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Passenger seat armrest with a multi-zone top surface

Abstract

An armrest for a passenger seat has a forward end, an aft end opposite from the forward end, and a top surface extending from the forward end to the aft end. The top surface includes a first zone and a second zone, and a curvature of the first zone of the top surface is different from a curvature of the second zone of the top surface. In some examples, at least one of the first zone or the second zone has a concave curvature.

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References Cited

U.S. PATENT DOCUMENTS

Patent No.	Issued Date	Patentee Name	U.S. Cl.	CPC
5195709	12/1992	Yasushi	248/584	B64D 11/0627
5350217	12/1993	Kanigowski	297/466	B64D 11/06
9986841	12/2017	McMillan	N/A	N/A
10569732	12/2019	Nagasawa	N/A	B60R 21/207
2007/0241235	12/2006	Atchison	244/122R	B64D 11/06
2011/0043026	12/2010	Montalvo	297/411.4	B64D 11/0646
2011/0148156	12/2010	Westerink	108/134	B64D 11/06
2012/0025571	12/2011	Merensky	297/411.3	B64D 11/06
2013/0076082	12/2012	Herault	297/173	B60N 3/002
2014/0217798	12/2013	Negusse	297/411.3	B60N 2/77
2014/0252821	12/2013	Friedlander	297/232	B60N 3/002
2015/0210395	12/2014	Saint-Jalmes	244/118.6	B64D 11/0644
2016/0355265	12/2015	Shih	N/A	B64D 11/0644
2017/0088268	12/2016	Kinard	N/A	B64D 11/0646
2018/0105272	12/2017	Scott et al.	N/A	N/A
2018/0178700	12/2017	Welch et al.	N/A	N/A
2018/0281723	12/2017	Nagasawa	N/A	B60N 2/753
2019/0092475	12/2018	Carlioz	N/A	B64D 11/00153
2019/0106077	12/2018	Dry	N/A	B60N 2/79
2019/0184877	12/2018	Gomez	N/A	B60N 2/20
2019/0225342	12/2018	Boddu	N/A	B64D 11/06

FOREIGN PATENT DOCUMENTS

Patent No.	Application Date	Country	CPC

3925233	12/1990	DE	B60N 2/75
1078852	12/2000	EP	B64D 11/0015
3125726	12/2016	EP	N/A
796613	12/1957	GB	N/A

OTHER PUBLICATIONS

International Patent Application No. PCT/US2019/063965, International Search Report and Written Opinion, dated Jul. 20, 2020. cited by applicant

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Background/Summary

REFERENCE TO RELATED APPLICATION (1) The application claims the benefit of U.S. Provisional Application No. 62/925,864, filed on Oct. 25, 2019 and entitled PASSENGER SEAT ARMREST WITH A MULTI-ZONE TOP SURFACE, the content of which is hereby incorporated by reference in its entirety.

FIELD OF THE INVENTION
(1) The field of the invention relates to passenger seats, and, more particularly, to an armrest for a passenger seat.
BACKGROUND
(2) Passenger vehicles, such as aircraft, buses, trains, ships, and automobiles, include passenger seats for passengers to sit in and utilize during travel. Sometimes, passenger seats are provided such that one passenger is seated next to another passenger, and an armrest is provided between the passengers. In such situations with a shared armrest, the two passengers are either forced to share the armrest surface or one passenger uses the entirety of the armrest surface while the other passenger cannot use the armrest. It is common for both scenarios to cause tension between the passengers due to the impact on the passenger's living space. There have been some proposals to solve the issue of the shared armrest such attaching a divider onto the armrest, but such solutions are generally complex, add weight to the passenger seats, and have issues complying with various certifications (e.g., passenger seat certifications for aircraft).
SUMMARY
(3) The terms “invention,” “the invention,” “this invention” and “the present invention” used in this patent are intended to refer broadly to all of the subject matter of this patent and the patent claims below. Statements containing these terms should be understood not to limit the subject matter described herein or to limit the meaning or scope of the patent claims below. Embodiments of the invention covered by this patent are defined by the claims below, not this summary. This summary is a high-level overview of various aspects of the invention and introduces some of the concepts that are further described in the Detailed Description section below. This summary is not intended to identify key or essential features of the claimed subject matter, nor is it intended to be used in isolation to determine the scope of the claimed subject matter. The subject matter should be understood by reference to appropriate portions of the entire specification of this patent, any or all drawings and each claim.

