



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

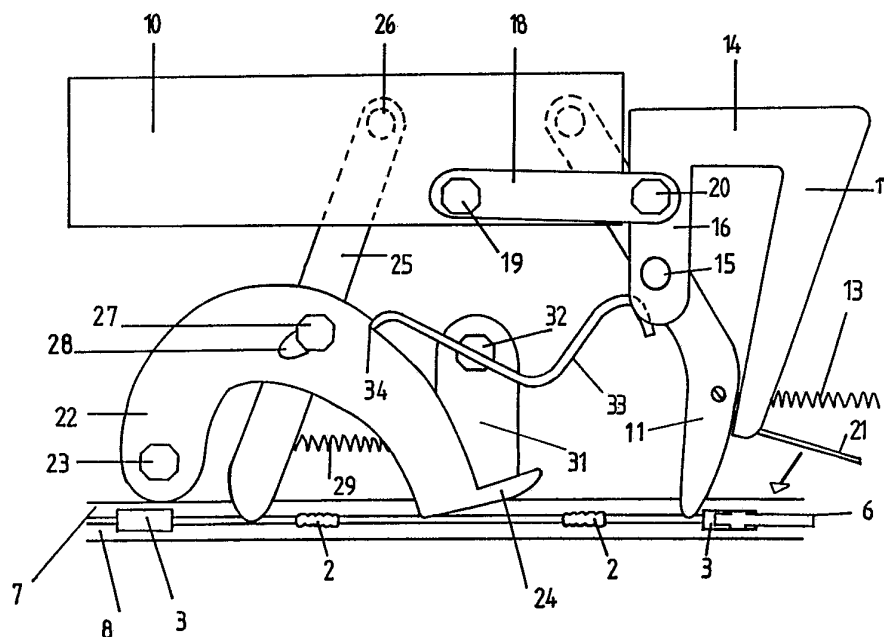
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(54) Title: ARRANGEMENT FOR UNHOOKING SNELL IN AUTOMATIC LONGLINE-HANDLING MACHINE



## (57) Abstract

An arrangement for unhooking snell in automatic longline-handling machine. A snood follower (11) which affects of a snood (3) with hook (6) and to this a snell (5) where an unhooking bar (14, 16, 17) separates the hook (6) from the snood (3) and after that a kick foot (24) released by a speed bar (18) which is connected to the unhooking bar moves the hook into a hook store (30). The snood (3) after it has left the snood follower (11) will affect a kick controller (25) to strain a hook kicker (22) where the kick foot (24) is.

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ARRANGEMENT FOR UNHOOKING SNELL IN AUTOMATIC LONGLINE-HANDLING MACHINE.

The invention is an apparatus for unhooking releasable snells from a main line when working with automatic longline-handling machine. Such apparatus to detach snell from main line during hauling for separate storage of main line and snell. The snell and main line are separated because it is suitable to store them in different places and easy to replace damaged snells with new once.

When catching fish different types of tool are used, which can be splitted up into two main groups. One group comprises catching where different kind of netts, as fishing nett and trawl are used. The other group of catching tools, comprises those where hooks are used. Futher, one type of these are longlines with a main line and in suitable distances along this snells, which can be hooked on and can be unhooked.

The snell is attached in righth angles to the main line by a snood which make it possible to rotate around its own lenght axis. This make the snell and hook possible even to rotate around the lenght axis of the main line. The connection between snell and snood may either be cut off or may be hooked on to the main line and can be unhooked by hand or by machine.

The hook/snood-equipment which this invention is working with, is shown in Figure 1. A snood 3 consists of a cylindric part which is free to move between to stoppers 2 which further are attached to the main line 1 in a distance from each other. On the middle of the cylindric part of the snood, an eye is attached whereto a partly S-shaped hook 6 which is further connected to the snell is hooked on. This hooking equipment make not the snell able to rotate around its own length axis. The snell is hooked off/on to the main line by hand.

The intention of the invention is to unhook the snell in very short time and in a secured manner.

