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(54) **Title:** MULTIPURPOSE TRAY

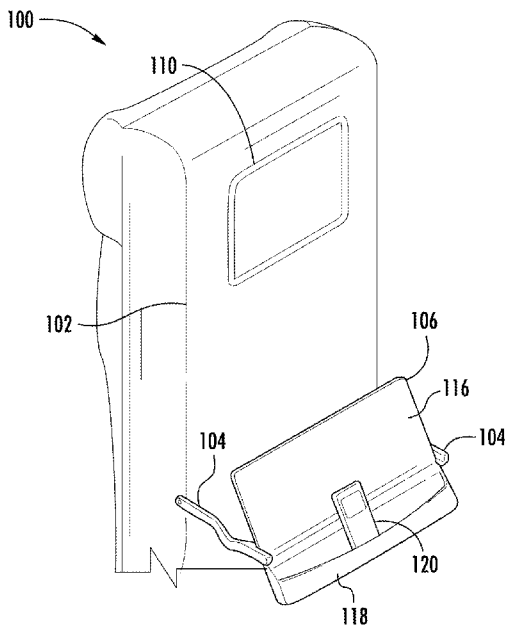


FIG. 6

(57) **Abstract:** Described are multipurpose tray table systems including a passenger seat back (102), at least one tray table arm (104) pivotally coupled to the passenger seat back, and a tray table (106) pivotally coupled to the at least one tray table arm, comprising a first surface and a second surface, wherein the tray table may be deployed away from the passenger seat back via rotation of the at least one tray table arm about the passenger seat back to a first deployed position, and the tray table may be rotated about the at least one tray table arm into an adjusted deployed position such that the first surface of the tray table faces generally toward the passenger seat back and the second surface of the tray table faces generally away from the passenger seat back.

WO2013/003537 A1

MULTIPURPOSE TRAY

CROSS REFERENCE TO RELATED APPLICATIONS

This application is related to and claims priority benefits from U.S.
5 Provisional Application Serial No. 61/501,892, filed on June 28, 2011, entitled
"Multipurpose Tray" ("the '892 application"). The '892 application is hereby
incorporated in its entirety by this reference.

FIELD OF THE INVENTION

The field of the invention relates to passenger seat assemblies. More
10 specifically, it relates to tray tables of passenger seat assemblies, and the like.

BACKGROUND

Many passenger seats, such as those on passenger aircrafts, buses, trains, and
the like, are arranged so that each passenger seat, other than the forward-most located
passenger seats, faces the back of the next forward passenger seat. To increase a
15 passenger's comfort and enjoyment, many passenger seat backs are utilized to install
amenities, such as a tray table, for the passenger's use during the trip.

In some instances, a tray table may be mounted adjacent a surface of a
passenger seat back. The tray table may be deployed by the passenger to provide a
relatively flat surface for eating, working, recreation, or other uses. Conventionally,
20 these tray tables are mounted to an exterior surface of the seat back. These tray tables
generally rotate away from the seat back via tray table arms, which are pivoted at a
point on the passenger seat below the tray table, for use by the passenger. Known
trays tables are generally limited to only one utility position, however. Moreover, at
various times these tray tables may be stowed against the seat back. In this position,
25 the utility of known tray tables is limited.

Thus, given that the features available to a passenger during use of a passenger
seat are limited by the small space surrounding the passenger seat, it may be
beneficial to maximize the functions of each structure surrounding the passenger,
including the tray table, to increase the potential features of the passenger seat.

30

SUMMARY

Certain embodiments of the present invention include multipurpose tray table
systems comprising a passenger seat back, at least one tray table arm pivotally
coupled to the passenger seat back, and a tray table pivotally coupled to the at least

one tray table arm, comprising a first surface and a second surface, wherein the tray table may be deployed away from the passenger seat back via rotation of the at least one tray table arm about the passenger seat back to a first deployed position such that the first surface of the tray table faces generally upward and the second surface of the tray table faces generally downward, and the tray table may be rotated about the at least one tray table arm into an adjusted deployed position such that the first surface of the tray table faces generally toward the passenger seat back and the second surface of the tray table faces generally away from the passenger seat back.

In some embodiments, the tray table comprises at least one compartment for staging or positioning of a passenger's item in a vertical or angular position for potential use by the passenger during stowage and/or deployment of the tray table. The compartment may be coupled to and/or integrally formed with the second surface of the multipurpose tray table. The at least one compartment may be configured to resemble a pocket and/or may be equipped with at least one power outlet and/or electronic docking station, such as a USB port.

In some embodiments, the tray table comprises at least one support member for staging or positioning of a passenger's item in a vertical or angular position for potential use by the passenger during stowage and/or deployment of the tray table. In certain embodiments, the at least one support member, which may be an elastic band, is coupled to the second surface of the tray table. In some embodiments, the tray table comprises at least one video display for potential use by the passenger during stowage and/or deployment of the tray table.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a perspective view of a multipurpose tray table system according to certain embodiments of the present invention, shown in a stowed position.

Figure 2 is a perspective view of the multipurpose tray table system of Figure 1, shown in a conventional horizontal deployed position.

Figure 3 is a perspective view of the multipurpose tray table system of Figure 1, shown in an adjusted deployed position.

Figure 4 is a perspective view of a multipurpose tray table system according to certain embodiments of the present invention, shown in a stowed position.

Figure 5 is a perspective view of a multipurpose tray table system according to certain embodiments of the present invention, shown in a stowed position.

Figure 6 is a perspective view of a multipurpose tray table system according to certain embodiments of the present invention, shown in an adjusted deployed position.

Figure 7 is a perspective view of the multipurpose tray table system according to certain embodiments of the present invention, shown in an adjusted deployed position.

Figure 8 is a perspective view of the multipurpose tray table system of Figure 7, shown in an adjusted deployed position.

Figure 9 is a perspective view of the multipurpose tray table system of Figure 7, shown in a stowed position.

Figure 10 is a perspective view of a multipurpose tray table system according to certain embodiments of the present invention, shown in an adjusted deployed position.

Figure 11 is a perspective view of the multipurpose tray table system of Figure 10, shown in a conventional horizontal deployed position.

DETAILED DESCRIPTION

Embodiments of the invention provide multipurpose tray tables and multipurpose tray table systems. While the multipurpose tray tables and multipurpose tray table systems are generally discussed for use with aircrafts, they are by no means so limited. Rather, embodiments of the multipurpose tray tables and multipurpose tray table systems may be used in connection with any mode of transportation or otherwise as desired.