(4) According to certain embodiments of the present invention, an armrest for a passenger seat includes a forward end, an aft end opposite from the forward end, and a top surface extending from the forward end to the aft end. The top surface includes a first zone and a second zone, and the first zone of the top surface includes a concave curvature.

(5) In some embodiments, at least a portion of the second zone is between the first zone and the forward end of the armrest. In various examples, the second zone of the top surface is proximate to the forward end of the armrest, and a width of the second zone of the top surface at the forward end is greater than a width of the first zone of the top surface. In certain aspects, the second zone of the top surface is planar. In some examples, the second zone of the top surface includes a concave curvature, and wherein the concave curvature of the first zone of the top surface is different from the concave curvature of the second zone of the top surface.

(6) In various examples, the armrest also includes a first side extending between the forward end and the aft end and a second side opposite from the first side and extending between the forward end and the aft end. In certain cases, the first zone of the top surface has the concave curvature in a direction extending between the forward end and the aft end and in a direction extending between the first side and the second side. In some embodiments, the armrest also includes at least one forearm support pivotably coupled to the forward end of the armrest.

(7) According to certain embodiments of the present invention, an armrest for a passenger seat includes a forward end, an aft end opposite from the forward end, and a top surface extending from the forward end to the aft end. The top surface includes a first zone and a second zone, and a curvature of the first zone of the top surface is different from a curvature of the second zone of the top surface.

(8) In various embodiments, at least a portion of the second zone of the top surface is between the first zone of the top surface and the forward end of the armrest. In certain cases, the first zone of the top surface includes a concave curvature and the second zone of the top surface is planar. In some examples, the second zone of the top surface is proximate to the forward end of the armrest, and a width of the second zone of the top surface at the forward end is greater than a width of the first zone of the top surface.

(9) In some examples, the armrest further includes a first side extending between the forward end and the aft end and a second side opposite from the first side and extending between the forward end and the aft end. In certain aspects, the first zone of the top surface includes a concave curvature in a direction extending between the forward end and the aft end and in a direction extending between the first side and the second side. The top surface of the armrest may include a third zone, and a curvature of the third zone of the top surface may be different from the curvature of the first zone of the top surface and different from the curvature of the second zone of the top surface.

(10) According to certain embodiments of the present invention, an armrest for a passenger seat includes a first side and a second side opposite from the first side. The first side and the second side define a length of the armrest, and the length is greater than a width of the armrest. The armrest also includes a top surface extending between the first side and the second side. The top surface includes a first zone between the first side and the second side and a second zone between the first zone and the second side, and a curvature of the first zone of the top surface is different from a curvature of the second zone of the top surface.

(11) In some embodiments, the first zone of the top surface is planar and the second zone of the top surface includes a concave curvature. In various embodiments, the first zone of the top surface includes a concave curvature and the second zone of the top surface includes a concave curvature. In certain examples, the armrest includes a forward end and an aft end opposite from the forward end, the first side and the second side extend between the forward end and the aft end, and at least a portion of the first zone of the top surface is between the second zone of the top surface and the forward end. In various aspects, a width of the second zone of the top surface at the forward end is greater than a width of the first zone of the top surface. In some cases, the armrest includes at least

one forearm support pivotably coupled to the forward end of the armrest. In various embodiments, the second zone of the top surface includes a concave curvature in a direction extending between the forward end and the aft end and in a direction extending between the first side and the second side.

Description

BRIEF DESCRIPTION OF THE DRAWINGS

(1) FIG. **1** is a front view a passenger seat arrangement according to certain embodiments of the present invention, the passenger seat arrangement including an armrest with a multi-zone top surface.

(2) FIG. **2** is another front view of the passenger seat arrangement of FIG. **1**.

(3) FIG. **3** is a perspective view of the armrest of FIG. **1** with the multi-zone top surface.

(4) FIG. **4** is another perspective view of the armrest of FIG. **1** with the multi-zone top surface.

(5) FIG. **5** is another perspective view of the armrest of FIG. **1** with the multi-zone top surface.

(6) FIG. **6** is another perspective view of the armrest of FIG. **1** with the multi-zone top surface.

(7) FIG. **7** is a perspective view of an armrest with a multi-zone top surface according to certain embodiments of the present invention.

(8) FIG. **8** is a top view of the armrest of FIG. **7**.

(9) FIG. **9** is a sectional view of the armrest of FIG. **7** taken along line **9**-**9** in FIG. **8**.