This achieves by use of a unhooking bar which to its end have attached needle which carry out the unhooking operation and controled by the running snood. The needle keeps the unhooked S shaped hooks a short while after it has been released from the main line. An arm shaped like a foot, kicks

the hook into a store consisting of a rod.

Further details according to the invention, will appears through the claims and the following description of an embodiment, with references to the accompanying drawings.

Figure 1 shows the unhooking equipment between the main line and the snell which this invention is based on.

Figure 2 shows the unhooking unit when the snood is in the first part of the unhooking operation.

Figure 3 shows the unhooking unit when the snell is unhooked from the main line and is on its way into the store. This is the last part of the unhooking operation.

The arrangement for attaching the snell 5 to the main line 1, is viewed in Figure 1. On the main line 1 in suitable distance from each other, for instance 0,2 meter, two stoppers 2 are arranged. In between these a snood 3 is free to run. The snood 3 consists of a cylindric part where to the middle of its peripheral an eye 4 is situated. The main plane of the eye 4 is in right angles to the length axis of the main line 1, but this length axis do not fall into this plane. They are in right angles to each other. The opening of the eye 4, has a rectangular shape.

The snell 5 is attached to the hook 6 which consists of a right-lined part which in one end is attached to the snell 5 and in the other to a part shaped like half a S. This we usually call a hook shape. The cross-section of the hook 6 is rectangular too to suit the eye 4. The hook 6 may very little be possible to move out of a plane falling together with the length axis of the main line 1 without moving the snood 3 by rotate it around the main line 1. How the unhooking unit is built up is showed in Figure 2. The main line 1 is coming into the figure from left in a track 7 in a guide 8. The track 7 has a circular cross-section, but has an opening 9 along which make the eye 4 and the hook 6 able to run outside the guide 8.

The unhooking unit is built around this guide 8 and a parallel and in a horizontal plane arranged to a beam 10. A

snood follower 11 is rotating hunged to the beam 10 by a 1th. pivot 12 on that end of the beam 10 which is nearest to the direction wherefrom the main line 1 is coming when hauled. The snood follower 11 consists nearest to the beam 10 in  $2/3$  of its total length of a righth-lined part. The last  $1/3$  part of the snood follower 11 is also a righth-lined part and these two parts has in between each other an angel at about  $45^\circ$  in direction from where the main line 1 is coming. The end of the snood follower 11 opposite of that hunged to the beam 10, lies against the side of the guide 8 where the track 9 is, because when a the main line 1 is moving along the guide 8 and when the snood 3 comes, it will reach the snood follower 11 and move it. A 1th. retrackting spring 13 is in its one end connected to the snood follower 11 at the spot where it have a sharp turn and the secound end is connected in such direction that the 1th. retrackting spring 13 is streched when a snood 3 is moving the snood follower 13. The 1th. retrackting spring 13 will return the snood follower 13 to start position in Figure 2 when the snood 3 let it go.

About in the middle of the greatest right-lined part of the snood follower 13 it is connected to a unhooking bar 14,16,17. The connection is rotatable around a 2nd. pivot 15. The unhooking bar will have its movement in a vertical plane. The shape of the unhooking bar is near to a rectangle where one of the shortest sides is removed and one of the longest sides is, 1th. part of bar 16 is about  $2/3$  of the length of the paralell 2nd. part of bar 17. A 3rd. part of bar 14 is in righth angels to the 1th. part of bar 16 at its end longest from the 2nd. pivot 15 and is connected to the 2nd. part of bar 17 in one end with an angle in between which is a bit less than  $90^\circ$ , so the three parts of bar together make a shape near like an up down U with unlike length of its vertical parts. The up down U shaped unhooking bar 14,16,17 is directed with its opening against the guide 8.

The unhooking bar 14,16,17 is connected to the snood follower 11 by the 2nd. pivot 15 which is arranged to the free end of the 1th. part of bar 16.

