Claims

1. An extendable mechanism for a body structure, comprising:

an extension member;

a link member which is provided with an extension-member-guide element, wherein the extension member is in engagement with the extension-member-guide element of the link member in a manner so as to be retractably extendable from the link member in an extension direction along an axis of the extension member;

a link-member-guide element for being disposed at the body structure, wherein the link member is in engagement with the link-member-guide element in a manner so as to be retractably extendable from the link-member-guide element in the extension direction; and

a biasing member for being arranged between the link member and the body structure,

wherein the link-member-guide element is pivotable about a pivot-axis perpendicular to the extension direction to incline the link-member-guide element with respect to the body structure.

2. The extendable mechanism of claim 1, wherein the extension member comprises a stopper element at an end of the extension member opposite the extension direction.

3. The extendable mechanism of claim 1,

wherein the extension member and the extension-member-guide element are engaged in a tongue and groove sliding engagement,

wherein the extension member comprises a pair of tongue projections along opposite side edges of the extension member parallel to the axis of the extension member,

wherein the extension-member-guide element comprises a pair of grooves facing towards each other and parallel to the extension direction.

4. The extendable mechanism of claim 1,

wherein the link member and the link-member-guide element are engaged in a tongue and groove sliding engagement,

wherein the link member comprises a pair of tongue projections along opposite side edges of the link member parallel to the extension direction,

wherein the link-member-guide element comprises a pair of grooves facing towards each other and parallel to the extension direction.

~~5. The extendable mechanism of claim 1, wherein the link member and the extension member are arranged in an overlapping configuration.~~

~~6. The extendable mechanism of claim 1, wherein the biasing member comprises a tape spring, a clock spring, a coil spring, a torsion spring, a compression spring, a tension spring, or any combination thereof.~~

~~7~~5. The extendable mechanism of claim 1, wherein the extension-member-guide element of the link member is a separate part fixedly coupled to a link body of the link member.

~~8~~6. The extendable mechanism of claim 1, wherein the extension member comprises two or more holes lined along a length of the extension member at regular interval.

~~9~~7. The extendable mechanism of claim ~~6~~8, further comprising a spring-loaded projection for being disposed at the body structure to cooperate with the two or more holes of the extension member as the extension member is being extended from the body structure.

~~10. The extendable mechanism of claim 1, wherein the link-member-guide element is pivotable about a pivot-axis perpendicular to the extension direction to incline the link-member-guide element with respect to the body structure.~~

~~11. An extendable mechanism between a first part of a body structure and a second part of the body structure, comprising:~~

~~an extension member;~~

~~a first link-member which is provided with a first extension-member-guide element, wherein the extension member is in engagement with the first extension-member-guide element of the first link-member in a manner such that the first link-member is retractably movable relative to the extension member in an extension direction of the extendable mechanism along an axis of the extension member;~~

~~a first-link-member-guide element for being disposed at the first part of the body structure, wherein the first link-member is in engagement with the first-link-~~

member-guide element in a manner such that the first-link-member-guide element is retractably movable relative to the first link member in the extension direction;

a first biasing member for being arranged between the first link member and the first part of the body structure;

a second link member which is provided with a second extension-member-guide element, wherein the second extension-member-guide element of the second link member is in engagement with the extension member in a manner such that the extension member is retractably movable relative to the second link member in the extension direction;

a second-link-member-guide element for being disposed at the second part of the body structure, wherein the second-link-member-guide element is in engagement with the second link member in a manner such that the second link member is retractably movable relative to the second-link-member-guide element in the extension direction; and

a second biasing member for being arranged between the second link member and the second part of the body structure.

12. The extendable mechanism of claim 11, wherein the extension member comprises at least two stopper elements, one stopper element at each end of the extension member.

