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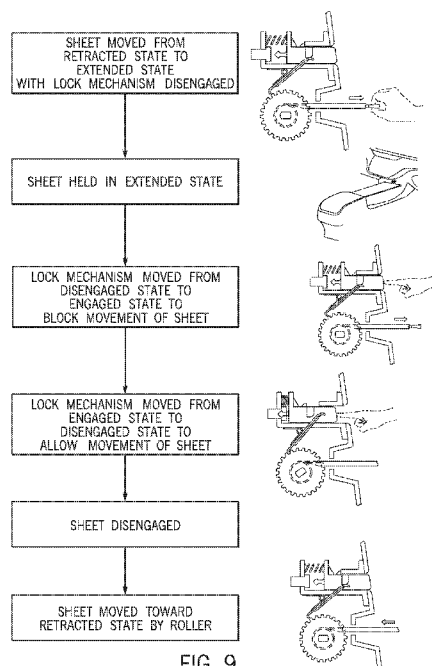


FIG. 9

(57) Abstract: A component for a vehicle configured to engage a base with an attachment point is disclosed. The component may comprise a roller with a web configured to extend to the attachment point and a lock mechanism configured for a locked state to restrain movement of the roller and a released state to allow movement of the roller/web. The lock mechanism may comprise a button to actuate between the locked/released state. The web may comprise a catch configured to extend to the attachment point and an actuator configured to operate the roller; the catch may be configured to engage the attachment point when the web is fully extended; the actuator may be configured to retract the web onto the roller when the catch is disengaged. The actuator may comprise a motor. The component may comprise the base. The motor may be operated by a controller.

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VEHICLE COMPONENT

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] The present application claims benefit of and incorporates by reference in full the following patent application: U.S. Provisional Patent Application No. 62/860,486 titled “VEHICLE COMPONENT” filed June 12, 2019.

FIELD

[0002] The present invention relates to a vehicle component. The present invention also relates to a vehicle interior component configured to provide a surface for use in a vehicle interior.

BACKGROUND

[0003] It is known to provide a vehicle component comprising a sheet coupled to a roller and configured to move between a retracted state and an extended state for use.

[0004] It would be advantageous to provide an improved vehicle component comprising a lock mechanism to block retraction of the sheet to provide a taut surface of the sheet when extended.

[0005] It is known for a vehicle occupant to use a surface such as a tray in vehicle interior. For example, it is known to provide a tray table structure that can be deployed from a stowed from a side compartment such as in an armrest/console or from the back of a seat. It is also known to provide a surface/sheet that can be extended/deployed from the side for use and retracted/withdrawn to the side for stowing when not in use by the vehicle occupant.

[0006] It would be advantageous to provide an improved vehicle interior component configured to provide a surface/structure for use by a vehicle occupant. It would be advantageous to provide a vehicle interior component configured to provide a surface/structure that is configured to be stowed in a retracted/compact position when not in use and to be extended to form a rigid/semi-rigid structure for the surface (e.g. sheet, sheet material, etc.) for use by a vehicle occupant.

SUMMARY

[0007] The present invention relates to component for a vehicle; the component may comprise a base, a roller configured to rotate relative to the base, a sheet coupled to the roller

and configured to move between a retracted state and an extended state and a lock mechanism; the lock mechanism may be configured for a disengaged state to allow movement of the sheet and an engaged state to block movement of the sheet. The component may comprise a button; the button may be configured to move between a default position and an actuated position. The button may be configured to move the lock mechanism to the engaged state to block movement of the sheet. The lock mechanism may comprise a latch; the latch may be configured to hold the button in the actuated position. The component may comprise a spring; the spring may be configured to move the button toward the default position. The component may comprise a spring; the spring may be configured to bias the button in default position. The spring may comprise a compression spring. The roller may comprise a set of teeth; the lock mechanism may comprise an arm. The arm may be configured to engage the set of teeth to hold the sheet in the extended state. The component may comprise a button configured to engage the arm to provide a gap between the arm and the set of teeth. The button may comprise a latch configured to hold the button in an actuated position to prevent engagement of the button with the arm. The set of teeth may be configured to prevent movement of the sheet toward the extended state. The set of teeth may be configured to prevent movement of the sheet toward the extended state and the retracted state. The lock mechanism may comprise a spring configured to bias the arm to engage the set of teeth to hold the sheet in the extended state. The spring may comprise a torsion spring. The component may comprise a tab configured to compress the spring. The component may comprise a tab configured to hold the arm and provide a gap between the arm and the set of teeth. The lock mechanism may comprise a first spring, a tab, a second spring and a latch. The first spring may be configured to move the tab to engage the arm and move the arm out of engagement with the set of teeth. The second spring may be configured to move the arm to engage the set of teeth in response to compression of the first spring. the latch may be configured to hold the first spring in a compressed state to allow the second spring to hold the arm in engagement with the set of teeth. The component may comprise a spring configured to move the sheet from the extended state toward the retracted state. The roller may comprise at least one of a spool; a reel; a tube; a cylinder; (e) a wheel. The sheet may comprise at least one of a fabric a panel; a textile; a woven fabric; (e) a nylon material; (f) a mesh; (g) a polymer film laminated to a fabric; (h) a moisture resistant material. The sheet may comprise at least one of a bar; an opening; a pin; a wire; (e) a tab; (f) a closure configured to engage at least one of (1) a console; (2) a door; (3) a seat; (4) an armrest to hold the sheet in the extended position. The component may comprise at least one of a tonneau cover; a cargo

cover; a retractable table. The component may comprise an actuator; the actuator may be configured to move between a default position and an actuated position. The actuator may be configured to move the lock mechanism to the engaged state to block movement of the sheet. The actuator may be configured to move the sheet from the extended state to a tensioned state in response to movement of the sheet to the extended state. The actuator may be configured to rotate the roller to provide tension in the sheet in the extended state. The component may comprise a sensor; the sensor may be configured to send a signal to move the actuator between the default position and the actuated position. The actuator may comprise a linear actuator.

[0008] The present invention relates to a component for a vehicle; the component may comprise a base, a roller configured to rotate relative to the base and a sheet coupled to the roller and configured to move between a retracted state and an extended state; the sheet may comprise a trailing edge coupled to the roller and a leading edge opposite the trailing edge; the sheet may comprise a latch at the leading edge of the sheet configured to engage at least one of (1) a console; (2) a door; (3) a seat; (4) an armrest to hold the sheet in the extended state. The sheet may be configured to move along a path between the retracted state and the extended state; the latch may be configured to engage the at least one of (1) a console; (2) a door; (3) a seat; (4) an armrest in a direction generally orthogonal to the path. The roller may be configured to move the sheet from the extended state to a tensioned state in response to engagement of the latch. The component may comprise a sensor; the sensor may be configured to send a signal to rotate the roller to provide tension in the sheet in response to engagement of the latch. The component may comprise a motor; the motor may be configured to rotate the roller to provide tension in the sheet in response to engagement of the latch. The motor may be configured to rotate the roller to move the sheet toward the retracted state in response to disengagement of the latch.

[0009] The present invention relates to a component for a vehicle; the component may comprise a base, a roller configured to rotate relative to the base and a sheet coupled to the roller and configured to move between a retracted state and an extended state; the roller may be configured to rotate to provide tension in the sheet in response to movement of the sheet to the extended state. The component may comprise at least one of an actuator; a sensor; a motor; the at least one of the actuator; the sensor; the motor may be configured to rotate the roller to move the sheet from the extended state to a tensioned state.

[0010] The present invention relates to a component for a vehicle configured to engage a base comprising an attachment point; the component may comprise a roller, a web

comprising a catch configured to extend between the roller and the attachment point of the base, an actuator configured to operate the roller; the catch of the web may be configured to engage the attachment point of the base when the web is fully extended; the actuator may be configured to retract the web onto the roller when the catch of the web is disengaged from the attachment point of the base. The catch may comprise a latch. The actuator may be configured to tension the web when the catch of the web is engaged with the attachment point of the base. The actuator may be configured to retain tension in the web when the catch of the web is engaged with the attachment point of the base. The component may comprise a control configured to operate the actuator to retract the web onto the roller when the catch of the web is disengaged from the attachment point of the base. The attachment point may comprise a recess. The latch may comprise a clip configured to engage the attachment point. The clip may comprise a spring clip. The clip may be configured to engage the recess. The component may comprise a latch mechanism comprising the clip and a button configured to release the clip from the attachment point. The actuation system may comprise a controller. The controller may be coupled to the control. The control may comprise a release. The latch mechanism may comprise the release. The release may comprise a release button. The web may comprise a sheet. The web may comprise a retractable sheet. The web may comprise an extendable sheet configured to provide a surface when the latch of the web is engaged with the attachment point of the base. The surface may be configured to remain taut when the latch of the web is engaged with the attachment point of the base. The surface may be configured to remain taut when a mass is placed on the surface and the latch of the web is engaged with the attachment point of the base. The surface may be configured to remain taut when a mass is placed on the surface by operation of the roller to tension the web and the latch of the web is engaged with the attachment point of the base. The component may comprise a seat to engage the latch when the web is fully retracted onto the roller. The base may comprise the seat. The web when fully extended may be configured to extend from the seat of the base to the attachment point of the base. The web when released may be configured to retract from the attachment point of the base into the seat of the base and onto the roller. The control may be configured to operate the actuator so that the web is retracted onto the roller when the controller is actuated. The latch may be configured to operate the actuator so that the web is retracted onto the roller when the latch is released and controller is actuated. The actuator may comprise a motor. The actuator may comprise a linear actuator. The component may comprise an actuation system; the actuation system may comprise the actuator. The actuation system may comprise the actuator; the actuator may comprise a

motor configured to operate the roller. The base may comprise the roller. The base may comprise the actuation system.

[0011] The present invention relates to a component for a vehicle; the component may comprise a base comprising an attachment point, a roller, a web comprising a catch configured to extend between the roller and the attachment point of the base; an actuator configured to operate the roller; the catch of the web may be configured to engage the attachment point of the base when the web is fully extended; the actuator may be configured to retract the web onto the roller when the catch of the web is disengaged from the attachment point of the base.

[0012] The present invention relates to a component for a vehicle configured to engage a base comprising an attachment point; the component may comprise a roller, a web comprising a catch configured to extend between the roller and the attachment point of the base, a motor configured to operate the roller; the catch of the web may be configured to engage the attachment point of the base when the web is fully extended; the motor may be configured to tension the web onto the roller when the catch of the web is engaged with the attachment point of the base. The component may comprise the base. The motor may be operated by a controller. The motor may comprise an actuator; and the actuator may be configured to retract the web onto the roller when the catch of the web is disengaged from the attachment point of the base. The web may be wound onto the roller when retracted. The web may be spooled onto the roller when retracted and extended from the roller when extended.

[0013] The present invention relates to a component for a vehicle configured to engage a base comprising an attachment point; the component may comprise a roller, a web configured to extend between the roller and the attachment point of the base, a lock mechanism coupled to the roller; the lock mechanism may be configured to provide (1) a locked state to restrain movement of the roller and (2) a released state to allow movement of the roller and the web. The lock mechanism may comprise a button; the button may be configured to operate the lock mechanism between the locked state and the released state. The web may be wound onto the roller when retracted and extended from the roller when extended. The web may comprise a catch configured to engage the attachment point of the base when the web is fully extended. The lock mechanism may comprise a gear coupled to the roller and a pawl configured to engage the gear to provide the locked state; the pawl is disengaged from the gear to provide the released state. The gear may comprise a sawtooth gear. The lock mechanism may comprise a spring configured to urge the button to the release state. The

lock mechanism may comprise a latch configured to retain the button in the engaged state. The latch may comprise a push-push latch. The component may comprise the base. The web may be spooled onto the roller when retracted and extended from the roller when extended. The web may comprise a sheet configured to provide a surface when extended and engaged at the attachment point.

[0014] The present invention relates to a component for a vehicle comprising a base, a roller configured to rotate relative to the base, a sheet coupled to the roller and configured to move between a retracted state and an extended state, and a lock mechanism. The lock mechanism may be configured for a disengaged state to allow movement of the sheet and an engaged state to block movement of the sheet. The component may further comprise a button; the button may be configured to move between a default position and an actuated position. The button may be configured to move the lock mechanism to the engaged state to block movement of the sheet. The lock mechanism may comprise a latch; the latch may be configured to hold the button in the actuated position. The component may further comprise a spring; the spring may be configured to move the button toward the default position. The component may further comprise a spring; the spring may be configured to bias the button in the default position; the spring may comprise a compression spring. The roller may comprise a set of teeth; the lock mechanism may comprise an arm. The arm may be configured to engage the set of teeth to hold the sheet in the extended state. The component may further comprise a button configured to engage the arm to provide a gap between the arm and the set of teeth. The button may comprise a latch configured to hold the button in an actuated position to prevent engagement of the button with the arm. The set of teeth may be configured to prevent movement of the sheet toward the extended state. The set of teeth may be configured to prevent movement of the sheet toward the extended state and the retracted state. The lock mechanism may comprise a spring configured to bias the arm to engage the set of teeth to hold the sheet in the extended state; the spring may comprise a torsion spring. The component may further comprise a tab configured to compress the spring. The component may further comprise a tab configured to hold the arm and provide a gap between the arm and the set of teeth. The lock mechanism further may comprise a first spring, a tab, a second spring and a latch. The first spring may be configured to move the tab to engage the arm and move the arm out of engagement with the set of teeth. The second spring may be configured to move the arm to engage the set of teeth in response to compression of the first spring. The latch may be configured to hold the first spring in a compressed state to allow the second spring to hold the arm in engagement with the set of teeth. The component may

further comprise a spring configured to move the sheet from the extended state toward the retracted state. The roller may comprise at least one of (a) a spool; (b) a reel; (c) a tube; (d) a cylinder; (e) a wheel. The sheet may comprise at least one of (a) a fabric (b) a panel; (c) a textile; (d) a woven fabric; (e) a nylon material; (f) a mesh; (g) a polymer film laminated to a fabric; (h) a moisture resistant material. The sheet may comprise at least one of (a) a bar; (b) an opening; (c) a pin; (d) a wire; (e) a tab; (f) a closure configured to engage at least one of (1) a console; (2) a door; (3) a seat; (4) an armrest to hold the sheet in the extended position. The component may comprise at least one of (a) a tonneau cover; (b) a cargo cover; (c) a retractable table.

FIGURES

[0015] FIGURE 1A is a schematic perspective view of a vehicle according to an exemplary embodiment.

[0016] FIGURE 1B is a schematic perspective view of a vehicle showing a vehicle interior according to an exemplary embodiment.

[0017] FIGURES 2A and 2B are schematic perspective views of a vehicle interior component according to an exemplary embodiment.

[0018] FIGURE 2C is a schematic perspective view of a vehicle interior component according to an exemplary embodiment.

[0019] FIGURES 2D and 2E are schematic perspective views of a vehicle interior component according to an exemplary embodiment.

[0020] FIGURES 3A through 3D are schematic perspective views of a vehicle interior component according to an exemplary embodiment.

[0021] FIGURE 4 is a schematic partial section view of a vehicle component according to an exemplary embodiment.

[0022] FIGURES 5A and 5B are schematic partial section views of a vehicle component according to an exemplary embodiment.

[0023] FIGURE 6 is a schematic diagram of operation of a vehicle component according to an exemplary embodiment.

[0024] FIGURES 7A and 7B are schematic partial section views of a vehicle component according to an exemplary embodiment.

[0025] FIGURES 8A through 8D are schematic partial section views of a vehicle component according to an exemplary embodiment.

[0026] FIGURE 9 is a schematic diagram of operation of a vehicle component according to an exemplary embodiment.

[0027] FIGURES 10A through 10D are schematic partial section views of a vehicle component according to an exemplary embodiment.

[0028] FIGURES 11A through 11D are schematic partial section views of a vehicle component according to an exemplary embodiment.

[0029] FIGURES 12A through 12C are schematic partial section views of a vehicle component according to an exemplary embodiment.

[0030] FIGURE 13 is a schematic diagram of operation of a vehicle component according to an exemplary embodiment.

[0031] FIGURES 14A through 14D are schematic partial section views of a vehicle component according to an exemplary embodiment.

[0032] FIGURES 15A through 15D are schematic partial section views of a vehicle component according to an exemplary embodiment.

[0033] FIGURES 16A through 16D are schematic partial section views of a vehicle component according to an exemplary embodiment.

[0034] FIGURES 17A through 17D are schematic partial section views of a vehicle component according to an exemplary embodiment.

[0035] FIGURE 18 is a schematic diagram of operation of a vehicle component according to an exemplary embodiment.

[0036] FIGURES 19A through 19D are schematic partial section views of a vehicle component according to an exemplary embodiment.

DESCRIPTION

[0037] According to an exemplary embodiment as shown schematically in FIGURES 1A-1B, a vehicle V may comprise an interior I including one or more door panels DP, one or more floor consoles FC and one or more seats ST.