(10) FIG. **10** is a sectional view of the armrest of FIG. **7** taken along line **10**-**10** in FIG. **8**.

(11) FIG. **11** is a perspective view of an armrest with a multi-zone top surface according to certain embodiments of the present invention.

(12) FIG. **12** is another perspective view of the armrest of FIG. **11**.

(13) FIG. **13** is a perspective view of an armrest with a multi-zone top surface according to certain embodiments of the present invention.

(14) FIG. **14** is another perspective view of the armrest of FIG. **13**.

(15) FIG. **15** is a perspective view of an armrest with a multi-zone top surface according to certain embodiments of the present invention.

(16) FIG. **16** is another perspective view of the armrest of FIG. **15**.

(17) FIG. **17** is a perspective view of an armrest with a pivotable forearm support according to certain embodiments of the present invention.

(18) FIG. **18** is a perspective view of an armrest with a pivotable forearm support according to certain embodiments of the present invention.

DETAILED DESCRIPTION

(19) The subject matter of embodiments of the present invention is described here with specificity to meet statutory requirements, but this description is not necessarily intended to limit the scope of the claims. The claimed subject matter may be embodied in other ways, may include different elements or steps, and may be used in conjunction with other existing or future technologies. This description should not be interpreted as implying any particular order or arrangement among or between various steps or elements except when the order of individual steps or arrangement of elements is explicitly described.

(20) The described embodiments of the invention provide multi-zone armrests for passenger seats. While the multi-zone armrests are discussed for use with aircraft seats, they are by no means so limited. Rather, embodiments of the multi-zone armrests may be used in passenger seats or other seats of any type or otherwise as desired. Each multi-zone armrest has a top surface, and the top surface has at least two zones. In various aspects, the top surface of the multi-zone armrest may include more than two zones, such as three zones, four zones, etc. In certain embodiments, the curvature of the top surface in one of the zones is different from the curvature of the top surface in

another one of the zones. In some embodiments, at least one of the zones of the top surface of the multi-zone armrest has a concave curvature. In various non-limiting examples, the concave curvature of the at least one zone may conform to anthropometric dimensions of portions of a passengers arm (e.g., elbow, forearm, etc.). In certain aspects, the multi-zone armrest visually and physically divides the top surface of the armrest such that passengers sharing the armrest understand the limits of their personal space.

(21) FIGS. **1**-**6** illustrate an example of a passenger seat assembly **100** according to certain embodiments of the present disclosure. The passenger seat assembly **100** includes a base **102** and at least one backrest **104**. In the example of FIGS. **1**-**6**, the passenger seat assembly **100** is capable of carrying a quantity of three passengers, and accordingly has three backrests **104**A-C. It will be appreciated that in various other examples, the passenger seat assembly **100** can be capable of carrying any desired number of passengers, such as one passenger, two passengers, three passengers, four passengers, or any other desired number of passengers. In these examples, the passenger seat assembly **100** can likewise have any desired number of corresponding backrests **104**. Each backrest **104** has a forward-facing side **106** and an aft-facing side (not visible in FIGS. **1**-**6**) opposite from the forward-facing side **106**. When used by the passenger, the forward-facing side **106** is a side against which a passenger may rest his or her back. In some cases, each backrest **104** may be pivotably connected to the base **102** such that a passenger can be in various positions such as a reclined position, upright position, etc. The base **102** may include legs **108** or other suitable supports to support the passenger seat assembly **100** on a surface, such as a surface of a passenger vehicle.

(22) Armrests **110** may also be provided with the passenger seat assembly **100**. In the example of FIGS. **1**-**6**, four armrests **110**A-D are provided, although it will be appreciated that any number of armrests could be utilized as desired. In some cases, one or more armrests may be movable between a stowed configuration (see, e.g., armrests **110**B and **110**C in FIG. **1**) and a deployed position (see, e.g., armrests **110**B and **110**C in FIG. **2**). In some cases, in the stowed configuration, the armrests may be at least partially within a gap defined between adjacent backrests **104**. In the deployed position, some of the armrests (e.g., armrests **110**B and **110**C) may be shared by passengers sitting in adjacent seats, and the armrests may separate the living space of one passenger from the living space of an adjacent passenger.

