HEADREST MECHANISM FOR CHILD SAFETY SEAT

CROSS REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of U.S. Application No. 63/564,927, filed on March 13, 2024, U.S. Application No. 63/664,562, filed on June 26, 2024, and U.S. Application No. 63/760,849, filed on February 20, 2025, which is incorporated herein by reference in its entirety.

BACKGROUND

[0001] Exemplary embodiments of the disclosure relative to child safety seats for use in a vehicle.

[0002] A child safety seat is typically used in an automobile vehicle to properly restrain a child in the event of accident. Various portions of the child seat may be adjusted based on the size of the child positioned within the child seat to maximize comfort and safety. The headrest of the child seat may be one of these adjustable components. It is desirable to provide a headrest locking mechanism operable to lock the headrest at a plurality of positions in such a manner that unintended disengagement is not possible.

BRIEF DESCRIPTION

[0001] According to an embodiment, a headrest locking mechanism for a child seat having a seat back and a headrest movably mounted to the seat back includes a track arranged at the seat back defining a plurality of positions of the headrest, an actuator movable along a first axis, and at least one actuation arm connected to the actuator. The at least one actuation arm is movable along the track. At least one guide slot is arranged at the at least one actuation arm. The at least one guide slot extends at a non-parallel angle relative to the first axis. At least one lock member is coupled to the at least one actuation arm and is engageable with the track to lock the headrest at one of the plurality of positions. The at least one lock member is movable relative to the at least one actuation arm via the at least one guide slot.

[0002] In addition to one or more of the features described above, or as an alternative, in further embodiments the at least one lock member is movable relative to the at least one actuation arm via the at least one guide slot to disengage from the track in response to movement of the actuator along the first axis in a first direction.

[0003] In addition to one or more of the features described above, or as an alternative, in further embodiments the at least one guide slot extends perpendicularly to the first axis.

[0004] In addition to one or more of the features described above, or as an alternative, in further embodiments the at least one guide slot is formed in the at least one actuation arm.

[0005] In addition to one or more of the features described above, or as an alternative, in further embodiments the at least one lock member includes a mounting protrusion, the mounting protrusion being slidably arranged within the at least one guide slot.

[0006] In addition to one or more of the features described above, or as an alternative, in further embodiments the at least one lock member includes at least one tooth engageable with the track to lock the headrest at one of the plurality of positions. The mounting protrusion extend from a body of the at least one lock member in a first direction and the at least one tooth extending from the body of the at least one lock member in a second direction.

[0007] In addition to one or more of the features described above, or as an alternative, in further embodiments the at least one tooth includes three teeth.

[0008] In addition to one or more of the features described above, or as an alternative, in further embodiments the mounting protrusion and the at least one tooth extend from the body of the at least one lock member in substantially perpendicular directions.

[0009] In addition to one or more of the features described above, or as an alternative, in further embodiments the at least one tooth extends laterally from the at least one lock member.

[0010] In addition to one or more of the features described above, or as an alternative, in further embodiments a biasing mechanism is operably coupled to the at least one actuation arm. The biasing mechanism is operable to bias the at least one actuation arm in a direction substantially parallel to the first axis.

[0011] In addition to one or more of the features described above, or as an alternative, in further embodiments a biasing mechanism operably coupled to the at least one lock member. The at least one lock member is biased by the biasing mechanism into engagement with the track.

[0012] In addition to one or more of the features described above, or as an alternative, in further embodiments the at least one actuation arm includes a first actuation arm and a second actuation arm, and the at least one lock member includes a first lock member and a second lock member. The first lock member is movably mounted to the first actuation arm and the second lock member is movably mounted to the second actuation arm.

[0013] In addition to one or more of the features described above, or as an alternative, in further embodiments the first lock member and the second lock member move in opposite directions in response to operation of the actuator.

[0014] In addition to one or more of the features described above, or as an alternative, in further embodiments the track is arranged in a channel formed at an upright support surface of the seat back.

[0015] In addition to one or more of the features described above, or as an alternative, in further embodiments the track is arranged at a back exterior surface of the seat back.

[0016] In addition to one or more of the features described above, or as an alternative, in further embodiments the at least one lock member includes at least one tooth engageable with the track to lock the headrest in one of the plurality of positions.

[0017] In addition to one or more of the features described above, or as an alternative, in further embodiments the at least one tooth includes a plurality of teeth, the plurality of teeth being simultaneously engageable with the track.

[0018] In addition to one or more of the features described above, or as an alternative, in further embodiments the track includes a plurality of openings and the at least one tooth is receivable within at least one of the plurality of openings when the at least one lock member is engaged with the track.

[0019] According to an embodiment, a headrest locking mechanism associated with a headrest movably mounted to a seat shell of a child seat, the headrest locking mechanism being transformable between a locked configuration in which the headrest is not movable relative to the seat shell, and an unlocked configuration in which the headrest is movable relative to the seat shell. The headrest locking mechanism includes at least one track defining a plurality of positions of the headrest relative to the seat shell, an actuation mechanism movable relative to the headrest, and at least one lock member movably coupled directly to the actuation mechanism. The at least one lock member is engageable with the at least one track to lock the headrest in one of the plurality of positions. The at least one lock member is movable out of engagement with the at least one track in response to operation of the actuation mechanism.

[0020] In addition to one or more of the features described above, or as an alternative, in further embodiments the at least one track is positioned closer to a central longitudinal axis of the child seat than the at least one lock member.

[0021] In addition to one or more of the features described above, or as an alternative, in further embodiments the at least one lock member is solely supported by the actuation mechanism.

[0022] In addition to one or more of the features described above, or as an alternative, in further embodiments the actuation mechanism includes an actuator and at least one actuation arm connected to the actuator.

[0023] In addition to one or more of the features described above, or as an alternative, in further embodiments the at least one actuation arm is integrally formed with the actuator.

[0024] In addition to one or more of the features described above, or as an alternative, in further embodiments the at least one lock member is slidably coupled to the at least one actuation arm.

[0025] In addition to one or more of the features described above, or as an alternative, in further embodiments the actuation mechanism is movable in a first direction and the at least one lock member is movable relative to the at least one actuation arm in a second direction.

[0026] In addition to one or more of the features described above, or as an alternative, in further embodiments the second direction is perpendicular to the first direction.

[0027] In addition to one or more of the features described above, or as an alternative, in further embodiments the at least one track is arranged in a channel formed at an upright support surface of a seat back of the seat shell.

[0028] In addition to one or more of the features described above, or as an alternative, in further embodiments the at least one lock member includes at least one tooth engageable with the at least one track to lock the headrest in one of the plurality of positions.

[0029] In addition to one or more of the features described above, or as an alternative, in further embodiments the at least one tooth includes a plurality of teeth and the plurality of teeth are simultaneously engageable with the at least one track.