[0038] According to an exemplary embodiment as shown schematically in FIGURES 2A-2E, 3A-3D, 4, 5A-5B, 6, 7A-7B, 8A-8D and 9, a component C/1000/1000x for a vehicle may comprise: a base 100; a roller 300/300x configured to rotate relative to the base; a sheet 200 coupled to the roller and configured to move between a retracted state and an extended state; and a lock mechanism 400. The lock mechanism may be configured for a disengaged state to allow movement of the sheet and an engaged state to block movement of the sheet. The component may comprise a button B/410; the button may be configured to move between a

default position and an actuated position. The button may be configured to move the lock mechanism to the engaged state to block movement of the sheet. The lock mechanism may comprise a latch 422; the latch may be configured to hold the button in the actuated position. The component may comprise a spring 430; the spring may be configured to move the button toward the default position. The component may comprise a spring 430; the spring may be configured to bias the button in default position. Spring 430 may comprise a compression spring. The roller may comprise a set of teeth 480t; the lock mechanism may comprise an arm 470. The arm may be configured to engage the set of teeth to hold the sheet in the extended state. The component may comprise a button 410 configured to engage the arm to provide a gap between the arm and the set of teeth. The button may comprise a latch 422 configured to hold the button in an actuated position to prevent engagement of the button with the arm. The set of teeth may be configured to prevent movement of the sheet toward the extended state. The lock mechanism may comprise a spring 460 configured to bias the arm to engage the set of teeth to hold the sheet in the extended state. Spring 460 may comprise a torsion spring. The component may comprise a tab 440 configured to compress spring 460. The component may comprise a tab 440 configured to hold the arm and provide a gap between the arm and the set of teeth. The lock mechanism may comprise a first spring 430, a tab 440, a second spring 460 and a latch 422. The first spring may be configured to move the tab to engage the arm and move the arm out of engagement with the set of teeth. The second spring may be configured to move the arm to engage the set of teeth in response to compression of the first spring. The latch may be configured to hold the first spring in a compressed state to allow the second spring to hold the arm in engagement with the set of teeth. The component may comprise a spring configured to move the sheet from the extended state toward the retracted state. The roller may comprise at least one of (a) a spool; (b) a reel; (c) a tube; (d) a cylinder; (e) a wheel. The sheet may comprise at least one of (a) a fabric (b) a panel; (c) a textile; (d) a woven fabric; (e) a nylon material; (f) a mesh; (g) a polymer film laminated to a fabric; (h) a moisture resistant material. The sheet may comprise at least one of (a) a bar; (b) an opening; (c) a pin; (d) a wire; (e) a tab; (f) a closure configured to engage at least one of (1) a console; (2) a door; (3) a seat; (4) an armrest to hold the sheet in the extended position. The component may comprise at least one of (a) a tonneau cover; (b) a cargo cover; (c) a retractable table. According to an exemplary embodiment as shown schematically in FIGURES 2A-2D, 3A-3D, 7A-7B, 8A-8D and 9, the set of teeth of roller 300x may be configured to prevent movement of the sheet toward the extended state and the retracted state.

[0039] According to an exemplary embodiment as shown schematically in FIGURES 10A-10D, 11A-11D, 12A-12C and 13, a component 2000 for a vehicle may comprise a base; a roller configured to rotate relative to the base; a sheet coupled to the roller and configured to move between a retracted state and an extended state; and a latch/lock mechanism 500. The lock mechanism may be configured for a disengaged state to allow movement of the sheet and an engaged state to block movement of the sheet. The roller may comprise at least one of (a) a spool; a reel; (c) a tube; (d) a cylinder; (e) a wheel. The sheet may comprise at least one of (a) a fabric a panel; (c) a textile; (d) a woven fabric; (e) a nylon material; (f) a mesh; (g) a polymer film laminated to a fabric; (h) a moisture resistant material. The sheet may comprise at least one of (a) a bar; an opening; (c) a pin; (d) a wire; (e) a tab; (f) a closure configured to engage at least one of (1) a console; (2) a door; (3) a seat; (4) an armrest to hold the sheet in the extended position. The component may comprise at least one of (a) a tonneau cover; (b) a cargo cover; (c) a retractable table

[0040] According to an exemplary embodiment as shown schematically in FIGURES 10A-10D, 11A-11D, 12A-12C and 13, a component 2000 for a vehicle may comprise a base; a roller configured to rotate relative to the base; and a sheet 2200 coupled to the roller and configured to move between a retracted state and an extended state. The sheet may comprise a trailing edge coupled to the roller and a leading edge opposite the trailing edge. The sheet may comprise a latch/lock mechanism 500 at the leading edge of the sheet configured to engage at least one of (1) a console; (2) a door; (3) a seat; (4) an armrest to hold the sheet in the extended state. The sheet may be configured to move along a path between the retracted state and the extended state; the latch may be configured to engage the at least one of (1) a console; (2) a door; (3) a seat; (4) an armrest in a direction generally orthogonal to the path. The roller may be configured to move the sheet from the extended state to a tensioned state in response to engagement of the latch. The component may comprise a sensor; the sensor may be configured to send a signal to rotate the roller to provide tension in the sheet in response to engagement of the latch. The component may comprise a motor; the motor may be configured to rotate the roller to provide tension in the sheet in response to engagement of the latch. The motor may be configured to rotate the roller to move the sheet toward the retracted state in response to disengagement of the latch.

[0041] According to an exemplary embodiment as shown schematically in FIGURES 10A-10D, 11A-11D, 12A-12C and 13, a component 2000 for a vehicle may comprise a base; a roller configured to rotate relative to the base; and a sheet 2200 coupled to the roller and configured to move between a retracted state and an extended state. The roller may be

configured to rotate to provide tension in the sheet in response to movement of the sheet to the extended state. The component may comprise at least one of (a) a sensor; (b) a motor; the at least one of the sensor; the motor may be configured to rotate the roller to move the sheet from the extended state to a tensioned state.

[0042] According to an exemplary embodiment as shown schematically in FIGURES 14A-14D, 15A-15D, 16A-16D, 17A-17D and 18, a component 3000 for a vehicle may comprise a base; a roller configured to rotate relative to the base; a sheet 3300 coupled to the roller and configured to move between a retracted state and an extended state; and a latch/lock mechanism 500. The lock mechanism may be configured for a disengaged state to allow movement of the sheet and an engaged state to block movement of the sheet. The roller may comprise a set of teeth; the lock mechanism may comprise an arm. The arm may be configured to engage the set of teeth to hold the sheet in the extended state. The set of teeth may be configured to prevent movement of the sheet toward the extended state. The component may comprise a spring configured to move the sheet from the extended state toward the retracted state. The roller may comprise at least one of (a) a spool; (b) a reel; (c) a tube; (d) a cylinder; (e) a wheel. The sheet may comprise at least one of (a) a fabric (b) a panel; a textile; (d) a woven fabric; (e) a nylon material; (f) a mesh; (g) a polymer film laminated to a fabric; (h) a moisture resistant material. The sheet may comprise at least one of (a) a bar; (b) an opening; (c) a pin; (d) a wire; (e) a tab; (f) a closure configured to engage at least one of (1) a console; (2) a door; (3) a seat; (4) an armrest to hold the sheet in the extended position. The component may comprise at least one of (a) a tonneau cover; (b) a cargo cover; (c) a retractable table. The component may comprise an actuator 600; the actuator may be configured to move between a default position and an actuated position. The actuator may be configured to move the lock mechanism to the engaged state to block movement of the sheet. The actuator may be configured to move the sheet from the extended state to a tensioned state in response to movement of the sheet to the extended state. The actuator may be configured to rotate the roller to provide tension in the sheet in the extended state. The component may comprise a sensor; the sensor may be configured to send a signal to move the actuator between the default position and the actuated position. The actuator may comprise a linear actuator.

[0043] According to an exemplary embodiment as shown schematically in FIGURES 14A-14D, 15A-15D, 16A-16D, 17A-17D and 18, a component 3000 for a vehicle may comprise a base; a roller configured to rotate relative to the base; and a sheet 3200 coupled to the roller and configured to move between a retracted state and an extended state. The sheet may

comprise a trailing edge coupled to the roller and a leading edge opposite the trailing edge. The sheet may comprise a latch/lock mechanism 500 at the leading edge of the sheet configured to engage at least one of (1) a console; (2) a door; (3) a seat; (4) an armrest to hold the sheet in the extended state. The sheet may be configured to move along a path between the retracted state and the extended state; the latch may be configured to engage the at least one of (1) a console; (2) a door; (3) a seat; (4) an armrest in a direction generally orthogonal to the path. The roller may be configured to move the sheet from the extended state to a tensioned state in response to engagement of the latch. The component may comprise a sensor; the sensor may be configured to send a signal to rotate the roller to provide tension in the sheet in response to engagement of the latch.

[0044] According to an exemplary embodiment as shown schematically in FIGURES 14A-14D, 15A-15D, 16A-16D, 17A-17D and 18, a component 3000 for a vehicle may comprise a base; a roller configured to rotate relative to the base; and a sheet 3200 coupled to the roller and configured to move between a retracted state and an extended state. The roller may be configured to rotate to provide tension in the sheet in response to movement of the sheet to the extended state. The component may comprise at least one of (a) an actuator 600; (b) a sensor; the at least one of the actuator; the sensor may be configured to rotate the roller to move the sheet from the extended state to a tensioned state.

[0045] As indicated schematically in FIGURE 8, operation of a vehicle component may comprise the steps of moving a sheet from a retracted state to an extended state with a lock mechanism disengaged; holding the sheet held in the extended state; moving the lock mechanism from a disengaged state to an engaged state to block movement of the sheet; disengaging the lock mechanism; a roller moving the sheet toward the retracted state.

[0046] As indicated schematically in FIGURE 9, operation of a vehicle component may comprise the steps of moving a sheet from a retracted state to an extended state with a lock mechanism disengaged; holding the sheet in the extended state; moving the lock mechanism to an engaged state to block movement of the sheet; moving the lock mechanism from the engaged state to the disengaged state to allow movement of the sheet; a roller moving the sheet to the retracted state.

[0047] As indicated schematically in FIGURE 13, operation of a vehicle component may comprise the steps of moving a sheet moved from a retracted state to an extended state; actuating a button to block movement of the sheet; a motor rotating a roller to tension the sheet; actuating the button to disengage/allow movement of the sheet; the motor rotating the roller to spool the sheet.

[0048] As indicated schematically in FIGURE 18, operation of a vehicle component may comprise the steps of moving a sheet moved from a retracted state to an extended state; actuating an actuator to block movement of the sheet; the actuator rotating a roller to tension the sheet; actuating the actuator to disengage/allow movement of the sheet.

Exemplary Embodiments - A

[0049] According to an exemplary embodiment as shown schematically in FIGURES 2A-2E, 3A-3D, 4, 5A, 5B, 7A and 7B, a component C/1000/1000x for a vehicle may comprise a base 100, a roller 300/300x configured to rotate relative to base 100, a sheet S/200 coupled to roller 300/300x and configured to move between a retracted state (as shown schematically in FIGURE 3A) and an extended state (as shown schematically in FIGURES 2A-2E and 3B-3D), and a lock mechanism 400. Lock mechanism 400 may be configured for a disengaged state (as shown schematically in FIGURES 4, 5A and 7A) to allow movement of sheet 200 and an engaged state (as shown schematically in FIGURES 3D, 5B and 7B) to block movement of sheet 200. Component C/1000/1000x may further comprise a button B/410; button 410 may be configured to move between a default position (as shown schematically in FIGURES 4, 5A and 7A) and an actuated position (as shown schematically in FIGURES 3D, 5B and 7B). Button 410 may be configured to move lock mechanism 400 to the engaged state to block movement of sheet 200. Lock mechanism 400 may comprise a latch 422; latch 422 may be configured to hold button 410 in the actuated position. Component 1000/1000x may further comprise a spring/first spring 430; spring 430 may be configured to move button 410 toward the default position. Component 1000/1000x may further comprise a spring/first spring 430; spring 430 may be configured to bias button 410 in the default position; spring 430 may comprise a compression spring. Roller 300/300x may comprise a set of teeth 480t; lock mechanism 400 may comprise an arm 470. Arm 470 may be configured to engage set of teeth 480t to hold sheet 200 in the extended state (as shown schematically in FIGURES 5B and 7B). Component 1000/1000x may further comprise a button 410 configured to engage arm 470 to provide a gap G between arm 470 and set of teeth 480t. Button 410 may comprise a latch 422 configured to hold button 410 in an actuated position to prevent engagement of button 410 with arm 470. Set of teeth 480t of roller 300 may be configured to prevent movement of sheet 200 toward the extended state. Set of teeth 480t of roller 300x may be configured to prevent movement of sheet 200 toward the extended state and the retracted state. Lock mechanism 400 may comprise a spring/second spring 460 configured to bias arm 470 to engage set of teeth 480t to hold sheet 200 in the extended state; spring 460 may

comprise a torsion spring. Component 1000/1000x may further comprise a tab 440 configured to compress spring 460. Component 1000/1000x may further comprise a tab 440 configured to hold arm 470 and provide a gap G between arm 470 and set of teeth 480t. Lock mechanism 400 further may comprise a first spring 430, a tab 440, a second spring 460 and a latch 422. First spring 430 may be configured to move tab 440 to engage arm 470 and move arm 470 out of engagement with set of teeth 480t. Second spring 460 may be configured to move arm 470 to engage set of teeth 480t in response to compression of first spring 430. Latch 422 may be configured to hold first spring 430 in a compressed state to allow second spring 460 to hold arm 470 in engagement with set of teeth 480t. Component 1000/1000x may further comprise a spring configured to move sheet 200 from the extended state toward the retracted state. Roller 300/300x may comprise at least one of (a) a spool; (b) a reel; (c) a tube; (d) a cylinder; (e) a wheel. Sheet 200 may comprise at least one of (a) a fabric (b) a panel; (c) a textile; (d) a woven fabric; (e) a nylon material; (f) a mesh; (g) a polymer film laminated to a fabric; (h) a moisture resistant material. Sheet 200 may comprise at least one of (a) a bar; (b) an opening; (c) a pin; (d) a wire; (e) a tab 440; (f) a closure configured to engage at least one of (1) a console; (2) a door; (3) a seat; (4) an armrest to hold sheet 200 in the extended position. Component 1000/1000x may comprise at least one of (a) a tonneau cover; (b) a cargo cover; (c) a retractable table.

[0050] According to an exemplary embodiment, sheet 200 may comprise at least one of (a) a self-cleaning material; (b) a dust-repellant material; (c) an anti-skid material. According to an exemplary embodiment, a material of sheet 200 may comprise a product commercially available as a PVC Membrane from Pfeifer FabriTec of Memmingen, Germany and Dallas, Texas, USA or may comprise anti-dust plastic additives such as commercially available under the trade name IRGASTAT from BASF GmbH of Lamperheim, Germany (BASF Corp. of Florham Park, New Jersey, USA) or may comprise a foam or polyester anti-slip fabric such as commercially available from The Rubber Company of Hampshire, UK or as commercially available non-slip fabric type H4643 and/or H4644 from Heskins Ltd. of Lancashire, UK. According to an exemplary embodiment, a material of sheet 200 may comprise a surface treatment applied to provide at least one of (a) self-cleaning properties; (b) dust-repellency; (c) increased friction. According to an exemplary embodiment, the surface treatment applied to the material of sheet 200 may comprise a repellent coating for fabric of a type commercially available from Starshield Technologies Private Ltd. of Uttar Pradesh, India; a TEFLON textile finish such as commercially available from The Chemours Company of Wilmington, DE, USA may be applied to the sheet material as a treatment; a slip

resistant coating/spray such as commercially available from No Skidding Products Inc. of Toronto, Ontario, Canada may be applied to the sheet material as a treatment.

[0051] As indicated schematically according to an exemplary embodiment, the flexible sheet material shown as sheet 200 may be configured to provide a surface/table rigidified by lock mechanism 400 for the vehicle component when in the extended position. See FIGURES 3D, 5B and 7B.

[0052] As indicated schematically in FIGURES 3A-3D, sheet 200 may be deployed from roller 300/300x as a flexible form/sheet configured to rigidify into a rigid/semi-rigid frame/form to provide a surface for use. Actuation/depression of button 410 may engage lock mechanism 400 to provide rigidity to sheet 200 as indicated schematically in FIGURES 3D, 5B and 5B. Subsequent actuation/depression of button 410 may disengage lock mechanism 400 to provide a flexible form for sheet 200 to return to the stowed/retracted position on roller 300/300x.

Exemplary Embodiments - B

[0053] According to an exemplary embodiment as shown schematically in FIGURES 2A-2E, 3A-3D, 9, 10A-10D, 11A-11D, 12A-12C, 13, 14A-14D, 15A-15D, 18 and 19, a component C (also shown as component 2000/3000) for a vehicle/vehicle interior (V/I) may be configured for a base comprising an attachment point; the component may comprise a roller, a web shown as sheet S comprising a catch (shown as latch 500) configured to extend between the roller and the attachment point of the base, an actuator configured to operate the roller; the catch of the web may be configured to engage the attachment point of the base when the web is fully extended; the actuator may be configured to retract the web onto the roller when the catch of the web is disengaged from the attachment point of the base. See also FIGURES 10A-10D, 11A-11D, 13, 14A-14D, 15A-15D. The catch may comprise a latch. The actuator may be configured to tension the web when the catch of the web is engaged with the attachment point of the base. The actuator may be configured to retain tension in the web when the catch of the web is engaged with the attachment point of the base. The component may comprise a control configured to operate the actuator to retract the web onto the roller when the catch of the web is disengaged from the attachment point of the base. The attachment point may comprise a recess. The latch may comprise a clip configured to engage the attachment point. The clip may comprise a spring clip. The clip may be configured to engage the recess. The component may comprise a latch mechanism comprising the clip and a button configured to release the clip from the attachment point. The actuation system may

comprise a controller. The controller may be coupled to the control. The control may comprise a release. The latch mechanism may comprise the release. The release may comprise a release button. The web may comprise a sheet. The web may comprise a retractable sheet. The web may comprise an extendable sheet configured to provide a surface when the latch of the web is engaged with the attachment point of the base.

[0054] According to an exemplary embodiment shown schematically, the web/sheet providing the surface may be configured to remain taut when the latch of the web is engaged with the attachment point of the base. See FIGURES 15A-15D. The surface may be configured to remain taut when a mass is placed on the surface and the latch of the web is engaged with the attachment point of the base. See FIGURES 19A-19D. The surface may be configured to remain taut when a mass is placed on the surface by operation of the roller to tension the web and the latch of the web is engaged with the attachment point of the base.