Figures 1-11 illustrate embodiments of a multipurpose tray table system 100. In these embodiments, the multipurpose tray table system 100 may comprise a passenger seat back 102, at least one tray table arm 104, and a multipurpose tray table 106. In some embodiments, the multipurpose tray table 106 may comprise at least one support member 108.

The passenger seat back 102, as illustrated in Figures 1-11, provides a base for the at least one tray table arm 104. In some embodiments, the passenger seat back 102 may comprise at least one pocket or pouch (not illustrated), at least one video display 110, and/or other known mechanisms or features. One of ordinary skill in the relevant art, however, will understand that the passenger seat back 102 may comprise one or more other mechanisms, or combinations thereof, in addition to the

components listed above. The passenger seat back 102 may be formed of materials including but not limited to textiles, plastics, composite plastics, aluminum, other metallic materials, composite materials, or other similar materials. Throughout embodiments, the configuration of the passenger seat back 102 may vary as desired.

5 In some embodiments, one or more portions of the passenger seat back 102 may be configured to receive, or otherwise interact with, the multipurpose tray table 106 upon adjustment toward the passenger seat back 102, such as during stowage of the multipurpose tray table 106.

The tray table arm 104 allows for adjustment of the multipurpose tray table
10 106 relative to the passenger seat back 102, as illustrated in Figures 1-2. For example, as illustrated in Figures 1 and 2, the tray table arm 104 may adjust the multipurpose tray table 106 to and from a stowed position within or adjacent the passenger seat back 102 (e.g. stowing or deploying the multipurpose tray table 106). The tray table arm 104 may be pivotally coupled to the passenger seat back 102. In
15 these embodiments, the tray table arm 104 may be pivotally coupled to the passenger seat back 102 by a variety of mechanisms, including but not limited to pins, fasteners, hinges, and other similar mechanisms. For example, in some embodiments, the tray table arm 104 may be pivotally coupled to the passenger seat back 102 via a friction hinge, which relies on a constant friction force within the hinge to hold a position
20 until an excessive torque is applied to overcome the hinge resistance torque and move the tray table arm 104 to another position within its range of motion. As a result, the tray table arm 104 may only be adjusted by direct, intentional force or manipulation by the passenger. In some embodiments, the friction force between the tray table arm 104 and the passenger seat back 102 will likewise prevent unintentional adjustment of
25 the tray table arm 104. In other embodiments, the tray table arm 104 may be secured into place after adjustment or stowage by a variety of mechanisms, including but not limited to a catch, securing mechanism, adjustable fastener, or button mechanism.

The tray table arm 104 may be formed of materials including but not limited to plastics, composite plastics, aluminum, other metallic materials, composite materials,
30 or other similar materials. Throughout embodiments, the shape and/or dimensions of the tray table arm 104 may vary. For example, in some embodiments, the tray table arm 104 may resemble an elongated prism or cylinder. In some embodiments, the tray table arm 104 may be solid. In other embodiments, the tray table arm 104 may

be hollow. In some embodiments, such as the embodiments illustrated in Figures 1-3 and 5-11, the multipurpose tray table system 100 may comprises two or more tray table arms 104. In some embodiments, such as the embodiments illustrated in Figure 4, the multipurpose tray table system 100 may comprises only one more tray table
5 arm 104.

The multipurpose tray table 106 provides one or more relatively flat surfaces for eating, working, recreation, or other uses. In some embodiments, the multipurpose tray table 106 may comprise a first surface 112. In these embodiments, the first surface 112 may be a relatively flat surface for eating, working, recreation, or
10 other uses. For example, in some embodiments, such as the embodiments illustrated in Figure 2, the first surface 112 may comprise an indentation 114 for a cup. In these embodiments, as illustrated in Figures 1-2, the first surface 112 faces the passenger seat back 102 during stowage of the multipurpose tray table 106 and faces generally upward during conventional horizontal deployment of the multipurpose tray table
15 106. In some embodiments, the multipurpose tray table 106 may comprise a second surface 116. In some embodiments, the second surface 116 may be a relatively flat surface for eating, working, recreation, or other uses. In these embodiments, as illustrated in Figures 1-2, the second surface 116 faces a passenger, and away from the passenger seat back 102, during stowage of the multipurpose tray table 106 and
20 generally downward during conventional deployment of the multipurpose tray table 106. In some embodiments, the first surface 112 and/or second surface 116 may be rough or textured.

In some embodiments, the second surface 116 of the multipurpose tray table 106 may be configured to supplement the traditional functions of the multipurpose
25 tray table 106, during deployment and/or stowage. For example, in some embodiments, such as the embodiments illustrated in Figures 1, 3, and 5-10, the second surface 116 may comprise at least one compartment 118 for staging or positioning of a passenger's item 120, such as a magazine, newspaper, electronic device, or other similar items, in a vertical or angular position for potential use by the
30 passenger. In some embodiments, the compartment 118 may also be equipped with power outlets and/or electronic docking stations, such as a USB port or other similar outlets and stations. The positioning of the compartment 118 on the second surface 116 of the multipurpose tray table 106 allows for use of the compartment 118 during

both stowage of the multipurpose tray table 106 and adjusted deployment of the multipurpose tray table 106, as explained below, and as illustrated in Figures 1, 3, and 5-10.

5 The compartment 118 may be formed of materials including but not limited to plastics, composite plastics, aluminum, other metallic materials, composite materials, or other similar materials. Throughout embodiments, the shape and/or dimensions of the compartment 118 may vary. For example, in some embodiments, the compartment 118 may resemble a tray, pocket, or ledge, or other similar configuration. In some embodiments, the compartment 118 may be integrally formed
10 with the multipurpose tray table 106. In other embodiments, the compartment 118 may be coupled to the multipurpose tray table 106 by a variety of coupling mechanisms, including but not limited to adhesives, screws, bolts, fasteners, and other similar mechanisms. In some embodiments, the compartment 118 may be releasably coupled to the second surface 116 of the multipurpose tray table 106.

15 Additionally, in some embodiments, such as the embodiments illustrated in Figure 11, the second surface 116 of the multipurpose tray table 106 may be configured to comprise at least one video display 122. The positioning of the video display 122 on the second surface 116 of the multipurpose tray table 106 allows for use of the video display 122 during both stowage and adjusted deployment of the
20 multipurpose tray table 106, as explained below, and as illustrated in Figure 10. In these embodiments, the second surface 116 of the multipurpose tray table 106 may also comprise one or more actuators or controls (not illustrated) for the video display 122.