(23) In some cases, at least one of the armrests **110** may be a multi-zone armrest **112**. In the example of FIGS. **1**-**6**, the armrests **110**B and **110**C are multi-zone armrests **112**. As best illustrated in FIGS. **3**-**6**, the multi-zone armrest **112** includes a forward end **114**, an aft end **116** opposite from the forward end **114**, a first side **118** extending between the forward end **114** and the aft end **116**, and a second side **120** opposite from the first side **118** and extending between the forward end **114** and the aft end **116**. In some cases, the aft end **116** is the portion of the armrest **110** that is pivotably connected to the passenger seat assembly **100** such that the multi-zone armrest **112** is movable between the stowed position and the deployed position. A top surface **121** extends between the forward end **114**, the aft end **116**, the first side **118**, and the second side **120**, and is generally the surface that the passenger may rest a portion of his or her arm on when the armrest is in the deployed position. A distance from the forward end **114** to the aft end **116** is a length of the multi-zone armrest **112**, and a distance from the first side **118** to the second side **120** is a width of the multi-zone armrest **112**.

(24) In some optional examples, and as best illustrated in FIG. **3**, the portion of the top surface **121** that is proximate to the forward end **114** may have a width that is greater than other portions of the multi-zone armrest **112**, although it need not in other examples. In some cases and when included, the increased width of the top surface **121** proximate to the forward end **114** may increase the amount of the top surface **121** that is usable by a particular passenger. In various examples, a maximum width of the portion of the top surface **121** proximate to the forward end **114** is less than a distance between adjacent backrests **104** of the passenger seat assembly **100**.

(25) The top surface **121** of the multi-zone armrest **112** includes a first zone **122** and a second zone **124**. In other examples, the top surface **121** may include additional zones such that the top surface **121** has more than two zones. In various aspects, the first zone **122** is the part of the top surface **121** configured to accommodate one passenger, and the second zone **124** is the part of the top surface **121** configured to accommodate an adjacent passenger sharing the multi-zone armrest **112**. The particular locations, shapes or profiles, and sizes of the first zone **122** and the second zone **124** should not be considered limiting on the current disclosure. As one non-limiting example, the first zone **122** may be proximate to the forward end **114** and the second zone **124** may be proximate to the aft end **116** or vice versa. As another non-limiting example, at least a portion of the first zone **122** may be between the second zone **124** and the forward end **114** and at least a portion of the second zone **124** may be between the first zone **122** and the aft end **116** or vice versa. As a further non-limiting example, the first zone **122** may be between the first side **118** and the second side **120** and the second zone **124** may be between the first zone **122** and the second side **120** or vice versa.
(26) In various examples, the curvature of the top surface **121** in the first zone **122** is different from the curvature of the top surface **121** in the second zone **124**. As some non-limiting examples, the first zone **122** and/or the second zone **124** may be planar, have a concave curvature, have a convex curvature, or any other surface curvature as desired. As such, the curvature of the first zone **122** and the second zone **124** illustrated in the figures should not be considered limiting on the current disclosure. When the top surface **121** includes more than two zones, the curvature of the additional zones may be different from or the same as the curvature of the first zone **122** and/or the curvature of the second zone **124** (see, e.g., FIGS. **11**-**16**).
(27) In some examples, at least one of the first zone **122** or the second zone **124** may have a concave curvature. In certain aspects, the zone proximate to the aft end **116** may have a concave curvature, although that need not always be the case. In certain examples, the first zone **122** may have a first concave curvature and the second zone **124** may have a second concave curvature that is different from the first concave curvature. In some embodiments, the concavity of the first zone **122** and/or the second zone **124** may be complimentary to an anthropometric dimension of a portion of a passenger's arm, such as an elbow, a forearm, etc. In various embodiments, the curvature of the first zone **122** and/or the second zone **124** may have a concavity in the length direction, the width direction, or both the length direction and the width direction of the multi-zone armrest **112**. In some examples, the different curvatures of the first zone **122** and the second zone **124** may optionally provide a physical indication, such as physical discomfort or physical comfort, when the wrong passenger is using a particular zone of the top surface **121** and/or when the correct passenger is using a particular zone of the top surface **121**. In some cases, the first zone **122** and the second zone **124** may have visual or tactile features to differentiate the zones **122**, **124** and provide a visual indication and/or physical indication to the passengers about the different zones.
(28) In the example of FIGS. **1**-**6**, the first zone **122** has a planar curvature, is at the forward end **114** and is between the second zone **124** and the forward end **114**, and at least a portion of the first zone **122** is between the second zone **124** and the second side **120**. The second zone **124** has a concave curvature, is at the aft end **116** and is between the first zone **122** and the aft end **116**, and at least a portion of the second zone **124** is between the first zone **122** and the first side **118**. As best illustrated in FIG. **3**, in this embodiment, the width of the first zone **122** at the forward end **114** is greater than a width of the second zone **124**. In these examples, the first zone **122** has a first visual indicator **126**A and the second zone **124** has a second visual indicator that is different from the first visual indicator **126**B. In FIGS. **3**-**6**, the multi-zone armrest **112** illustrated is the armrest **110**B, and the first zone **122** is configured to be used by a first passenger **128**A utilizing the backrest **104**A and the second zone **124** is configured to be used by a second passenger **128**B utilizing the backrest **104**B.
(29) As illustrated in FIGS. **5** and **6**, in various aspect, the multi-zone armrest **112** with top surface **121** having the first zone **122** and the second zone **124** with different curvatures may allow for the

