10 which are arranged in a row one behind the other in such a way that their flat sides face one another. The lamellae 10, which are arranged at a close spacing with respect to one another, are provided with perforations, through which two round rods 11 and 12 are inserted. The rods 11 and 12 are, for example, of cylindrical design. The lamellae 10 and the rods 11, 12 form guide eyes 21 for leno threads. These guide eyes 21 are in each case delimited in the direction of the weaving width by two lamellae 10 and transversely thereto by the two rods 11, 12.

[0012] The lamellae 10, in the region facing away from the rods 11, 12, are provided in their narrow sides or side edges with recesses, into which are pressed strips 14, 15 which connect the lamellae 10 to one another. The strips 14, 15 are preferably attached on both narrow sides of the lamellae 10 and are pressed under elastic and/or plastic deformation into the recesses 13 of the lamellae 10 in such a way that they are deformed elastically and/or plastically and at the same time form an at least positive connection with the lamellae 10. Before the strips are attached, the lamellae 10 are arranged in the desired spacing in a device, so that the recesses 13 are in alignment with one another. In addition, lamella-like side parts 16 are provided, which correspond in shape to the lamel-

lae 10 and which are provided with means 17 for fixing the rods 11, 12. These may, for example, be sockets into which the rods 11, 12 are fitted. The strips 14, 15 also extend as far as the side parts 16, so that these likewise form with the lamellae 10 and the rods 11, 12 a structural unit which as such can be transported and handled. The structural unit comprising the lamellae 10, the round rods 11, 12, the strips 14, 15 and the side parts 16 is inserted into a fastening profile 18. The fastening profile 18 is preferably an extruded profile. The structural unit is inserted, with the region in which the strips 14, 15 are located, into a groove-shaped recess of the profile 18. They are fixed in this recess in a known way by means of a curing plastic material.

[0013] The lamellae and the rods may also be connected to one another in any way, in particular according to methods which are employed for the production of reeds. For example, helically coiled springs or windable binding wires may be used in order, during the production of the device, to define exactly the spacing of the lamellae 10 with respect to one another. In a modified embodiment, the lamellae 10 are provided, outside the region between the perforations, with profilings which define the mutual spacing of the lamellae, so that, during the production of the device, these lamellae 10 can be plugged onto the rods 11, 12 and lined up with one another.

[0014] The device illustrated in Fig. 4, which comprises lamellae 10' and rods 11', 12', is produced by a modified production method. The mutual spacing of the lamellae is defined by means of a helically coiled spring 19. The regions, facing away from the rods 11', 12', of the lamellae 10' which may be connected to one another by means of strips correspondingly to the exemplary embodiment according to Fig. 1 and 2, are inserted into a fastening profile and held together with the latter by means of a curable plastic. The mutually opposite ends of the lamellae 10' are likewise connected to one another by means of a supporting profile 20. The two profiles 18, 20 are connected to one another by means of side parts in a way not illustrated in any more detail, so that a rigid frame is formed.

[0015] Guides 27' for holding the narrow sides of lamellae 10 are illustrated by way of example in Fig. 5. The lamellae 10, a multiplicity of which are arranged one behind the other at a short spacing, constitute a special form which replaces a perforated strip for leno warp threads of a leno weaving machine. The lamellae 10 are provided on their mutually opposite narrow sides with recesses 13 into which strips 14, 15 are pressed. The relatively short lamellae 10 run out slightly obliquely in the region facing away from the recesses 13, so that the said lamellae taper. The guide elements 27' hold the lamellae 10 in this region.

[0016] The lamellae 10 are provided in each case with two holes 31, 32. Round rods or round tubes are inserted into these holes 31, 32 of the lamellae 10. The leno threads are then guided between the rods and adjacent lamellae 10, when this device is used as a replacement for a perforated strip, as will be explained later with reference to Fig. 6.

[0017] The lamellae of the embodiment according to Fig. 6 differ from the lamellae of the embodiment according to Fig. 5 in that they do not have a conical configuration in the region of the rods. However, they are connected to one another in the same way by means of strips 14, 15 pressed into recesses 13. The device formed from a multiplicity of lamellae 10 and the rods 11, 12 is inserted into a profile 18 and is held in the latter by means of a curing plastic. This profile 18 is attached to an associated component of a leno weaving machine.

