

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

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Date of mailing
(day/month/year) **11 JUL 2007**

Applicant's or agent's file reference
0739D-125POA

FOR FURTHER ACTION

See paragraph 2 below

International application No.
PCT/US06/10388

International filing date (day/month/year)
22 March 2006

Priority date (day/month/year)
22 March 2005

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - B64D 25/04 (2007.01)
USPC - 297/216.13

Applicant **FISHER DYNAMICS CORPORATION**

1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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Commissioner for Patents
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Date of completion of this opinion
29 April 2007

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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/US06/10388

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:
 - the international application in the language in which it was filed
 - a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material
 - a sequence listing
 - table(s) related to the sequence listing

 - b. format of material
 - on paper
 - in electronic form

 - c. time of filing/furnishing
 - contained in the international application as filed
 - filed together with the international application in electronic form
 - furnished subsequently to this Authority for the purposes of search

3. In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US06/10388

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>7, 11, 17, 21-23</u>	YES
	Claims	<u>1-6, 8-10, 12-16, 18-20, 24-35</u>	NO
Inventive step (IS)	Claims	<u>none</u>	YES
	Claims	<u>1-35</u>	NO
Industrial applicability (IA)	Claims	<u>1-35</u>	YES
	Claims	<u>None</u>	NO

2. Citations and explanations:

Claims 1-6, 8-10, 12-16, 18-20, and 24-35 lack novelty under PCT Article 33(2) as being anticipated by De Wilde et al.

Referring to Claim 1, De Wilde et al disclose an energy absorption assembly for a seat assembly having a seatback including a first frame and a second frame (20, 21), the energy absorption assembly (1) comprising: a housing (2); a torsion bar (4) rotatably supported by said housing for movement in a first rotational direction and in a second rotational direction; and a locking mechanism (16, 17) operatively engaged with said torsion bar to permit rotation of said torsion bar relative to said housing in one of said first rotational direction and said second rotational direction to permit movement of the second frame relative to the first frame and restrict rotation of said torsion bar relative to said housing in the other of said first rotational direction and said second rotational direction to absorb energy.

Referring to Claim 2, De Wilde et al disclose the energy absorption assembly of Claim 1, further comprising an arm (22) fixedly attached to said torsion bar at a first end and fixedly attached to the second frame of the seat back at a second end.

Referring to Claim 3, De Wilde et al disclose the energy absorption assembly of Claim 1, wherein restricting rotation of said torsion bar (4) in said other of said first rotational direction and said second rotational direction restricts movement of the second frame (21) relative to the first frame (20).

Referring to Claim 4, De Wilde et al disclose the energy absorption assembly of Claim 1, wherein said energy is transmitted to the torsion bar through movement of the second frame (21) relative to the first (20) frame (Page 21, lines 1-10).

Referring to Claim 5, De Wilde et al disclose the energy absorption assembly of Claim 1, wherein said locking mechanism (16) includes a pawl (17) rotatably supported by said housing and in selective engagement with said torsion bar.

Referring to Claim 6, De Wilde et al disclose the energy absorption assembly of Claim 5, wherein said pawl (17) engages a series of teeth (16) associated with said torsion bar to selectively restrict rotation of said torsion bar relative to said housing.

Referring to Claim 8, De Wilde et al disclose the seat assembly of Claim 6, wherein said teeth are formed on a gear (16) disposed between said torsion bar (4) and said pawl (17).

Referring to Claim 9, De Wilde et al disclose the seat assembly of Claim 5, further comprising a biasing member (18) operable to bias said pawl into engagement with said torsion bar to selectively restrict rotation of said torsion bar relative to said housing (Page 21, lines 12-18).

Referring to Claim 10, De Wilde et al disclose the seat assembly of Claim 9, wherein said biasing member is a spring (18).

Referring to Claim 12, De Wilde et al disclose the seat assembly of Claim 1, wherein said housing includes a first aperture rotatably receiving a first end of said torsion bar and a second aperture rotatably receiving a second end of said torsion bar, said first aperture cooperating with said second aperture to prevent said torsion bar from bending (Figure 3, items 3).

Referring to Claim 13, De Wilde et al disclose the seat assembly comprising: a seat bottom (Figure 1b, legs shown connecting 20 to rails); a seatback (20) rotatably supported by said seat bottom (Figure 1b, connections between legs and 20 are rotatable pinned connections) and including a first frame; a second frame (21) rotatably supported by said first frame and movable relative to said first frame between a first position and a second position; and an energy absorption assembly (1) disposed between said first frame (20) and said second frame (21), wherein said second frame articulates relative to said first frame through said energy absorption assembly from said first position to said second position and said energy absorption assembly restricts articulation of said second frame from said second position to said first position (Page 20, lines 23-28; Page 21, lines 15-18).

Referring to Claim 14, De Wilde et al disclose the seat assembly of Claim 13, wherein said energy absorption assembly (1) restricts articulation of said second frame from said second position to said first position with a torsion bar (4).

Referring to Claim 15, De Wilde et al disclose the seat assembly of Claim 14, further comprising a locking mechanism (17) in engagement with said torsion bar (4) to selectively permit rotation of said torsion bar by said second frame when said second frame moves from said first position to said second position and prevent rotation of said torsion bar by said second frame when said second frame moves from said second position to said first position.

(Continued in Supplemental Box)

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/US06/10388

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:

Box V

Referring to Claim 16, De Wilde et al disclose the seat assembly of Claim 15, wherein said locking mechanism includes a pawl (17) that selectively engages a series of teeth (16) associated with said torsion bar (4) to prevent rotation of said torsion bar when said second frame is articulated from said second position to said first position.