13. The extendable mechanism of claim 11,

wherein the extension member is engaged with the first extension-member-guide element of the first link member and the second extension-member-guide element of the second link member via tongue and groove sliding engagements,

wherein the extension member comprises a pair of tongue projections along opposite side edges of the extension member parallel to the extension direction,

wherein the first extension-member-guide element of the first link member comprises a pair of grooves facing towards each other and parallel to the extension direction,

wherein the second extension-member-guide element of the second link member comprises a pair of grooves facing towards each other and parallel to the extension direction.

14. The extendable mechanism of claim 11,

wherein the first link member and the first-link-member-guide element are engaged in a tongue-and-groove sliding engagement,

~~wherein the first link member comprises a pair of tongue projections along opposite side edges of the first link member parallel to the extension direction,~~

~~wherein the first-link-member-guide element comprises a pair of grooves facing towards each other and parallel to the extension direction,~~

~~wherein the second link member and the second-link-member-guide element are engaged in a tongue and groove sliding engagement,~~

~~wherein the second link member comprises a pair of tongue projections along opposite side edges of the second link member parallel to the extension direction,~~

~~wherein the second-link-member-guide element comprises a pair of grooves facing towards each other and parallel to the extension direction.~~

~~15. The extendable mechanism of claim 11, wherein the extension member, the first link member, and the second link member are arranged in an overlapping configuration.~~

~~16. The extendable mechanism of claim 11, wherein each of the first biasing member and the second biasing member comprises a tape spring, a clock spring, a coil spring, a torsion spring, a compression spring, a tension spring, or any combination thereof.~~

~~17~~8. A controller, comprising

a controller body; and

an extendable mechanism, wherein the extendable mechanism comprises:

an extension member;

a link member which is provided with an extension-member-guide element, wherein the extension member is in engagement with the extension-member-guide element of the link member in a manner so as to be retractably extendable from the link member in an extension direction along an axis of the extension member;

a link-member-guide element which is disposed at the controller body, wherein the link member is in engagement with the link-member-guide element in a manner so as to be retractably extendable from the link-member-guide element in the extension direction; and

a biasing member which is arranged between the link member and the controller body, and which is configured to apply a biasing force on the link member in a direction opposite to the extension direction,

wherein the link-member-guide element is pivotable about a pivot-axis perpendicular to the extension direction to incline the link-member-guide element with respect to the controller body.

~~18~~9. The controller as claimed in claim ~~17~~8, wherein the extension member comprises a stopper element at an end of the extension member opposite the extension direction.

~~19~~10. The controller of claim ~~17~~8,

wherein the extension member and the extension-member-guide element are engaged in a tongue and groove sliding engagement,

wherein the extension member comprises a pair of tongue projections along opposite side edges of the extension member parallel to the axis of the extension member,

wherein the extension-member-guide element comprises a pair of grooves facing towards each other and parallel to the extension direction.

~~20~~11. The controller of claim ~~17~~8,

wherein the link member and the link-member-guide element are engaged in a tongue and groove sliding engagement,

wherein the link member comprises a pair of tongue projections along opposite side edges of the link member parallel to the extension direction,

wherein the link-member-guide element comprises a pair of grooves facing towards each other and parallel to the extension direction.

~~21. The controller of claim 17, wherein the link member and the extension member are arranged in an overlapping configuration.~~

~~22. The controller of claim 17, wherein the biasing member comprises a tape spring, a clock spring, a coil spring, a torsion spring, a compression spring, a tension spring, or any combination thereof.~~

~~23~~12. The controller of claim ~~17~~8, wherein the extension-member-guide element of the link member is a separate part fixedly coupled to a link body of the link member.

~~24~~13. The controller of claim 8 ~~17~~, wherein the extension member comprises two or more holes lined along a length of the extension member at regular interval.

~~25~~14. The controller of claim ~~24~~13, wherein the controller body comprises a spring-loaded projection disposed at the controller body to cooperate with the two or more holes of the extension member as the extension member is being extended from the controller body.

~~26. The controller of claim 17, wherein the link-member-guide element is pivotable about a pivot-axis perpendicular to the extension direction to incline the link-member-guide element with respect to the controller body.~~