

642268

AUSTRALIA
Patents Act 1990

P/00/008
Section 29 (1)
Regulation 3.1(2)

NOTICE OF ENTITLEMENT
(To be filed before acceptance)

I/We Leo Vogl and Jurgen Kaiser

*being authorised by LICENTIA PATENT-VERWALTUNGS-GmbH
of Theodor-Stern-Kai 1, D-6000 Frankfurt am Main 70 Federal
Republic of Germany

the applicant in respect of an application for a patent for an invention
entitled DEVICE FOR FEEDING SMALL OBJECTS FROM ONE CONVEYOR BELT ON
TO ANOTHER
Filed under Australian Application No 80062/91, state the following:-

Part 1 - Must be completed for all applications.

The person(s) nominated for the grant of the patent:

- [] ~~*is/*are the actual inventor(s)~~
or
[x] has, for the following reasons, gained entitlement from the actual inventor(s):
The nominated person would, on the grant of a patent to the
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Part 2 - Must be completed if the application is a Convention application.
The person(s) nominated for the grant of the patent *is/*are:

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or
[] entitled to rely on the basic application(s) listed on the patent request form
by reason of the following:

Part 3 - must be completed if the application was made under the PCT and
claims priority.

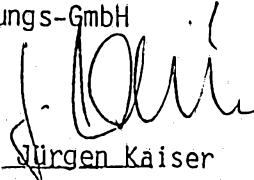
The person(s) nominated for the grant of the patent *is/*are:

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of the PCT
or
[] ~~entitled to rely on the application(s) listed in the declaration under Article 8~~
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(continued over)

Part 4 - Must be completed if the application is a Convention application, or the application was made under the PCT and the applicant made a declaration under Article 8 of the PCT in respect of the basic application.
☒ The basic application(s) ~~*listed on the patent request form/*~~ referred to in the declaration under Article 8 of the PCT ~~*is/*~~ are the application(s) first made in a Convention country in respect of the invention.

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Signed:  Leo Vogl  Jürgen Kaiser Date: 23. Januar 1992

Status: Managing Director Officer with statutory authority



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(12) PATENT ABRIDGMENT (11) Document No. AU-B-80062/91
(19) AUSTRALIAN PATENT OFFICE (10) Acceptance No. 642268

(54) Title
DEVICE FOR FEEDING SMALL OBJECTS FROM ONE CONVEYOR BELT ON TO ANOTHER

International Patent Classification(s)
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(21) Application No. : 80062/91 (22) Application Date : 26.06.91

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(74) Attorney or Agent
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(57) Claim

1. A device to pass small articles between a main conveyor belt and a branch conveyor belt, said device being characterized in that a pivoting module is provided in both the main conveyor belt and at the beginning of the branch conveyor belt, each module having two lateral conveyor belts which are perpendicular to a bottom horizontal conveyor belt, the lateral conveyor belts of the pivoting module of the main conveyor belt having the same length and the lateral conveyor belts of the pivoting module of the branch conveyor belt having different lengths such that the difference in lengths corresponds to an offset of the lateral conveyor belts of the main conveyor belt in an outward pivoted condition.

OPI DATE 04/02/92 APPLN. ID 80062 / 91

AOJP DATE 12/03/92 PCT NUMBER PCT/EP91/01198



INTERNATIONALE ANMELDUNG VERÖFFENTLICHT NACH DEM VERTRAG ÜBER DIE
INTERNATIONALE ZUSAMMENARBEIT AUF DEM GEBIET DES PATENTWESEN (PCT)