The multipurpose tray table 106 may be coupled to the at least one tray table
25 arm 104. In some embodiments, the multipurpose tray table 106 may be fixedly coupled to the at least one tray table arm 104 by a variety of mechanisms, including but not limited to adhesives, screws, fasteners, and other similar mechanisms. In these embodiments, the first surface 112 faces generally upward during conventional deployment of the multipurpose tray table 106. In these embodiments, the second
30 surface 116 faces generally downward during conventional deployment of the multipurpose tray table 106.

In other embodiments, such as the embodiments illustrated in Figures 3, 6-8, and 10, the multipurpose tray table 106 may be pivotally coupled to the at least one

tray table arm 104. In these embodiments, the multipurpose tray table 106 may be adjusted relative to the tray table arm 104 to achieve various adjusted deployment positions, as illustrated in Figures 3, 6-8, and 10, in addition to the conventional horizontal deployment position illustrated in Figures 2 and 11. In some embodiments, the multipurpose tray table 106 may be pivotally coupled to the at least one tray table arm 104 such that the multipurpose tray table 106 may be capable of rotating more than 90 degrees in at least one direction about the table arm 104. In these embodiments, as illustrated in Figures 3, 6-8, and 10, the multipurpose tray table 106 may be adjusted such that the second surface 116 of the multipurpose tray table 106 may generally face a passenger during an adjusted deployment of the multipurpose tray table 106. In these embodiments, the multipurpose tray table 106 may be adjusted to allow for vertical or angular staging or positioning of the passenger's item 120 within the compartment 118, as illustrated in Figures 6 and 8.

In these embodiments, the multipurpose tray table 106 may be pivotally coupled to the at least one tray table arm 104 by a variety of mechanisms, including but not limited to pins, fasteners, hinges, and other similar mechanisms. For example, in some embodiments, the multipurpose tray table 106 may be pivotally coupled to the at least one tray table arm 104 via a friction hinge, which relies on a constant friction force within the hinge to hold a position until an excessive torque is applied to overcome the hinge resistance torque and move the multipurpose tray table 106 to another position within its range of motion. As a result, the multipurpose tray table 106 may only be adjusted by direct, intentional force or manipulation by the passenger. In some embodiments, the friction force between the multipurpose tray table 106 and the at least one tray table arm 104 will likewise prevent unintentional adjustment of the tray table arm 104. In other embodiments, the multipurpose tray table 106 may be secured into place after adjustment or stowage by a variety of mechanisms, including but not limited to a catch, securing mechanism, adjustable fastener, or button mechanism.

The multipurpose tray table 106 may be formed of materials including but not limited to plastics, composite plastics, aluminum, other metallic materials, composite materials, or other similar materials. Throughout embodiments, the shape and/or dimensions of the multipurpose tray table 106 may vary as desired. For example, in some embodiments, such as the embodiments illustrated in Figures 1-11, the

5 multipurpose tray table 106 may resemble a flattened three-dimensional square or rectangle or other similar shape. In some embodiments, the multipurpose tray table 106 may have variable thickness or depth across its shape. In some embodiments, the multipurpose tray table 106 may be solid. In other embodiments, the multipurpose tray table 106 may be hollow.

10 In some embodiments, the multipurpose tray table 106 may comprise the at least one support member 108. The support member 108 supplements the traditional functions of the multipurpose tray table 106, during deployment and/or stowage. In some embodiments, the support member 108 may be coupled to the second surface 116 of the multipurpose tray table 106. For example, in some embodiments, such as the embodiments illustrated in Figures 4-5 and 7-9, the support member 108 may assist in the staging or positioning of the passenger's item 120, such as a magazine, newspaper, electronic device, or other similar items, in a vertical or angular position for potential use by the passenger. The positioning of the support member 108 on the 15 second surface 116 of the multipurpose tray table 106 allows for use of the support member 108 during both stowage and adjusted deployment of the multipurpose tray table 106, as illustrated in Figures 4-5 and 7-9. In some embodiments, the support member 108 may be coupled to the second surface 116 of the multipurpose tray table 106 by a variety of coupling mechanisms, including but not limited to adhesives, 20 screws, bolts, fasteners, and other similar mechanisms. In some embodiments, the support member 108 may be releasably coupled to the second surface 116 of the multipurpose tray table 106. The support member 108 may be formed from a variety of materials, including but not limited to bands, string, wire, fiber, plastic, netting, or other similar materials. For example, in the embodiments illustrated in Figures 4-5 25 and 7-9, the support member 108 may be formed by a band comprised of elastic material, such as a rubber band. In other embodiments, the support member 108 may be integrally formed with and/or coupled to the multipurpose tray table 106. In these embodiments, the support member 108 may be formed by an indentation or ledge integrally formed with the multipurpose tray table 106. One of ordinary skill in the 30 relevant art, however, will understand that the support member 108 may be formed of other materials, or combinations thereof, in addition to the materials listed above.

In use, a passenger can enjoy the increased functionality of the multipurpose tray table 106 during both stowage and deployment. During stowage of the

5 multipurpose tray table 106, a passenger may enjoy the increased functionality of the multipurpose tray table 106 via the compartment 118 and/or the support member 108, as illustrated in Figures 1, 4-5, and 9. For example, during stowage of the multipurpose tray table 106, a passenger can utilize the compartment 118 and/or the support member 108 to stage or position the passenger's item 120, such as a magazine, newspaper, electronic device, or other similar items, in a vertical position, as illustrated in Figure 9. During deployment of the multipurpose tray table 106, a passenger may enjoy increased functionality of the multipurpose tray table 106 via the adjustability of the multipurpose tray table 106, the compartment 118, and/or the support member 108, as illustrated in Figures 3, 6-8, and 10. For example, a passenger may adjust the multipurpose tray table 106 about the tray table arm 104 and into an adjusted deployment position, as illustrated in Figures 3, 6-8, and 10, thereby exposing the second surface 116 of the multipurpose tray table 106, and its functionality, to the passenger. Of course, a passenger may also still deploy the multipurpose tray table 106 into the conventional horizontal deployed position for use of the first surface 112 of the multipurpose tray table 106, as illustrated in Figures 2 and 11.

20 In use, a passenger can similarly also enjoy the increased functionality of the multipurpose tray table 106 during both stowage and deployment in those embodiments wherein the second surface 116 of the multipurpose tray table 106 comprises the video display 122, as illustrated in Figure 10.

25 The foregoing is provided for purposes of illustrating, explaining, and describing embodiments of the present invention. Further modifications and adaptations to these embodiments will be apparent to those skilled in the art and may be made without departing from the scope or spirit of the invention.