[0030] In addition to one or more of the features described above, or as an alternative, in further embodiments the at least one track includes a plurality of openings and the plurality of teeth is receivable within corresponding openings of the plurality of openings when the at least one lock member is engaged with the at least one track.

[0031] In addition to one or more of the features described above, or as an alternative, in further embodiments the at least one tooth includes three teeth.

[0032] In addition to one or more of the features described above, or as an alternative, in further embodiments a biasing mechanism is operably coupled to the at least one lock member and is operable to bias the at least one lock member toward engagement with the at least one track.

[0033] According to an embodiment, a headrest locking mechanism associated with a headrest movably mounted to a seat shell of a child seat, the headrest locking mechanism being transformable between a locked configuration in which the headrest is not movable relative to the seat shell and an unlocked configuration in which the headrest is movable relative to the seat shell. The headrest locking mechanism includes at least one track defining a plurality of

positions of the headrest relative to the seat shell, an actuation mechanism movably mounted to the headrest, and at least one lock member engageable with the at least one track to lock the headrest in one of the plurality of positions. The at least one lock member is pivotably mounted to the headrest and is operably coupled to the actuation mechanism. The at least one lock member is movable out of engagement with the at least one track in response to operation of the actuation mechanism.

[0034] In addition to one or more of the features described above, or as an alternative, in further embodiments the at least one track is arranged proximate a back exterior surface of a seat back of the seat shell.

[0035] In addition to one or more of the features described above, or as an alternative, in further embodiments the actuation mechanism includes an actuator and at least one actuation arm connected to the actuator.

[0036] In addition to one or more of the features described above, or as an alternative, in further embodiments the at least one actuation arm is integrally formed with the actuator.

[0037] In addition to one or more of the features described above, or as an alternative, in further embodiments the at least one lock member is slidably coupled to the at least one actuation arm.

[0038] In addition to one or more of the features described above, or as an alternative, in further embodiments the actuation mechanism is translatable relative to the at least one lock member.

[0039] In addition to one or more of the features described above, or as an alternative, in further embodiments the at least one lock member includes a body and a mounting arm extends from a central portion of the body. The mounting arm is slidably coupled to the at least one actuation arm.

[0040] In addition to one or more of the features described above, or as an alternative, in further embodiments the at least one lock member is laterally engageable with the at least one track.

[0041] In addition to one or more of the features described above, or as an alternative, in further embodiments the at least one lock member includes an engagement member engageable with the at least one track to lock the headrest in one of the plurality of positions.

[0042] In addition to one or more of the features described above, or as an alternative, in further embodiments the engagement member is laterally engageable with the at least one track.

[0043] In addition to one or more of the features described above, or as an alternative, in further embodiments the at least one lock member includes a mounting arm operably coupled to the actuation mechanism. The engagement member extends from the at least one lock member in a first direction and the mounting arm extends from the at least one lock member in a second direction.

[0044] In addition to one or more of the features described above, or as an alternative, in further embodiments a first end of the at least one lock member is pivotably coupled to the headrest and the engagement member is arranged at an opposite second end of the at least one lock member.

[0045] In addition to one or more of the features described above, or as an alternative, in further embodiments a biasing mechanism is operably coupled to the at least one lock member and is operable to bias the at least one lock member toward engagement with the at least one track.

BRIEF DESCRIPTION OF THE DRAWINGS

[0046] The following descriptions should not be considered limiting in any way. With reference to the accompanying drawings, like elements are numbered alike:

[0047] FIG. 1A is a perspective view of a child seat system according to an embodiment;

[0048] FIG. 1B is a side view of the child seat system of FIG. 1A positioned on a vehicle seat according to an embodiment;

[0049] FIG. 2 is a perspective view of the child seat of the child seat system of FIG. 1 including a headrest locking mechanism according to an embodiment;

[0050] FIG. 3 is a detailed perspective view of a portion of the headrest locking mechanism of the child seat of FIG. 2 according to an embodiment;

[0051] FIG. 4A is a partially exploded front perspective view of a portion of a headrest locking mechanism arranged at a headrest of the child seat according to an embodiment;

[0052] FIG. 4B is a partially exploded front view of the portion of the headrest locking mechanism of FIG. 4A according to an embodiment;

[0053] FIG. 5A is a front perspective view of a portion of a headrest locking mechanism arranged at a headrest of the child seat according to an embodiment;

[0054] FIG. 5B is a front view of the portion of the headrest locking mechanism of FIG. 5A according to an embodiment;

[0055] FIG. 6 is a detailed view of a lock member of the headrest locking mechanism of FIGS. 2-5B according to an embodiment;

[0056] FIG. 7 is a perspective view of the lock member of FIG. 6 according to an embodiment;

[0057] FIG. 8 is a partially exploded rear view of a headrest locking mechanism according to an embodiment;

[0058] FIG. 9 is a detailed view of a portion of the headrest locking mechanism of FIG. 8 according to an embodiment;

[0059] FIG. 10 is a rea view of a portion of the headrest locking mechanism according to an embodiment;

[0060] FIG. 11A is a cross-sectional view of a portion of the headrest locking mechanism in a locked configuration according to an embodiment;

[0061] FIG. 11B is a rear view of a portion of the headrest locking mechanism in a locked configuration according to an embodiment;

[0062] FIG. 12A is a cross-sectional view of a portion of the headrest locking mechanism in an unlocked configuration according to an embodiment;

[0063] FIG. 12B is a rear view of a portion of the headrest locking mechanism in an unlocked configuration according to an embodiment;

[0064] FIG. 13 is a plan view of a track of the headrest locking mechanism arranged at a seat back of the child seat according to an embodiment;

[0065] FIG. 14 is a rear perspective view of a child seat including a headrest locking mechanism according to another embodiment;

[0066] FIG. 15A is a rear view of a portion of a headrest locking mechanism arranged at a headrest of the child seat of FIG. 14 according to an embodiment;

[0067] FIG. 15B is a rear view of the headrest of FIG. 15A with a back panel of the headrest removed according to an embodiment;

[0068] FIG. 16 is a rear perspective view of a seat back of a child seat according to an embodiment;

[0069] FIG. 17A is a rear view of a lock member of a headrest locking mechanism in a locked configuration according to an embodiment; and

[0070] FIG. 17B is a rear view of the lock member of a headrest locking mechanism of FIG. 17A in an unlocked configuration according to an embodiment.

DETAILED DESCRIPTION

[0071] A detailed description of one or more embodiments of the disclosed apparatus and method are presented herein by way of exemplification and not limitation with reference to the Figures.

[0072] With reference now to the FIGS. 1A-2B, an example of a child seat system 20 is illustrated. In the illustrated, non-limiting embodiment, the child seat system 20 includes a support base 22 that can be detachably fixed to a vehicle seat 10 (see FIG. 1B), such as via a latch or anchor mechanism, not shown in the FIGS. This latch or anchor system often used is sometimes referred to as a "lower anchor and tether for children" e.g., LATCH system. Alternatively, or in addition, the support base 22 may be detachably fixed to a vehicle seat 10 via a vehicle belt associated with the vehicle seat 10.

