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(54) Foot rest

(57) An inflatable foot support comprising a front bolster (11) for supporting, in use, the fore foot portion of a user's foot; a rear bolster (12) for supporting, in use, the back of a user's heel; and an intermediate bolster (13) between the front and the rear bolsters for supporting, in use, the underside of a user's heel, wherein the top of the rear bolster (12), when in use, is higher than the top of the intermediate bolster (13).

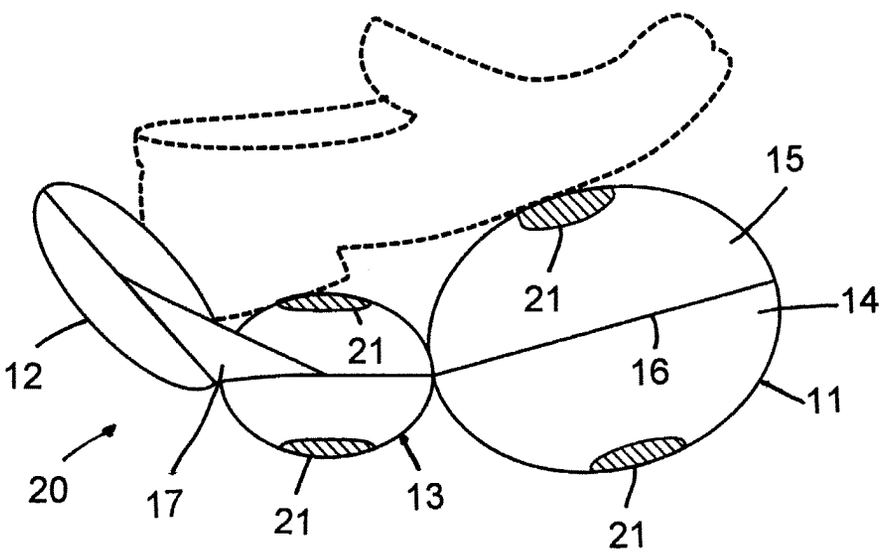

Figure 1

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Description

[0001] This invention relates to a foot rest by which a user's feet may be raised off the ground, preferably at an angle to the ground and, in particular, to a foot rest which is, at least in part, inflatable.

[0002] In the past, foot rests have been formed from a relatively rigid frame work on which softer material which may be provided, usually with some form of cushioning to support the feet. Alternatively, foot rests take the form of a pillow or cushion and are in, general, deformable. A further type of known support is a rigid structure which, at least in part, is hinged so that it can be partially collapsed when not in use.

[0003] However, none of the known foot rests are sufficiently light and compact when carried for it to be practical to transport them on a long journey such as a train, bus or aircraft journey. In particular, they are cumbersome and take up significant amounts of room in hand luggage which is typically carried on such journeys.

[0004] Inflatable foot rests are known, but they are generally impractical, bulky and of a substantially wedge or truncated wedge shape and therefore provide no support to the back of a user's foot.

[0005] When travelling in a train, bus or aircraft, it is usual for the seats to be arranged in rows and most known foot rests are too big to fit underneath the row of seats in front of a user and therefore they cannot be used on such journeys.

[0006] It is an aim of the present invention to provide a foot rest which is compact, cheap to manufacture and which overcomes the above problems.

[0007] According to the present invention, there is provided an inflatable foot support comprising:

a front bolster for supporting, in use, the forefoot portion of a user's foot;
a rear bolster for supporting, in use, the back of a user's heel; and
an intermediate bolster between the front and the rear bolster for supporting, in use, the underside of a user's heel,

wherein the top of the rear bolster is, when in use, higher than the intermediate bolster.

[0008] Thus, the present invention provides a device which, when the user wishes to utilise it, can be very quickly and easily inflated to provide the required, relatively rigid, and small size support. Furthermore, by providing a rear bolster which is higher than the intermediate bolster, the present invention ensures that a user's heel has sufficient support to be raised off the ground and that a user's foot is prevented from slipping rearwardly.

[0009] There may be a plurality of intermediate bolsters and, in which case, the rear bolster is preferably higher, in use, than the rearmost intermediate bolster.