CLAIMS

That which is claimed is:

1. A multipurpose tray table system comprising:
 - 5 (a) a passenger seat back;
 - (b) at least one tray table arm pivotally coupled to the passenger seat back;and
 - (c) a tray table pivotally coupled to the at least one tray table arm, comprising a first surface and a second surface;
- 10 wherein the tray table may be deployed away from the passenger seat back via rotation of the at least one tray table arm about the passenger seat back to a first deployed position such that the first surface of the tray table faces generally upward and the second surface of the tray table faces generally downward; and
wherein the tray table may be rotated about the at least one tray table arm into
15 an adjusted deployed position such that the first surface of the tray table faces generally toward the passenger seat back and the second surface of the tray table faces generally away from the passenger seat back.
2. The multipurpose tray table system of claim 1, wherein the second surface of
20 the tray table comprises at least one compartment for staging or positioning of a passenger's item in a vertical or angular position for potential use by a passenger during stowage and/or deployment of the tray table.
3. The multipurpose tray table system of claim 2, wherein the at least one
25 compartment is configured to resemble a pocket.
4. The multipurpose tray table system of claim 2, wherein the at least one
compartment is equipped with at least one power outlet and/or electronic docking
station, such as a USB port.
- 30 5. The multipurpose tray table system of claim 1, wherein the tray table comprises at least one support member for staging or positioning of a passenger's

item in a vertical or angular position for potential use by a passenger during stowage and/or deployment of the tray table.

6. The multipurpose tray table system of claim 5, wherein the at least one support member is coupled to the second surface of the tray table.

7. The multipurpose tray table system of claim 6, wherein the at least one support member is an elastic band.

8. The multipurpose tray table system of claim 1, wherein the second surface of the tray table comprises at least one video display.

9. A multipurpose tray table comprising:

(a) a first surface; and

(b) a second surface comprising at least one compartment for staging or positioning of a passenger's item in a vertical or angular position for potential use by a passenger during stowage and/or deployment of the multipurpose tray table.

10. The multipurpose tray table of claim 9, wherein the at least one compartment is coupled to the second surface of the multipurpose tray table.

11. The multipurpose tray table of claim 9, wherein the at least one compartment is integrally formed with the second surface of the multipurpose tray table.

12. The multipurpose tray table of claim 9, wherein the second surface further comprises at least one support member for staging or positioning of the passenger's item in a vertical or angular position for potential use by the passenger during stowage and/or deployment of the multipurpose tray table.

13. The multipurpose tray table of claim 9, wherein the multipurpose tray table is pivotally coupled to at least one tray table arm, which is pivotally coupled to a passenger seat back, such that the multipurpose tray table may be deployed away from the passenger seat back via rotation of the at least one tray table arm about the

passenger seat back to a first deployed position such that the first surface of the multipurpose tray table faces generally upward and the second surface of the multipurpose tray table faces generally downward, and such that the multipurpose tray table may be rotated about the at least one tray table arm into an adjusted deployed
5 position such that the first surface of the multipurpose tray table faces generally toward the passenger seat back and the second surface of the multipurpose tray table faces generally away from the passenger seat back.

14. A multipurpose tray table comprising:
10 (a) a first surface; and
(b) a second surface comprising at least one support member for staging or positioning of a passenger's item in a vertical or angular position for potential use by a passenger during stowage and/or deployment of the multipurpose tray table.

15 15. The multipurpose tray table of claim 14, wherein the at least one support member is coupled to the second surface of the multipurpose tray table.

16. The multipurpose tray table of claim 14, wherein the at least one support member is integrally formed with the second surface of the multipurpose tray table.
20

17. The multipurpose tray table of claim 14, wherein the second surface further comprises at least one compartment for staging or positioning of the passenger's item in a vertical or angular position for potential use by the passenger during stowage and/or deployment of the multipurpose tray table.
25

18. The multipurpose tray table of claim 14, wherein the multipurpose tray table is pivotally coupled to at least one tray table arm, which is pivotally coupled to a passenger seat back, such that the multipurpose tray table may be deployed away from the passenger seat back via rotation of the at least one tray table arm about the
30 passenger seat back to a first deployed position such that the first surface of the multipurpose tray table faces generally upward and the second surface of the multipurpose tray table faces generally downward, and such that the multipurpose tray table may be rotated about the at least one tray table arm into an adjusted deployed

position such that the first surface of the multipurpose tray table faces generally toward the passenger seat back and the second surface of the multipurpose tray table faces generally away from the passenger seat back.

5 19. The multipurpose tray table of claim 14, wherein the at least one support member is an elastic band.

20. A multipurpose tray table comprising:

- (a) a first surface; and
- 10 (b) a second surface comprising at least one video display for potential use by a passenger during stowage and/or deployment of the multipurpose tray table.