[0073] The child seat system 20 additionally includes a child seat 24 associated with the support base 22. In an embodiment, the child seat 24 is detachably coupled to the support base 22, thereby allowing the child seat 24 to be separated from the support base 22. Alternatively, the support base 22 and at least a portion of the child seat 24 may be permanently connected or affixed together, as will be described in more detail below. As used herein the term "permanently connected" identifies embodiments where the child seat 24 or a portion thereof is not intended to be disassembled from the support base 22 by a user.

[0074] The child seat 24 includes a seat shell 25 having a seat back 26 and a seat pan 28 arranged at an angle relative to the seat back 26. The seat pan portion 28 may but need not be configured to removably couple to the seat back 26. In the illustrated, non-limiting embodiments, the seat back 26 includes an upright support surface 30 generally facing forward and that extends from a first end or top 32 of the seat back 26 to a second, opposite end or bottom 34 of the seat back 26. A first upright side member 36 may be arranged at a first side 38 of the upright support surface 30 and a second upright side member 40 may be arranged at a second, opposite side 42 of the upright support surface 30. The first and second upright side members 36, 40 therefore form the left side and the right side of the seat back 26, respectively. As shown, the first and second upright side members 36, 40 extend forward from the upright support surface 30. The first and second upright side members 36, 40 may extend generally orthogonally to the upright support surface 30 or alternatively, may extend therefrom at another angle, such as an angle greater than 90° for example. Accordingly, the upright support surface 30 and the first and second upright side members 36, 40 define a backrest region or upright support cavity within which an upper body of a child is received.

[0075] The upright side members 36, 40 may facilitate the correct positioning of a vehicle belt during one or more modes of operation when the child seat 24 is installed within a

vehicle. Although not shown, in some embodiments, each upright side member 36, 40 has an opening formed therein. The openings may be configured to receive a vehicle belt (not shown) to secure the child seat 24 to a vehicle seat 10 in a forward-facing configuration or to secure an upper body of a child located within the cavity.

[0076] In the illustrated, non-limiting embodiments, the seat back portion 26 of the child seat 24 includes a headrest 46. The headrest 46 may be attached to or integral with the seat back 26 or may be removably coupled thereto. The headrest 46 may be stationary, or in some embodiments, may be configured to move relative to the upright support surface 30. For example, the headrest 46 may be configured to translate relative to the upright support surface 30 between a retracted position and an extended position, allowing for adjustment based on the size of the child positioned within the child seat 24. However, it should be appreciated that embodiments where the seat back 26 does not include a headrest 46 are also contemplated herein.

[0077] The seat pan 28 of the child seat 24 may include a seat support surface 50 facing generally upwardly and that extends from a first end or front 52 to a second end or back 54 of the seat pan 28. A first seat side member 56 may be arranged at a first side 58 of the seat support surface 50 and a second seat side member 60 may be arranged at a second, opposite side 62 of the seat support surface 50. The first seat side member 56 and the second seat side member 60 extend upwardly and from the left side and the right side of the seat portion. The seat support surface 50 and the first and second seat side members 56, 60 in combination define a region within which at least part of a lower body of a child may be received.

[0078] As shown, the seat side members 56, 60 extend at an angle from the seat support surface 50. The angle of the first seat side member 56 relative to the seat support surface 50 may but need not be the same as the angle of the first upright side member 36 relative to the upright support surface 30. Similarly, the angle of the second seat side member 60 relative to the seat support surface 50 may but need not be the same as the angle of the second upright side member 40 relative to the upright support surface 30.

[0079] In the illustrated, non-limiting embodiment, each seat side member 56, 60 has a slot 66 formed therein configured to function as a lap belt guide during at least one mode of use of the child seat 24. In some modes of operation of the child seat 24, the slot 66 may be configured to receive and position a lap belt portion of a vehicle restraint or a separate restraint belt to secure a child within the child seat 24. As will be described in more detail below, a rotational configuration and/or an incline of the child seat 24 may be adjusted when the child seat 24 is connected to the support base 22.

[0080] The support base 22 is operable to mount the child seat 24 about a vehicle seat and includes a base body 70 having a base seat or base bottom 72 and a base back 74. Suitable materials for making the base body 70 include but are not limited to rigid plastic or composite materials for example. The base bottom 72 and the base back 74 may be integrally formed as a unitary body, or alternatively, may be formed by separate components removably or permanently connected together. With continued reference to FIGS. 1A and 1B, in the illustrated, non-limiting embodiment, the support base 22 includes a first base member 76 having a bottom surface 78 suitable for placement on a support surface, such as a vehicle seat for example, and a second base member 80 coupled to the first base member 76. In the illustrated, non-limiting embodiment, at least a portion of the second base member 80 is positioned in overlapping arrangement with an upper surface 82 of the first base member 76. In the embodiments shown, the base back 74 of the support base 22 is formed solely by the second base member 80, and the base bottom 72 of the support base 22 is formed by the first base member 76 and the second base member 80, in combination.

[0081] The child seat 24 may be detachably couplable to the support base 22, thereby allowing the child seat 24 to be separated from the support base 22 by a user. Alternatively, the support base 22 and the child seat 24 may be permanently connected or affixed together. As used herein the term "permanently connected" represents embodiments where the child seat 24 is not intended to be disassembled from the support base 22 by a user.

[0082] With continued reference to FIGS. 1A and 1B and further reference to FIGS. 2–13, the headrest 46 is movable relative to the seat back 26 of the child seat 24 between a retracted position and an extended position, allowing for adjustment based on the size of the child positioned within the child seat system 20. A headrest locking mechanism 100 is operable to selectively lock the headrest 46 at a desired position relative to the seat back 26. As shown, the headrest locking mechanism 100 may include one or more channels 102a, 102b positioned about the seat shell 25. Although the at least one channel 102a, 102b of the headrest locking mechanism 100 may be arranged at any suitable position about the seat shell 25, such as at exterior or back surface of the seat back 26 for example, in other embodiments, the at least one channel 102a, 102b may be arranged at or proximate the upright support surface 30. In the non-limiting embodiment illustrated in FIG. 2, the at least one channel includes a first channel 102a arranged at the first side 104 of the upright support surface 30 near the first upright side member 36 and a second channel 102b arranged at a second, opposite side 106 of the upright support surface 30 near the second upright side member 40. However, embodiments including more

than two channels 102a, 102b, or alternatively, a single channel are also within the scope of the disclosure.