[0018] Fig. 7 shows an arrangement for holding lamellae 10 which is similar to Fig. 5. In this case, holes 31, 32 for inserting round rods or round tubes, not illustrated, and recesses 13 for strips 14, 15 are arranged on opposite sides of a guide element 27'. In the exemplary embodiment illustrated, the lamellae 10 taper in the direction of the recesses 13, so that the side edges have a slightly oblique design at least in one region. The guide elements 27' hold the lamellae 10 in this region.

Claims

1. Device for the guidance of leno threads for a leno weaving machine, with a multiplicity of guide eyes which each receive a leno thread and which are arranged next to one another in a row running in the direction of the weaving width, **characterized in that** the guide eyes (21) are formed by means of lamellae (10, 10') and two rods (11, 12, 11', 12') and are delimited in the direction of the weaving width by means of the lamellae (10, 10') and transversely thereto by means of the two rods (11, 12, 11', 12').

2. Device according to Claim 1, **characterized in that** the lamellae (10, 10'), the rods (11, 12, 11', 12') and two lamella-like side parts (16), are configured to form a frame.

3. Device according to Claim 2, **characterized in that** the ends of the rods (11, 12, 11', 12') are fixed in the side parts (16).

4. Device according to one of Claims 1 to 3, **characterized in that** the spacing of the lamellae (10, 10') with respect to one another is fixed by means of a coiled spring or a binding wire.

5. Device according to one of Claims 1 to 4, **characterized in that** the lamellae (10, 10') are fixed at a predetermined spacing with respect to one another by means of at least one strip (14, 15) extending in the direction of the weaving width.

6. Device according to one of Claims 1 to 5, **characterized in that** the lamellae (10, 10') in the region of

one end are inserted into a fastening profile (18).

7. Device according to one of Claims 1 to 5, **characterized in that** the lamellae (10') are inserted at both ends into profiles (18, 20).

Patentansprüche

1. Vorrichtung zur Führung von Dreherfäden für eine Dreherwebmaschine, mit einer Vielzahl von Führungsaugen, die jeweils einen Dreherfaden aufnehmen und die nebeneinander in einer in Richtung der Webbreite verlaufenden Reihe angeordnet sind, **dadurch gekennzeichnet, dass** die Führungsaugen (21) mittels Lamellen (10, 10') und zwei Stangen (11, 12, 11', 12') gebildet sind und in Richtung der Webbreite mittels der Lamellen (10, 10') und quer dazu mittels der zwei Stangen (11, 12, 11', 12') begrenzt sind.

2. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** die Lamellen (10, 10'), die Stangen (11, 12, 11', 12') und zwei lamellenförmige Seitenteile (16) zur Bildung eines Rahmens ausgebildet sind.

3. Vorrichtung nach Anspruch 2, **dadurch gekennzeichnet, dass** die Enden der Stangen (11, 12, 11', 12') in den Seitenteilen (16) befestigt sind.

4. Vorrichtung nach einem der Ansprüche 1 bis 3, **dadurch gekennzeichnet, dass** der Abstand der Lamellen (10, 10') in Bezug zueinander mittels einer Schraubenfeder oder eines Bindedrahtes festgelegt ist.

5. Vorrichtung nach einem der Ansprüche 1 bis 4, **dadurch gekennzeichnet, dass** die Lamellen (10, 10') in einem vorbestimmten Abstand in Bezug zueinander mittels mindestens eines sich in Richtung der Webbreite erstreckenden Streifens (14, 15) befestigt sind.

6. Vorrichtung nach einem der Ansprüche 1 bis 5, **dadurch gekennzeichnet, dass** die Lamellen (10, 10') im Bereich eines Endes in ein Befestigungsprofil (18) eingesetzt sind.

7. Vorrichtung nach einem der Ansprüche 1 bis 5, **dadurch gekennzeichnet, dass** die Lamellen (10') an beiden Enden in Profile (18, 20) eingesetzt sind.

Revendications

1. Dispositif pour le guidage des fils de gaze pour une machine à tisser de pas de gaze, avec une multiplicité d'oeillets de guidage qui reçoivent chacun un fil de gaze et qui sont disposés l'un à côté de l'autre dans une rangée s'étendant dans la direction de la largeur de tissu, **caractérisé en ce que** les oeillets de guidage (21) sont formés au moyen de lamelles (10, 10') et de deux tiges (11, 12, 11', 12') et sont délimités dans la direction de la largeur du tissu au moyen des lamelles (10, 10') et transversalement à celle-ci au moyen des deux tiges (11, 12, 11', 12').