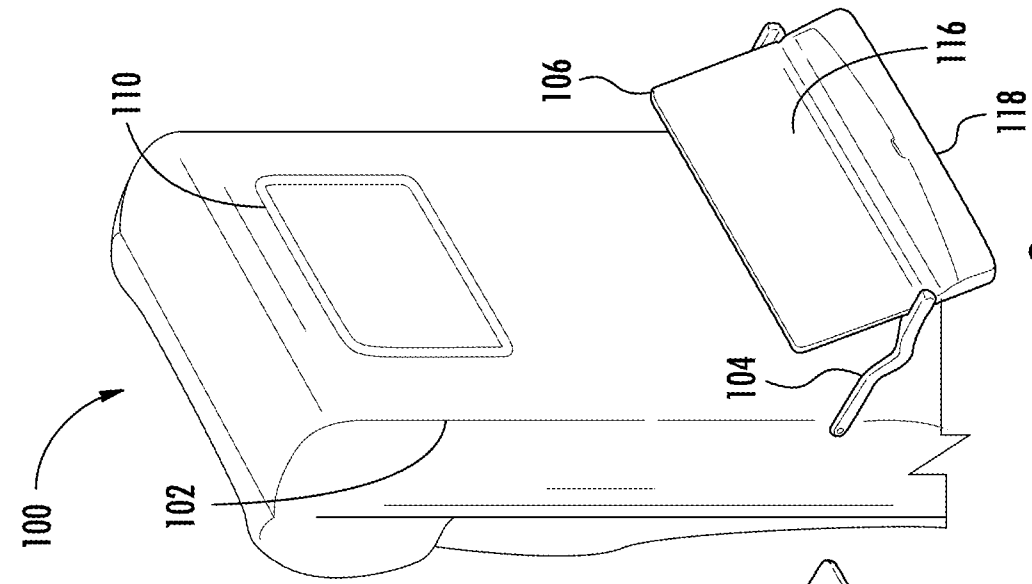


FIG. 1

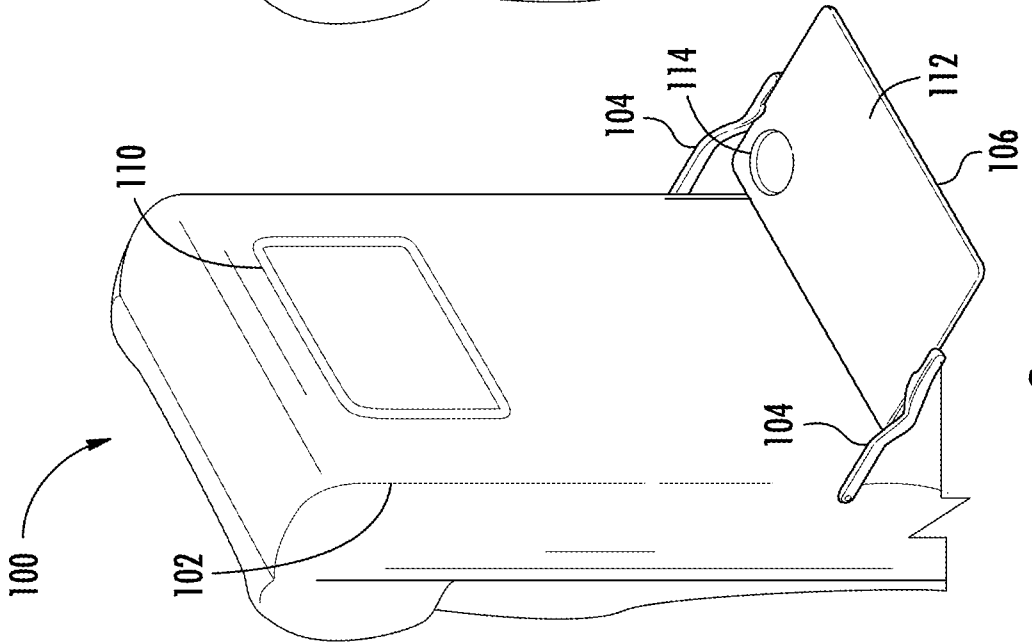


FIG. 2

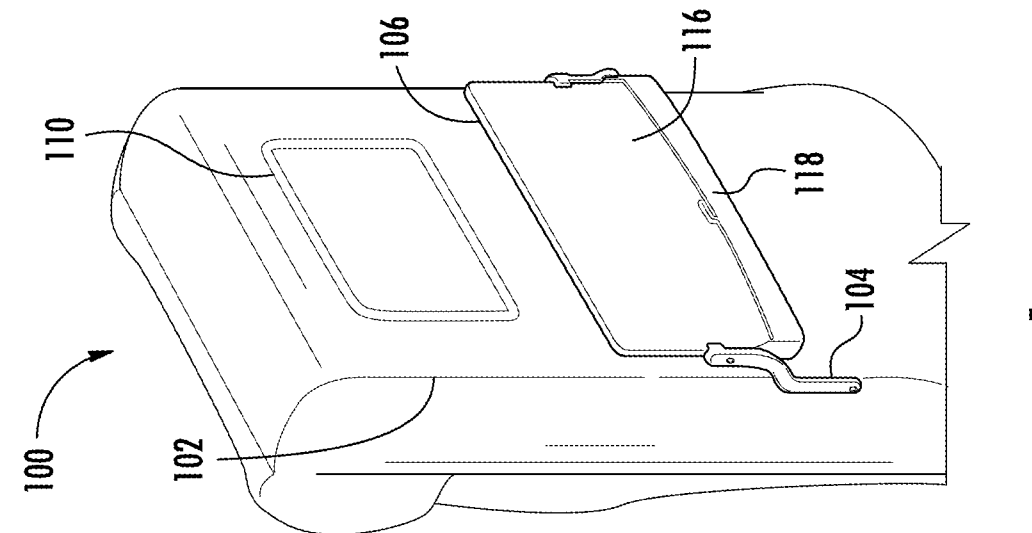


FIG. 3

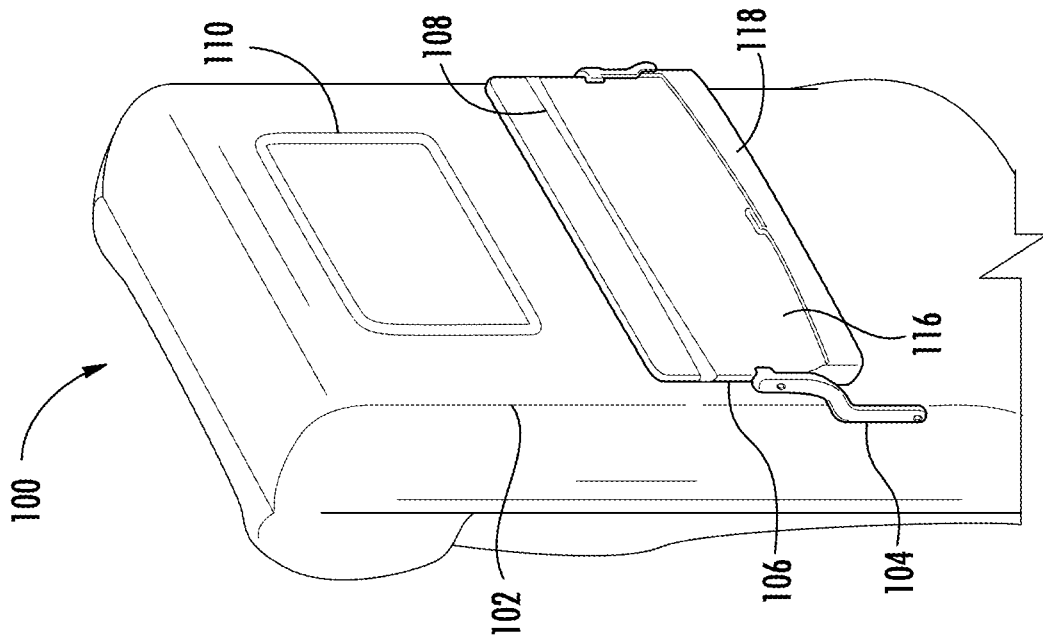


FIG. 5

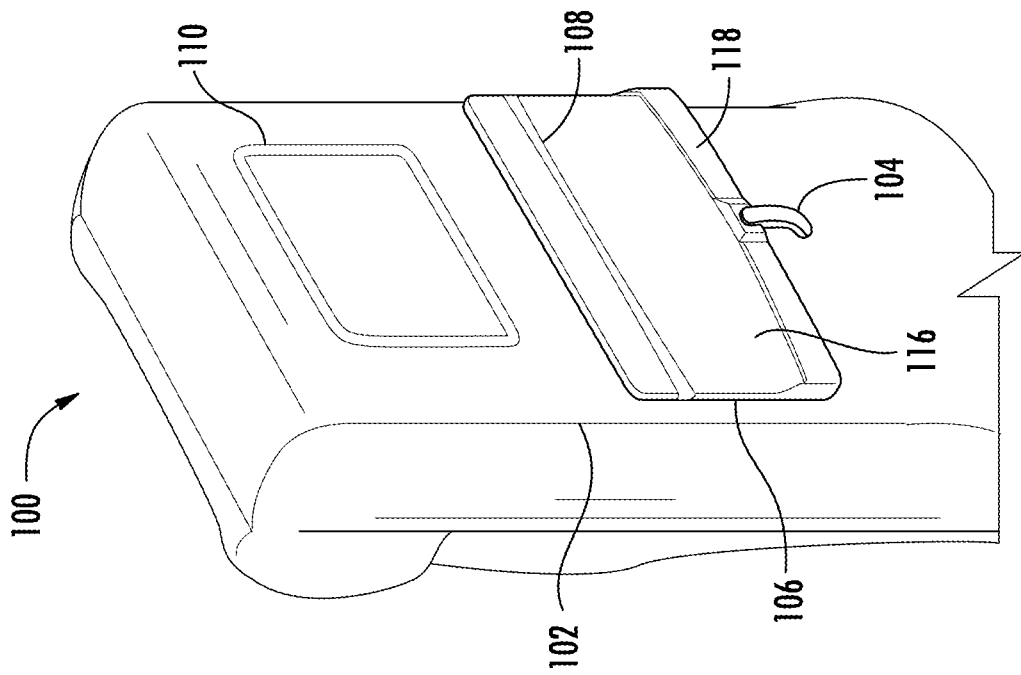


FIG. 4

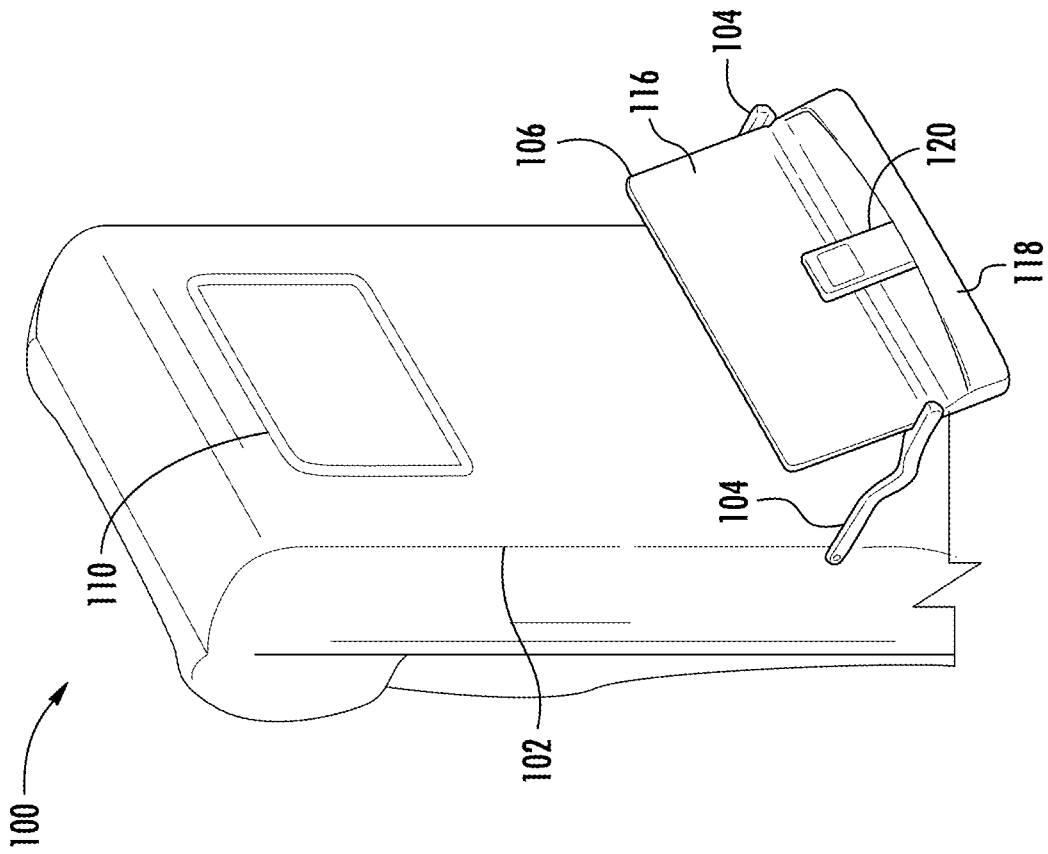


FIG. 6

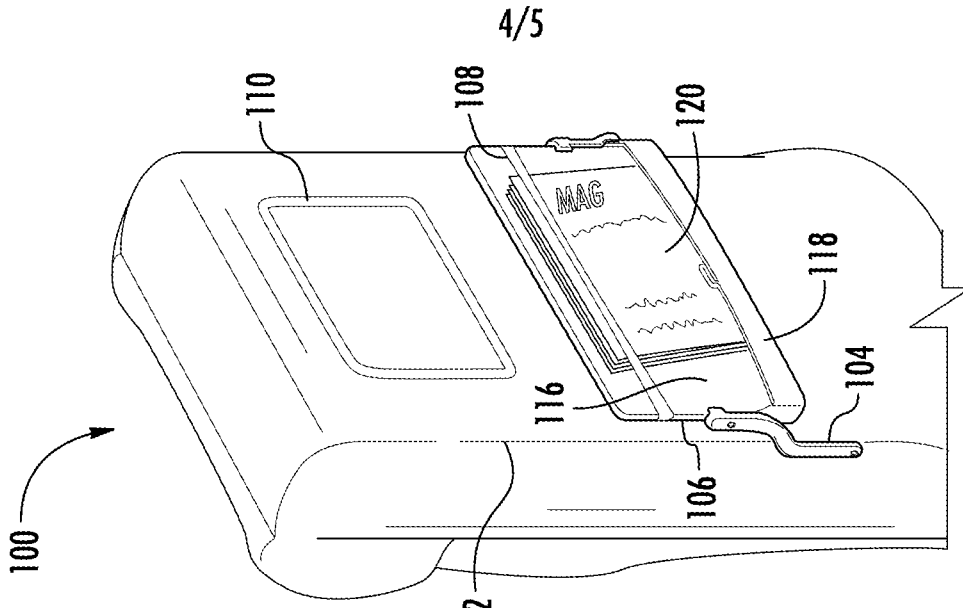


FIG. 9

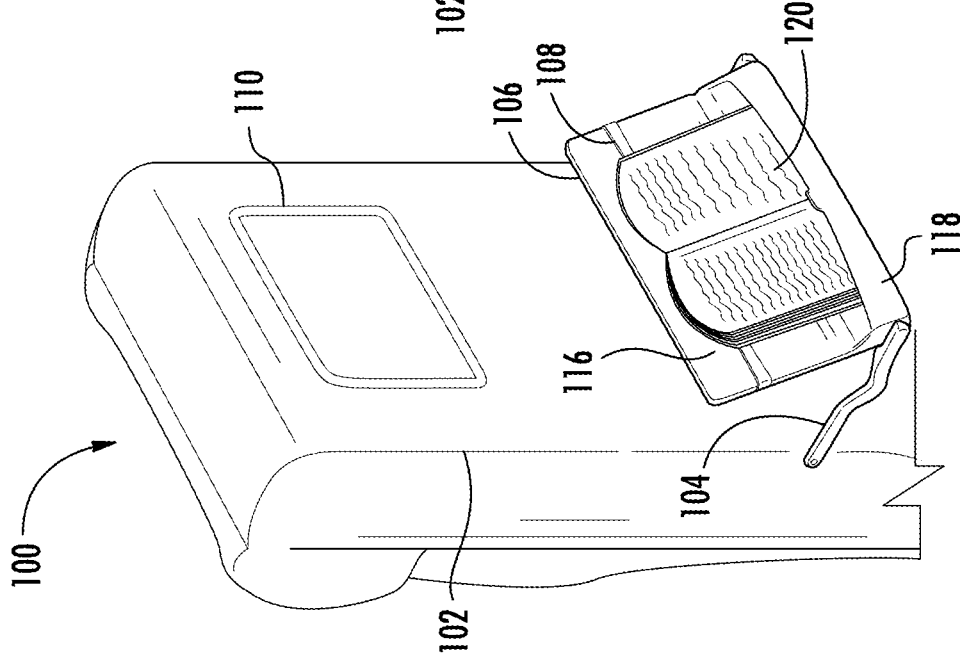


FIG. 8

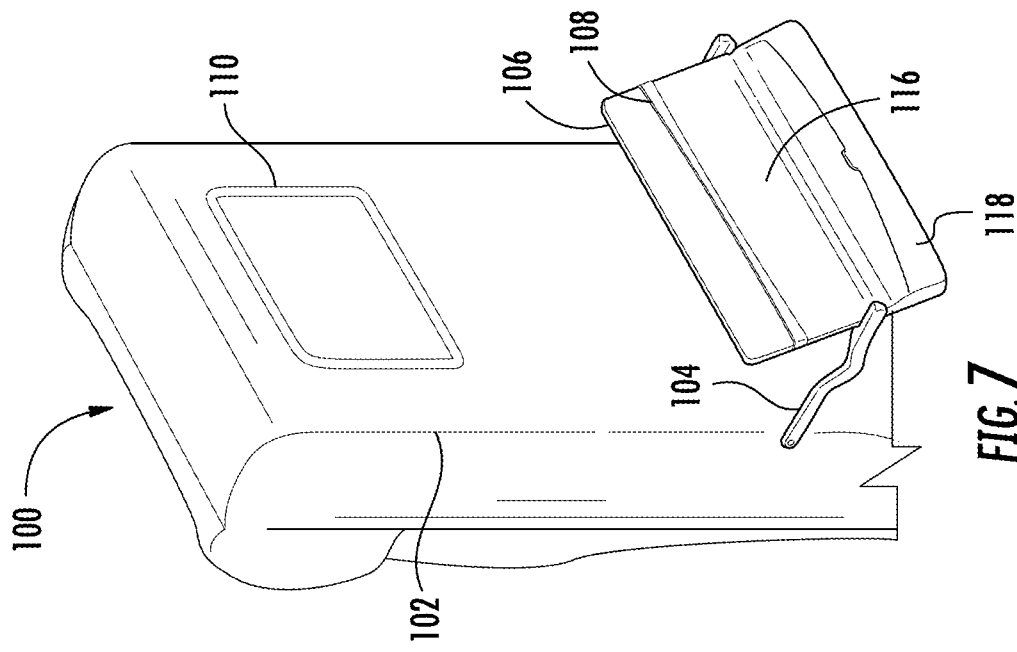


FIG. 7

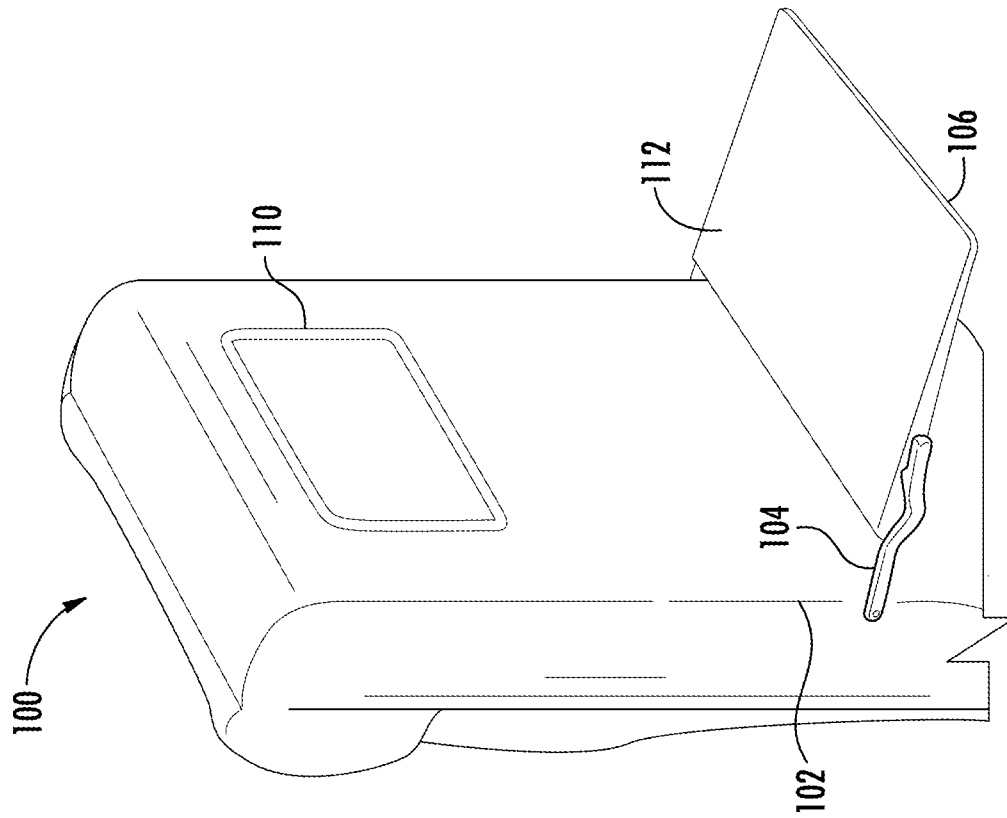


FIG. 10

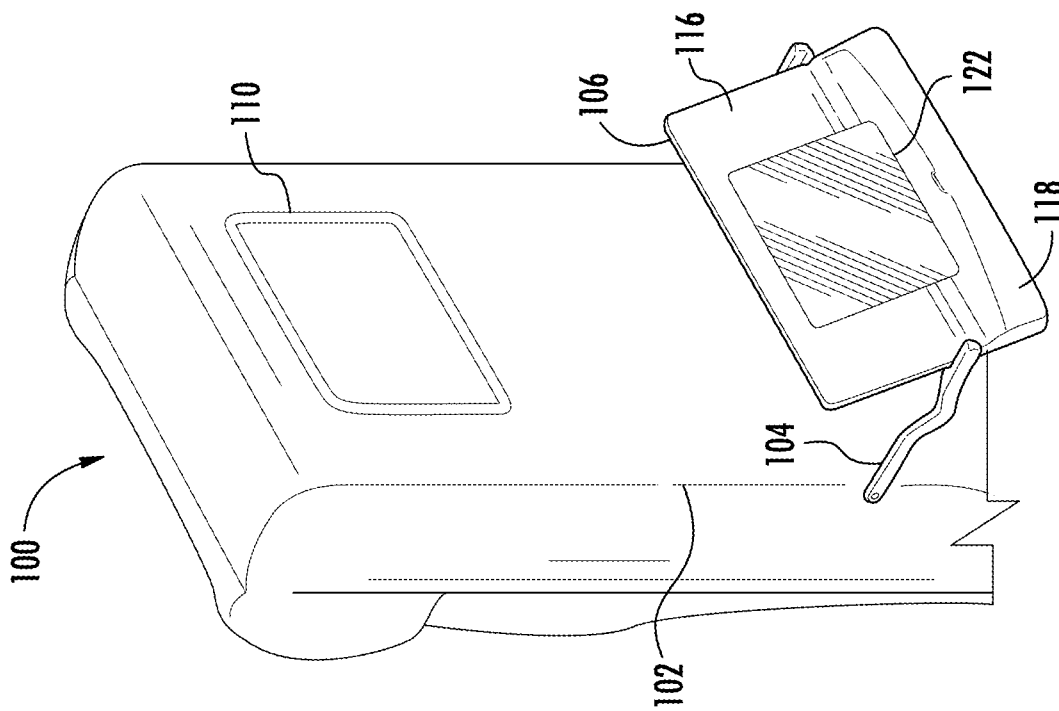


FIG. 11

INTERNATIONAL SEARCH REPORT

| |
|--|
| International application No PCT/US2012/044549 |
|--|

A. CLASSIFICATION OF SUBJECT MATTER
INV. B64D11/00 B64D11/06
 ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
B64D B60N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal , WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|---|-------------------------------|
| Y | US 2003/184957 AI (STAHL ROBERT EDWARD [US] ET AL) 2 October 2003 (2003-10-02) figures 1,2 ----- | 1-8,13, 18 |