[0055] According to an exemplary embodiment, the component may comprise a seat to engage the latch when the web is fully retracted onto the roller. The base may comprise the seat. The web when fully extended may be configured to extend from the seat of the base to the attachment point of the base. The web when released may be configured to retract from the attachment point of the base into the seat of the base and onto the roller. The control may be configured to operate the actuator so that the web is retracted onto the roller when the controller is actuated. The latch may be configured to operate the actuator so that the web is retracted onto the roller when the latch is released and controller is actuated. The actuator may comprise a motor. The actuator may comprise a linear actuator. The component may comprise an actuation system; the actuation system may comprise the actuator. The actuation system may comprise the actuator; the actuator may comprise a motor configured to operate the roller. The base may comprise the roller. The base may comprise the actuation system.

[0056] According to an exemplary embodiment as shown schematically in FIGURES 2C, 3A-3D, 9, 10A-10D, 11A-11D, 12A-12C, 13, 14A-14D, 15A-15D, 18 and 19, a component for a vehicle/vehicle interior may comprise a base comprising an attachment point, a roller, a web shown as sheet S comprising a catch configured to extend between the roller and the attachment point of the base; an actuator configured to operate the roller; the catch of the web may be configured to engage the attachment point of the base when the web is fully extended; the actuator may be configured to retract the web onto the roller when the catch of the web is disengaged from the attachment point of the base. See e.g. FIGURES 16A-16D and 17A-17D.

[0057] According to an exemplary embodiment as shown schematically in FIGURES 9, 10A-10D, 11A-11D, 12A-12C, 13, 14A-14D, 15A-15D, 18 and 19, a component for a vehicle/vehicle interior be configured for a base comprising an attachment point; the component may comprise a roller, a web shown as sheet S comprising a catch configured to extend between the roller and the attachment point of the base, a motor configured to operate the roller; the catch of the web may be configured to engage the attachment point of the base when the web is fully extended; the motor may be configured to tension the web onto the roller when the catch of the web is engaged with the attachment point of the base. The component may comprise the base. See e.g. FIGURES 2C and 3A-3D. The motor may be operated by a controller. See e.g. FIGURES 10A-10D, 11A-11D, 13, 14A-14D, 15A-15D. The motor may comprise an actuator; and the actuator may be configured to retract the web onto the roller when the catch of the web is disengaged from the attachment point of the base. The web may be wound onto the roller when retracted. The web may be spooled onto the roller when retracted and extended from the roller when extended. See e.g. FIGURES 16A-16D and 17A-17D.

[0058] According to an exemplary embodiment as shown schematically in FIGURES 4, 5A-5B, 6, 7A-7B, 8A-8D and 9, a component C (also shown as component 1000/1000x) for a vehicle/vehicle interior may be configured for a base comprising an attachment point; the component may comprise a roller (300/300x), a web shown as sheet S configured to extend between the roller and the attachment point of the base, a lock mechanism (400) coupled to the roller; the lock mechanism may be configured to provide (1) a locked state to restrain movement of the roller and (2) a released state to allow movement of the roller and the web. See also FIGURES 3A-3D, 4, 5A-5B, 7A-7B and 8A-8D. The lock mechanism may comprise a button (shown as button B); the button may be configured to operate the lock mechanism between the locked state and the released state. See also FIGURES 5A-5B, 7A-7B and 8A-8D. The web may be wound onto the roller when retracted and extended from the roller when extended. The web may comprise a catch configured to engage the attachment point of the base when the web is fully extended. The lock mechanism may comprise a gear coupled to the roller and a pawl configured to engage the gear to provide the locked state; the pawl is disengaged from the gear to provide the released state. The gear may comprise a sawtooth gear. The lock mechanism may comprise a spring configured to urge the button to the release state. The lock mechanism may comprise a latch configured to retain the button in the engaged state. The latch may comprise a push-push latch. The component may comprise the base. The web may be spooled onto the roller when retracted and extended

from the roller when extended. The web may comprise a sheet configured to provide a surface when extended and engaged at the attachment point. See also FIGURES 2A-2E, 3A-3D, 6 and 9.

[0059] According to an exemplary embodiment as shown schematically in FIGURES 2A-2E, 3A-3D, 4, 5A, 5B, 7A and 7B, a component C/1000/1000x for a vehicle may comprise a base 100, a roller 300/300x configured to rotate relative to base 100, a sheet S/200 coupled to roller 300/300x and configured to move between a retracted state (as shown schematically in FIGURE 3A) and an extended state (as shown schematically in FIGURES 2A-2E and 3B-3D), and a lock mechanism 400. Lock mechanism 400 may be configured for a disengaged state (as shown schematically in FIGURES 4, 5A and 7A).

[0060] The component comprising a lock mechanism may be configured to block retraction of the web/sheet to provide a taut surface of the sheet when extended. The component may provide for a vehicle occupant to use a surface such as a tray in a vehicle interior (e.g. a tray/table structure that can be deployed from a stowed from a side compartment such as in an armrest/console or from the back of a seat, etc.). The web/surface/sheet that may be extended/deployed from the side for use and retracted/withdrawn to the side for stowing when not in use by the vehicle occupant. The component may be configured to provide a web/surface/structure for use by a vehicle occupant and/or to provide a surface/structure that is configured to be stowed in a retracted/compact position when not in use and to be extended to form a rigid/semi-rigid structure for the surface (e.g. web, sheet, sheet material, etc.) for use by a vehicle occupant.

* * *

[0061] It is important to note that the present inventions (e.g. inventive concepts, etc.) have been described in the specification and/or illustrated in the FIGURES of the present patent document according to exemplary embodiments; the embodiments of the present inventions are presented by way of example only and are not intended as a limitation on the scope of the present inventions. The construction and/or arrangement of the elements of the inventive concepts embodied in the present inventions as described in the specification and/or illustrated in the FIGURES is illustrative only. Although exemplary embodiments of the present inventions have been described in detail in the present patent document, a person of ordinary skill in the art will readily appreciate that equivalents, modifications, variations, etc. of the subject matter of the exemplary embodiments and alternative embodiments are

possible and contemplated as being within the scope of the present inventions; all such subject matter (e.g. modifications, variations, embodiments, combinations, equivalents, etc.) is intended to be included within the scope of the present inventions. It should also be noted that various/other modifications, variations, substitutions, equivalents, changes, omissions, etc. may be made in the configuration and/or arrangement of the exemplary embodiments (e.g. in concept, design, structure, apparatus, form, assembly, construction, means, function, system, process/method, steps, sequence of process/method steps, operation, operating conditions, performance, materials, composition, combination, etc.) without departing from the scope of the present inventions; all such subject matter (e.g. modifications, variations, embodiments, combinations, equivalents, etc.) is intended to be included within the scope of the present inventions. The scope of the present inventions is not intended to be limited to the subject matter (e.g. details, structure, functions, materials, acts, steps, sequence, system, result, etc.) described in the specification and/or illustrated in the FIGURES of the present patent document. It is contemplated that the claims of the present patent document will be construed properly to cover the complete scope of the subject matter of the present inventions (e.g. including any and all such modifications, variations, embodiments, combinations, equivalents, etc.); it is to be understood that the terminology used in the present patent document is for the purpose of providing a description of the subject matter of the exemplary embodiments rather than as a limitation on the scope of the present inventions.

[0062] It is also important to note that according to exemplary embodiments the present inventions may comprise conventional technology (e.g. as implemented and/or integrated in exemplary embodiments, modifications, variations, combinations, equivalents, etc.) or may comprise any other applicable technology (present and/or future) with suitability and/or capability to perform the functions and processes/operations described in the specification and/or illustrated in the FIGURES. All such technology (e.g. as implemented in embodiments, modifications, variations, combinations, equivalents, etc.) is considered to be within the scope of the present inventions of the present patent document.

CLAIMS

The invention claimed is:

1. A component for a vehicle comprising:
 - (a) a base;
 - (b) a roller configured to rotate relative to the base;
 - (c) a sheet coupled to the roller and configured to move between a retracted state and an extended state; and
 - (d) a lock mechanism;wherein the lock mechanism is configured for a disengaged state to allow movement of the sheet and an engaged state to block movement of the sheet.
2. The component of Claim 1 further comprising a button; wherein the button is configured to move between a default position and an actuated position.
3. The component of Claim 2 wherein the button is configured to move the lock mechanism to the engaged state to block movement of the sheet.
4. The component of Claim 2 wherein the lock mechanism comprises a latch; wherein the latch is configured to hold the button in the actuated position.
5. The component of Claim 2 further comprising a spring; wherein the spring is configured to move the button toward the default position.
6. The component of Claim 2 further comprising a spring; wherein the spring is configured to bias the button in default position.
7. The component of Claim 6 wherein the spring comprises a compression spring.
8. The component of Claim 1 wherein the roller comprises a set of teeth; wherein the lock mechanism comprises an arm configured to engage the set of teeth to hold the sheet in the extended state.
9. The component of Claim 8 further comprising a button configured to engage the arm to provide a gap between the arm and the set of teeth.

10. The component of Claim 9 wherein the button comprises a latch configured to hold the button in an actuated position to prevent engagement of the button with the arm.

11. The component of Claim 8 wherein the set of teeth is configured to prevent movement of the sheet toward the extended state and the retracted state.

12. The component of Claim 8 wherein the lock mechanism comprises a spring configured to bias the arm to engage the set of teeth to hold the sheet in the extended state.

13. The component of Claim 12 wherein the spring comprises a torsion spring.

14. The component of Claim 12 further comprising a tab configured to compress the spring.

15. The component of Claim 12 further comprising a tab configured to hold the arm and provide a gap between the arm and the set of teeth.

16. The component of Claim 8 wherein the lock mechanism further comprises a first spring, a tab, a second spring and a latch.

17. The component of Claim 16 wherein the first spring is configured to move the tab to engage the arm and move the arm out of engagement with the set of teeth.

18. The component of Claim 16 wherein the second spring is configured to move the arm to engage the set of teeth in response to compression of the first spring.

19. The component of Claim 16 wherein the latch is configured to hold the first spring in a compressed state to allow the second spring to hold the arm in engagement with the set of teeth.

20. The component of Claim 1 wherein the roller comprises at least one of (a) a spool; (b) a reel; (c) a tube; (d) a cylinder; (e) a wheel.

21. The component of Claim 1 wherein the sheet comprises at least one of (a) a fabric (b) a panel; (c) a textile; (d) a woven fabric; (e) a nylon material; (f) a mesh; (g) a polymer film laminated to a fabric; (h) a moisture resistant material.

22. The component of Claim 1 wherein the sheet comprises at least one of (a) a bar; (b) an opening; (c) a pin; (d) a wire; (e) a tab; (f) a closure configured to engage at least one of (1) a console; (2) a door; (3) a seat; (4) an armrest to hold the sheet in the extended position.

23. The component of Claim 1 wherein the component comprises at least one of (a) a tonneau cover; (b) a cargo cover; (c) a retractable table.

24. The component of Claim 1 further comprising an actuator; wherein the actuator is configured to move the lock mechanism to the engaged state to block movement of the sheet.

25. The component of Claim 24 wherein the actuator is configured to move the sheet from the extended state to a tensioned state in response to movement of the sheet to the extended state.

26. The component of Claim 24 wherein the actuator is configured to rotate the roller to provide tension in the sheet in the extended state.

27. The component of Claim 24 further comprising a sensor; wherein the sensor is configured to send a signal to move the actuator between the default position and the actuated position.

28. A component for a vehicle comprising:
(a) a base;
(b) a roller configured to rotate relative to the base; and
(c) a sheet coupled to the roller and configured to move between a retracted state and an extended state;

wherein the sheet comprises a trailing edge coupled to the roller and a leading edge opposite the trailing edge;

wherein the sheet comprises a latch at the leading edge of the sheet configured to engage at least one of (1) a console; (2) a door; (3) a seat; (4) an armrest to hold the sheet in the extended state.

29. The component of Claim 28 wherein the sheet is configured to move along a path between the retracted state and the extended state; wherein the latch is configured to engage the at least one of (1) a console; (2) a door; (3) a seat; (4) an armrest in a direction generally orthogonal to the path.

30. The component of Claim 28 wherein the roller is configured to move the sheet from the extended state to a tensioned state in response to engagement of the latch.

31. The component of Claim 28 further comprising a sensor; wherein the sensor is configured to send a signal to rotate the roller to provide tension in the sheet in response to engagement of the latch.

32. The component of Claim 28 further comprising a motor; wherein the motor is configured to rotate the roller to provide tension in the sheet in response to engagement of the latch.

33. The component of Claim 32 wherein the motor is configured to rotate the roller to move the sheet toward the retracted state in response to disengagement of the latch.

34. A component for a vehicle comprising:
(a) a base;
(b) a roller configured to rotate relative to the base; and
(c) a sheet coupled to the roller and configured to move between a retracted state and an extended state;

wherein the roller is configured to rotate to provide tension in the sheet in response to movement of the sheet to the extended state.

35. The component of Claim 34 further comprising at least one of (a) an actuator; (b) a sensor; (c) a motor; wherein the at least one of the actuator; the sensor; the motor is configured to rotate the roller to move the sheet from the extended state to a tensioned state.

36. A component for a vehicle configured to engage a base comprising an attachment point comprising:

(a) a roller;

(b) a web comprising a catch configured to extend between the roller and the attachment point of the base;

(c) an actuator configured to operate the roller;

wherein the catch of the web is configured to engage the attachment point of the base when the web is fully extended;

wherein the actuator is configured to retract the web onto the roller when the catch of the web is disengaged from the attachment point of the base.

37. The component of Claim 36 wherein the catch comprises a latch.

38. The component of Claim 37 wherein the attachment point comprises a recess; wherein the latch comprises a clip configured to engage the recess.

39. The component of Claim 38 further comprising a latch mechanism comprising the clip and a button configured to release the clip from the attachment point.

40. The component of Claim 36 wherein the actuator is configured to tension the web when the catch of the web is engaged with the attachment point of the base.

41. The component of Claim 36 further comprising a control configured to operate the actuator to retract the web onto the roller when the catch of the web is disengaged from the attachment point of the base.

42. The component of Claim 41 wherein the control comprises a release; wherein the actuation system comprises a controller coupled to the control.

43. The component of Claim 42 wherein the controller is configured to operate the actuator so that the web is retracted onto the roller when the controller is actuated.

44. The component of Claim 42 wherein the catch is configured to operate the actuator so that the web is retracted onto the roller when the catch is released and controller is actuated.

45. The component of Claim 36 wherein the web comprises a sheet configured to provide a surface when the catch of the web is engaged with the attachment point of the base.

46. The component of Claim 45 wherein the surface is configured to remain taut when a mass is placed on the surface by operation of the roller to tension the web and the catch of the web is engaged with the attachment point of the base.

47. The component of Claim 36 wherein the base comprises a seat to engage the catch when the web is fully retracted onto the roller.

48. The component of Claim 47 wherein the web when fully extended is configured to extend from the seat of the base to the attachment point of the base.

49. The component of Claim 47 wherein the web when released is configured to retract from the attachment point of the base into the seat of the base and onto the roller.

50. The component of Claim 36 wherein the actuator comprises at least one of (a) a motor; (b) a linear actuator.

51. The component of Claim 36 further comprising an actuation system; wherein the actuation system comprises the actuator.

52. The component of Claim 51 wherein the actuation system comprises the actuator; wherein the actuator comprises a motor configured to operate the roller.

53. A component for a vehicle comprising:
(a) a base comprising an attachment point;
(b) a roller;
(c) a web comprising a catch configured to extend between the roller and the attachment point of the base;
(d) an actuator configured to operate the roller;
wherein the catch of the web is configured to engage the attachment point of the base when the web is fully extended;
wherein the actuator is configured to retract the web onto the roller when the catch of the web is disengaged from the attachment point of the base.

54. A component for a vehicle configured to engage a base comprising an attachment point comprising:

(a) a roller;

(b) a web comprising a catch configured to extend between the roller and the attachment point of the base;

(c) a motor configured to operate the roller;

wherein the catch of the web is configured to engage the attachment point of the base when the web is fully extended;

wherein the motor is configured to tension the web onto the roller when the catch of the web is engaged with the attachment point of the base.

55. The component of Claim 54 wherein the motor is configured to retract the web onto the roller when the catch of the web is disengaged from the attachment point of the base.

56. A component for a vehicle configured to engage a base comprising an attachment point comprising:

(a) a roller;

(b) a web configured to extend between the roller and the attachment point of the base;

(c) a lock mechanism coupled to the roller;

wherein the lock mechanism is configured to provide (1) a locked state to restrain movement of the roller and (2) a released state to allow movement of the roller and the web.

57. The component of Claim 56 wherein the lock mechanism comprises a button; wherein the button is configured to operate the lock mechanism between the locked state and the released state.

58. The component of Claim 56 wherein the web comprises a catch configured to engage the attachment point of the base when the web is fully extended.

59. The component of Claim 56 wherein the lock mechanism comprises a gear coupled to the roller and a pawl configured to engage the gear to provide the locked state; wherein the pawl is disengaged from the gear to provide the released state.

60. The component of Claim 56 wherein the web comprises a sheet configured to provide a surface when extended and engaged at the attachment point.