A righth-lined speed bar 18 is rotatable in its one end connected to the beam 10 through a 3rd. pivot 19, and which is arranged to the beam 10 longer from the 1th. retracting spring 13 than the connection between the snood follower 11 and the beam 10. The other end of the speed bar 18, is by means of a 4th. pivot 20 rotatable arranged to the 1th. part of bar 16. The spot where the speed bar 18 is connected is about on the middle of the 1th. part of bar 16. This functions in such a way that when the snood follower 11, moves towards left in the figure, the unhooking 14,16,17 will rotate around the 2nd. pivot 15 with a higher speed than the snood follower 11 because of the speed bar 18 and the arranged spot of the 4th. pivot 20 to the unhooking bar 14,16,17.

Approximate in right angles to the free end of the unhooking bar 14,16,17 and in that same vertical plane as it moves, a rod-shaped hook holder 21 is arranged. It is arranged to the 1th. part of bar in direction from the beam 10. The length of the hook holder 21 is long enough that when the unhooking 14,16,17 moves down beside the guide 8 and the track 9, it clasp the hook 6 out of the eye 4.

From the snood follower 11 in the direction which the main line 1 is moving, we do find to more bars. One of them is shaped like a half-circle hook kicker 22, which is rotatable arranged to one side of the guide 8 by a 5th. pivot 23. In the other end of the hook kicker 22 nearest to the snood follower 11, there is a kick foot 24. The kick foot 24 is directed out from periferal and on the prolongation of a radius of the half-circle.

A righth-lined kick controller 25 is rotatable arranged to the beam 10 by a 6th. pivot 26. This is situated in the same distance from the guide 8 as the 1th. pivot 12 and so that the 3rd. pivot 19 is situated horizontal between the snood follower 11 and the 6th. pivot 26.

The kick controller 25 is directed down beside the hook kicker 22 and the track 9. A control pig 27 is arranged in right angles to the same side of the kick controller 25 where the hook kicker 22 is and about 1/3 part of the total

length of the kick controller 25 from its free end. The control pig 27 runs in a control track 28 in the hook kicker 22. The control track 28 is right-lined and is directed in an angle about 45 to 60 ° in relation to the tangent at the point where a radius passes through the position of the control pig 27. From the lowest 1/3 part of the kick controller 25 is arranged one end of a 2nd. retracting spring 29 and the other end in direction against the snood follower 11. This makes the kick controller 25 to be drawn to a start position, when no fish line is operating the equipment, against the snood follower 11.

A right-lined thin rod makes a hook store 30. This one is arranged as a prolongation of the hook holder 21 when it is in its stop position before it will be returned to its start position by the 1st. retracting spring 13. Shown in Figure 3.

By the side of the guide 8 against the beam 10 and between 1st. pivot 12 and 6th. pivot 26, there is situated spring foot 31. In its upper end is arranged spring base 32 where to a torsion spring 33 is arranged and can rotate around. One of its ends is directed against the hook kicker 22 where it stands in a cleft 34 on the outer periphery of the hook kicker 22 to prevent that the hook kicker 22 moves against the hook store 31.

The other end of the torsion spring 33, nearest to the snood follower 11, will be affected by the speed bar 18 on a spot in its orbit between its start and stop position, in such a way that the torsion spring 33 end jumps out of the cleft 34 and the hook kicker 22 moves a short way against the hook store 31 fast, like a kick.

The following will explain the function of the unhooking unit, and it starts with the situation where a snood 3 is on its way from right in Figure 2 and contains a hook 6 on. In left of the Figure 3, leaves a snood 3' without any hook 6. When the snood 3' just before this point of time, reached the kick controller 25 after passed and operated the snood follower 11, was the end of the torsion spring 33 got

out of the cleft 34 as shown in Figure 3. By means of the control pig 27 and the control track 28, will the snood 3' has operated the kick controller 25 to redraw the the kick foot 24 upwards in Figure 3 an locked it above the guide by the torsion spring 33 and the cleft 34.

When the snood 3 moves against the snood follower 11 and cause it to move, will the snood follower 11 via the 2nd. pivot 15 and the speed bar 18, rotate the unhooking bar 14,16,17 in the direction shown by the arrow. The hook holder 21 moves down to the guide 8 and along the track 9 and then into the hook 6 and moves the hook 6 in the same direction as the snood 3, but faster and trough that the snood 3 and the hook 6 will be released from each other. The hook 6 will at that moment be on the hook holder 21. In a fixed position for the unhooking bar 14,16,17, will the speed bar 18 causes the torsion spring 32 to turn around the spring base 32 and moves out of the cleft 34.