passengers to have predefined living spaces on the shared armrest. The multi-zone armrest **112** may also allow for passengers in adjacent seats to share the armrest by taking advantage of existing armrest space and without requiring additional materials or dividers that may otherwise cause complications or require additional certifications in certain industries such as the aviation industry.
(30) FIGS. **7-10** illustrate another example of a multi-zone armrest **712** according to embodiments of the present disclosure. The multi-zone armrest **712** is substantially similar to the multi-zone armrest **112** and includes the first zone **122** and the second zone **124**. Compared to the first zone **122** of the multi-zone armrest **112**, the first zone **122** of the multi-zone armrest **712** extends from the forward end **114** to the aft end **116**. In this example, a portion of the first zone **122** is between the second zone **124** and the forward end **114** and between the second zone **124** and the aft end **116**. Similar to the first zone **122** of the multi-zone armrest **112**, the first zone **122** of the multi-zone armrest **712** has a planar curvature, but a shape of the first zone **122** of the multi-zone armrest **712** is different from the shape of the multi-zone armrest **112**. Compared to the second zone **124** of the multi-zone armrest **112**, the second zone **124** of the multi-zone armrest **712** has a different shape and different concave curvature.
(31) FIGS. **11** and **12** illustrate another example of a passenger seat assembly **1100** according to embodiments of the present disclosure that includes a multi-zone armrest **1112**. The multi-zone armrest **1112** is substantially similar to the multi-zone armrest **112** and includes the first zone **122** and the second zone **124**. Compared to the multi-zone armrest **112**, the first zone **122** and the second zone **124** of the multi-zone armrest **1112** both have a concave curvature. The top surface **121** of the multi-zone armrest **1112** also includes a third zone **1130** that extends from the forward end **114** to the aft end **116**. In these examples, the third zone **1130** has a planar curvature, although it could have other curvatures in other examples. In various examples, a portion of the third zone **1130** is between the zones **122**, **124** and the forward end **114**, a portion of the third zone **1130** is between the zones **122**, **124** and the aft end **116**, and a portion of the third zone **1130** is between the first zone **122** and the second zone **124**.
(32) FIGS. **13** and **14** illustrate another example of a passenger seat assembly **1300** that includes a multi-zone armrest **1312** according to embodiments of the present disclosure. The multi-zone armrest **1312** is substantially similar to the multi-zone armrest **1112** and includes the first zone **122** and the second zone **124**, and both the first zone **122** and the second zone **124** of the multi-zone armrest **1312** have a concave curvature. However, compared to the multi-zone armrest **1112**, the concavity of the first zone **122** and the second zone **124** of the multi-zone armrest **1312** is different. The top surface **121** of the multi-zone armrest **1312** also includes the third zone **1130** that extends from the forward end **114** to the aft end **116**. In these examples, the third zone **1130** has a planar curvature, although the shape of the third zone **1130** of the multi-zone armrest **1312** is different from the shape of the third zone **1130** of the multi-zone armrest **1112**. In the example of FIGS. **13** and **14**, a portion of the third zone **1130** is between the zones **122**, **124** and the forward end **114**, a portion of the third zone **1130** is between the zones **122**, **124** and the aft end **116**, and a portion of the third zone **1130** is between the first zone **122** and the second zone **124**.
(33) FIGS. **15** and **16** illustrate another example of a passenger seat assembly **1500** with a multi-zone armrest **1512** according to embodiments of the present disclosure. The multi-zone armrest **1512** is substantially similar to the multi-zone armrest **112** and includes the first zone **122** and the second zone **124**. In the multi-zone armrest **1512**, the first zone **122** of the multi-zone armrest **1512** has a concave curvature and the second zone **124** has a planar curvature. In this example, both the first zone **122** and the second zone **124** are at the aft end **116**, and a portion of the second zone **124** is between the first zone **122** and the forward end **114**. As best illustrated in FIGS. **15** and **16**, a ridge **1532** is optionally defined at a boundary between the first zone **122** and the second zone **124** proximate to the aft end **116**. When included, the ridge **1532** may provide a physical indication of the boundary between the two zones **122**, **124** when passengers use the multi-zone armrest **1512**. It will be appreciated that the ridge **1532** may extend along various lengths of the boundary between