(51) Internationale Patentklassifikation ⁵ : B65G 47/64	A1	(11) Internationale Veröffentlichungsnummer: WO 92/00906 (43) Internationales Veröffentlichungsdatum: 23. Januar 1992 (23.01.92)
(21) Internationales Aktenzeichen: PCT/EP91/01198 (22) Internationales Anmeldedatum: 26. Juni 1991 (26.06.91) (30) Prioritätsdaten: P 40 22 163.6 12. Juli 1990 (12.07.90) DE (71) Anmelder (für alle Bestimmungsstaaten ausser US): LICENTIA PATENT-VERWALTUNGS-GMBH [DE/DE]; Theodor-Stern-Kai 1, D-6000 Frankfurt am Main 70 (DE). (72) Erfinder; und (75) Erfinder/Anmelder (nur für US): MALOW, Siegmund [DE/DE]; Ringstraße 71, D-7750 Konstanz 19 (DE). BRÜCKS, Norbert [DE/DE]; Tieckstraße 9, D-1040 Berlin (DE).		(74) Anwalt: VOGL, Leo; Licentia Patent-Verwaltungs-GmbH, Theodor-Stern-Kai 1, D-6000 Frankfurt am Main 70 (DE). (81) Bestimmungsstaaten: AT (europäisches Patent), AU, BE (europäisches Patent), CA, CH (europäisches Patent), DE (europäisches Patent), DK (europäisches Patent), ES (europäisches Patent), FR (europäisches Patent), GB (europäisches Patent), GR (europäisches Patent), IT (europäisches Patent), JP, LU (europäisches Patent), NL + (europäisches Patent), PL, SE (europäisches Patent), SU, US. Veröffentlicht Mit internationalem Recherchenbericht.

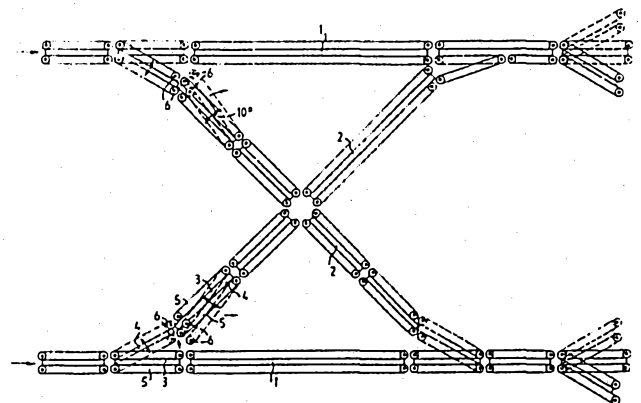
642268

(54) Title: DEVICE FOR FEEDING SMALL OBJECTS FROM ONE CONVEYOR BELT ON TO ANOTHER

(54) Bezeichnung: VORRICHTUNG ZUM AUS- U. EINSCHLEUSEN VON KLEINGUT AUS EINEM TRANSPORT-BAND

(57) Abstract

Disclosed is a device for feeding small objects from a main conveyor belt (1) on to a secondary belt (2), the device having a pivoting lateral guideway disposed at right angles to the conveyor belt. Located both in the main conveyor belt (1) and at the beginning of the secondary conveyor belt (2) are pivotable modules (3), each module (3) comprising two lateral conveyor belts (4) disposed at right angles to the conveyor belt, the lateral conveyor belts (4) of the pivoting module (3) of the main conveyor belt (1) being of the same length, and those (4) of the pivoting module (3) of the secondary conveyor belt (2) being of different lengths, the difference in length being equal to the mismatch in length of the lateral conveyor belts of the main conveyor belt (1) when swung out.



(57) Zusammenfassung

Vorrichtung zum Aus- u. Einschleusen von Kleingut aus einem Haupttransportband (1) in ein Abzweigtransportband (2) mit einer schwenkbaren Seitenführung senkrecht zum Transportband. Sowohl im Haupttransportband (1) als auch am Anfang des Abzweigtransportbandes (2) ist ein schwenkbarer Modul (3) angeordnet, wobei jeder Modul (3) zwei senkrecht auf dem Transportband stehende seitliche Transportbänder (4) aufweist und die seitlichen Transportbänder (4) des schwenkbaren Moduls (3) des Haupttransportbandes (1) gleich lang sind und die seitlichen Transportbänder (4) des schwenkbaren Moduls (3) des Abzweigtransportbandes (2) unterschiedliche Längen aufweist, wobei der Längenunterschied dem Versatz der seitlichen Transportbänder des Haupttransportbandes (1) im ausgeschwenkten Zustand entspricht.