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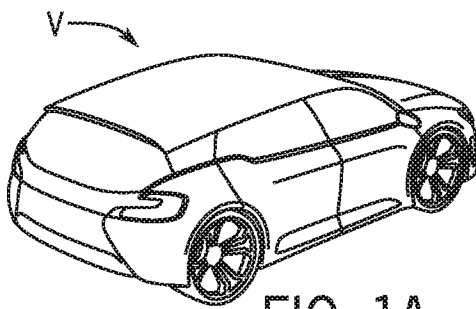


FIG. 1A

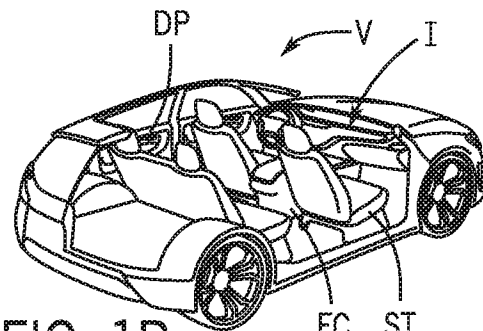


FIG. 1B

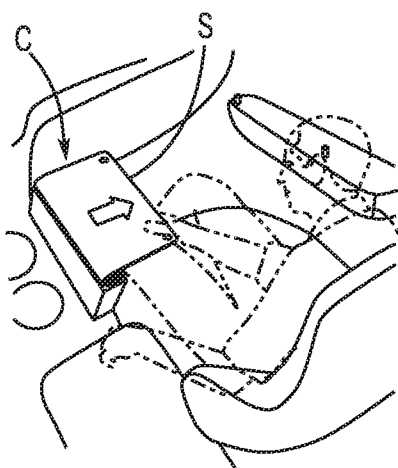


FIG. 2A

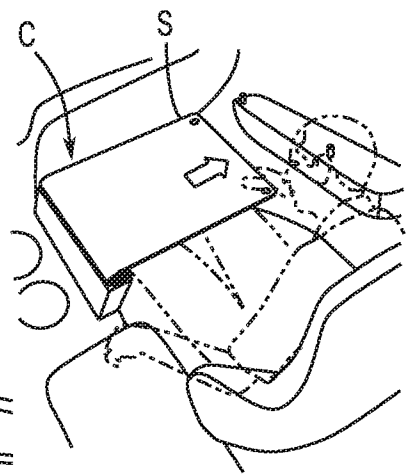


FIG. 2B

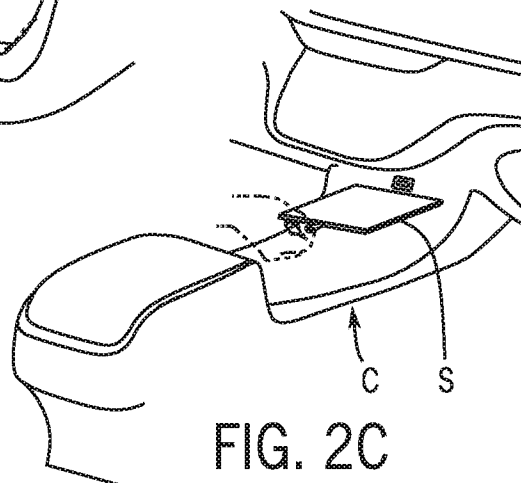


FIG. 2C

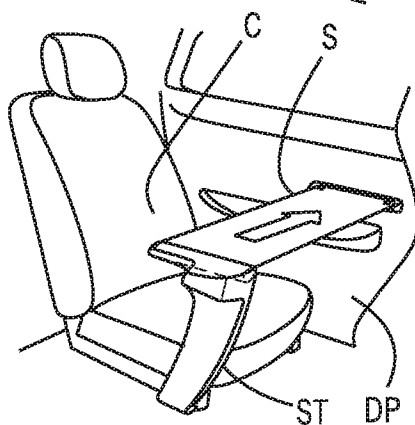


FIG. 2D

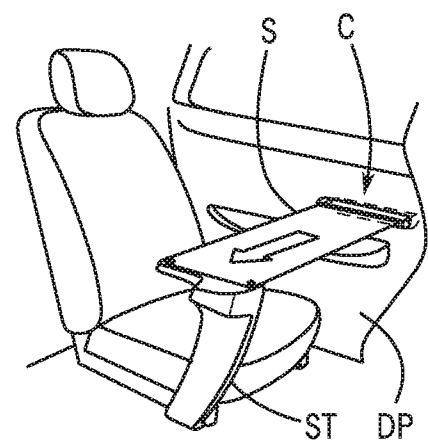
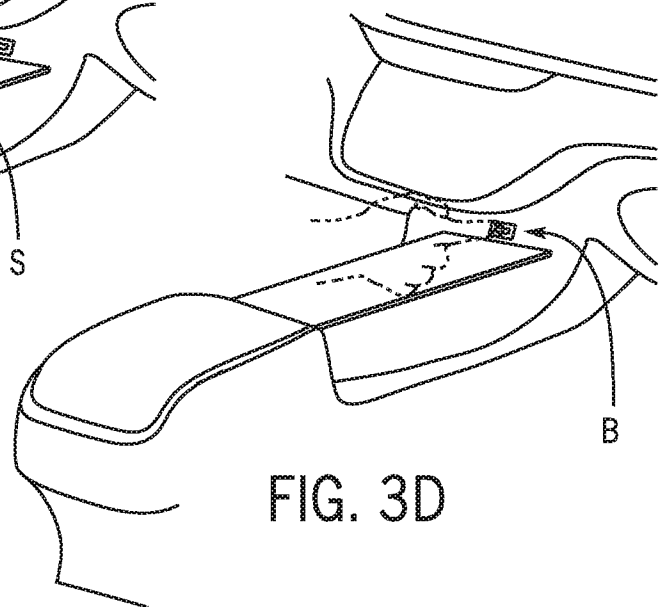
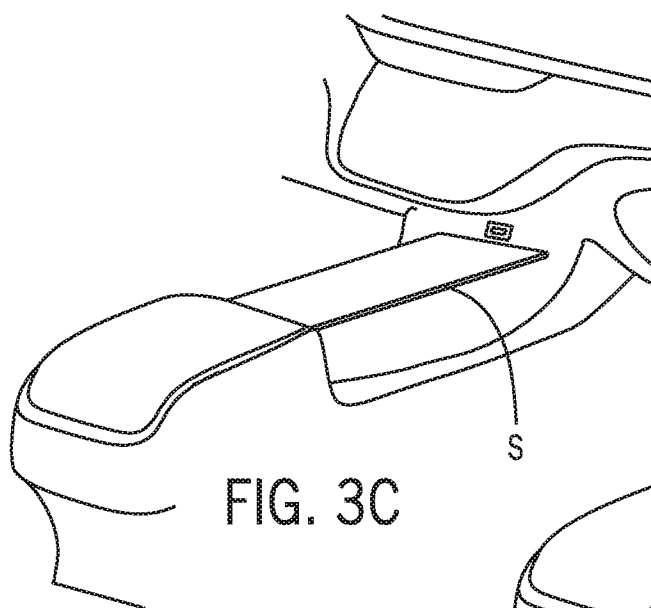
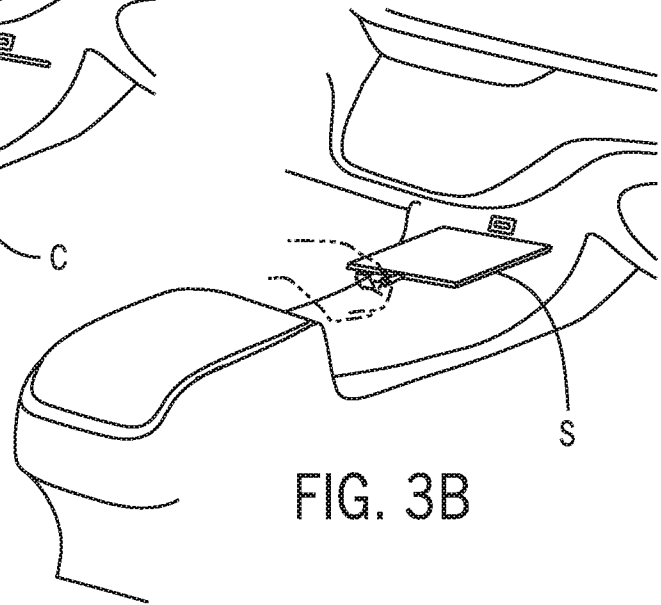
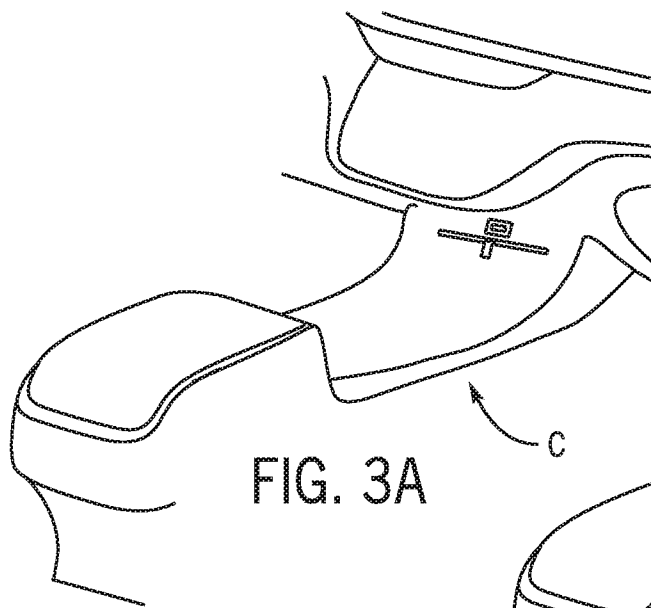


FIG. 2E

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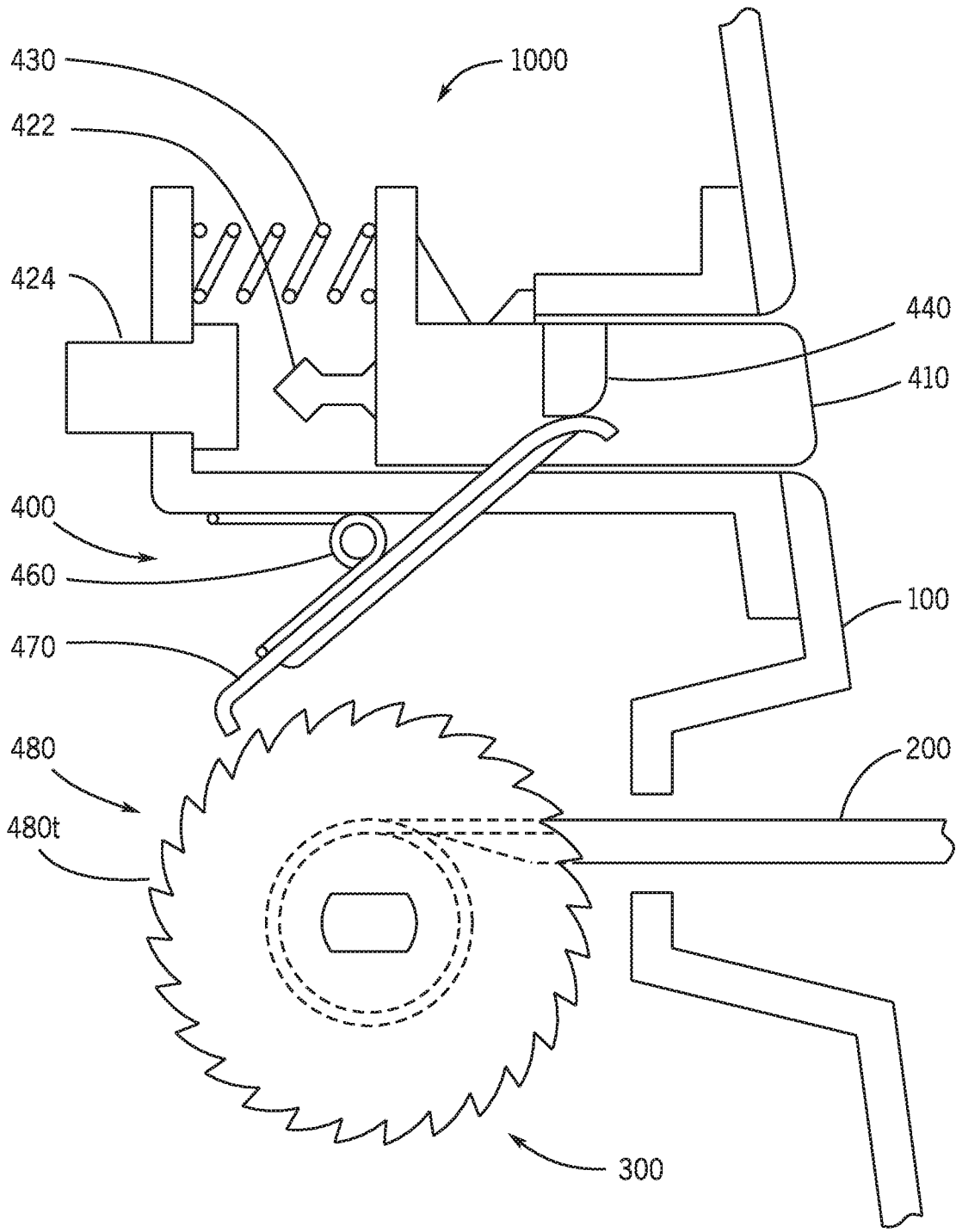
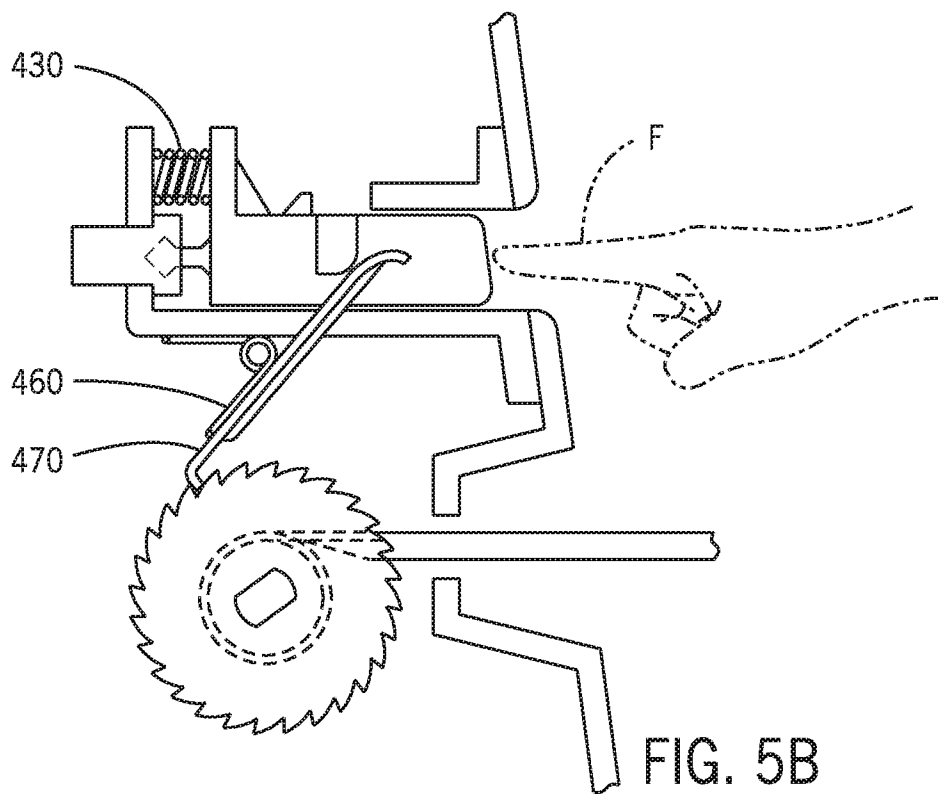
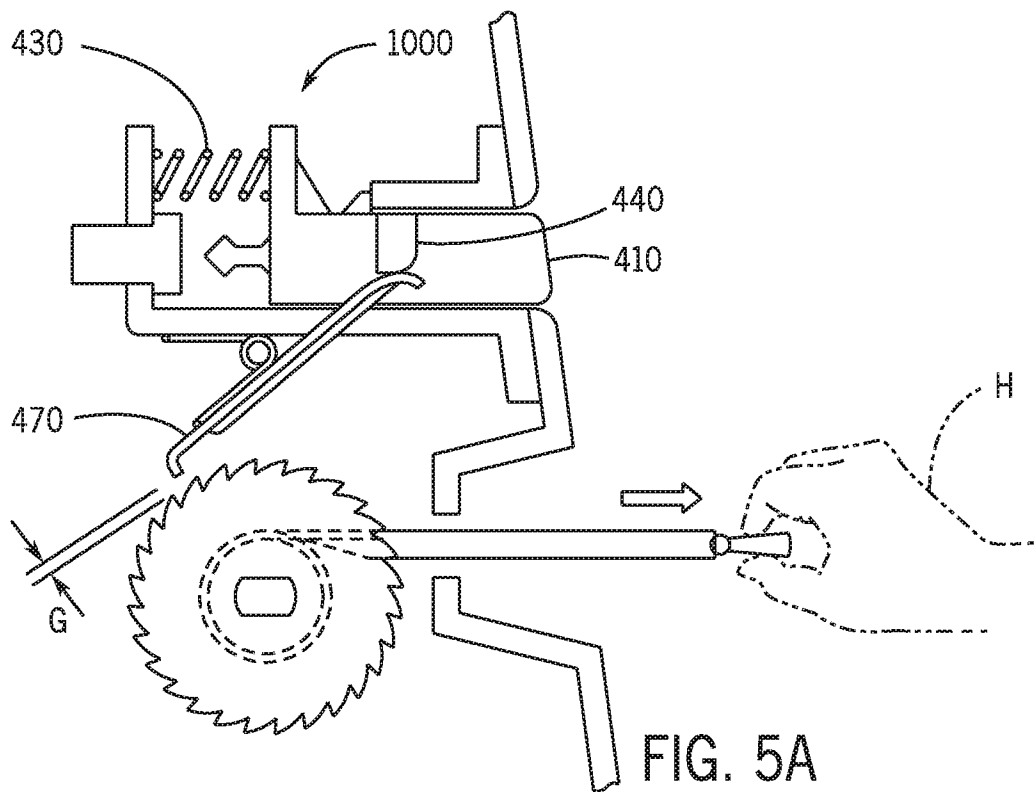