[0083] Each channel 102a, 102b of the headrest locking mechanism 100 includes a track defined by a plurality of first teeth or ribs 110a, 110b, and a plurality of first openings 112a, 112b formed between the plurality of first teeth 110a, 110b. In the illustrated, non-limiting embodiment, the track formed by the first teeth 110a, 110b is arranged at or near a front of the seat back 26. As shown, the first teeth 110a, 110b may be oriented at a non-parallel angle relative to the upright support surface 30, such as perpendicular thereto for example. The first teeth 110a, 110b may alternatively or additionally extend at an angle to longitudinal axes L1, L2 of the channels 102a, 102b respectively. The plurality of first teeth 110a, 110b may be oriented generally perpendicular to the longitudinal axes L1, L2 of a respective channel 102a, 102b or may be arranged at another angle relative thereto. For example, the first teeth 110a, 110b may extend outwardly, such as toward an interior of the channel 102a, 120b and toward an adjacent upright side member 36, 40. In an embodiment, each of the plurality of first teeth 110a, 110b is substantially identical and is equidistantly spaced over the longitudinal axes L1, L2 of a respective channel 102a, 102b. In such embodiments, each of the plurality of first openings 112a, 112b defined by the plurality of first teeth 110a, 110b may also be substantially uniform.

[0084] The headrest locking mechanism 100 additionally includes at least one lock member 120a, 120b operably couplable to the at least one channel 102a, 102b. In an embodiment, the at least one lock member 120a, 120b is associated with each channel 102a, 102b of the headrest locking mechanism 100. In an embodiment, the at least one lock member includes a first lock member 120a associated with the first channel 102a arranged at the first side 104 of the upright support surface 30 and a second lock member 120b associated with the second channel 102b disposed at the second side 106 of the upright support surface 30. The track defined by each of the first channel 102a and the second channel 102b may be positioned closer to a central longitudinal axis CLA of the child seat 24 than the respective lock member 120a, 120b.

[0085] As shown, each of the first lock member 120a and the second lock member 120b includes one or more second teeth 122a, 122b, respectively. The second teeth 122a, 122b are receivable within corresponding first openings 112a, 122b formed at the track of an adjacent channel 102a, 102b. In an embodiment, the plurality of second teeth 122a, 122b arranged at the first lock member 120a and the second lock member 120b are spaced apart from one another such that one or more second openings 124a, 124b are defined therebetween. In embodiments

where each lock member 120a, 120b includes a plurality of second teeth 122a, 122b, the plurality of second teeth 122a, 122b may but need not be substantially identical. Although each lock member 120a, 120b is illustrated as having three second teeth 122a, 122b in the FIGS., it should be understood that embodiments where a lock member 120a, 120b includes a single second tooth, two second teeth, four second teeth 122a, 122b, or more than four second teeth are also contemplated herein. Further, it will be appreciated that as the total number of second teeth 122a, 122b at a lock member 120a, 120b increases, the overall size of each individual second tooth 122a, 122b may decrease. For example, each individual second tooth of a lock member 120a, 120b having three or four second teeth 122a, 122b may be relative smaller than each individual tooth of a lock member 120a, 120b having only one or two second teeth 122a, 122b. As a result, the overall profile of the headrest locking mechanism 100 may vary in in one or more dimensions between embodiments, while maintaining sufficient engagement with the track in the locked position.

[0086] The first lock member 120a and the second lock member 120b are movable relative to the headrest 46 between a first, engaged position (FIGS. 5B, 11A and 11B) in which each lock member 120a, 120b is engaged with an adjacent channel 102a, 102b and a second, disengaged position (FIGS. 10, 12A and 12B) in which each lock member 120a, 120b is separated or remote from the track of a corresponding channel 102a, 102b. In the illustrated, non-limiting embodiment, when both the first lock member 120a and the second lock members 120b is engaged with a track of a corresponding channel 102a, 102b, the second teeth 122a, 122b of each lock member 120a, 120b are arranged within the first openings 112a, 122b defined by a portion of the first teeth 110a, 110b of a channel 102a, 102b. Similarly, when the first and second lock members 120a, 120b are in the engaged position, the first teeth 110a, 110b of each channel 102a, 102b may be arranged within the second openings 124a, 124b defined between the second teeth 122a, 122b of the adjacent lock member 120a, 120b. When the lock members 120a, 120b are in the engaged position, the headrest locking mechanism 100 is in a locked configuration.

[0087] When the lock member 120a, 120b is disengaged from a corresponding channel 102a, 102b of the headrest locking mechanism 100, the second teeth 122a, 122b of the lock member 120a, 120b are located remotely from the first openings 112a, 112b of the track of an adjacent channel 102a, 102b, and the first teeth 110a, 110b are separated from the second openings 124a, 124b of a respective lock member 120a, 120b. When the first and second lock members 120a, 120b are in the disengaged position, the headrest locking mechanism 100 is in an unlocked configuration. In an embodiment, the lock members 120a, 120, and therefore the

second teeth 122a, 122b of the lock members 120a, 120b move laterally or substantially laterally relative to the axis of the track between the engaged position and the disengaged position.

[0088] As a result of this interleaved interface between the first teeth 110a, 110b of the channel 102a, 102b and the second teeth 122a, 122b of a corresponding lock member 120a, 120b, the second teeth 122a, 122b may have a size and/or shape complementary to the first openings 112a, 112b of the channel 102a, 102b and/or the first teeth 110a, 110b of the channel 102a, 102b may have a size and shape complementary to the second openings 124a, 124b arranged at the adjacent lock member 120a, 120b. In an embodiment, the first teeth 110a, 110b of each channel 102a, 102b and the second teeth 122a, 122b of the lock member 102a, 102b associated with each respective channel 102a, 102b are substantially identical. However, embodiments where a size and/or shape of the second teeth 122a, 122b is different than a size and/or shape of the first teeth 110a, 110b is also contemplated herein.

[0089] The headrest locking mechanism 100 may additionally include an actuation mechanism 130 associated with movement of the headrest 46 and the unlocking of the headrest locking mechanism 100. In an embodiment, the actuation mechanism 130 includes at least one actuation arm 132a, 132b movable within a channel 102a, 102b, such as in a direction along the longitudinal axis L1, L2 of the channel 102a, 102b. The at least one lock member 120a, 120b of the headrest locking mechanism 100 may be operably coupled to the at least one actuation arm 132a, 132b. In the illustrated, non-limiting embodiment, the actuation mechanism 130 includes a first actuation arm 132a associated with a first lock member 120a and a second actuation arm 132b associated with the second lock member 120b. However, it should be understood that in some embodiments, the actuation mechanism 130 may include a single actuation arm or more than two actuation arms.