DEVICE TO CHANNEL OUT AND IN SMALL ARTICLES ON A CONVEYOR BELT

The invention concerns a device to channel out and in small articles on a conveyor belt, in particular small
5 packages from a conveyor belt.

Devices of this type are known, where on the conveyor belt a pivoting side guide is provided, which is pivoted for the purpose of channelling in and out of the
10 to-be-transported parts in the direction of the branch off conveyor belt. In this case the parts are conveyed to the branching off conveyor belt through the lateral guide, while the pivoting lateral guide forms an acute angle to the previous direction of transport.

The object of the invention is to produce a device
15 for channelling out and in, where the connection of the main and branch conveyor belts can be carried out without a gap.

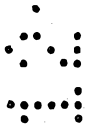
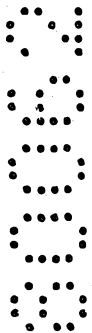
Accordingly, the present invention provides a device to pass small articles between a main conveyor belt and a
20 branch conveyor belt, said device being characterized in that a pivoting module is provided in both the main conveyor belt and at the beginning of the branch conveyor belt, each module having two lateral conveyor belts which are perpendicular to a bottom horizontal conveyor belt,
25 the lateral conveyor belts of the pivoting module of the main conveyor belt having the same length and the lateral conveyor belts of the pivoting module of the branch conveyor belt having different lengths such that the difference in lengths corresponds to an offset of the
30 lateral conveyor belts of the main conveyor belt in an outward pivoted condition.

An embodiment of the invention is described in the following based on the attached drawing.

In the drawing 1 designates the main conveyor belts,
35 on which the parts, not shown in detail, are transported

in the direction of the arrows. Both main conveyor belts are connected with each other in a crossed manner by means of branch conveyor belts, so that the parts can be transferred or discharged in the direction of transport from one conveyor belt to the other.

According to the invention in the main conveyor belts 1 and at the beginning of the branch conveyor belts 2 outward pivoting modules 3 are provided, which can be pivoted towards each other away from the main conveyor belt 1. The modules 3 consist of a horizontal conveyor belt 4 which forms the bottom of the module



and lateral conveyor belts 5, which are perpendicular to the bottom conveyor belt.

5 The module 3 which can pivot outwards from the main conveyor belt 1 has side belts 5 of the same length. This is necessary to maintain a continuous straight transport section in the conveyor belt 1.

10 In the outward pivoted condition the same lateral length in the direction of the branch conveyor belt 2 causes an offset arrangement of the terminal points 6 of the lateral belts in the direction of the branch conveyor belts.

~~To prevent a gap in the lateral guiding of the to-be-transported~~
15 material, according to the invention the branch conveyor belt also has an outward pivoting module 3 with the terminal points 6 of the lateral conveyor belts offset mirror-image like.

Furthermore, the arrangement is such that, by a control, before the outward pivoting of the module of the main conveyor belt the
20 module of the branch conveyor belt is pivoted in the direction of the main conveying section, and after reaching the outwardly pivoted final position of the module of the main conveyor belt 1, the module of the branch conveyor belt is pivoted to align with the module of the main conveyor belt.

25 The solution according to the invention achieves that a continuous branch conveyor section without gaps is produced and thus double crossings, like the ones shown in the embodiment, are also feasible.



To prevent a gap in the lateral guiding of the to-be-transported material, according to the invention the branch conveyor belt also has an outward pivoting module 3 with the terminal points 6 of the lateral conveyor belts offset mirror-image like. Furthermore, the arrangement includes a control means which controls pivoting of the module of the branch conveyor belt as follows. Before the module of the main conveyor belt is pivoted out, the control means pivots the module of the branch conveyor belt in the direction of the main conveyor belt preferably by approximately 10° . After the module of the main conveyor belt 1 has reached its final outwardly pivoted position, the control means then pivots the module of the branch conveyor belt back so as to be flush with the module of the main conveyor belt.