[0010] Preferably the foot support is formed from two sheets of plastic material which are heat sealed together. In one arrangement, some parts of the foot support may have a non-slip surface such that when it is in contact, in use, with the floor or with a user's foot, the foot support or the foot is prevented from slipping. Alternatively, one or both of the sheets of plastic material may be formed from a non-slip surface, such as a flocked plastic.

[0011] The front and/or the rear bolster may be formed from one or more chambers which are rolled or folded over themselves and fixed, in use, in place.

[0012] Preferably, the front and/or the rear bolster are formed by three interconnected chambers which, when inflated, form a substantially triangular shape. In this configuration, it is found that, when a user's heel is placed on to the intermediate bolster, the rear bolster is raised further, thereby by providing firm support to the heel and substantially increasing the rigidity and stability of the support.

[0013] The front and/or the rear bolster may be formed by two interconnected chambers such that, when inflated, one lies substantially in the same plane as the at least one intermediate bolster and the other chamber forms an inverted U-shape transverse to the plane.

[0014] Preferably, the foot support comprises support means for retaining, in use, the rear bolster at an angle with respect to the at least one intermediate bolster.

[0015] The support means may be provided by one or more web portions extending between the rear bolster and at least one of the intermediate and front bolsters. The web portion(s) is preferably heat sealed to the rear bolster and to the intermediate bolster. Alternatively or additionally, the support may be provided by the substantially triangular shape of the rear bolster.

[0016] Preferably the front and/or rear bolster is formed by heat sealing one edge of a chamber to another edge of a chamber.

[0017] The fixing means may be carried out by one of velcro ®, poppers or a zip.

[0018] The foot support preferably comprises an air inlet to enable the foot support to be inflated and deflated.

[0019] The intermediate bolster and the chambers of the front and rear bolsters preferably define internal volumes that are in communication with each other and with the air inlet.

[0020] The front, rear and intermediate bolsters are preferably substantially parallel with each other.

[0021] The front bolster and the intermediate bolster may have an oval cross section having a longer dimension and a shorter dimension.

[0022] It would also be possible for the cross section of each of the front, intermediate and rear bolsters to be oval, with the front bolster being higher than the rear bolster which is higher than the intermediate bolster.

[0023] Examples of the present invention will now be described with reference to the accompanying draw-

ings, in which:

Figure 1 is a side view through one example of the present invention;
Figure 2 is a plan view of the foot support of Figure 1;
Figure 3 is a side view of another example of the present invention;
Figure 4 is a plan view of the foot support of Figure 3;
Figure 5 is a front view of the foot support of Figure 4;
Figure 6 is a schematic cross sectional view along A-A from Figure 5; and
Figure 7 is a schematic cross sectional view of a further example.

[0024] A foot support 20 is shown in Figure 1 and includes a front bolster 11, a rear bolster 12 and an intermediate bolster 13. In the example shown, a single intermediate bolster 13 is shown, although it is envisaged that more than one intermediate bolster 13, if appropriately sized, could be used. The foot support 20 is formed from two sheets 14, 15 of plastics material which are heat sealed together along heat seals 16.

[0025] Two supports 17, in the form of webs, extend between the rear bolster 12 and the intermediate bolster 13 and retain the rear bolster 12 at an angle with respect to the intermediate bolster 13.

[0026] Thus, when in use, and as shown in dotted line, a user's shoe, or foot, rests on the foot support 20 as shown. The forefoot portion of the foot rests on the upper surface of front bolster 11, the underside of the heel rests on the upper surface of the intermediate bolster 13 and the rear of the heel rests against the rear bolster 12. The support means 17 ensures that the rear bolster 12 maintains its inclined position to provide sufficient support to the user's heel.

[0027] As can be seen in Figure 2, the rear bolster 12 is provided with recess portions 18, formed by holes through the bolster, the holes being heat sealed around the edges. Alternatively, the recess portions 18 may be formed simply by heat sealing the lower sheet 14 and upper sheet 15 together. The recessed portions 18 are intended to receive the rear of a user's heel and also help to reduce the thickness of the rear bolster.

[0028] The front 11, rear 12 and intermediate 13 bolsters are substantially parallel to each other and, to define each bolster relative to its adjacent bolster, heat seal portions 19 are formed between adjacent bolsters, leaving a gap 22 for the passage of air between bolsters.