FIG. 4

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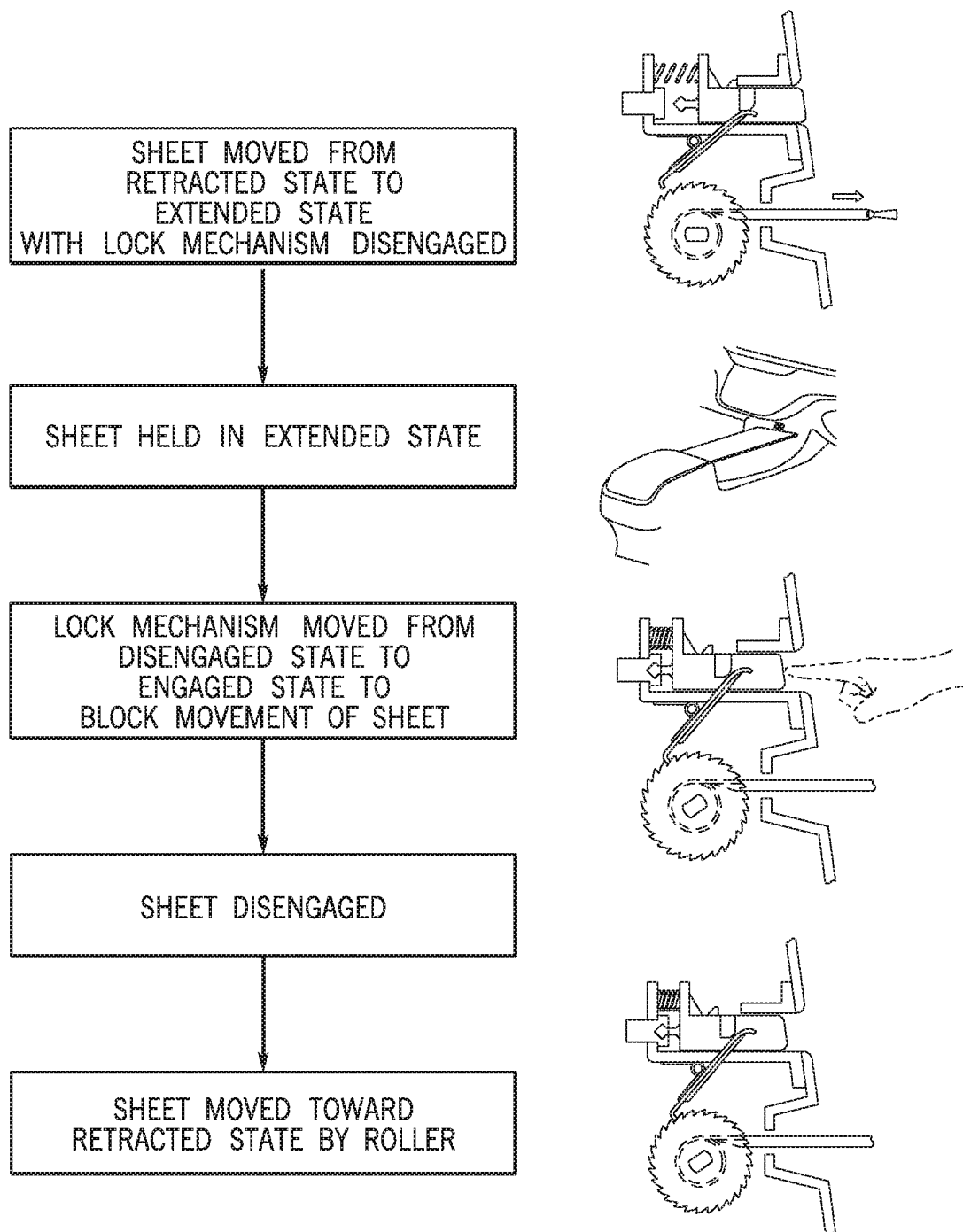
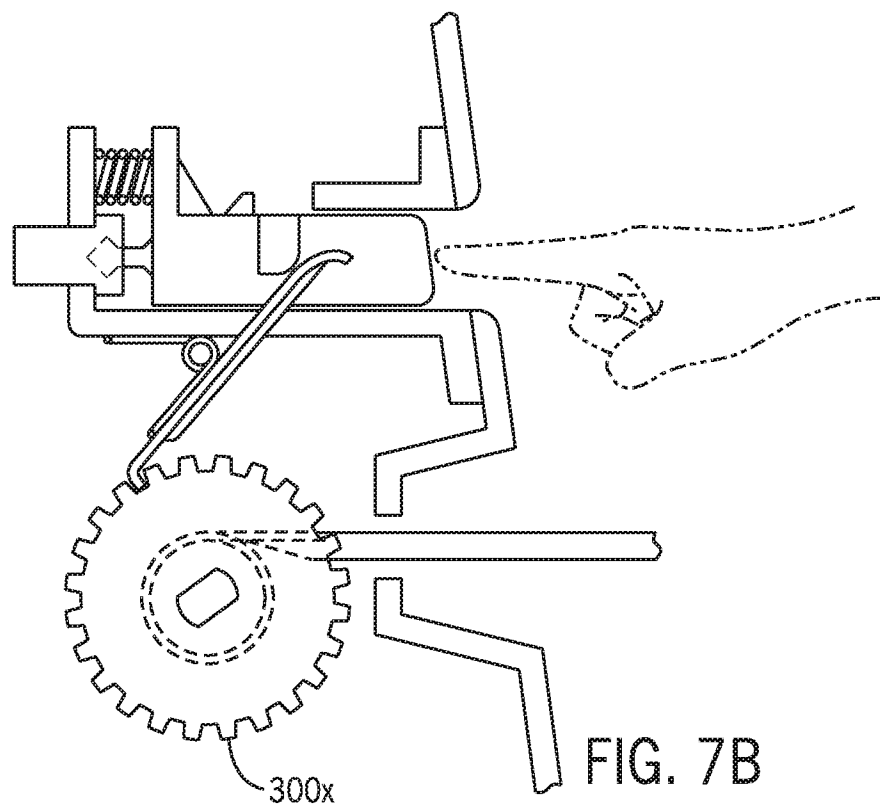
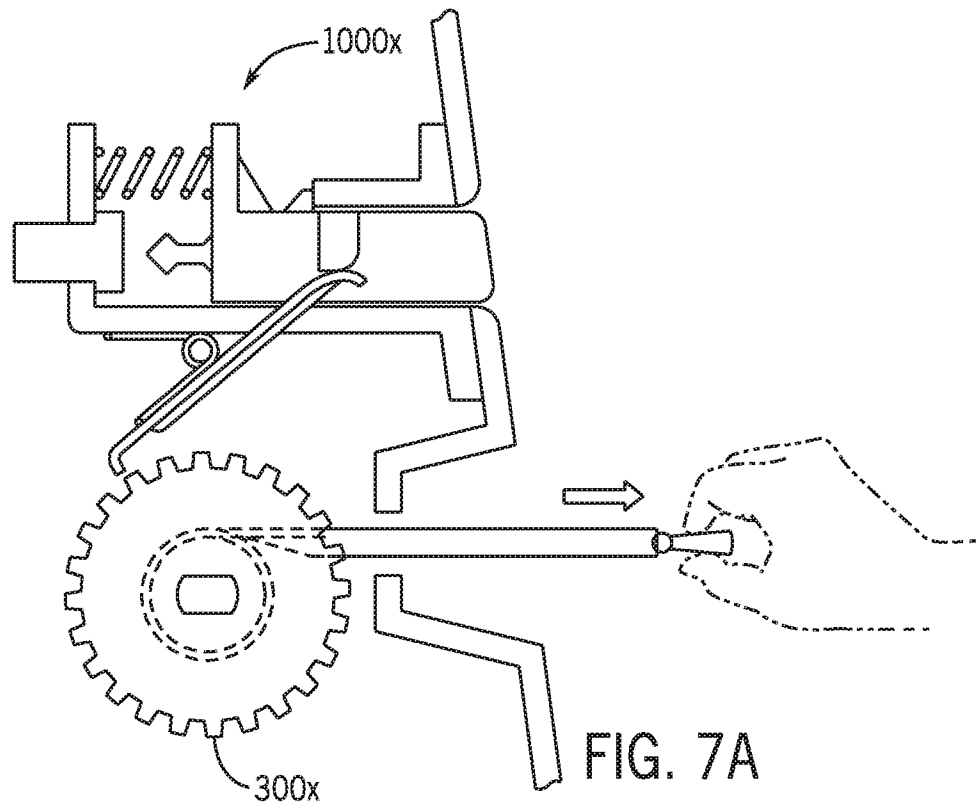


FIG. 6

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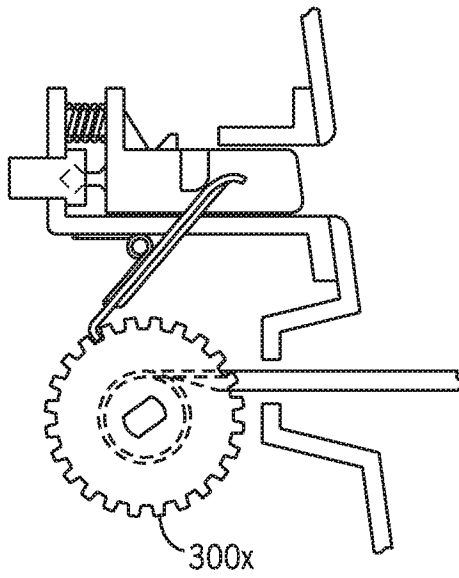