The hook kicker 22 will then because of the springload from the kick controller 25, move fast in direction across the guide 8 downwards. At this moment is the hook holder 21 in position and the same direction and behave like a prolongation of the the hook store 30. The kick foot 24 will then hit the hook 6 and guide it into the hook store 30.

After this will the snood follower 11, the unhooking bar 14,16,17 and the speed bar 18 move back to start position as shown in Figure 2. The snood 3 will now cause the kick controller 25 to strain up the hook kicker 22 as earlier described by means of the snood 3'.

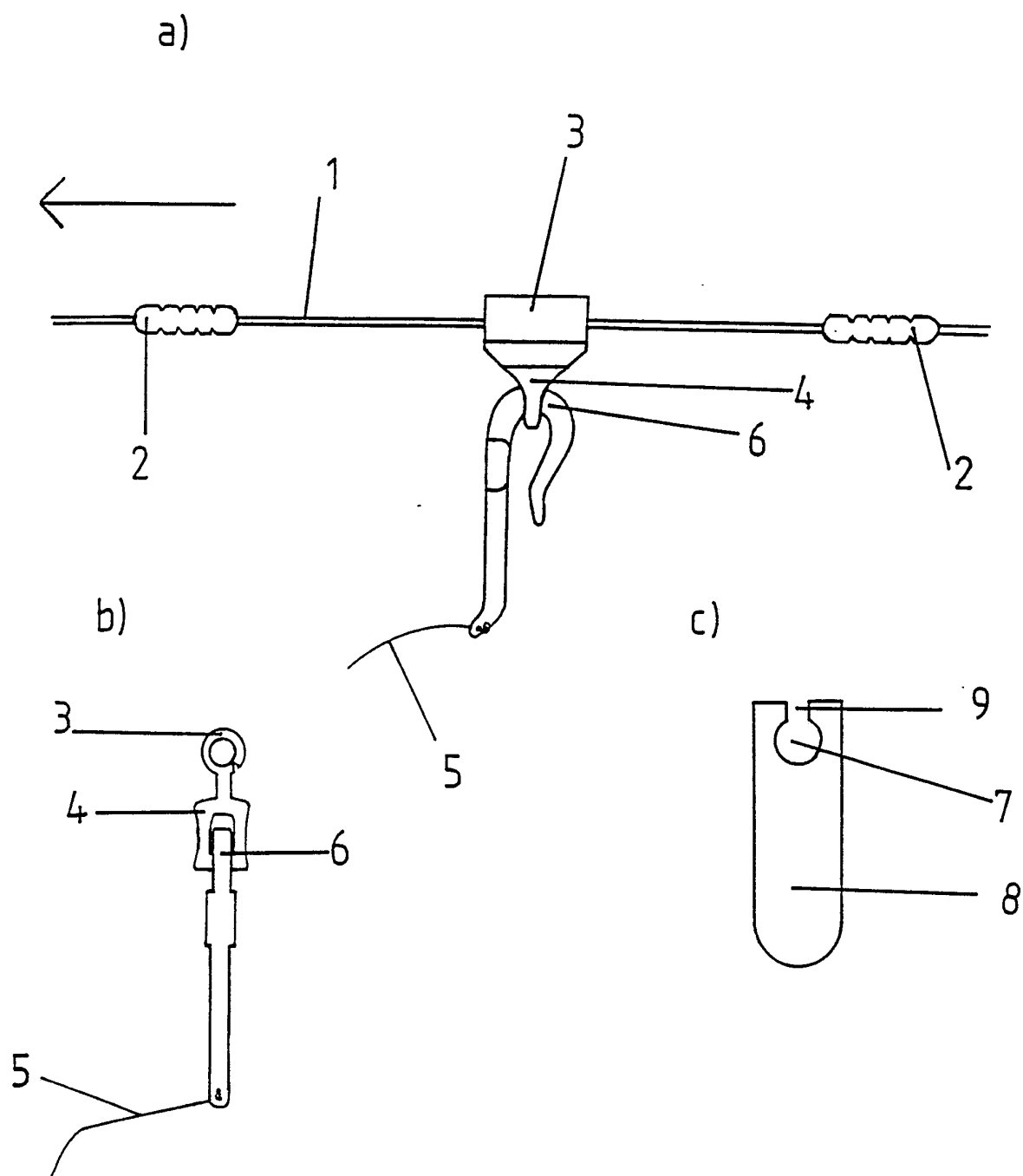
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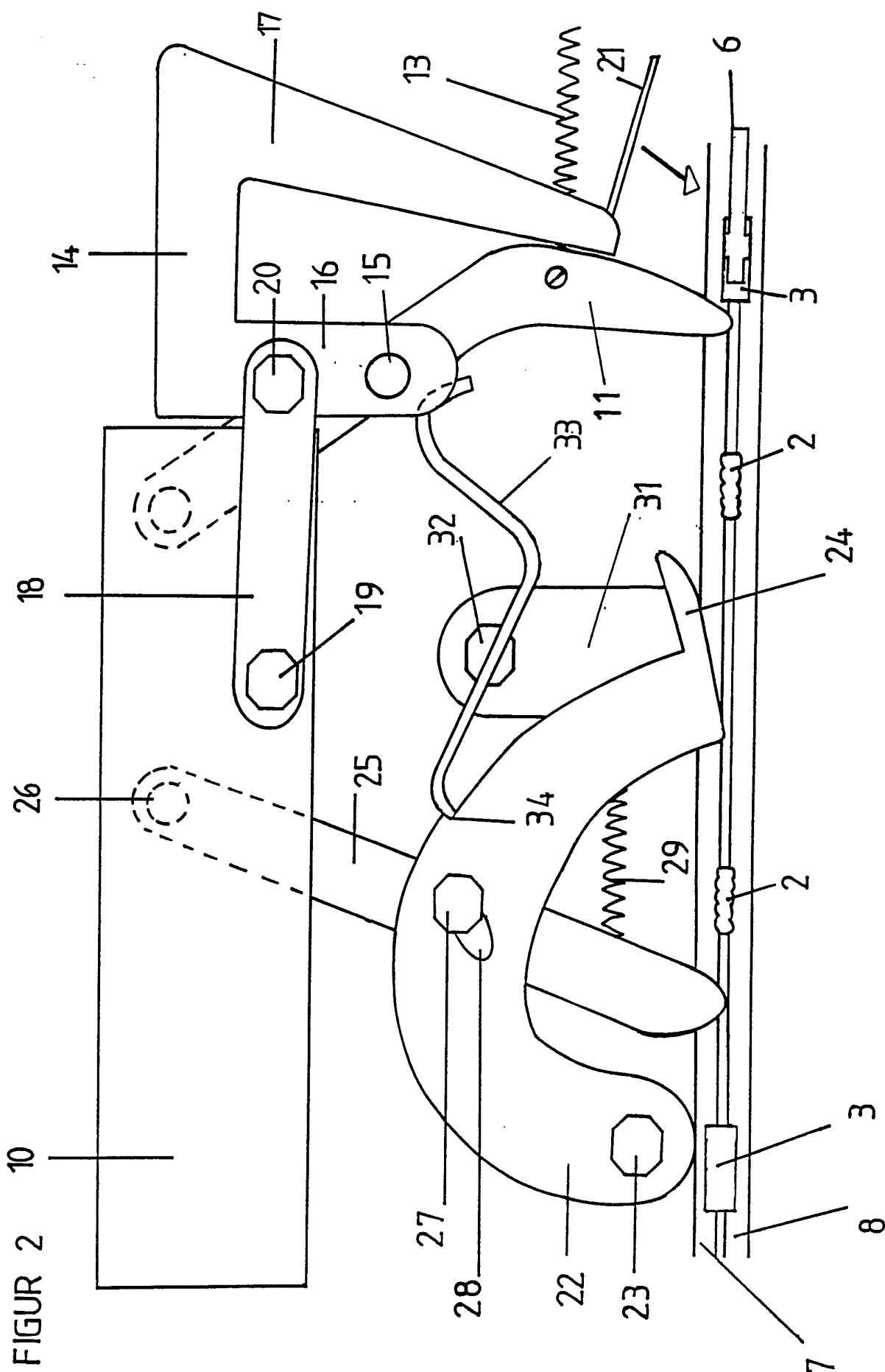
1. Arrangement for unhooking snell in automatic longline-handling machine characterized by a longitudinal and circular track (7) and in parallel in its peripheral a rectangular opening (9) in a guide (8) wherein the track (7) a main line (1) with snoods (3) and eyes (4) for connecting to hooks (6) and snells (5) are present as the eyes (4) runs in the opening (9) and is arranged first to affect a snood follower (11) as further controls a unhooking bar (14,16,17) for separating the snoods (3) and the hooks (6) and a speed bar (18) with causes that a torsion spring (32) unlocks a strained hook kicker (23) which guiding the separated hook (6) into a hook store (30).
2. Arrangement for unhooking snells in automatic longline-handling machine according to claim 1, characterized by a parallel with the guide (8) situated beam (10) which in its end nearest the spot where the main line (1) is coming into the guide (8) is arranged rotatable around a 1th. pivot (12) a snood follower (11) which affects by the snood (3) and causes that a around a 2nd. pivot (15) rotatable unhooking bar (14,16,17) moves along the track (7) and by means of a hook holder (21) releases and keep the hook (6).
3. Arrangement for unhooking snell in automatic longline-handling machine according to claims 1 and 2, characterized by that in the one end of the beam (10) rotatable around a 3rd. pivot (19) is arranged a speed bar (18) which in its other end is rotatable via a 4th. pivot (20) connected to a 1th. part of bar (16) at the unhooking bar when the other of the speedarm (18) when the snapholder (21) keeps the hook (6) affects the one end of a torsion spring (33) which is arranged to be released from a cleft (34) on a hook kicker (22) and a kick foot (24) on the hook kicker (22) guides the hook (6) at the hook holder (21) into a hook store (30).
4. Arrangement for unhooking snell in automatic