| Y | US 6 454 349 BI (KONYA KAZUHIDE [US]) 24 September 2002 (2002-09-24) figures 1,2 ----- | 1-3 ,5-8, 13 , 18 |
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| Y | US 5 695 240 A (LURIA DAVID [IL]) 9 December 1997 (1997-12-09) figure 1 ----- | 1-8, 12 , 13 , 17-19 |
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| Y | US 5 695 240 A (LURIA DAVID [IL]) 9 December 1997 (1997-12-09) figure 1 ----- | 2, 3, 7, 12, 13, 17, 19 |
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Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance
 "E" earlier application or patent 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)
 "O" document referring to an oral disclosure, use, exhibition or other means
 "P" document published prior to the international filing date but later than the priority date claimed

"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 when the document is taken alone

"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

Date of the actual completion of the international search

Date of mailing of the international search report

25 September 2012

10/10/2012

Name and mailing address of the ISA/
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 Fax: (+31-70) 340-3016

Authorized officer

Pedersen , Kenneth

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/044549

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. All required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos. :

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-8

Seat back with a pivotably mounted table arm, a tray table pivotably mounted to the table arm, the tray table being rotatable to face the passenger

2. claims: 9-13

Tray table with first and second surfaces, a compartment for holding passenger's items in a vertical or angular position being provided on the second surface

3. claims: 14-19

Tray table with first and second surfaces, a support member for holding passenger's items in a vertical or angular position being provided on the second surface

4. claim: 20

Tray table with first and second surfaces, a video display being provided on the second surface

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2012/044549

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|--|-----------------------|
| X | US 4 756 528 A (UMASHANKAR RAMON [US]) 12 July 1988 (1988-07-12) | 20 |
| Y | figures 1,2 ----- | 8 |
| X | US 4 584 603 A (HARRISON ELDEN D [US]) 22 April 1986 (1986-04-22) | 20 |
| Y | figures 2-4 ----- | 8 |
| X | DE 101 18 496 A1 (WILHELM SOLUTIONS GMBH & CO KG [DE]) 17 October 2002 (2002-10-17) | 20 |
| Y | figures 1,2 ----- | 8 |
| X | FR 2 908 702 A1 (RENAULT SAS [FR]) 23 May 2008 (2008-05-23) | 14, 15 |
| | figures 1A, 1B ----- | |

INTERNATIONAL SEARCH REPORT

Information on patent family members

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| International application No PCT/US2012/044549 |
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