FIG. 8A

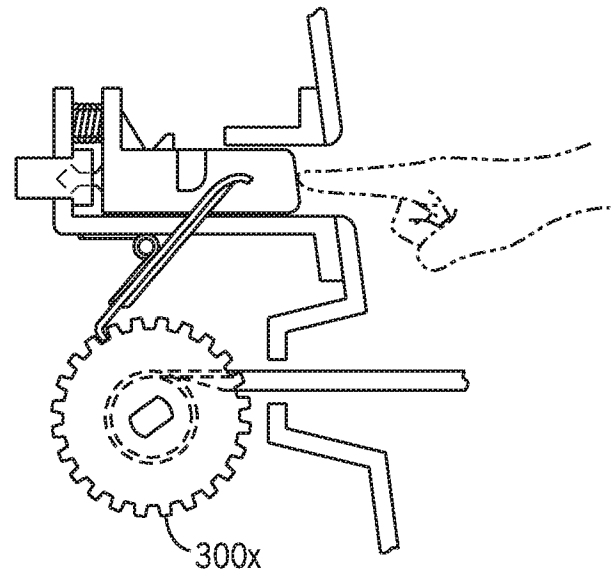


FIG. 8B

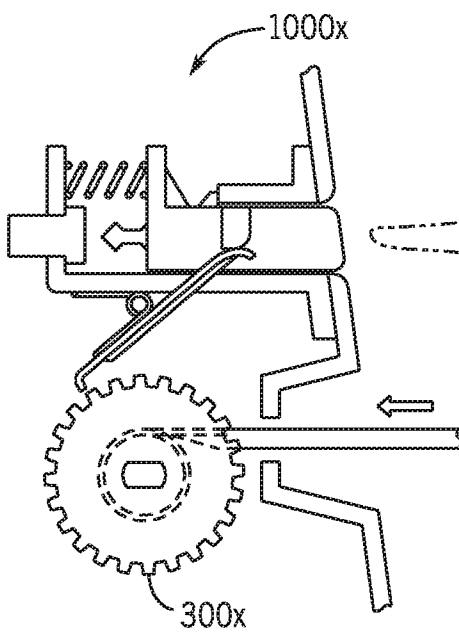


FIG. 8C

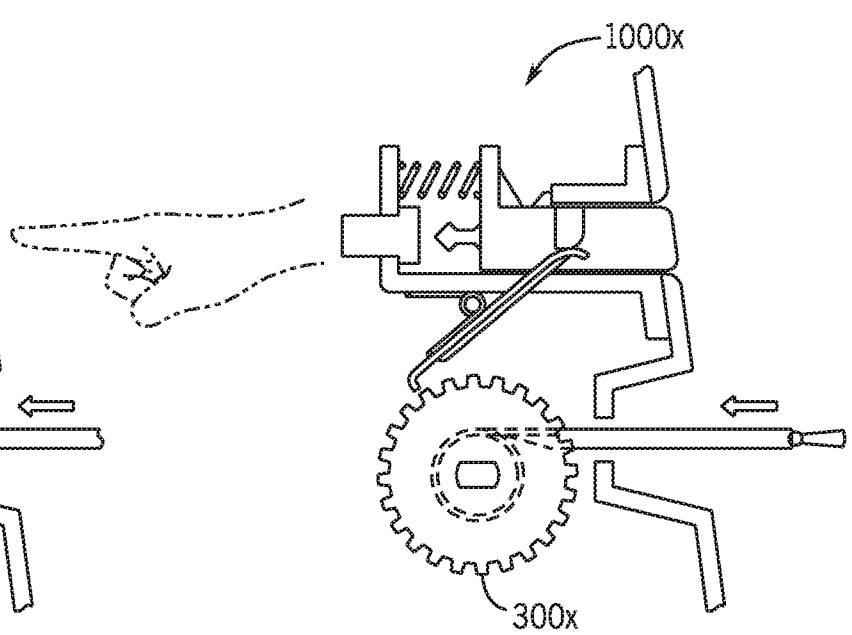


FIG. 8D

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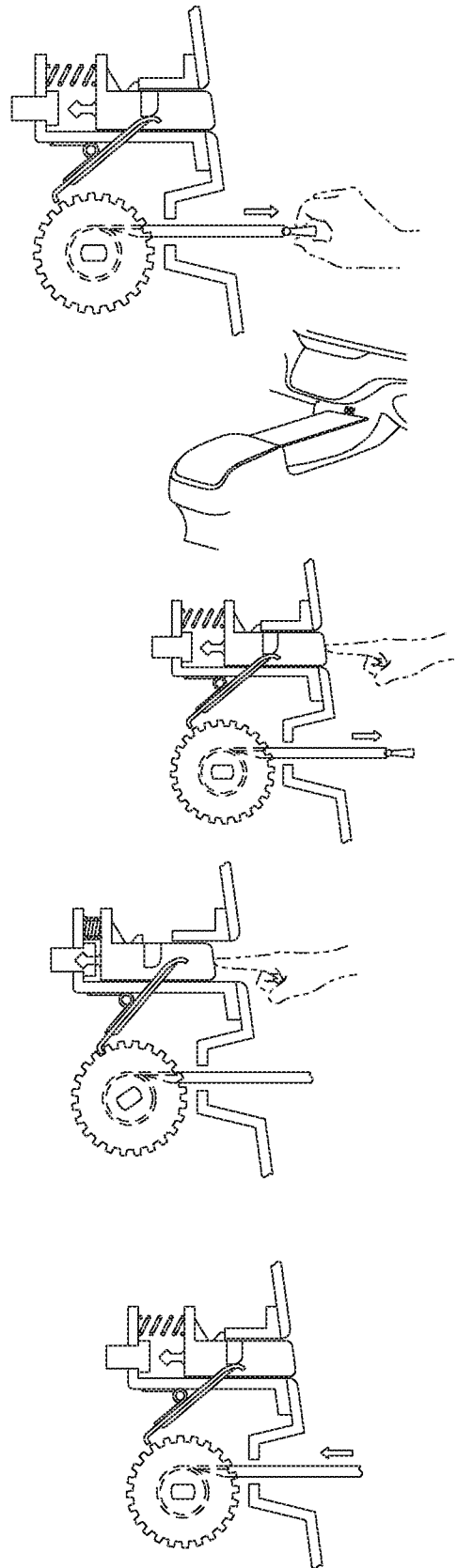
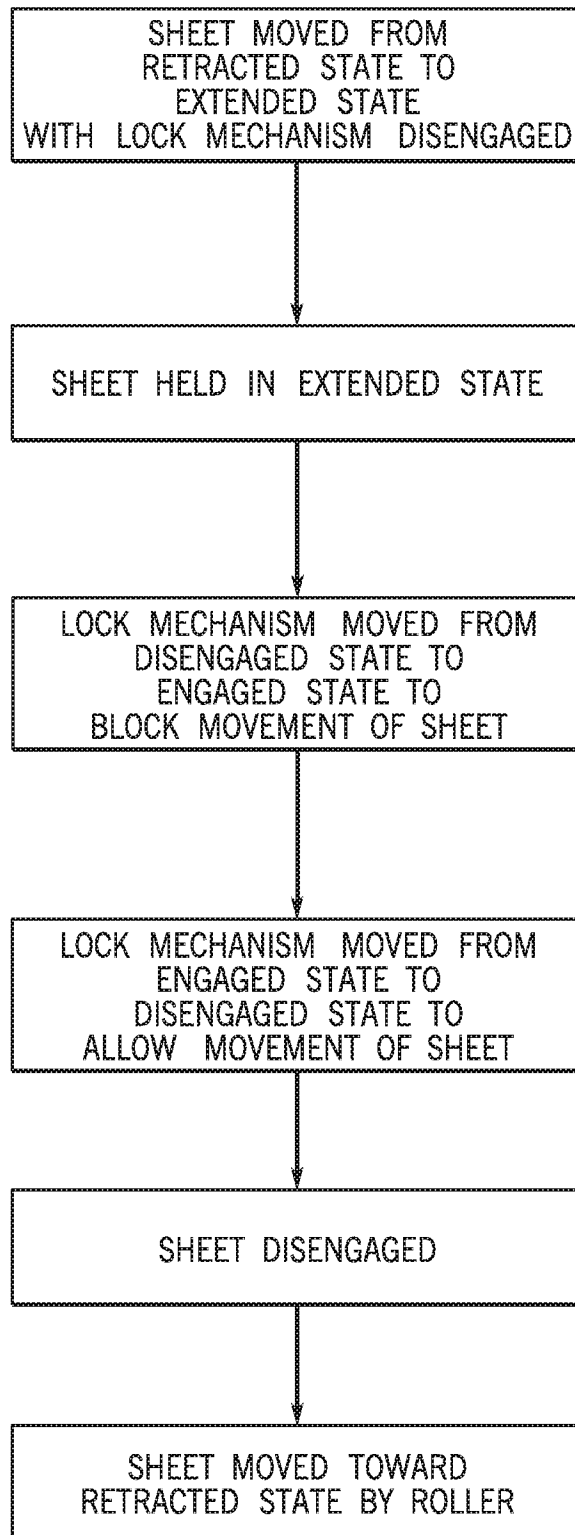
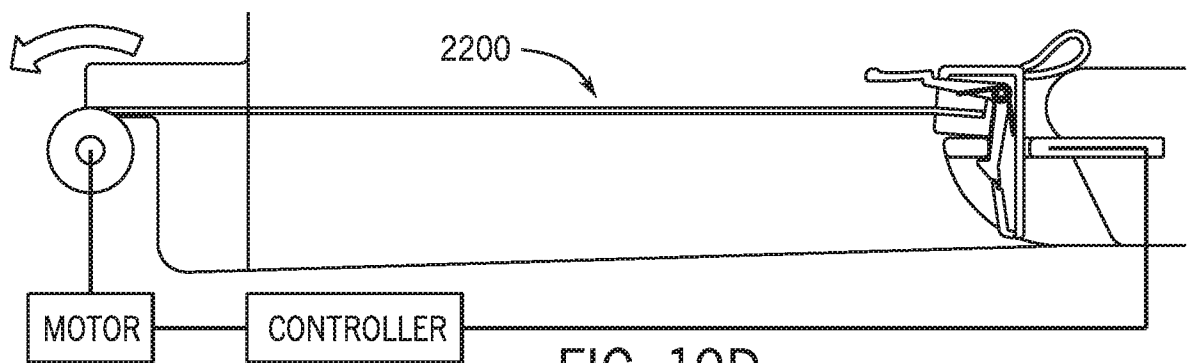
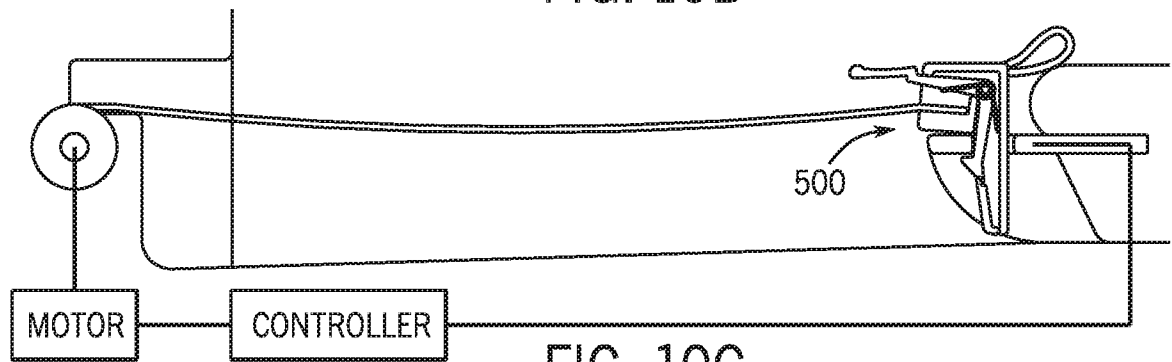
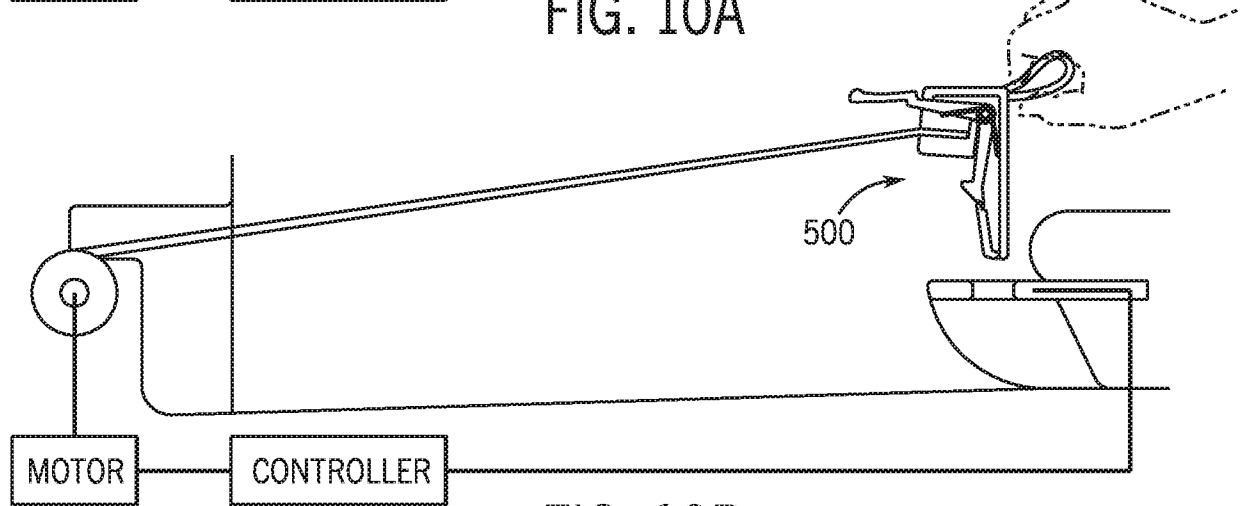
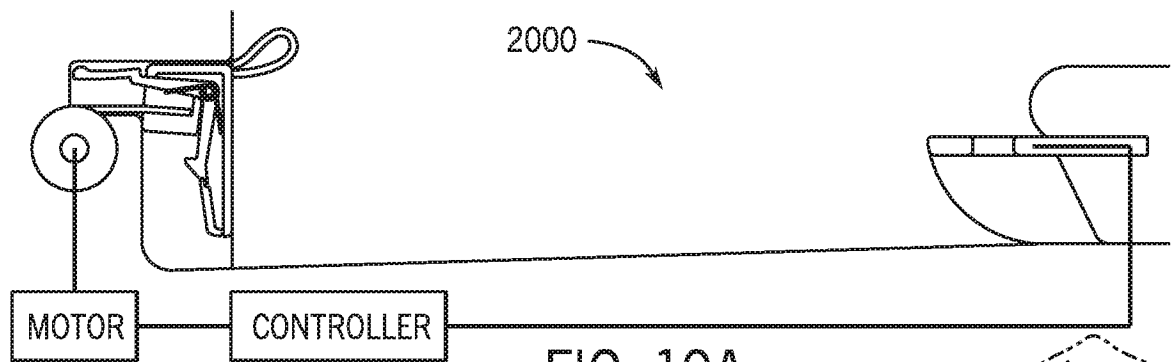
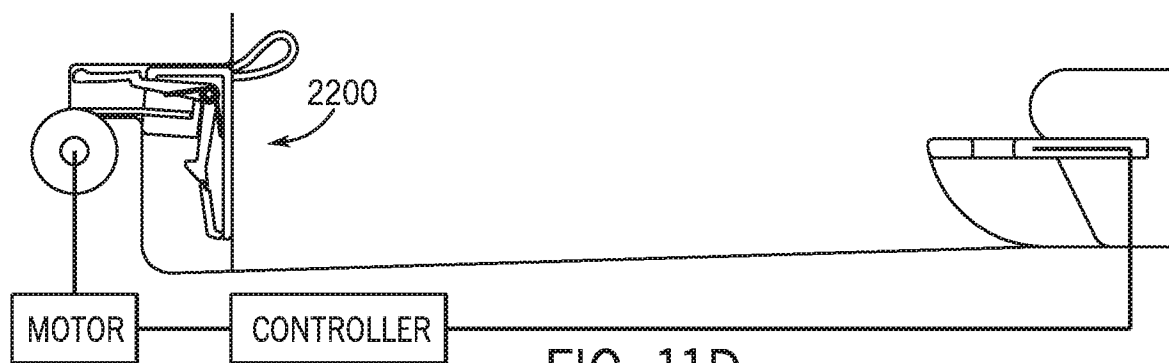
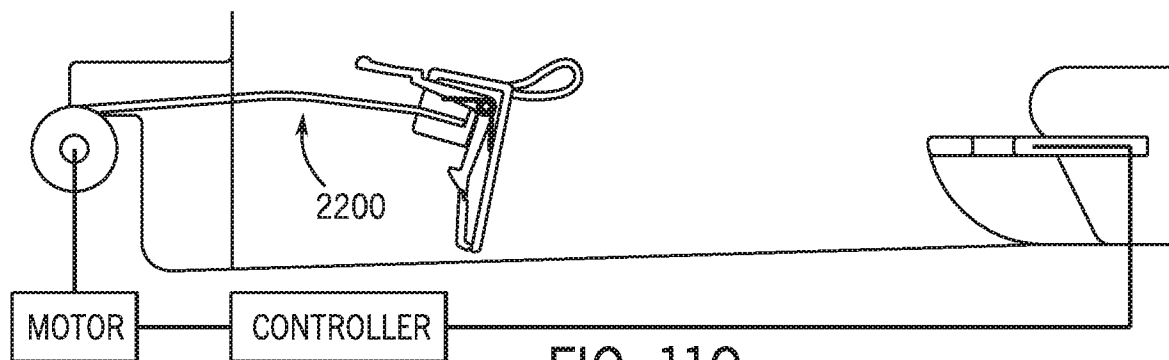
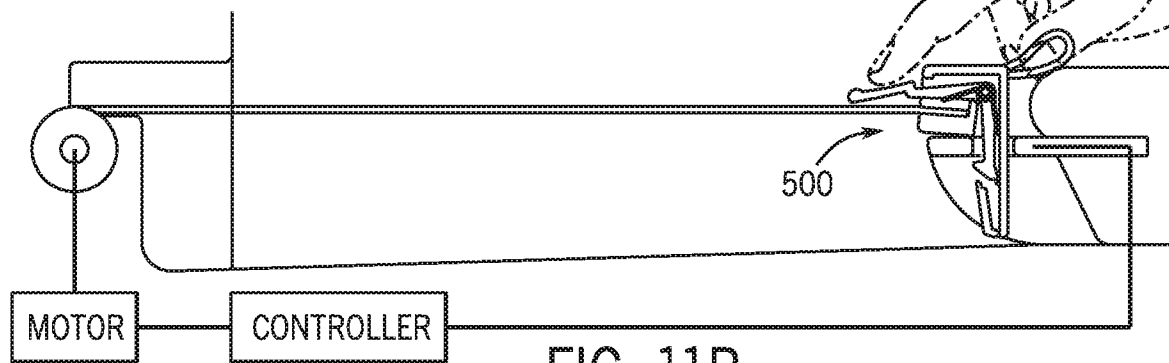
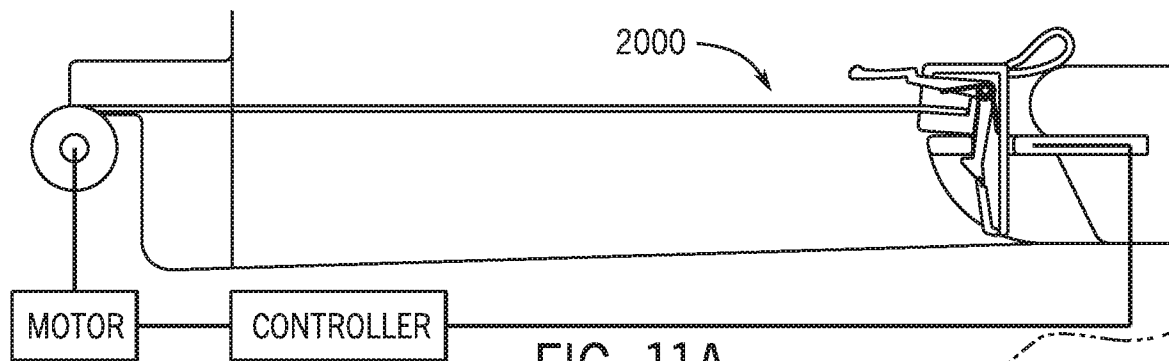


FIG. 9

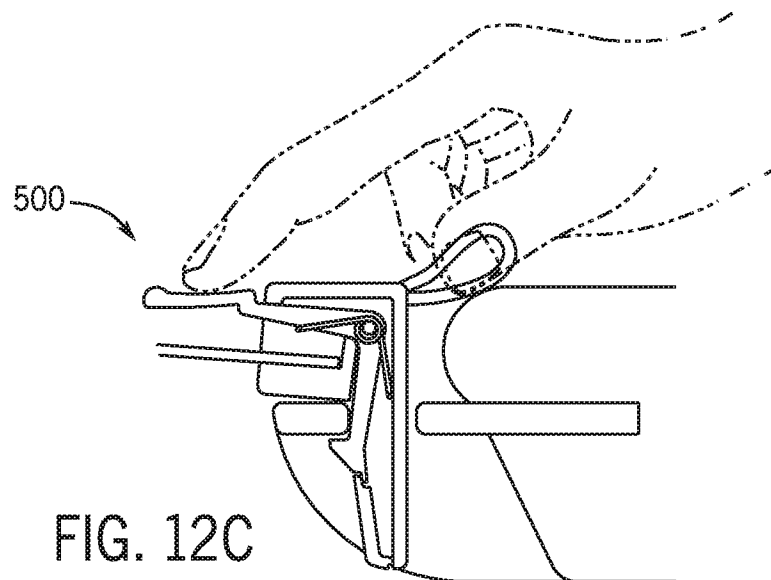
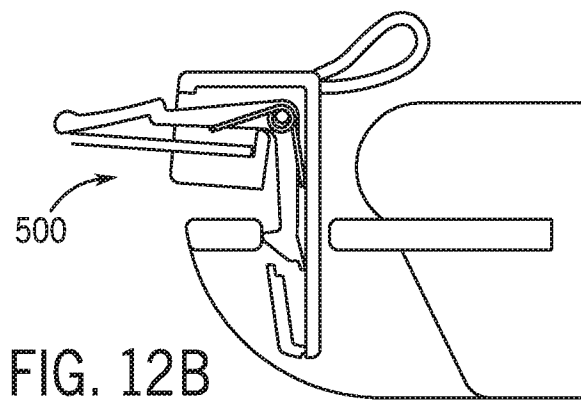
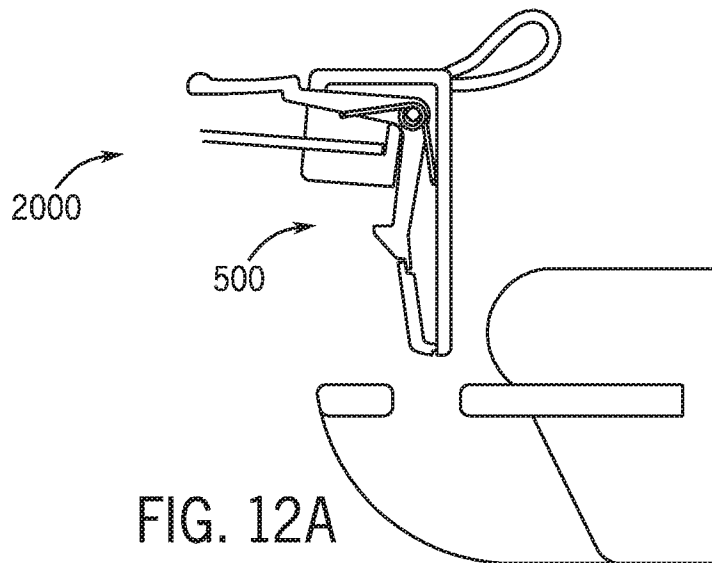
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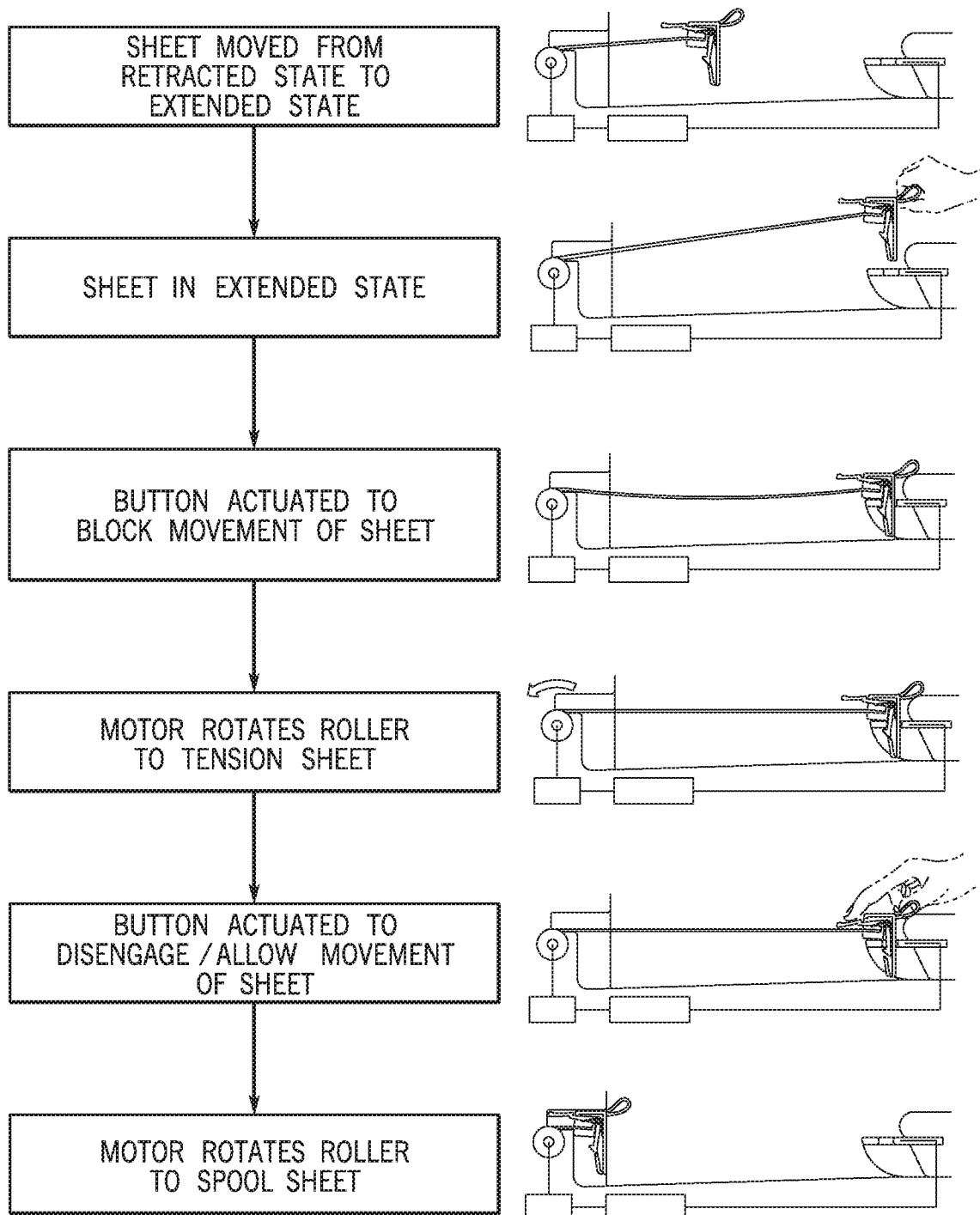