longline-handling machine according to claims 1,2 and 3, characterized by that the snoods (3) after have passed the snood follower (11) will affect a kick controller (25) to via on itself situated an outstanding control pig (27) and one at the hook kicker (22) being control track (28) to strain the hook kicker (22) and that the torsion spring goes into the cleft (34).

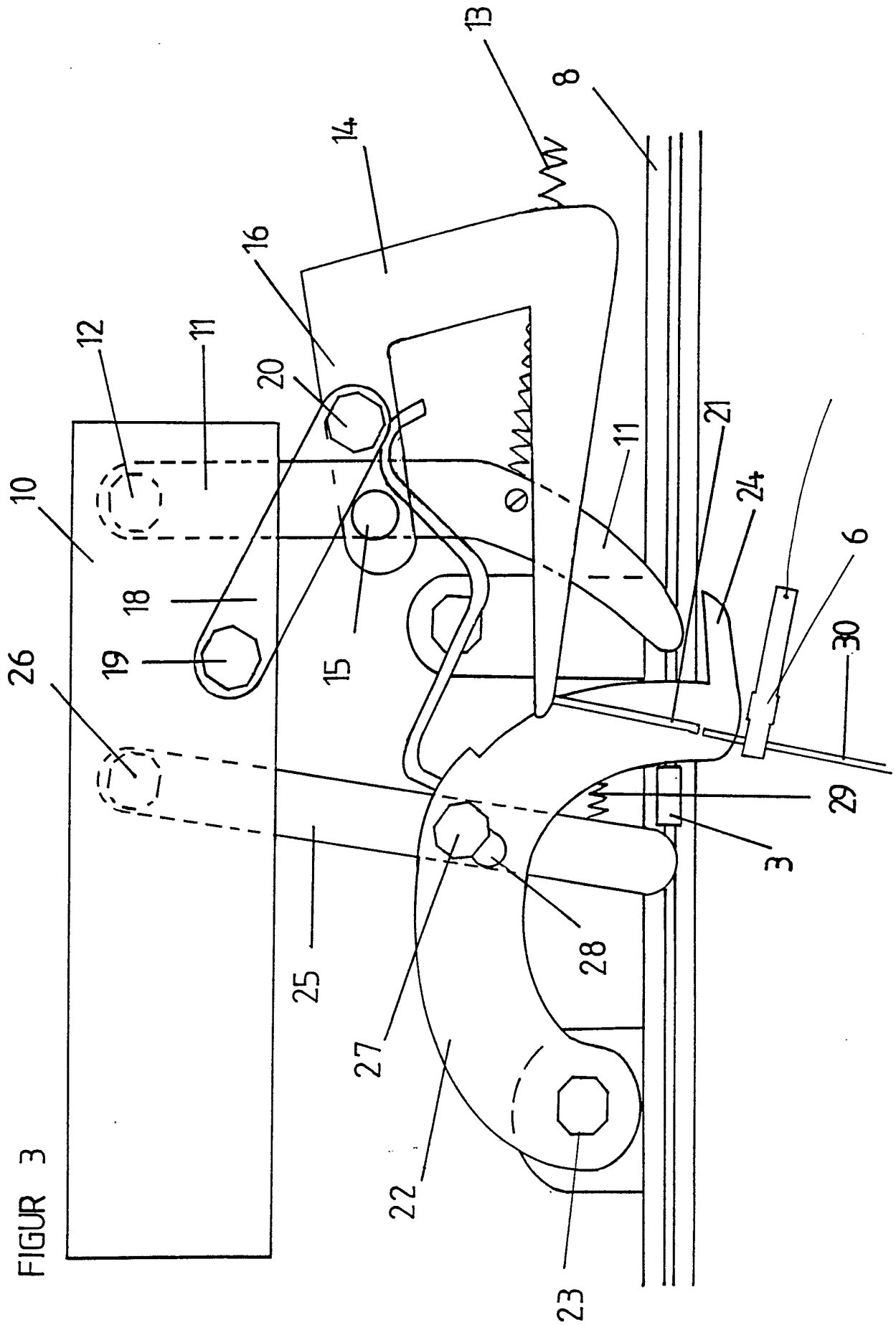
1/3

FIGUR 1



FIGUR 2  
10

3/3



# INTERNATIONAL SEARCH REPORT

International Application No PCT/NO 91/00084

| <b>I. CLASSIFICATION OF SUBJECT MATTER</b> (if several classification symbols apply, indicate all) <sup>6</sup><br>According to International Patent Classification (IPC) or to both National Classification and IPC<br><b>IPC5: A 01 K 91/18</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                     |              |                                                                             |                                 |                       |                                                                                      |     |   |                                                                                                        |     |
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| <b>II. FIELDS SEARCHED</b><br><div style="text-align: center; border-top: 1px solid black; border-bottom: 1px solid black;">Minimum Documentation Searched<sup>7</sup></div> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%; border-bottom: 1px solid black;">Classification System</td> <td style="border-bottom: 1px solid black;">Classification Symbols</td> </tr> <tr> <td style="height: 40px; vertical-align: bottom;">IPC5</td> <td style="height: 40px; vertical-align: bottom;">A 01 K</td> </tr> </table> <div style="text-align: center; border-top: 1px solid black; border-bottom: 1px solid black;">Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in Fields Searched<sup>8</sup></div> <p style="padding: 5px;">SE,DK,FI,NO classes as above</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                     | Classification System                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Classification Symbols                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | IPC5                                | A 01 K       |                                                                             |                                 |                       |                                                                                      |     |   |                                                                                                        |     |
| Classification System                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Classification Symbols                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                     |              |                                                                             |                                 |                       |                                                                                      |     |   |                                                                                                        |     |