[0090] The first lock member 120a may be movably connected to the first actuation arm 132a, and the second lock member 120b may be movably connected to the second actuation arm 132b. In the illustrated, non-limiting embodiment, the first lock member 120a is slidably connected to the first actuation arm 132a and the second lock member 120b is slidably connected to the second actuation arm 132b. As shown, each lock member 120a, 120b may have one or more mounting protrusions 134a, 134b (see FIG. 4B, 6, and 7), such as posts for example, operable to couple the lock member 120a, 120b to a corresponding actuation arm 132a, 132b. As shown in FIG. 7, the second teeth 122a, 122b of each lock member 120a, 120bengageable with a track may be arranged at a first surface 126a, 126b of the lock member 120a, 120b and the one or more mounting protrusions 134a, 134b may extend from the same

surface, or alternatively, from a different, second surface 128a, 128b of the lock member 120a, 120b. In embodiments where the second teeth 122a, 122b and the mounting protrusions 134a, 134b are arranged at different surfaces 126a, 126b, 128a, 128b of each respective lock member 120a, 120b, the mounting protrusions 134a, 134b may be oriented at a non-parallel angle relative to the second teeth 122a, 122b. For example, the mounting protrusions 134a, 134b may extend perpendicularly relative to the second teeth 122a, 122b.

[0091] Each actuation arm 132a, 132b of the actuation mechanism 130 includes at least one guide slot 140a, 140b within which one of the mounting protrusions 134a, 134b of a lock member 120a, 120b is receivable. In the illustrated, non-limiting embodiment, the first actuation arm 134a includes a first guide slot 140a and a second guide slot 140b and the first mounting protrusion 134a of the first lock member 120a is receivable within the first guide slot 140a and the second mounting protrusion 134b of the first lock member 120a is receivable within the second guide slot 140b. Similarly, the second actuation arm 134b includes a first guide slot 140a and a second guide slot 140b and the first mounting protrusion 134a of the second lock member 120b is receivable within the first guide slot 140a and the second mounting protrusion 134b of the second lock member 120b is receivable within the second guide slot 140b.

[0092] As shown, the first guide slot 140a and second guide slot 140b may be arranged at a back surface 136a, 136b of a respective actuation arm 132a, 132b located closest to a back exterior surface 48 of the headrest 46. In such embodiments, each actuation arm 132a, 132b is positioned forward of the lock member 120a, 120b coupled thereto, and therefore is closer to a head of an occupant of the child seat 24. However, in other embodiments, the first guide slot 140a and second guide slot 140b may be arranged at a front surface 138a, 138b of a respective actuation arm 132a, 132b such that the lock member 120a, 120b coupled thereto is arranged closer to an occupant's head than the actuation arm 132a, 132b, or alternatively, at a side surface of a respective actuation arm 132a, 132b. It should be appreciated that the location of the mounting protrusions 134a, 134b about each lock member 120a, 120b may vary based on the location of the first and second guide slots 140a, 140b relative to a corresponding actuation arm 132a, 132b.

[0093] An example of the first guide slot 140a and second guide slot 140b for connecting a corresponding lock member 120a, 120b to a respective actuation arm 132a, 132b is illustrated in detail in FIG. 9. In the illustrated, non-limiting embodiment, the first and second guide slots 140a, 140b of each actuation arm 132a, 132b extend at an angle relative to the longitudinal axes L1, L2 of an adjacent channel 102a, 102b. Therefore, the first and second

guide slots 140a, 140b of each actuation arm 132a, 132b extend at an angle relative to the path of movement of each actuation arm 132a, 132b which is parallel to the longitudinal axes L1, L2. As shown, the first guide slot 140a and second guide slot 140b extend outwardly, away from a center of the headrest 46. Accordingly, the first guide slot 140a and second guide slot 140b may have a first directional component that extends parallel to the longitudinal axes L1, L2 of the adjacent channel 102a, 102b and the path of movement of the actuation arm 132a, 132b and a second directional component that extends perpendicularly to the longitudinal axes L1, L2 of the adjacent channel 102a, 102b and the path of movement of the actuation arm 132a, 132b.

[0094] In the illustrated, non-limiting embodiment, the parallel first and second guide slots 140a, 140b arranged at each actuation arm 132a, 132b are spaced from one another along the longitudinal axes L1, L2, respectively. When the first lock member 120a and the second lock member 120b are in the engaged position (FIGS. 11A-11B), the mounting protrusions 134a, 134b of each lock member 120a, 120b may be arranged adjacent to a first end 142 of both the first and second guide slots 140a, 140b, such as at an end closest to a center of the headrest 46 for example. When each of the first and second lock members 120a, 120b is translated relative to the headrest 46 to the disengaged position (FIGS. 12A-12B), the mounting protrusions 134a, 134b of each lock member 120a, 120b may be arranged adjacent to a second, opposite end 144 of the first and second guide slots 140a, 140b, such as at a position furthest from the center of the headrest 46. In an embodiment, a respective biasing mechanism 146, such as a coil spring for example, is operably coupled the a corresponding one of the first lock member 120a and the second lock member 120b. A biasing force of the biasing mechanisms 146 may be operable to bias the mounting protrusions 134a, 134b of each lock member 120a, 120b toward the first end 142 of the corresponding first and second guide slots 140a, 140b. Accordingly, the biasing mechanisms 146 may be operable to bias the lock member 120a, 120b toward engagement with the track of a respective channel 102a, 102b.

[0095] The actuation mechanism 130 additionally includes an actuator 150, such as a handle for example, arranged at an exterior of the headrest 46 for access by a user. In the illustrated, non-limiting embodiment, the actuator 150 is disposed at or proximate a top of the headrest 46. The first and second actuation arms 132a, 132b are operably coupled to the actuator 150. For example, a first end (not shown) of each actuation arm 132a, 132b may be connected to, or in some embodiments may be integrally formed with, the actuator 150.

[0096] The first and second lock members 120a, 120b are disengageable from the first openings 112a, 112b of the track of a respective channel 102a, 102b in response to operation

of the actuation mechanism 130, such as via application of a force to the actuator 150. Once the first and second lock members 120a, 120b are disengaged, and therefore the headrest locking mechanism is in the unlocked configuration, the headrest 46 is movable relative to the child seat 24, such as by sliding the first and second actuation arms 132a, 132b along their respective paths of movement defined by each channel 102a, 102b. When the user applies a force F1, such as an upward force for example, to the actuator 150, the force is transmitted to the first and second actuation arms 132a, 132b, thereby causing the actuation arms 132a, 132b to translate relative to the headrest 46. As each actuation arm 132a, 132b translates, the contour of the first and second guide slots 140a, 140b formed therein causes the mounting protrusions 134a, 134b of each lock member 120a, 120b to slide laterally against the bias of the biasing mechanism 146 toward the respective second ends of the guide slots 140a, 140b. As the first and second lock members 120a, 120b each translate relative to a respective actuation arm 132a, 132b via the guide slots 140a, 140b formed therein, the second teeth 122a, 122b of each lock member 120a, 120b move out of engagement with the adjacent first teeth 110a, 110b and first openings 112a, 112b of a corresponding track.