FIG. 13

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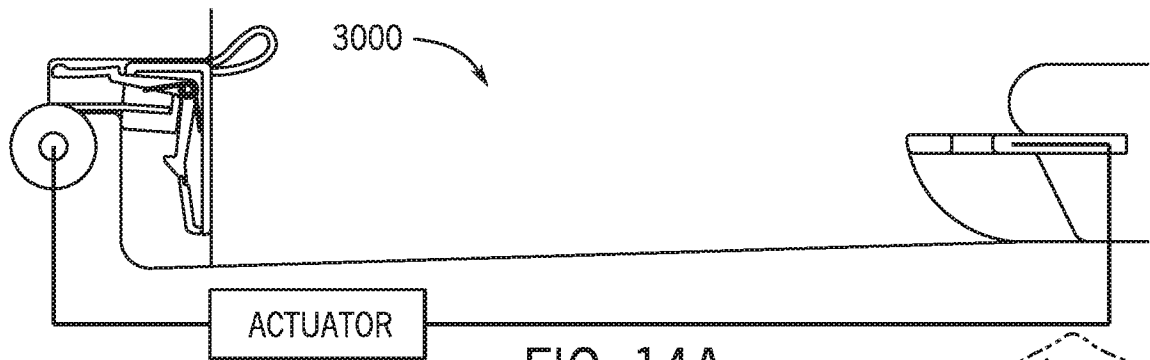


FIG. 14A

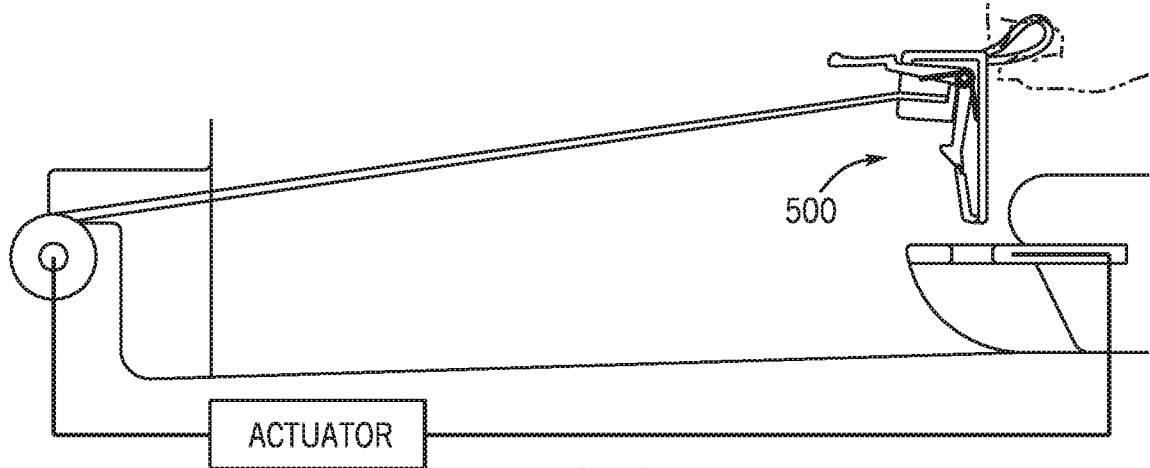


FIG. 14B

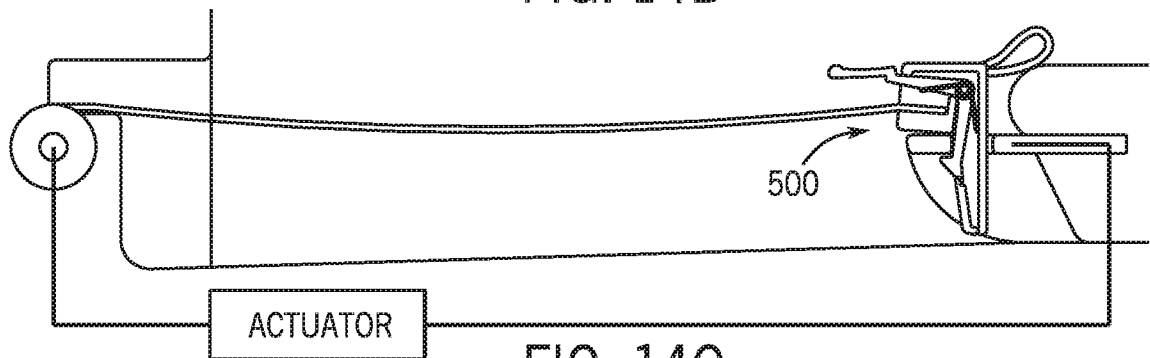


FIG. 14C

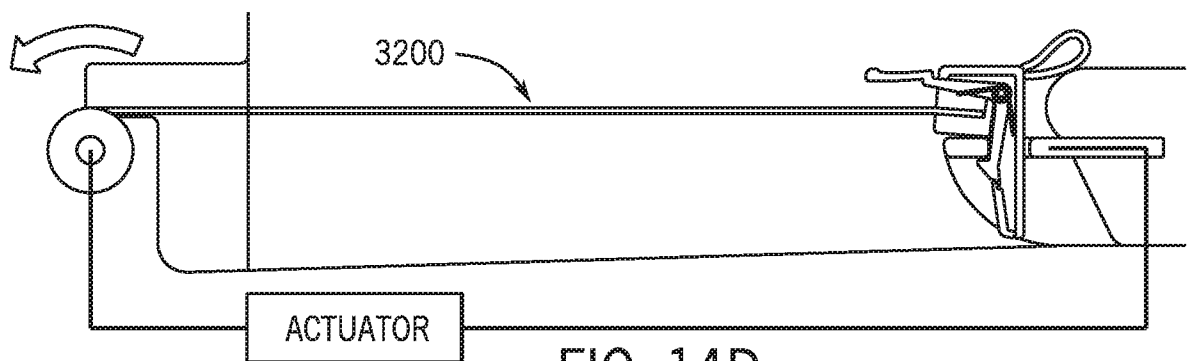


FIG. 14D

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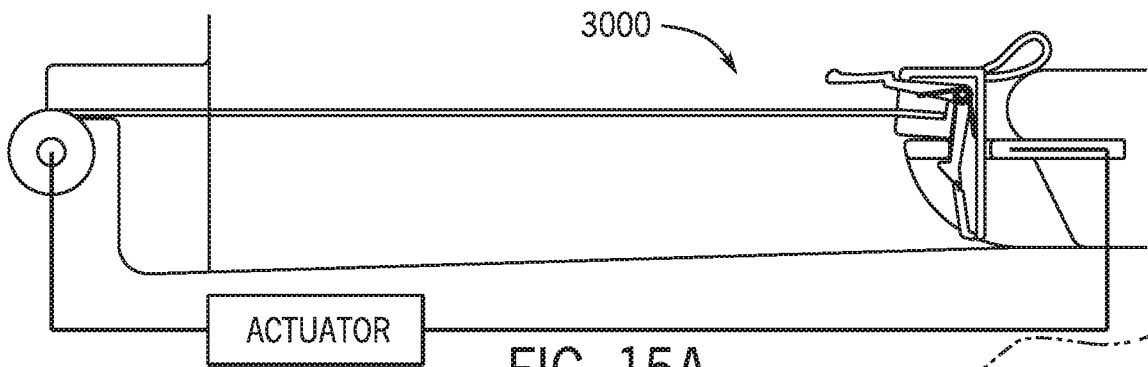


FIG. 15A

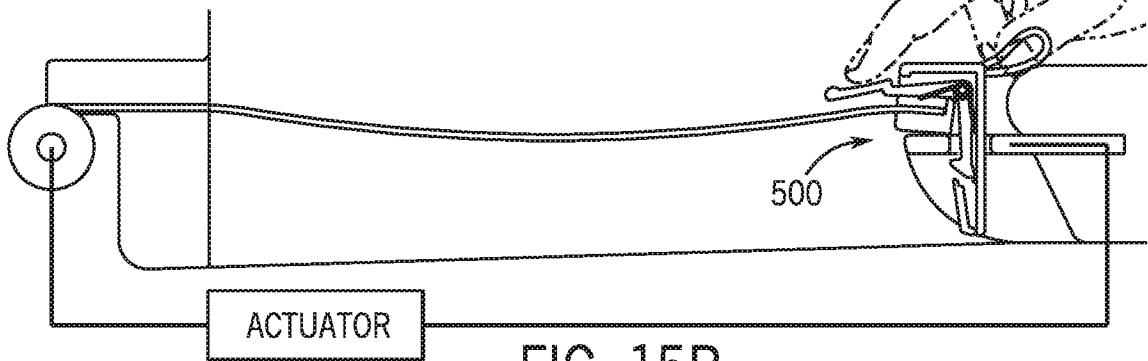


FIG. 15B

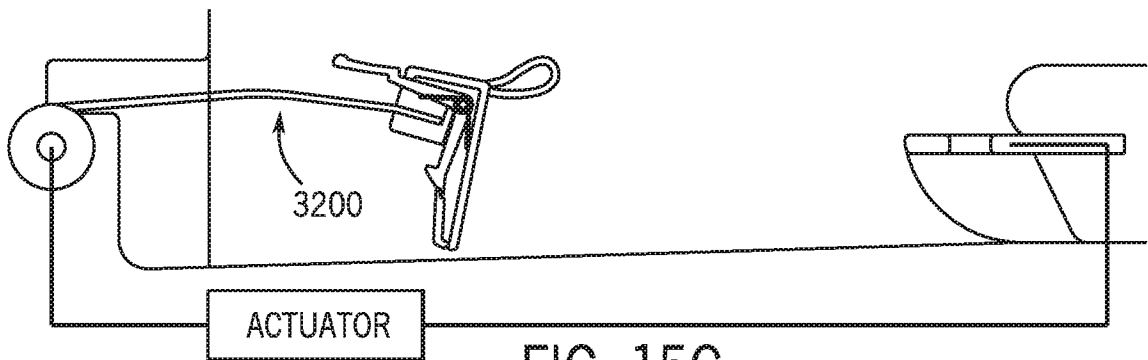


FIG. 15C

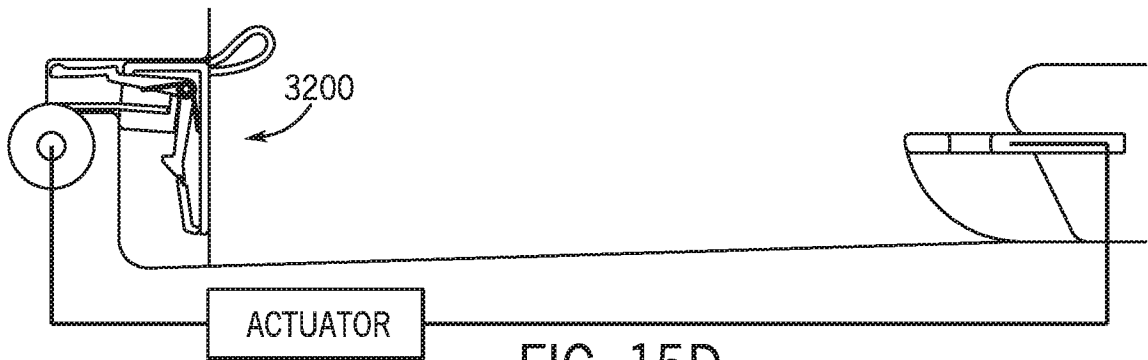


FIG. 15D

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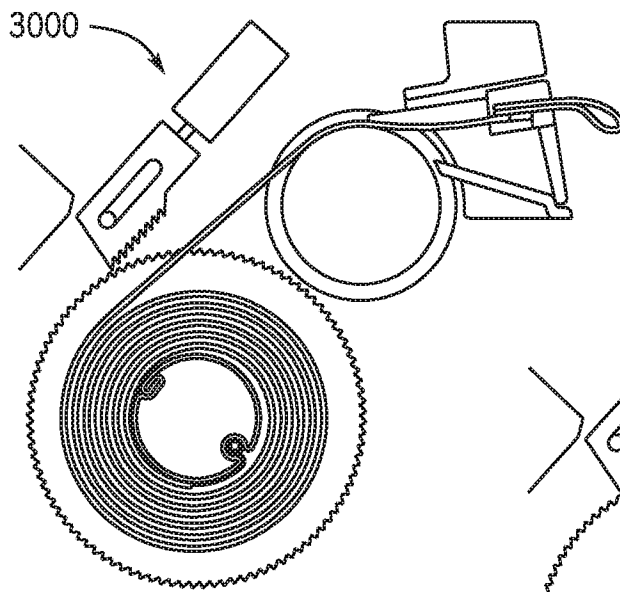