[0029] The upper and lower portions of the front 11 and intermediate 13 bolsters are optionally provided, for example by glueing or heat sealing, with non-slip material 21 such that, in use, the portions on the lower surfaces contact the ground and the portions on the upper surface contact a user's foot to prevent slipping.

[0030] A further example of a foot support 30 is shown in Figures 3 to 6.

[0031] The rear bolster 12 is formed from three chambers 31, 32, 33 which are arranged such that chambers 32, 33 are folded over chamber 31. In this example, chamber 33 is heat sealed or glued at the joint between the intermediate bolster 13 and chamber 31. However, it is possible that this fixing could be carried out by mechanical means, such as velcro, poppers or a zip.

[0032] In this arrangement, the support for chamber 33 is provided by chamber 31, 32 which, together with chamber 33, form a substantially triangular support. Additional heat seal portions 34 ensure that chambers 31, 32, 33 take up the correct shape, when inflated. In this example, the foot support 30 is also formed by two sheets of plastics material and, as shown in Figure 3, the lower sheet 14 is formed from a flocked plastic which will also form the outer surface of the rear bolster 12, although it could, of course, be a normal plastics material as used in the upper surface.

[0033] As can be seen in Figure 4, the chambers forming the rear bolster 12 are shaped so as to minimise the material used in the foot support and to reduce the volume which is to be inflated. An air inlet 35 is shown on the upper surface of the front bolster 11, although the inlet could be provided at an alternative location in the foot support. Again the upper surface of the front bolster is provided with a portion 21 which is non-slip material and this could also be provided on the upper surface of the intermediate bolster 13.

[0034] Figure 5 shows a front view of the front bolster 11 indicating one possible position for the air inlet 35. Although not shown, it is envisaged that a cover may be provided for the air inlet to prevent it becoming dirty. The cover could be held in place by any suitable temporary fixing means.

[0035] Figure 6 shows a cross sectional view along A-A from Figure 4 and indicates one possible direction of air flow through the foot support 30.

[0036] Figure 7 shows a cross sectional view of a further example in which the front bolster 11 is formed from three chambers 41, 42, 43 which are arranged such that chambers 42, 43 are folded over chamber 41, in the manner described above in relation to the rear bolster 12. In this example, the chamber 43 is larger than chambers 41, 42, thereby resulting in the front bolster 11 providing a higher support than in the example in Figures 3 to 6. This is particularly advantageous as it increases the angle at which a user's feet are supported and improves the comfort of that support.

Claims

1. An inflatable foot support comprising:

a front bolster for supporting, in use, the forefoot portion of a user's foot;
a rear bolster for supporting, in use, the back

of a user's heel; and
an intermediate bolster between the front and the rear bolsters for supporting, in use, the underside of a user's heel,

wherein the top of the rear bolster, when in use, is higher than the top of the intermediate bolster.

2. A foot support according to either claim 1, further comprising support means for retaining, in use, the rear bolster at an angle with respect to the at least one intermediate bolster.

3. A foot support according to either claim 1 or claim 2, wherein the foot support is formed from two sheets of plastic material heat sealed together.

4. A foot support according to any one of the preceding claims, wherein an outer surface of the foot support is provided with non-slip material.

5. A foot support according to claim 3 or claim 4, wherein at least one of the sheets of plastics material is formed from a flocked plastic.

6. A foot support according to any one of claims 2 to 5, wherein the support means is provided by one or more web portions extending between the rear bolster and at least one of the intermediate and the front bolsters.

7. A foot support according to any one of the preceding claims, wherein the front and/or the rear bolster is formed from one or more chambers rolled or folded over themselves and fixed in place.

8. A foot support according to any one of claims 1 to 7, wherein the front and/or the rear bolster is formed by three interconnected chambers which, when inflated, form a substantially triangular shape

9. A foot support according to any one of claims 1 to 7, wherein the front and/or the rear bolster is formed by two interconnected chambers such that, when inflated, one lies substantially in the same plane as the at least one intermediate bolster and the other chamber forms an inverted U-shape transverse to the plane.

10. A foot support according to any one of the preceding claims, further comprising an air inlet to enable the foot support to be inflated and deflated.