[0097] Alternatively, or in addition to the biasing mechanisms 146 associated with the first and second lock members 120a, 120b, a biasing mechanism (not shown) may be operably coupled the actuator 150 to bias the actuator toward an unoperated position. In such embodiments, upon removal of the force F1 from the actuator 150, the actuation mechanism 130 will be biased by the biasing mechanism back to the unoperated position relative to the headrest 46. However, in some embodiments, the biasing mechanisms 146 associated with the first and second lock members 120a, 120b may also be able to bias the actuation mechanism 130 toward the unoperated position. For example, upon release of the force F1 from the actuator 150, the biasing force of the biasing mechanism 146 moves a corresponding lock member 120a, 120b toward a center of the headrest 46, and into engagement with one or more of the first openings 112a, 112b of the track associated with a respective channel 102a, 102b. The translation of the first and second mounting protrusions 134a, 134b within the first and second guide slots 140a, 140b of each actuation arm 132a, 132b as the lock member 120a, 120b is biased toward the engaged position may apply a force to each actuation arm 132a, 132b thereby causing the actuation arms 132a, 132b to translate downwardly and return to an unoperated position.

[0098] With reference now to FIGS. 14-17B, another embodiment of a headrest locking mechanism 220 operable to lock a headrest 210 at a desired position relative to a seat back 204 of a child seat 202 of a child seat system is illustrated. The headrest locking mechanism 220

includes one or more brackets 222a, 222b arranged near the back exterior surface of the seat back portion 204. In the non-limiting embodiment illustrated in FIG. 16, a first bracket 222a is arranged at the seat back portion 204 proximate the first upright side member 206 and a second bracket 222b is arranged at the seat back portion 204 proximate the second upright side member 208. However, embodiments including more than two brackets 222a, 222b, or alternatively, a single bracket are also within the scope of the disclosure. Each bracket 222a, 222b includes a plurality of slots or openings 224a, 224b that define a plurality of respective vertical positions of the headrest 210. Accordingly, each of the first bracket 222a and the second bracket 222b defines a respective track along which the headrest 210 is movable relative to the seat back 204.

[0099] The headrest locking mechanism 220 additionally includes at least one lock member 230a, 230b operably couplable to the first and second brackets 222a, 222b. For example, a first lock member 230a may be associated with the first bracket 232a arranged near the first upright side member 206 and a second lock member 230b may be associated with the second bracket 222b disposed near the second upright side member 208. In an embodiment, the first lock member 230a and the second lock member 230b are movable, for example rotatable about respective axes, relative to the headrest 210 between a first, engaged position (FIG. 17A) in which the first and second lock members 230a, 230b are engaged with one of the plurality of openings 224a, 224b of a respective bracket 222a, 222b and a second, disengaged position (FIG. 17B) in which the first and second lock members 230a, 230b are separated or remote from the plurality of openings 224a, 224b of a respective bracket 222a, 222b. When the first and second lock members 230a, 230b are in the engaged position, the headrest locking mechanism 220 is in a locked configuration, and when the first and second lock members 230a, 230b are in the disengaged position, the headrest locking mechanism 220 is in an unlocked configuration. In an embodiment, the lock members 230a, 230b, are configured to move laterally or substantially laterally relative to the longitudinal axis of the track as the headrest locking mechanism 220 transforms between a locked configuration and an unlocked configuration.

[0100] In the illustrated, non-limiting embodiment, each of the first and second lock members 230a, 230b includes a body 232a, 232b and a first end 234a, 234b of each body 232a, 232b is rotatably connected to the headrest 210. The first lock member 230a may include an engagement member 236a receivable within one of the plurality of openings 224a of the first bracket 222a and the second lock member 230b may include an engagement member 236b receivable within one of the plurality of openings 224b of the second bracket 222b to lock the

headrest 210 relative to the seat back of the child seat 202. As shown, the engagement members 236a, 236b may be arranged at a second opposite end 238a, 238b of each body 232a, 232b, and in some embodiments, each engagement member 236a, 236b extends from a respective body 232a, 232b in a direction toward an adjacent lateral side of the headrest 210. A respective biasing mechanism (not shown), such as a torsion spring for example, may be operably coupled to each lock member 230a, 230b and may be configured to bias each lock member 230a, 230b toward engagement with the openings 224a, 224b of an adjacent bracket 222a, 222b. In an embodiment, the biasing mechanism is operable to bias the engagement member 236a, 236b of each lock member 230a, 230b into engagement with an opening 224a, 244b of the respective bracket 222a, 222b.

[0101] The headrest locking mechanism 220 may include an actuation mechanism 240 associated with movement of the headrest 210. In an embodiment, the actuation mechanism 240 includes at least one actuation arm 242a, 242b. The at least one lock member 230a, 230b of the headrest locking mechanism 220 may be operably coupled to the at least one actuation arm 242a, 242b. In the illustrated, non-limiting embodiment, the actuation mechanism 240 includes a first actuation arm 242a associated with a first lock member 230a and a second actuation arm 242b associated with the second lock member 230b. However, it should be understood that in some embodiments, the actuation mechanism 240 may include a single actuation arm or more than two actuation arms. In an embodiment, each bracket 222a, 222b may define a track along which a corresponding actuation arm 242a, 242b is movable along a path of movement. The respective paths of movement of the actuation arms 242a, 242b may be parallel to the brackets 222a, 222b.

[0102] The first lock member 230a of the headrest locking mechanism 220 may be movably connected to the first actuation arm 242a, and the second lock member 230b may be movably connected to the second actuation arm 242b of the actuation mechanism 240. In the illustrated, non-limiting embodiment, the first and second lock members 230a, 230b are slidably connected to a respective actuation arm 242a, 242b. As shown, each of the first lock member 230a and the second lock member230b may have a mounting protrusion 244a, 244b, such as a post for example, for coupling the lock member 230a, 230b to a respective actuation arm 242a, 242b. In the illustrated, non-limiting embodiment, the body 232a, 232b of each lock member 230a, 230b includes a mounting arm 246a, 246b extending from the body 232a, 232b, such as in an opposite direction as the engagement member 236a, 236b thereof. In an embodiment, the mounting arm 246a, 246b is positioned at a central portion of the body 232a, 232b between the first end 234a, 234b and the second end 238a, 238b thereof. However, it

should be understood that embodiments where the mounting arms 246a, 246b are arranged at another location about the body 232a, 232b and/or where the mounting arms 246a, 246b extend in another direction relative to the body 232a, 232b are also contemplated herein.