The solution according to the invention achieves that a continuous branch conveyor section without gaps is produced and thus double crossings, like the ones shown in the embodiment, are also feasible.



THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:-

1. A device to pass small articles between a main conveyor belt and a branch conveyor belt, said device being characterized in that a pivoting module is provided
5 in both the main conveyor belt and at the beginning of the branch conveyor belt, each module having two lateral conveyor belts which are perpendicular to a bottom horizontal conveyor belt, the lateral conveyor belts of the pivoting module of the main conveyor belt having the
10 same length and the lateral conveyor belts of the pivoting module of the branch conveyor belt having different lengths such that the difference in lengths corresponds to an offset of the lateral conveyor belts of the main conveyor belt in an outward pivoted condition.
- 15 2. Device according to claim 1, characterised in that a control means is provided which, before the module of the main conveyor belt is pivoted out, pivots the module of the branch conveyor belt in the direction of the main conveyor belt and, after the module of the main conveyor
20 belt has been pivoted out, pivots the module of the branch conveyor belt back so as to be flush with the module of the main conveyor belt.
3. Device according to claim 2, characterised in that the pivoting of the module of the branch conveyor belt in
25 the direction of the main conveyor belt is approx. 10° .
4. A device to pass small articles between a main conveyor belt and a branch conveyor belt substantially as hereinbefore described with reference to the accompanying drawings.

DATED this 4th day of August 1993.

LICENTIA PATENT-VERWALTUNGS-GmbH
Patent Attorneys for the
Applicant:

F.B. RICE & CO.