adjacent zones of the top surface **121** as desired.
(34) The multi-zone armrest **1512** also includes two forearm supports **1534** that may selectively support portions of a passenger's arms. In various aspects, each forearm support **1534** is pivotably attached to the multi-zone armrest **1512**. In some cases, the forearm supports **1534** are pivotably attached to the forward end **114**, although they may be attached at other locations in various other embodiments. The forearm supports **1534** are movable (represented by arrows **1535** in FIG. **16**) between a stowed position (FIG. **16**) and a deployed position. As illustrated in FIG. **16**, in the stowed position, the forearm supports **1534** are positioned adjacent to one another and optionally in contact with each other. In the deployed position, forward ends **1536** of the forearm supports **1534** are spaced apart from each other. In various examples, the forearm supports **1534** may be independently movable relative to the multi-zone armrest **1512**, although they need not be. In some cases, the forearm supports **1534** may optionally be biased toward the stowed position such that a default position of the forearm supports **1534** is the stowed position when not in use. The shape of the forearm supports **1534** should not be considered limiting on the current disclosure, as the forearm supports **1534** may have various suitable shapes as desired to support various portions of a passenger's arm. It will further be appreciated that the forearm supports **1534** may be provided in armrests **110** does not have a multi-zone top surface **121**.
(35) FIG. **17** illustrates an example of a passenger seat assembly **1700** with an armrest **1710** according to aspects of the current disclosure that does not have a multi-zone top surface **121** but includes the forearm supports **1534**. Compared to the forearm supports **1534** of FIGS. **15** and **16**, the forearm supports **1534** of the armrest **1710** have a different shape and are attached to an underside of the armrest **1710**.
(36) FIG. **18** illustrates an example of a passenger seat assembly **1800** with a multi-zone armrest **1812** according to aspects of the current disclosure that includes the first zone **122**, the second zone **124**, and the forearm supports **1534**. In this example, the first zone **122** has a planar curvature and the second zone **124** has a concave curvature. Compared to the forearm supports **1534** of FIGS. **15** and **16**, the forearm supports **1534** of the multi-zone armrest **1812** have a different shape and are attached to the top surface **121** of the multi-zone armrest **1812**.
(37) A collection of exemplary embodiments, including at least some explicitly enumerated as "Examples," providing additional description of a variety of embodiment types in accordance with the concepts described herein are provided below. These examples are not meant to be mutually exclusive, exhaustive, or restrictive; and the invention is not limited to these example embodiments but rather encompasses all possible modifications and variations within the scope of the issued claims and their equivalents.
(38) Example 1. An armrest for a passenger seat, the armrest comprising: a forward end; an aft end opposite from the forward end; and a top surface extending from the forward end to the aft end, wherein the top surface comprises a first zone and a second zone, and wherein the first zone of the top surface comprises a concave curvature.
(39) Example 2. The armrest of any preceding or subsequent examples or combination of examples, wherein at least a portion of the second zone is between the first zone and the forward end of the armrest.
(40) Example 3. The armrest of any preceding or subsequent examples or combination of examples, wherein the second zone of the top surface is proximate to the forward end of the armrest, and wherein a width of the second zone of the top surface at the forward end is greater than a width of the first zone of the top surface.
(41) Example 4. The armrest of any preceding or subsequent examples or combination of examples, wherein the second zone of the top surface is planar.
(42) Example 5. The armrest of any preceding or subsequent examples or combination of examples, wherein the second zone of the top surface comprises a concave curvature, and wherein the concave curvature of the first zone of the top surface is different from the concave curvature of