[0103] Each actuation arm 242a, 242b of the actuation mechanism 240 includes at least one guide slot 250a, 250b within which the mounting protrusion 244a, 244b of a lock member 230a, 230b is receivable. For example, the first actuation arm 242a may include a first guide slot 250a and the second actuation arm 242b may include a second guide slot 250b. The first and second guide slots 250a, 250b may be arranged at a back surface 252a, 252b of the first actuation arm 242a and the second actuation arm, respectively. The back surface 252a, 252b may be located closest to a back exterior surface 212 of the headrest 210. In such embodiments, the first and second actuation arms 242a, 242b are positioned forward of the first and second lock member 230a, 230b, closer to a head of an occupant of the child seat 202. However, in other embodiments, the first and second guide slots 250a, 250b may be arranged at a front surface (not shown) of the actuation arms 242a, 242b such that the lock members 230a, 230b are arranged closer to an occupant's head than the actuation arm 242a, 242b, or alternatively, at a side surface of a respective actuation arm 242a, 242b.

[0104] In the illustrated, non-limiting embodiment, the first guide slot 250a extends at an angle relative to the first actuation arm 242a and the longitudinal axis L1 of the first bracket 222a and the second guide slot 250b extends at an angle relative to the second actuation arm 242b and the longitudinal axis L2 of the second bracket 222b. As shown, each of the first and second guide slots 250a, 250b may extend outwardly, away from the lock member 230a, 230b toward center of the headrest 210. Accordingly, the first and second guide slots 250a, 250b may have a first directional component that extends parallel to the longitudinal axes L1, L2 of the adjacent brackets 222a, 222b and a second directional component that extends perpendicularly to the adjacent brackets 222a, 222b.

[0105] When each of the first and second lock member 230a, 230b is in the engaged position (FIG. 17A), the mounting protrusion 244a, 244b of the lock members 230a, 230b may be arranged adjacent to a first end 254 of the first and second guide slots 250a, 250b, respectively, such as at an end closest to a lateral side of the headrest 210 for example. When each of the first and second lock members 230a, 230b is transformed to the disengaged position (FIG. 17B), the corresponding mounting protrusion 244a, 244b may be arranged adjacent to a second, opposite end 256 of each guide slot 250a, 250b, such as at a position closest to a center of the headrest 210. In an embodiment, a respective biasing mechanism (not shown), such as a coil spring for example, is operably coupled the first lock member 230a and the second lock

member 230b. A biasing force of the biasing mechanism is operable to bias the mounting protrusion 244a, 244b of each lock member 230a, 230b toward the first end 252 of each respective guide slot 250a, 250b, and therefore to bias the lock members 230a, 230b toward engagement with their respective brackets 222a, 222b.

[0106] The actuation mechanism 240 additionally includes an actuator 260, such as a handle for example, arranged at an exterior of the headrest 210 for access by a user. In the illustrated, non-limiting embodiment, the actuator 260 is disposed at or proximate a top of the headrest 210. The first and second actuation arms 242a, 242b are operably coupled to the actuator 260. For example, a first end (not shown) of each actuation arm 242a, 242b may be connected to, or in some embodiments may be integrally formed with, the actuator 260.

[0107] Each lock member 230a, 230b is disengageable from one of the openings 224a, 224b formed in an adjacent channel 222a, 222b in response to operation of the actuator 260, such as via application of a force to the actuator 260. Once disengaged, the headrest 210 is movable relative to the child seat 24. When the user applies a force F2, such as an upward force for example, to the actuator 260, the force F2 is transmitted to the first and second actuation arms 242a, 242b causing the first and second actuation arms 242a, 242b to translate relative to the headrest 210. As first and second actuation arms 242a, 242b translate, the contour of the first guide slot 250a and the second guide slot 250b causes each mounting protrusions 244a, 244b, to slide against the bias of the biasing mechanism toward a second position within the guide slot 250a, 250b. As the first and second lock members 230a, 230b slides relative to the first and second actuation arms 242a, 242b, each lock member 230a, 230b rotates about its respective mounting axis in a first direction causing the engagement member 236a, 236b thereof to pivot out of engagement with an adjacent opening 224a, 224b.

[0108] Upon release of the actuator 260, the biasing force of the biasing mechanism will rotate each lock member 230a, 230b in a second direction about its axis. This rotation of the first and second lock members 230a, 230b will move the corresponding engagement members 236a, 236b toward engagement with an adjacent opening 224a, 224b. Further, rotation of the first lock member 230a about its axis in the second direction and rotation of the second lock member 230b about its axis in the second direction will cause the mounting protrusions 244a, 244b to translate within a respective guide slot 250a, 250b of the first and second actuation arms 242a, 242b. This translation may cause the first and second actuation arms 242a, 242b to move downwardly toward an unoperated position.

[0109] The term "about" is intended to include the degree of error associated with measurement of the particular quantity based upon the equipment available at the time of filing the application.

[0110] The terminology used herein is for the purpose of describing particular embodiments only and is not intended to be limiting of the present disclosure. As used herein, the singular forms "a," "an" and "the" are intended to include the plural forms as well, unless the context clearly indicates otherwise. It will be further understood that the terms "comprises" and/or "comprising," when used in this specification, specify the presence of stated features, integers, steps, operations, elements, and/or components, but do not preclude the presence or addition of one or more other features, integers, steps, operations, element components, and/or groups thereof.

[0111] While the present disclosure has been described with reference to an exemplary embodiment or embodiments, it will be understood by those skilled in the art that various changes may be made and equivalents may be substituted for elements thereof without departing from the scope of the present disclosure. In addition, many modifications may be made to adapt a particular situation or material to the teachings of the present disclosure without departing from the essential scope thereof. Therefore, it is intended that the present disclosure not be limited to the particular embodiment disclosed as the best mode contemplated for carrying out this present disclosure, but that the present disclosure will include all embodiments falling within the scope of the claims.

What is claimed is:

1. A headrest locking mechanism for a child seat having a seat back and a headrest movably mounted to the seat back, the headrest locking mechanism comprising:

a track arranged at the seat back, the track defining a plurality of positions of the headrest;

an actuator movable along a first axis;

at least one actuation arm connected to the actuator, the at least one actuation arm being movable along the track;

at least one guide slot arranged at the at least one actuation arm, the at least one guide slot extending at a non-parallel angle relative to the first axis; and

at least one lock member coupled to the at least one actuation arm and engageable with the track to lock the headrest at one of the plurality of positions, the at least one lock member being movable relative to the at least one actuation arm via the at least one guide slot.

2. The headrest locking mechanism of claim 1, wherein the at least one lock member is movable relative to the at least one actuation arm via the at least one guide slot to disengage from the track in response to movement of the actuator along the first axis in a first direction.

3. The headrest locking mechanism of claim 1, wherein the at least one guide slot extends perpendicularly to the first axis.

4. The headrest locking mechanism of claim 1, wherein the at least one guide slot is formed in the at least one actuation arm.

5. The headrest locking mechanism of claim 1, wherein the at least one lock member includes a mounting protrusion, the mounting protrusion being slidably arranged within the at least one guide slot.

6. The headrest locking mechanism of claim 5, wherein the at least one lock member includes at least one tooth engageable with the track to lock the headrest at one of the plurality of positions, the mounting protrusion extending from a body of the at least one lock member in a first direction, and the at least one tooth extending from the body of the at least one lock member in a second direction.