Referring to Claim 18, De Wilde et al disclose the seat assembly of Claim 16, wherein said teeth are formed on a gear (16) disposed between said torsion bar (4) and said pawl (17).

Referring to Claim 19, De Wilde et al disclose the seat assembly of Claim 15, further comprising a biasing member (18) operable to bias said pawl into engagement with said torsion bar to allow said torsion bar to permit movement of said second frame member from said first position to said second position and restrict movement of said second frame member from said second position to said first position (Page 21, lines 12-18).

Referring to Claim 20, De Wilde et al disclose the seat assembly of Claim 19, wherein said biasing member is a spring (18).

Referring to Claim 24, De Wilde et al disclose the seat assembly of Claim 13, further comprising a headrest assembly (Figure 1b, area of 21 adjacent 24) operably supported by said second frame.

Referring to Claim 25, De Wilde et al disclose the seat assembly of Claim 13, further comprising a linkage assembly (items 2, 8, and 7 cooperate to link frames 20 and 21) disposed between said first frame and said second frame.

Referring to Claim 26, De Wilde et al disclose the seat assembly of Claim 25, wherein said linkage assembly is pivotally attached to said first frame and said second frame to control movement of said second frame relative to said first frame (Figure 7 shows pivotal reclining motion around free axle 5 controlled by 28 and 7).

Referring to Claim 27, De Wilde et al disclose a seat assembly comprising: a seat bottom (Figure 1b, leg structure connecting 20 to ground rails); a seatback (20) rotatably supported (Figure 1b, leg structure connecting 20 to ground rails is connected by rotatable pins) by said seat bottom and including a first frame (20) attached to said seat bottom and a second frame (21) rotatable relative to said first frame between a first position and a second position; and an energy absorption assembly (1) having a torsion bar (4) fixed to said second frame and rotatable relative to said first frame, said torsion bar rotating with said second frame from said first position to said second position and restricted from rotating with said second frame from said second position to said first position to absorb energy associated with such movement (Page 21, lines 15-18).

Referring to Claim 28, De Wilde et al disclose the seat assembly of Claim 27, wherein said torsion bar is deformed when said second frame is rotated from said second position to said first position to absorb said energy (while another member, 13, has the specific function of absorbing energy by plastic deformation, the torsion bar 4 must necessarily deform and absorb energy under an applied force).

Referring to Claim 28, De Wilde et al disclose the seat assembly of Claim 27, wherein said energy absorption assembly includes a clutch (16) assembly operable to selectively restrict rotation of said torsion bar relative to said first frame.

Referring to Claim 29, De Wilde et al disclose the seat assembly of Claim 29, wherein said clutch (16) assembly includes a pawl (17) rotatable between a first position (Figure 4) restricting rotation of said second frame from said second position to said first position and a second position (Figure 6) permitting rotation of said second frame from said second position to said first position.

Referring to Claims 31 and 32, De Wilde et al disclose the seat assembly of Claim 30, wherein said pawl (17) is biased into said first position by a biasing member (18) wherein said biasing member is a spring.

Referring to Claim 33, De Wilde et al disclose the seat assembly of Claim 27, further comprising a headrest assembly (portion of 21 adjacent to 24) operably supported by said second frame.

Referring to Claims 34 and 35, see Claims 25 and 26.

Claims 7 and 17 lack inventive step under PCT Article 33(3) as being obvious over De Wilde et al in view of Nishizawa et al.

Referring to Claims 7 and 17, De Wilde et al disclose the seat assemblies of Claims 6 and 16, but do not teach that said teeth are formed integrally with said torsion bar. Nishizawa et al disclose a torsion bar (7) wherein the pawl engagement members (17, 18) are formed integrally with the torsion bar (Claim 5). It would have been obvious to one of ordinary skill in the art to form the teeth integrally on the torsion bar of De Wilde et al, as taught by Nishizawa et al, in order to make a simpler, more efficient device.

Claims 11 and 21 lack inventive step under PCT Article 33(3) as being obvious over De Wilde et al in view of Arima et al.

Referring to Claims 11 and 21, De Wilde et al disclose the seat assembly of Claims 9 and 19, but do not disclose a release member for said pawl. Arima et al disclose a torsion bar (24) system further comprising a release handle (46) keyed to said pawl to allow said pawl (44) to be rotated against the bias of said biasing member (Column 12, lines 24-32; Figs 14 and 16). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the seat assembly with the release mechanism, as taught by Arima et al, in order to make the seat assembly resettable.

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INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/US06/10388

Supplemental Box

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Continuation of:

Previous Supplemental Box

Claims 22 and 23 lack inventive step under PCT Article 33(3) as being obvious over De Wilde et al in view of Neale.

Referring to Claims 22 and 23, De Wilde et al disclose the seat assembly of Claim 13, but do not teach a biasing member between the first and second frame. Neale discloses a seat having first (14) and second (16) frames further comprising a biasing member (94, 96) disposed between said first frame and said second frame and operable to restrict movement of said second frame from said first position to said second position, wherein said biasing member is a spring (Paragraph 33). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide a biasing member between the first and second frame of De Wilde et al., as taught by Neale, in order to restrict movement of said second frame from said first position to said second position.

Claims 1-35 meet the criteria set out in PCT Article 33(4) and thus have industrial applicability because the subject matter claimed can be made or used in industry.