the second zone of the top surface.
(43) Example 6. The armrest of any preceding or subsequent examples or combination of examples, wherein the armrest further comprises a first side extending between the forward end and the aft end and a second side opposite from the first side and extending between the forward end and the aft end, and wherein the first zone of the top surface has the concave curvature in a direction extending between the forward end and the aft end and in a direction extending between the first side and the second side.
(44) Example 7. The armrest of any preceding or subsequent examples or combination of examples, wherein the armrest further comprises at least one forearm support pivotably coupled to the forward end of the armrest.
(45) Example 8. A passenger seat assembly comprising: a base; at least one backrest; and at least one armrest according any preceding or subsequent examples or combination of examples.
(46) Example 9. An armrest for a passenger seat, the armrest comprising: a forward end; an aft end opposite from the forward end; and a top surface extending from the forward end to the aft end, wherein the top surface comprises a first zone and a second zone, and wherein a curvature of the first zone of the top surface is different from a curvature of the second zone of the top surface.
(47) Example 10. The armrest of any preceding or subsequent examples or combination of examples, wherein at least a portion of the second zone of the top surface is between the first zone of the top surface and the forward end of the armrest.
(48) Example 11. The armrest of any preceding or subsequent examples or combination of examples, wherein the first zone of the top surface comprises a concave curvature and wherein the second zone of the top surface is planar.
(49) Example 12. The armrest of any preceding or subsequent examples or combination of examples, wherein the second zone of the top surface is proximate to the forward end of the armrest, and wherein a width of the second zone of the top surface at the forward end is greater than a width of the first zone of the top surface.
(50) Example 13. The armrest of any preceding or subsequent examples or combination of examples, wherein the armrest further comprises a first side extending between the forward end and the aft end and a second side opposite from the first side and extending between the forward end and the aft end, and wherein the first zone of the top surface comprises a concave curvature in a direction extending between the forward end and the aft end and in a direction extending between the first side and the second side.
(51) Example 14. The armrest of any preceding or subsequent examples or combination of examples, wherein the top surface of the armrest further comprises a third zone, and wherein a curvature of the third zone of the top surface is different from the curvature of the first zone of the top surface and different from the curvature of the second zone of the top surface.
(52) Example 15. A passenger seat assembly comprising: a base; at least one backrest; and at least one armrest according any preceding or subsequent examples or combination of examples.
(53) Example 16. An armrest for a passenger seat, the armrest comprising: a first side; a second side opposite from the first side, wherein the first side and the second side define a length of the armrest, and wherein the length is greater than a width of the armrest; and a top surface extending between the first side and the second side, wherein the top surface comprises a first zone between the first side and the second side and a second zone between the first zone and the second side, and wherein a curvature of the first zone of the top surface is different from a curvature of the second zone of the top surface.
(54) Example 17. The armrest of any preceding or subsequent examples or combination of examples, wherein the first zone of the top surface is planar and wherein the second zone of the top surface comprises a concave curvature.
(55) Example 18. The armrest of any preceding or subsequent examples or combination of examples, wherein the first zone of the top surface comprises a concave curvature and wherein the

second zone of the top surface comprises a concave curvature.
(56) Example 19. The armrest of any preceding or subsequent examples or combination of examples, wherein the armrest further comprises a forward end and an aft end opposite from the forward end, wherein the first side and the second side extend between the forward end and the aft end, and wherein at least a portion of the first zone of the top surface is between the second zone of the top surface and the forward end.
(57) Example 20. The armrest of any preceding or subsequent examples or combination of examples, wherein a width of the second zone of the top surface at the forward end is greater than a width of the first zone of the top surface.
(58) Example 21. The armrest of any preceding or subsequent examples or combination of examples, wherein the armrest further comprises at least one forearm support pivotably coupled to the forward end of the armrest.
(59) Example 22. The armrest of any preceding or subsequent examples or combination of examples, wherein the second zone of the top surface comprises a concave curvature in a direction extending between the forward end and the aft end and in a direction extending between the first side and the second side.
(60) Example 23. A passenger seat assembly comprising: a base; at least one backrest; and at least one armrest according any preceding or subsequent examples or combination of examples.
(61) Different arrangements of the components depicted in the drawings or described above, as well as components and steps not shown or described are possible. Similarly, some features and sub-combinations are useful and may be employed without reference to other features and sub-combinations. Embodiments of the invention have been described for illustrative and not restrictive purposes, and alternative embodiments will become apparent to readers of this patent. Accordingly, the present invention is not limited to the embodiments described above or depicted in the drawings, and various embodiments and modifications may be made without departing from the scope of the claims below.