7. The headrest locking mechanism of claim 6, wherein the at least one tooth is three teeth.

8. The headrest locking mechanism of claim 6, wherein the mounting protrusion and the at least one tooth extends from the body of the at least one lock member in substantially perpendicular directions.

9. The headrest locking mechanism of claim 6, wherein the at least one tooth extends laterally from the at least one lock member.

10. The headrest locking mechanism of claim 1, further comprising a biasing mechanism operably coupled to the at least one actuation arm, the biasing mechanism being operable to bias the at least one actuation arm in a direction substantially parallel to the first axis.

11. The headrest locking mechanism of claim 1, further comprising a biasing mechanism operably coupled to the at least one lock member, wherein the at least one lock member is biased by the biasing mechanism into engagement with the track.

12. The headrest locking mechanism of claim 1, wherein the at least one actuation arm includes a first actuation arm and a second actuation arm, and the at least one lock member includes a first lock member and a second lock member, the first lock member being movably mounted to the first actuation arm and the second lock member being movably mounted to the second actuation arm.

13. The headrest locking mechanism of claim 12, wherein the first lock member and the second lock member move in opposite directions in response to operation of the actuator.

14. The headrest locking mechanism of claim 1, wherein the track is arranged in a channel formed at an upright support surface of the seat back.

15. The headrest locking mechanism of claim 1, wherein the track is arranged at a back exterior surface of the seat back.

16. The headrest locking mechanism of claim 1, wherein the at least one lock member includes at least one tooth engageable with the track to lock the headrest in one of the plurality of positions.

17. The headrest locking mechanism of claim 16, wherein the at least one tooth includes a plurality of teeth, the plurality of teeth being simultaneously engageable with the track.

18. The headrest locking mechanism of claim 16, wherein the track includes a plurality of openings, the at least one tooth being receivable within at least one of the plurality of openings when the at least one lock member is engaged with the track.

19. A headrest locking mechanism associated with a headrest movably mounted to a seat shell of a child seat, the headrest locking mechanism being transformable between a locked configuration in which the headrest is not movable relative to the seat shell, and an unlocked configuration in which the headrest is movable relative to the seat shell, the headrest locking mechanism comprising:

at least one track defining a plurality of positions of the headrest relative to the seat shell;

an actuation mechanism movable relative to the headrest; and

at least one lock member movably coupled directly to the actuation mechanism, the at least one lock member being engageable with the at least one track to lock the headrest in one of the plurality of positions, the at least one lock member being movable out of engagement with the at least one track in response to operation of the actuation mechanism.

20. The headrest locking mechanism of claim 19, wherein the at least one track is positioned closer to a central longitudinal axis of the child seat than the at least one lock member.

21. The headrest locking mechanism of claim 19, wherein the at least one lock member is solely supported by the actuation mechanism.

22. The headrest locking mechanism of claim 19, wherein the actuation mechanism includes an actuator and at least one actuation arm connected to the actuator.

23. The headrest locking mechanism of claim 22, wherein the at least one actuation arm is integrally formed with the actuator.

24. The headrest locking mechanism of claim 22, wherein the at least one lock member is slidably coupled to the at least one actuation arm.

25. The headrest locking mechanism of claim 22, wherein the actuation mechanism is movable in a first direction and the at least one lock member is movable relative to the at least one actuation arm in a second direction.

26. The headrest locking mechanism of claim 25, wherein the second direction is perpendicular to the first direction.

27. The headrest locking mechanism of claim 19, wherein the at least one track is arranged in a channel formed at an upright support surface of a seat back of the seat shell.

28. The headrest locking mechanism of claim 19, wherein the at least one lock member includes at least one tooth engageable with the at least one track to lock the headrest in one of the plurality of positions.

29. The headrest locking mechanism of claim 28, wherein the at least one tooth includes a plurality of teeth, the plurality of teeth being simultaneously engageable with the at least one track.

30. The headrest locking mechanism of claim 29, wherein the at least one track includes a plurality of openings, the plurality of teeth being receivable within a corresponding opening of the plurality of openings when the at least one lock member is engaged with the at least one track.

31. The headrest locking mechanism of claim 28, wherein the at least one tooth includes three teeth.

32. The headrest locking mechanism of claim 19, further comprising a biasing mechanism operably coupled to the at least one lock member, the biasing mechanism being operable to bias the at least one lock member toward engagement with the at least one track.

33. A headrest locking mechanism associated with a headrest movably mounted to a seat shell of a child seat, the headrest locking mechanism being transformable between a locked configuration in which the headrest is not movable relative to the seat shell and an unlocked configuration in which the headrest is movable relative to the seat shell, the headrest locking mechanism comprising:

at least one track defining a plurality of positions of the headrest relative to the seat shell;

an actuation mechanism movably mounted to the headrest; and

at least one lock member engageable with the at least one track to lock the headrest in one of the plurality of positions, the at least one lock member being pivotably mounted to the headrest and operably coupled to the actuation mechanism, wherein the at least one lock member is movable out of engagement with the at least one track in response to operation of the actuation mechanism.

34. The headrest locking mechanism of claim 33, wherein the at least one track is arranged proximate a back exterior surface of a seat back of the seat shell.

35. The headrest locking mechanism of claim 33, wherein the actuation mechanism includes an actuator and at least one actuation arm connected to the actuator.

36. The headrest locking mechanism of claim 35, wherein the at least one actuation arm is integrally formed with the actuator.

37. The headrest locking mechanism of claim 35, wherein the at least one lock member is slidably coupled to the at least one actuation arm.

38. The headrest locking mechanism of claim 37, wherein the actuation mechanism is translatable relative to the at least one lock member.

39. The headrest locking mechanism of claim 37, wherein the at least one lock member includes a body and a mounting arm extends from a central portion of the body, the mounting arm being slidably coupled to the at least one actuation arm.

40. The headrest locking mechanism of claim 37, wherein the at least one lock member is laterally engageable with the at least one track.

41. The headrest locking mechanism of claim 33, wherein the at least one lock member includes an engagement member engageable with the at least one track to lock the headrest in one of the plurality of positions.

42. The headrest locking mechanism of claim 41, wherein the engagement member is laterally engageable with the at least one track.

43. The headrest locking mechanism of claim 41, wherein the at least one lock member includes a mounting arm operably coupled to the actuation mechanism, the engagement member extending from the at least one lock member in a first direction and the mounting arm extending from the at least one lock member in a second direction.

44. The headrest locking mechanism of claim 43, wherein a first end of the at least one lock member is pivotably coupled to the headrest and the engagement member is arranged at an opposite second end of the at least one lock member.

45. The headrest locking mechanism of claim 33, further comprising a biasing mechanism operably coupled to the at least one lock member, the biasing mechanism being operable to bias the at least one lock member toward engagement with the at least one track.