2. Dispositif selon la revendication 1, **caractérisé en ce que** les lamelles (10, 10'), les tiges (11, 12, 11', 12') et deux parties latérales (16) en forme de lamelles sont configurés pour former un cadre.

3. Dispositif selon la revendication 2, **caractérisé en ce que** les extrémités des tiges (11, 12, 11', 12') sont fixées dans les parties latérales (16).

4. Dispositif selon l'une quelconque des revendications 1 à 3, **caractérisé en ce que** la distance des lamelles (10, 10') l'une par rapport à l'autre est fixée au moyen d'un ressort à boudin ou d'un fil de liaison.

5. Dispositif selon l'une quelconque des revendications 1 à 4, **caractérisé en ce que** les lamelles (10, 10') sont fixées à une distance prédéterminée l'une par rapport à l'autre au moyen d'au moins une bande (14, 15) s'étendant dans la direction de la largeur du tissu.

6. Dispositif selon l'une quelconque des revendications 1 à 5, **caractérisé en ce que** les lamelles (10, 10') dans la région d'une extrémité sont insérées dans un profil de fixation (18).

7. Dispositif selon l'une quelconque des revendications 1 à 5, **caractérisé en ce que** les lamelles (10') sont insérées aux deux extrémités dans des profils (18, 20).