11. A foot support according to any one of the preceding claims, wherein the bolsters define internal volumes that are in communication with each other and with the air inlet.

12. A foot support according to any one of the preceding claims, wherein the bolsters are substantially parallel to each other.

13. A foot support according to any one of the preceding claims, wherein the front bolster and the intermediate bolster have an oval cross section having a longer dimension and a shorter dimension.

14. A foot support according to any one of the preceding claims, wherein there are a plurality of intermediate bolsters and the rear bolster is higher, in use, than the rearmost intermediate bolster.

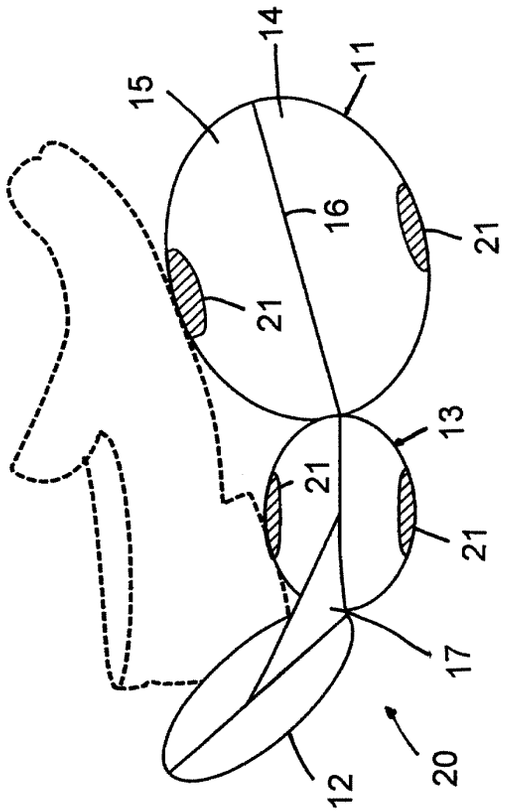

Figure 1

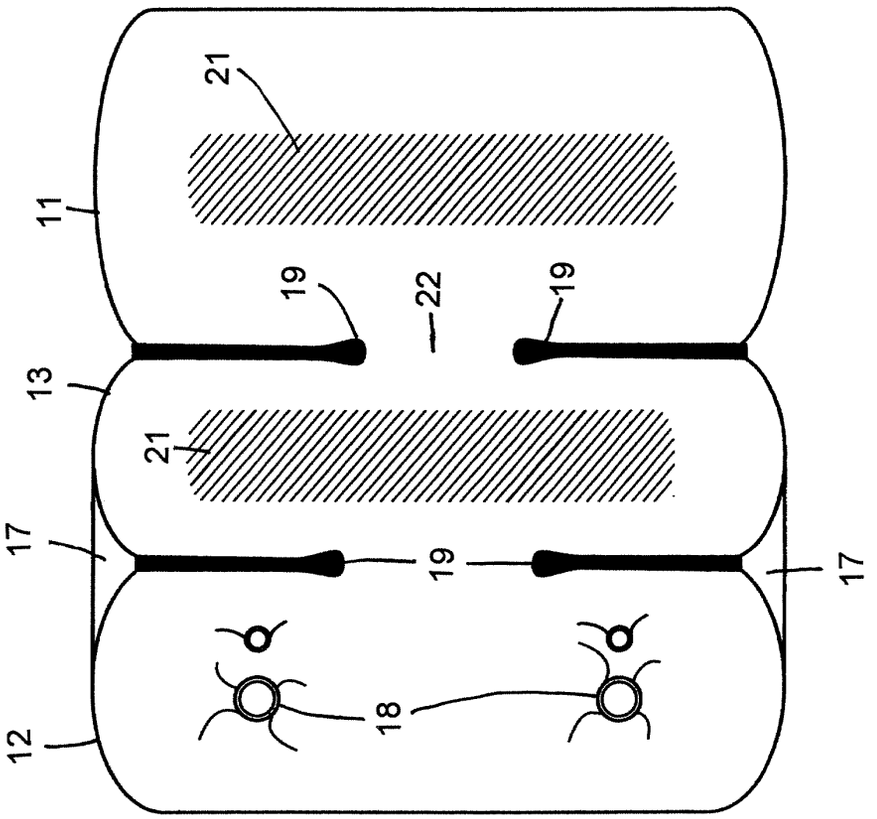

Figure 2

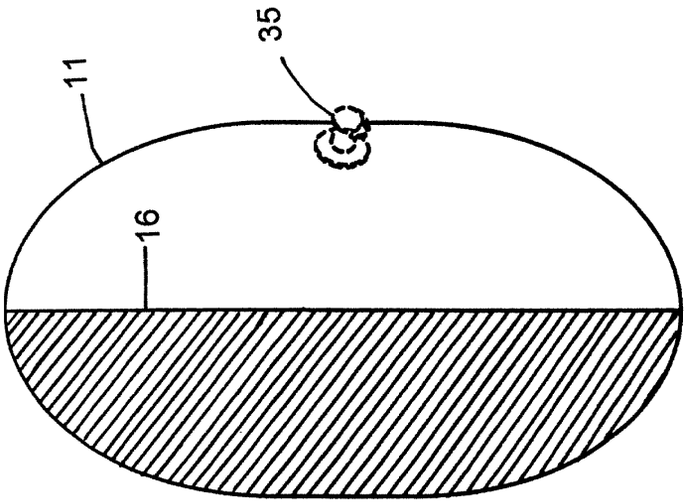

Figure 5

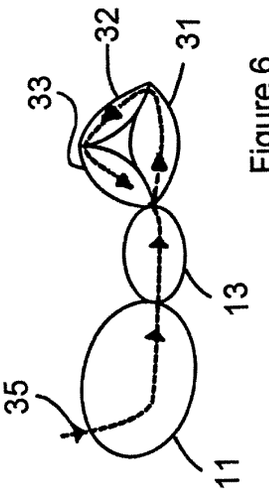

Figure 6

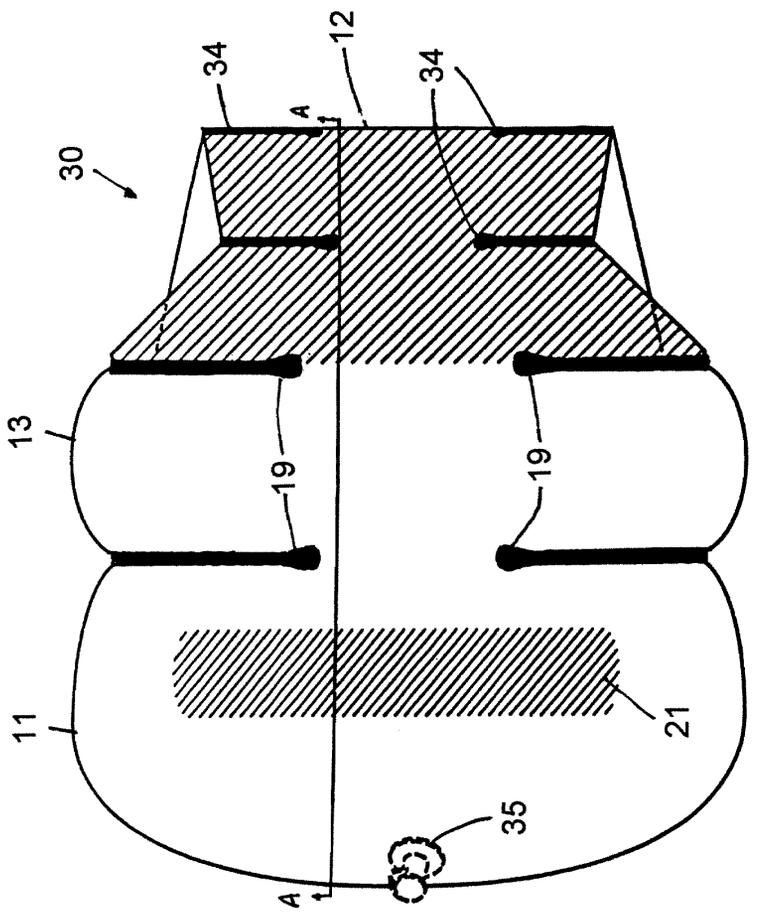

Figure 4

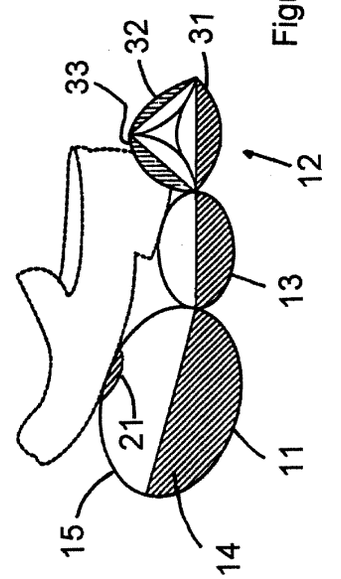

Figure 3

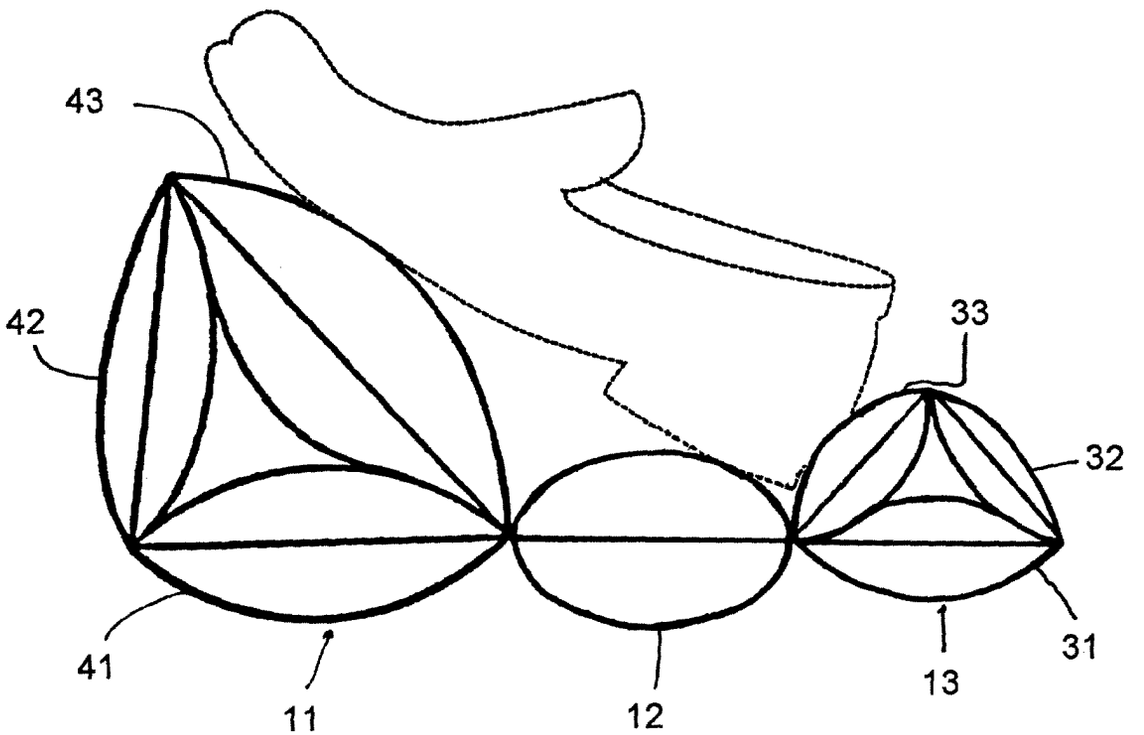

Figure 7

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EUROPEAN SEARCH REPORT

Application Number
EP 03 10 1925

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	FR 2 648 999 A (KOGAN HENRY) 4 January 1991 (1991-01-04) * page 4, line 3-6; claims 1-4,6; figures 1-3 * ---	1,3,4, 10-14	A47C16/02
X,P	PATENT ABSTRACTS OF JAPAN vol. 2003, no. 03, 5 May 2003 (2003-05-05) & JP 2002 336083 A (DAIYA CORPORATION:KK), 26 November 2002 (2002-11-26) * abstract; figures 1-7 * -----	1-4, 10-14	

TECHNICAL FIELDS SEARCHED (Int.Cl.7)

A47C
A47G
B60N
B60R
B61D
A61G

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	9 October 2003	Kus, S

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09-10-2003

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