Claims

1. An armrest for a passenger seat, the armrest comprising: a forward end; an aft end opposite from the forward end, wherein the aft end is configured to attach to the passenger seat such that the armrest is pivotable about a first axis; a top surface, wherein the top surface comprises a first zone and a second zone, and wherein the first zone of the top surface comprises a concave curvature; and at least first and second forearm supports pivotably coupled to the forward end of the armrest, wherein the at least first and second forearm supports is pivotable in a side-to-side direction relative to the top surface between a stowed position, in which the first and second forearm supports are adjacent and in contact with each other, and a deployed position, in which forward ends of the at least first and second forearm supports are spaced apart from each other, and wherein the at least first and second forearm supports at least partially forms the top surface and the top surface extends from the aft end to the at least first and second forearm supports.
2. The armrest of claim 1, wherein at least a portion of the second zone is between the first zone and the forward end of the armrest.
3. The armrest of claim 1, wherein the second zone of the top surface is proximate to the forward end of the armrest, and wherein a width of the second zone of the top surface at the forward end is greater than a width of the first zone of the top surface.
4. The armrest of claim 1, wherein the second zone of the top surface is planar.
5. The armrest of claim 1, wherein the second zone of the top surface comprises a concave curvature, and wherein the concave curvature of the first zone of the top surface is different from the concave curvature of the second zone of the top surface.
6. The armrest of claim 1, wherein the armrest further comprises a first side extending between the

forward end and the aft end and a second side opposite from the first side and extending between the forward end and the aft end, and wherein the first zone of the top surface has the concave curvature in a direction extending between the forward end and the aft end and in a direction extending between the first side and the second side.

7. An armrest for a passenger seat, the armrest comprising: a forward end; an aft end opposite from the forward end; and a top surface, wherein the top surface comprises a first zone, a second zone, and a third zone, wherein a curvature of the first zone of the top surface is different from a curvature of the second zone of the top surface, wherein the third zone extends from the forward end to the aft end, and wherein a curvature of the third zone of the top surface is different from the curvature of the first zone of the top surface and different from the curvature of the second zone of the top surface; and first and second forearm supports pivotably coupled to the forward end, wherein the first and second forearm supports pivotable in a side-to-side direction relative to the top surface between a stowed position, in which the first and second forearm supports are adjacent and in contact with each other, and a deployed position, in which forward ends of the first and second forearm supports are spaced apart from each other, and wherein the first and second forearm supports at least partially define the top surface which extends from the aft end to the forward ends of the first and second forearm supports.

8. The armrest of claim 7, wherein the first zone of the top surface comprises a concave curvature and wherein the third zone of the top surface is planar.

9. The armrest of claim 7, wherein the third zone of the top surface is proximate to the forward end of the armrest, and wherein a width of the third zone of the top surface at the forward end is greater than a width of the first zone of the top surface.

10. The armrest of claim 7, wherein the armrest further comprises a first side extending between the forward end and the aft end and a second side opposite from the first side and extending between the forward end and the aft end, and wherein the first zone of the top surface comprises a concave curvature in a direction extending between the forward end and the aft end and in a direction extending between the first side and the second side.

11. An armrest for a passenger seat, the armrest comprising: an aft end; and at least first and second forearm supports, each of the at least first and second forearm supports comprising a forward end, wherein the at least first and second forearm supports is pivotable in a side-to-side direction relative to a top surface between a stowed position, in which the at least first and second forearm supports are adjacent and in contact with each other, and a deployed position, in which the forward ends of the at least first and second forearm supports are spaced apart from each other and pivotable about an upright pivot axis between the aft end and the forward end, the top surface extending from the aft end to the forward end, wherein the top surface comprises at least a first zone and a second zone wherein a curvature of the first zone of the top surface is different from a curvature of the second zone of the top surface.

12. The armrest of claim 11, wherein the first zone of the top surface is planar and wherein the second zone of the top surface comprises a concave curvature.

13. The armrest of claim 11, wherein the first zone of the top surface comprises a concave curvature and wherein the second zone of the top surface comprises a concave curvature.

14. The armrest of claim 11, wherein a first side and a second side extend between the forward end and the aft end, and wherein at least a portion of the first zone of the top surface is between the second zone of the top surface and the forward end.

15. The armrest of claim 14, wherein at least one of the first and second forearm supports is pivotably coupled to a forward end of the armrest.

16. The armrest of claim 14, wherein the second zone of the top surface comprises a concave curvature in a direction extending between the forward end and the aft end and in a direction extending between a first side and a second side.

17. The armrest of claim 11, wherein the first zone comprises a first visual indicator and the second zone comprises a second visual indicator different from the first visual indicator.