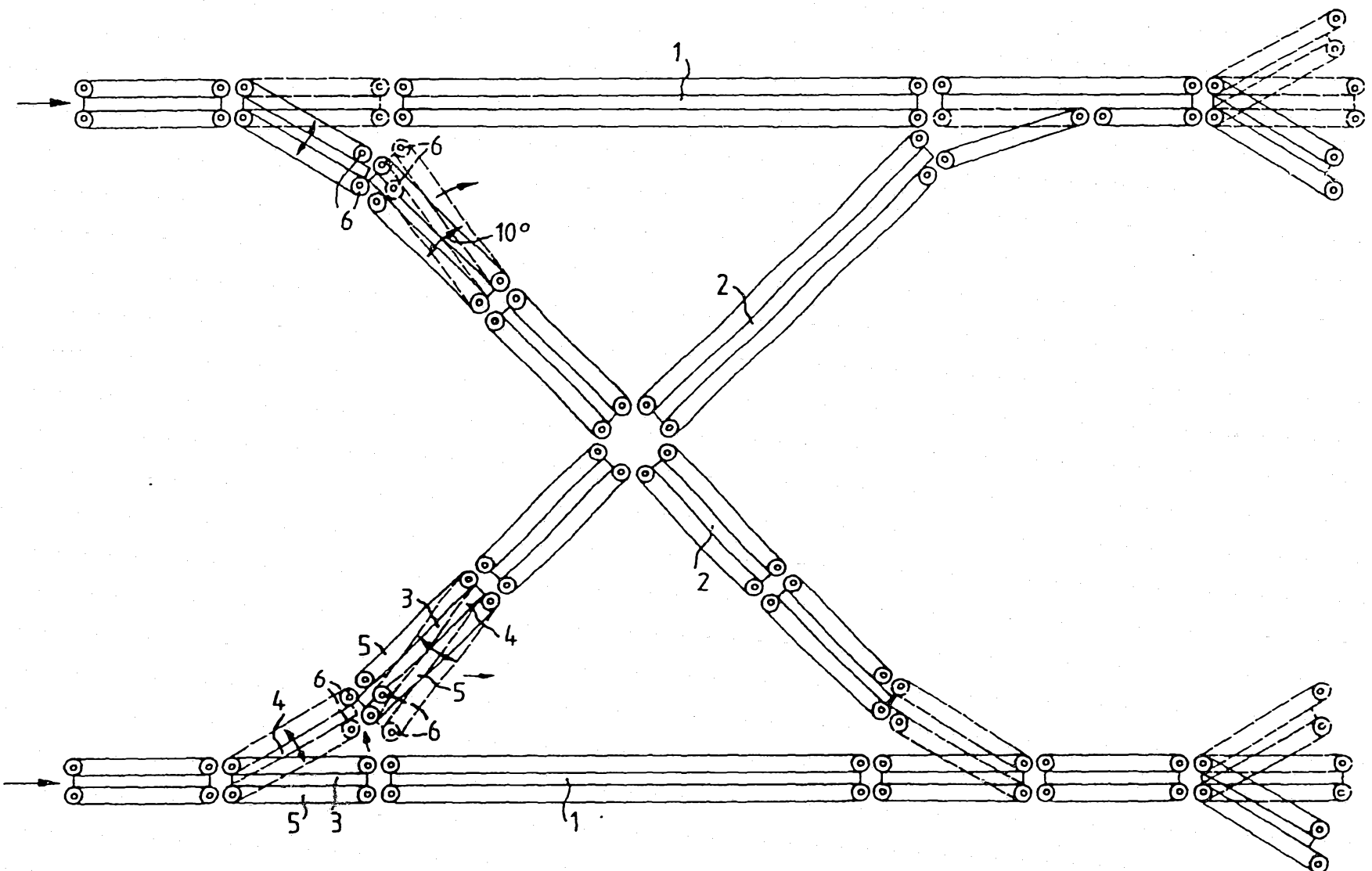


Abstract

Device to channel out and in small articles on a main conveyor belt into a branch conveyor belt with a pivoting lateral guide perpendicular to the conveyor belt. A pivoting module is provided in both the main conveyor belt and at the beginning of the branch conveyor belt, while each module has two lateral conveyor belts which are perpendicular to the conveyor belt and the lateral conveyor belts of the pivoting module of the main conveyor belt are of the same length and the lateral conveyor belts of the pivoting module of the branch conveyor belt have different lengths, whereby the difference in lengths corresponds to the offset of the lateral conveyor belts of the main conveyor belt in the outward pivoted condition.

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INTERNATIONAL SEARCH REPORT

International Application No PCT/EP 91/01198

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ⁴

According to International Patent Classification (IPC) or to both National Classification and IPC

Int. Cl.⁵ B 65 G 47/64

II. FIELDS SEARCHED

Minimum Documentation Searched ⁷

Classification System |

Classification Symbols

Int. Cl.⁵ B 65 G

Documentation Searched other than Minimum Documentation
to the Extent that such Documents are Included in the Fields Searched ⁸

III. DOCUMENTS CONSIDERED TO BE RELEVANT ⁹

Category ⁹	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
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A	AT, B, 268 144 (LE CERAMIQUE MODERNE SOCIETE ANONYME) 27 January 1969 (27.01.69), see figure 1,2	1
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* Special categories of cited documents: ¹⁰

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"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

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"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