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| <b>III. DOCUMENTS CONSIDERED TO BE RELEVANT<sup>9</sup></b> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Category *</th> <th style="width: 60%;">Citation of Document,<sup>11</sup> with indication, where appropriate, of the relevant passages<sup>12</sup></th> <th style="width: 30%;">Relevant to Claim No.<sup>13</sup></th> </tr> </thead> <tbody> <tr> <td style="text-align: center; vertical-align: top;">A</td> <td style="vertical-align: top;">NO, B, 154711 (THOR BERG) 1 September 1986,<br/>see the whole document<br/>--</td> <td style="text-align: center; vertical-align: top;">1-4</td> </tr> <tr> <td style="text-align: center; vertical-align: top;">A</td> <td style="vertical-align: top;">GB, A, 2035021 (O MUSTAD &amp; SØN A/S)<br/>18 June 1980,<br/>see the whole document<br/>--</td> <td style="text-align: center; vertical-align: top;">1-4</td> </tr> <tr> <td style="text-align: center; vertical-align: top;">A</td> <td style="vertical-align: top;">WO, A1, 8400469 (BJØRSHOL, KOLBJØRN)<br/>16 February 1984,<br/>see the whole document<br/>--<br/><br/>-----</td> <td style="text-align: center; vertical-align: top;">1-4</td> </tr> </tbody> </table>                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                     | Category *                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Citation of Document, <sup>11</sup> with indication, where appropriate, of the relevant passages <sup>12</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Relevant to Claim No. <sup>13</sup> | A            | NO, B, 154711 (THOR BERG) 1 September 1986,<br>see the whole document<br>-- | 1-4                             | A                     | GB, A, 2035021 (O MUSTAD & SØN A/S)<br>18 June 1980,<br>see the whole document<br>-- | 1-4 | A | WO, A1, 8400469 (BJØRSHOL, KOLBJØRN)<br>16 February 1984,<br>see the whole document<br>--<br><br>----- | 1-4 |
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| <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; vertical-align: top;"> <p><b>* Special categories of cited documents:<sup>10</sup></b></p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> </td> <td style="width: 50%; vertical-align: top;"> <p>"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</p> <p>"X" document of particular relevance, the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"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.</p> <p>"&amp;" document member of the same patent family</p> </td> </tr> </table> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                     | <p><b>* Special categories of cited documents:<sup>10</sup></b></p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> | <p>"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</p> <p>"X" document of particular relevance, the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"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.</p> <p>"&amp;" document member of the same patent family</p> |                                     |              |                                                                             |                                 |                       |                                                                                      |     |   |                                                                                                        |     |