Fig. 1

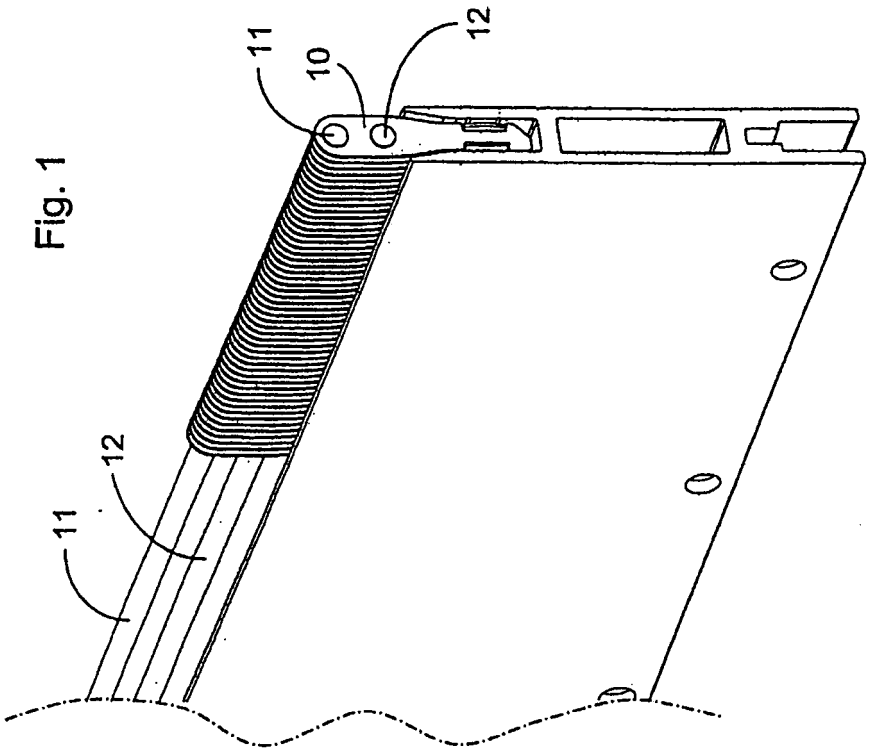
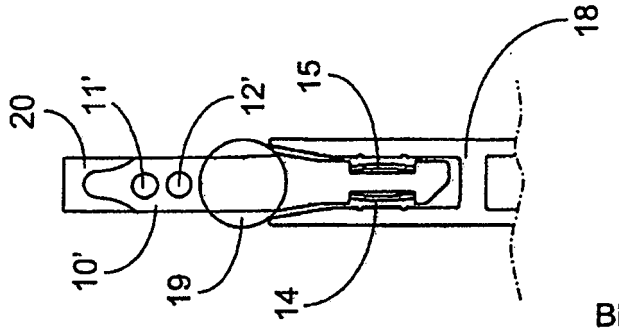
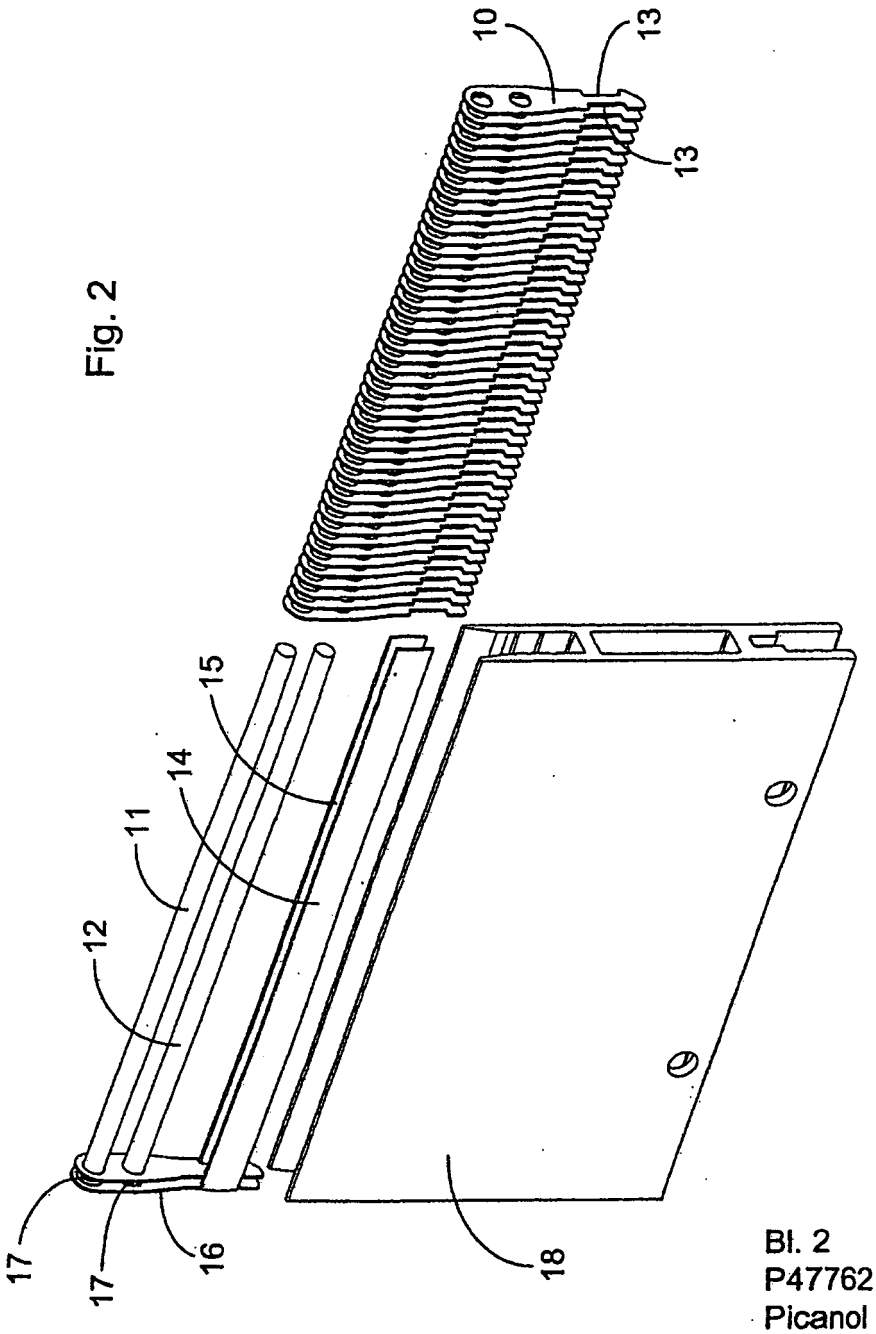