IV. CERTIFICATION

Date of the Actual Completion of the International Search

Date of Mailing of this International Search Report

4 September 1991 (04.09.91)

17 September 1991 (17.09.91)

International Searching Authority

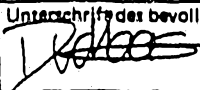
Signature of Authorized Officer

EUROPEAN PATENT OFFICE

INTERNATIONALER RECHERCHENBERICHT

Internationales Aktenzeichen

PCT/EP 91/01198

I. KLASSIFIKATION DES ANMELDUNGSGEGENSTANDS (bei mehreren Klassifikationssymbolen sind alle anzugeben) ⁶		
Nach der Internationalen Patentklassifikation (IPC) oder nach der nationalen Klassifikation und der IPC		
Int.Cl. ⁵ B 65 G 47/64		
II. RECHERCHIERTE SACHGEBIETE		
Recherchierter Mindestprüfstoff ⁷		
Klassifikationssystem	Klassifikationssymbole	
Int.Cl. ⁵	B 65 G	
Recherchierte nicht zum Mindestprüfstoff gehörende Veröffentlichungen, soweit diese unter die recherchierten Sachgebiete fallen ⁸		
III. EINSCHLÄGIGE VERÖFFENTLICHUNGEN⁹		
Art*	Kennzeichnung der Veröffentlichung ¹¹ , soweit erforderlich unter Angabe der maßgeblichen Teile ¹²	Betr. Anspruch Nr. ¹³
A	AT, B, 268 144 (LE CERAMIQUE MODERNE SOCIETE ANONYME) 27 Jänner 1969 (27.01.69), siehe Fig. 1, 2. -----	1
* Besondere Kategorien von angegebenen Veröffentlichungen¹⁰: "A" Veröffentlichung, die den allgemeinen Stand der Technik definiert, aber nicht als besonders bedeutsam anzusehen ist "E" älteres Dokument, das jedoch erst am oder nach dem internationalen Anmeldedatum veröffentlicht worden ist "L" Veröffentlichung, die geeignet ist, einen Prioritätsanspruch zweifelhaft erscheinen zu lassen, oder durch die das Veröffentlichungsdatum einer anderen im Recherchenbericht genannten Veröffentlichung belegt werden soll oder die aus einem anderen besonderen Grund angegeben ist (wie ausgeführt) "O" Veröffentlichung, die sich auf eine mündliche Offenbarung, eine Benutzung, eine Ausstellung oder andere Maßnahmen bezieht "P" Veröffentlichung, die vor dem internationalen Anmeldedatum, aber nach dem beanspruchten Prioritätsdatum veröffentlicht worden ist "T" Spätere Veröffentlichung, die nach dem internationalen Anmeldedatum oder dem Prioritätsdatum veröffentlicht worden ist und mit der Anmeldung nicht kollidiert, sondern nur zum Verständnis des der Erfindung zugrundeliegenden Prinzips oder der ihr zugrundeliegenden Theorie angegeben ist "X" Veröffentlichung von besonderer Bedeutung; die beanspruchte Erfindung kann nicht als neu oder auf erfinderischer Tätigkeit beruhend betrachtet werden "Y" Veröffentlichung von besonderer Bedeutung; die beanspruchte Erfindung kann nicht als auf erfinderischer Tätigkeit beruhend betrachtet werden, wenn die Veröffentlichung mit einer oder mehreren anderen Veröffentlichungen dieser Kategorie in Verbindung gebracht wird und diese Verbindung für einen Fachmann naheliegend ist "Z" Veröffentlichung, die Mitglied derselben Patentfamilie ist		
IV. BESCHEINIGUNG		
Datum des Abschlusses der internationalen Recherche		Abschließdatum des internationalen Recherchenberichts
04 September 1991		17. 09. 91
Internationale Recherchenbehörde		Unterschrift des bevollmächtigten Bediensteten
Europäisches Patentamt		 Danielle van der Haas

ANHANG
zum internationalen Recherchen-
bericht über die internationale
Patentanmeldung Nr.

ANNEX
to the International Search
Report to the International Patent
Application No.

ANNEXE
au rapport de recherche inter-
national relatif à la demande de brevet
international n°

PCT/EP 91/01198 SAE 48684

In diesem Anhang sind die Mitglieder
der Patentfamilien der im obenge-
nannten internationalen Recherchenbericht
angeführten Patentdokumente angegeben.
Diese Angaben dienen nur zur Unter-
richtung und erfolgen ohne Gewähr.

This Annex lists the patent family
members relating to the patent documents
cited in the above-mentioned inter-
national search report. The Office is
in no way liable for these particulars
which are given merely for the purpose
of information.

La présente annexe indique les
membres de la famille de brevets
relatifs aux documents de brevets cités
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national visée ci-dessus. Les renseigne-
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Im Recherchenbericht
angeführtes Patentdokument
Patent document cited
in search report
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dans le rapport de recherche

Datum der
Veröffentlichung
Publication
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Date de
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Mitglied(er) der
Patentfamilie
Patent family
member(s)
Membre(s) de la
famille de brevets

Datum der
Veröffentlichung
Publication
date
Date de
publication

AT-B - 268144

Keine - None - Rien