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| <b>IV. CERTIFICATION</b> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; border-bottom: 1px solid black;">Date of the Actual Completion of the International Search</td> <td style="width: 50%; border-bottom: 1px solid black;">Date of Mailing of this International Search Report</td> </tr> <tr> <td style="height: 40px; vertical-align: bottom;">20th September 1991</td> <td style="height: 40px; vertical-align: bottom;">1991 -09- 24</td> </tr> <tr> <td style="border-bottom: 1px solid black;">International Searching Authority</td> <td style="border-bottom: 1px solid black;">Signature of Authorized Officer</td> </tr> <tr> <td style="height: 40px; vertical-align: bottom; text-align: center;">SWEDISH PATENT OFFICE</td> <td style="height: 40px; vertical-align: bottom; text-align: center;"> <br/>           Kerstin Boije Janson         </td> </tr> </table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                     | Date of the Actual Completion of the International Search                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Date of Mailing of this International Search Report                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 20th September 1991                 | 1991 -09- 24 | International Searching Authority                                           | Signature of Authorized Officer | SWEDISH PATENT OFFICE | <br>Kerstin Boije Janson                                                             |     |   |                                                                                                        |     |
| Date of the Actual Completion of the International Search                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Date of Mailing of this International Search Report                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                     |              |                                                                             |                                 |                       |                                                                                      |     |   |                                                                                                        |     |
| 20th September 1991                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1991 -09- 24                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                     |              |                                                                             |                                 |                       |                                                                                      |     |   |                                                                                                        |     |
| International Searching Authority                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Signature of Authorized Officer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                     |              |                                                                             |                                 |                       |                                                                                      |     |   |                                                                                                        |     |
| SWEDISH PATENT OFFICE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <br>Kerstin Boije Janson                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                     |              |                                                                             |                                 |                       |                                                                                      |     |   |                                                                                                        |     |

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