Fig. 4



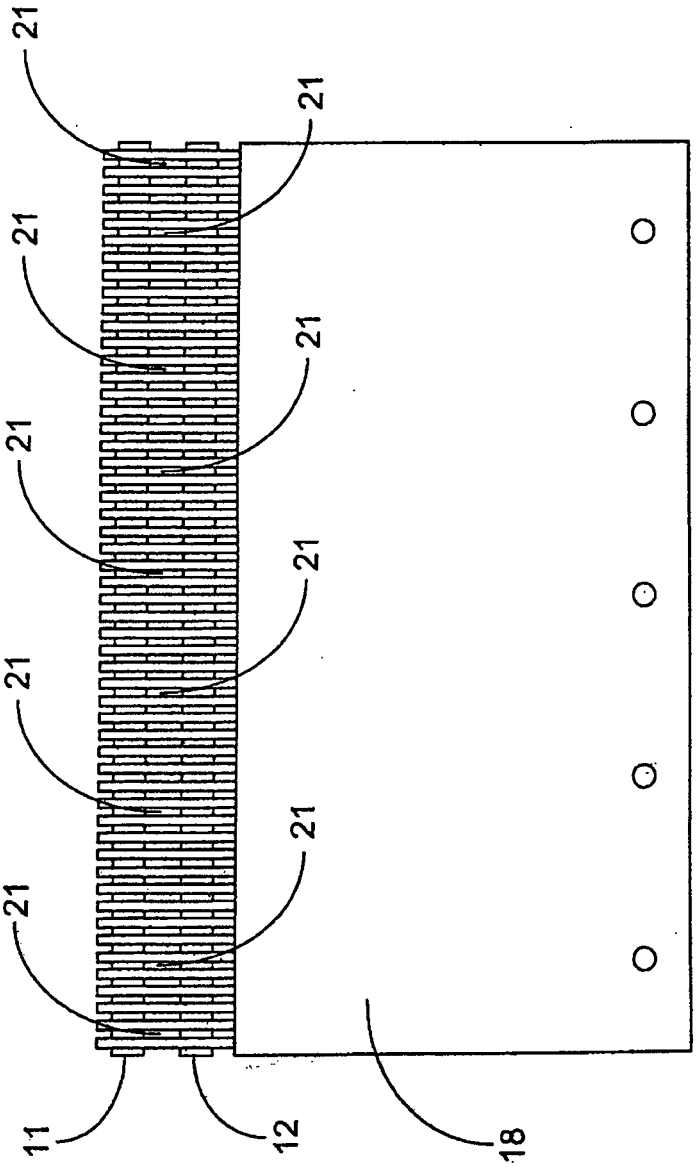
Bl. 1
P47762 WO
Picanol N.V.

Fig. 2



Bl. 2
P47762 wo
Picanol N.V.

Fig. 3



Bl. 3
P47762WO
Picanol N.V.

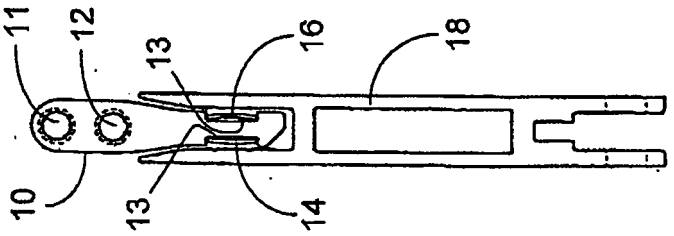


Fig. 6

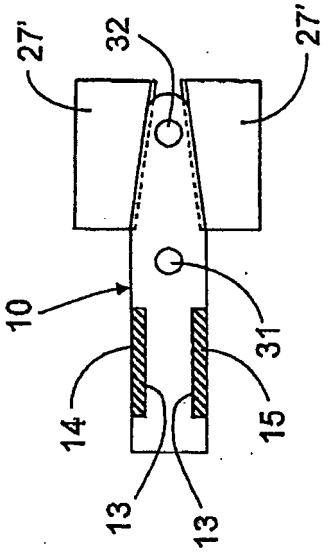


Fig. 5

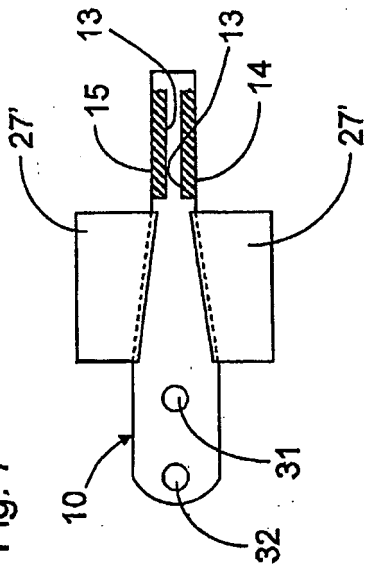


Fig. 7

Bl. 4
P47762 WO
Picanol N.V.

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 1277862 A1 **[0002]**
- WO 0204723 A1 **[0002]**