FIG. 16A

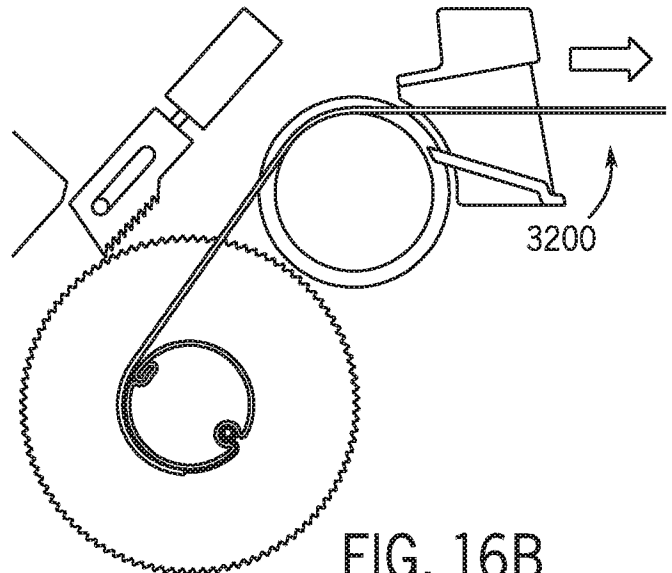


FIG. 16B

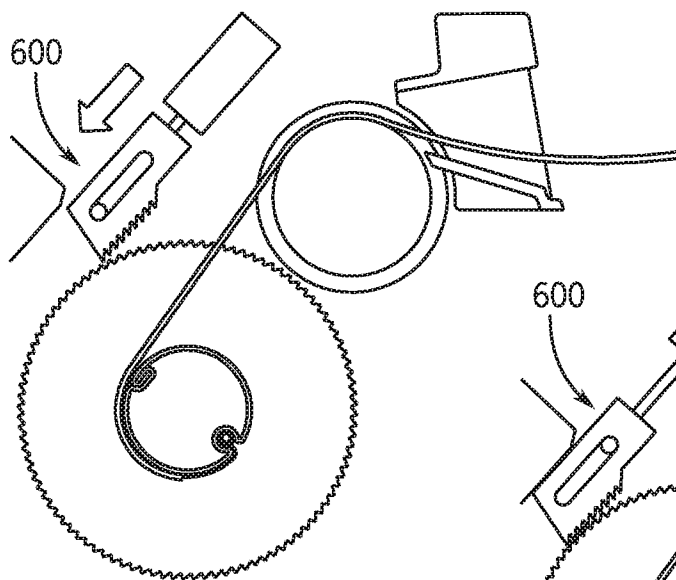


FIG. 16C

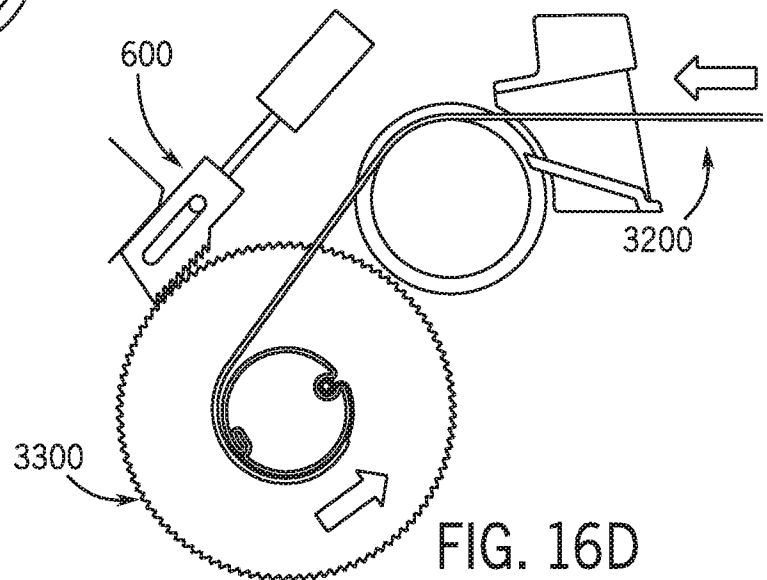


FIG. 16D

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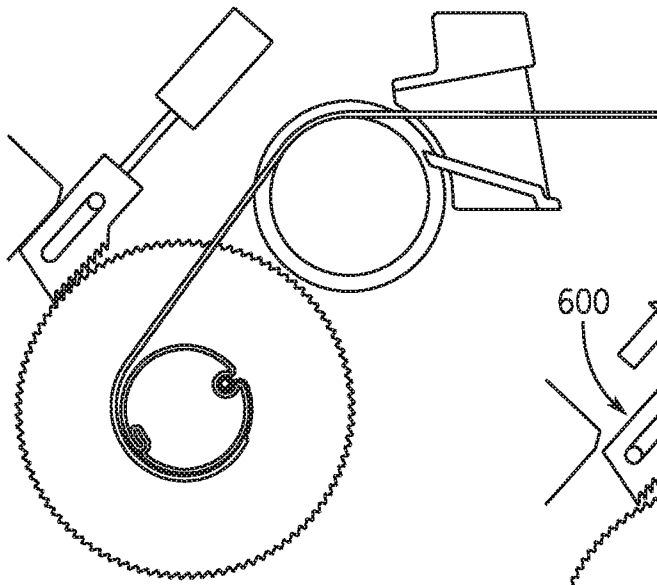


FIG. 17A

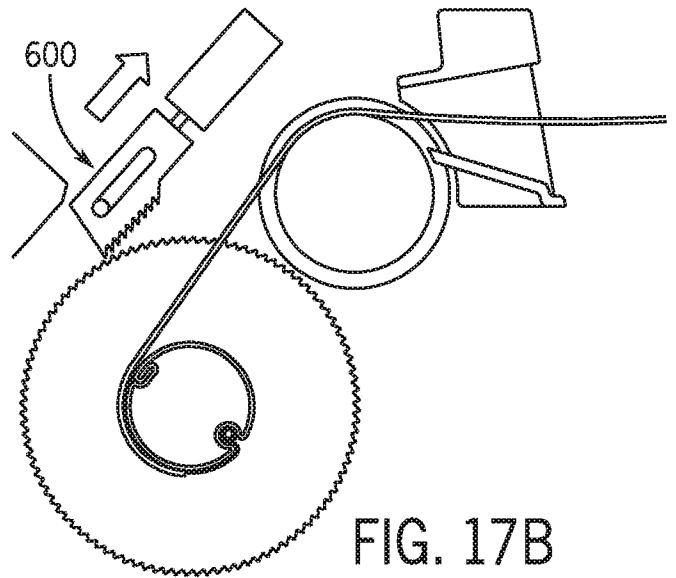


FIG. 17B

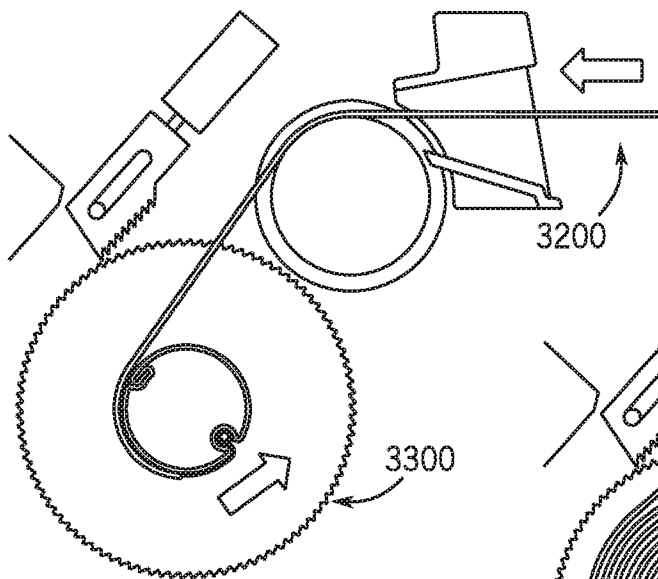


FIG. 17C

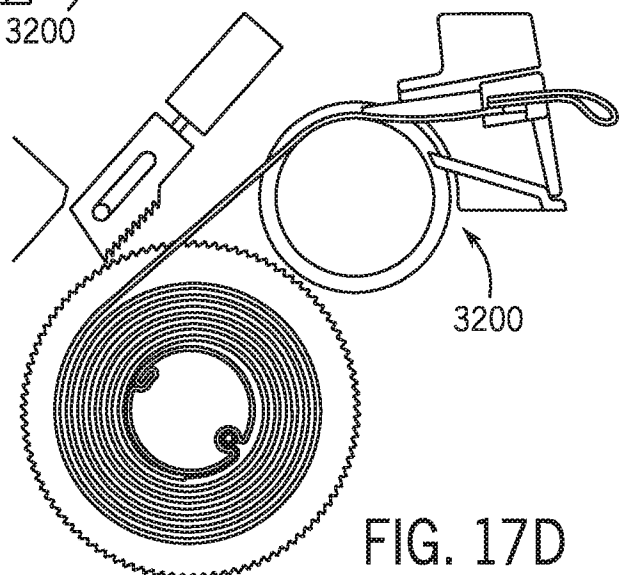


FIG. 17D

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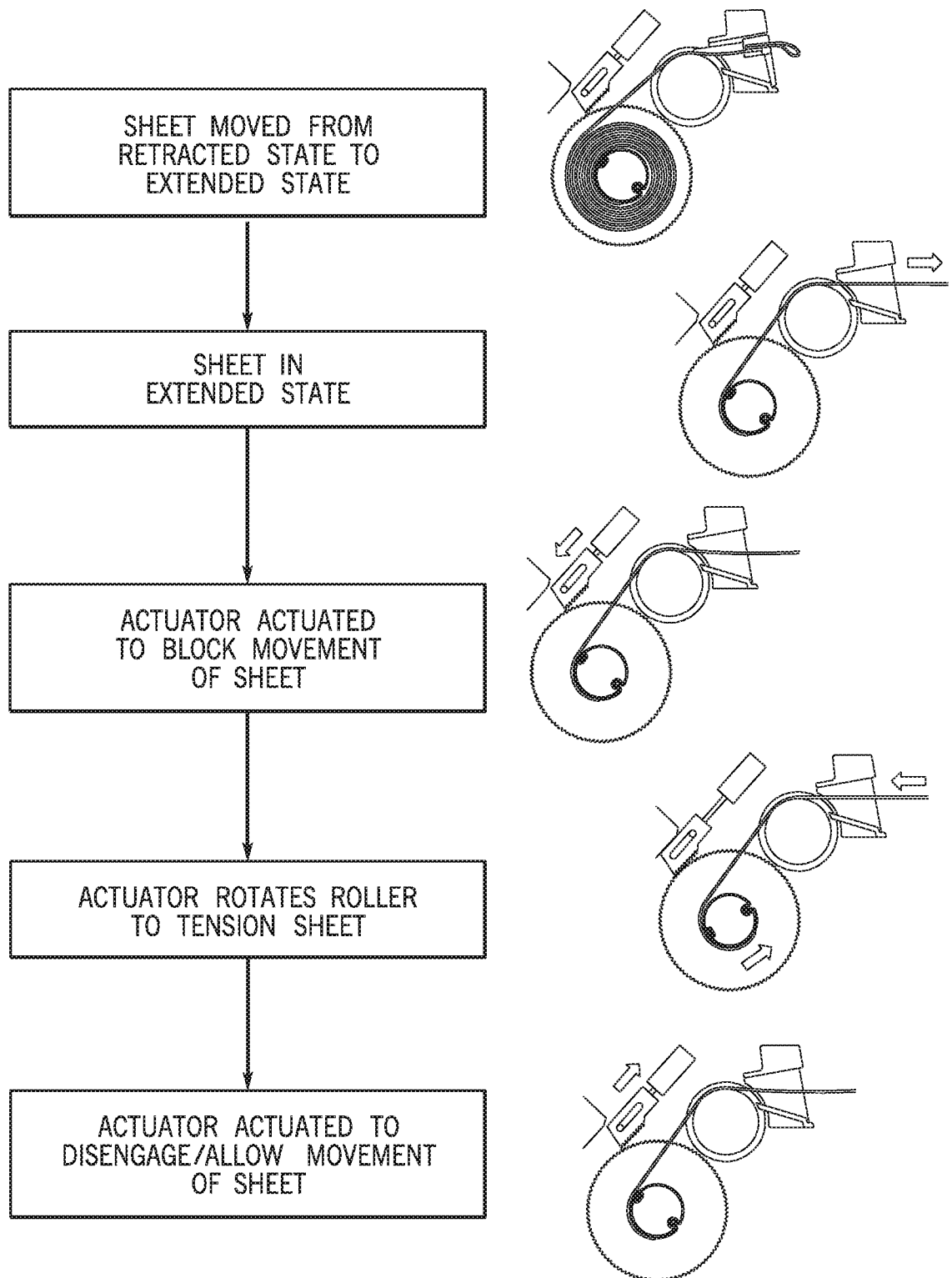


FIG. 18

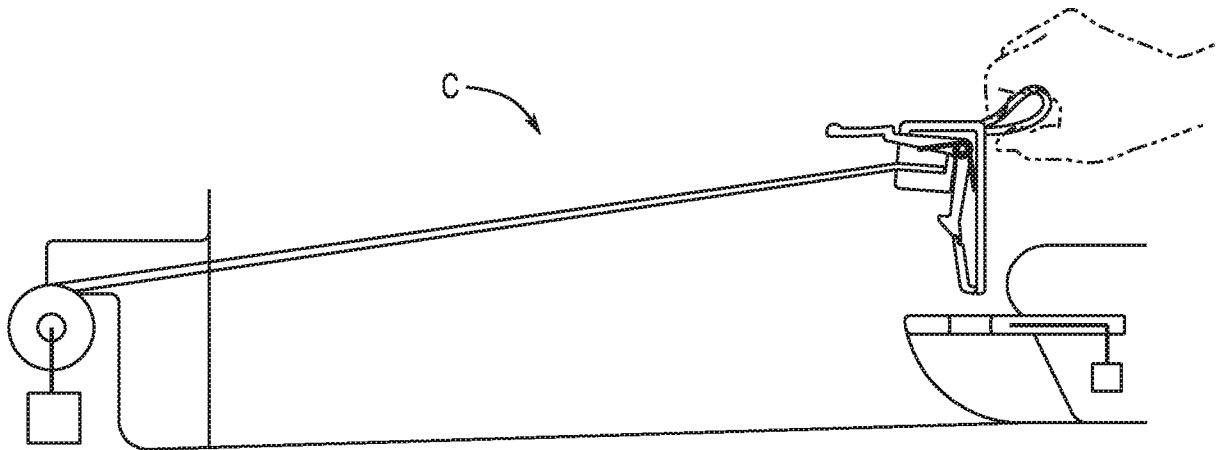


FIG. 19A

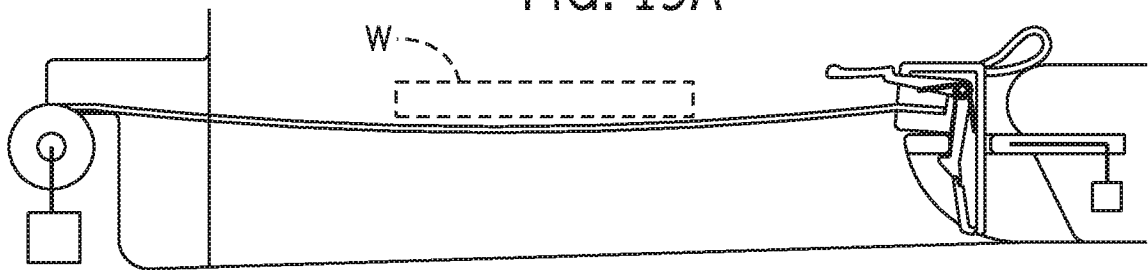


FIG. 19B

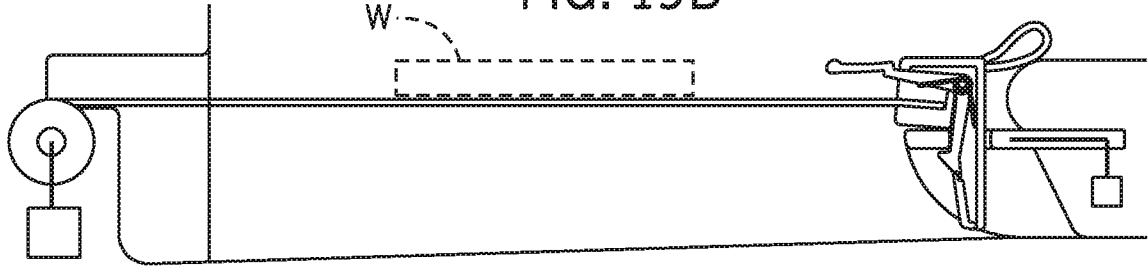


FIG. 19C

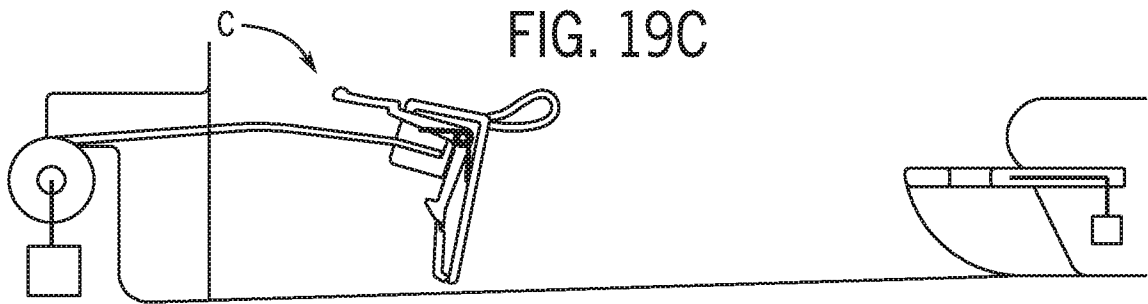


FIG. 19D

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2020/037422

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

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

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

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

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

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

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

See extra sheet(s).

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
1-35

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2020/037422

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - B60N 3/00; A47B 31/06; B60R 7/00; B60R 7/04; B60R 7/06; B60R 11/00 (2020.01)

CPC - B60N 3/002; B60N 3/001; B60R 2011/0005; B60R 2011/0007; B60R 2011/0082 (2020.08)

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

see Search History document

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

see Search History document

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

see Search History document

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3,896,742 A (FERRARO) 29 July 1975 (29.07.1975) entire document	1, 8, 12, 13, 20-24, 28-30, 34
---		---
Y		2, 3, 5-7, 35
Y	US 6,347,590 B1 (D'ANNUNZIO et al) 19 February 2002 (19.02.2002) entire document	2, 3, 5-7
Y	US 2017/0181536 A1 (FORD MOTOR COMPANY LIMITED) 29 June 2017 (29.06.2017) entire document	35
A	US 2005/0121152 A1 (WEINBRENNER) 09 June 2005 (09.06.2005) entire document	1-35
A	US 6,158,805 A (BLANEY) 12 December 2000 (12.12.2000) entire document	1-35

☐

Further documents are listed in the continuation of Box C.

☐

See patent family annex.

*

Special categories of cited documents:

"A"

document defining the general state of the art which is not considered to be of particular relevance

"D"

document cited by the applicant in the international application

"E"

earlier application or patent but published on or after the international filing date

"L"

document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O"

document referring to an oral disclosure, use, exhibition or other means

"P"

document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search

22 September 2020

Date of mailing of the international search report

09 OCT 2020

Name and mailing address of the ISA/US

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P.O. Box 1450, Alexandria, VA 22313-1450

Facsimile No. 571-273-8300

Authorized officer

Blaine R. Copenheaver

Telephone No. PCT Helpdesk: 571-272-4300

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2020/037422

Continued from Box No. III Observations where unity of invention is lacking

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claims 1-35, are drawn to a component for a vehicle comprising: a base; a roller configured to rotate relative to the base

Group II, claims 36-60, are drawn to a component for a vehicle configured to engage a base comprising an attachment point.

The inventions listed as Groups I-II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the special technical feature of the Group I invention: a base; a roller configured to rotate relative to the base; a sheet coupled to the roller and configured to move between a retracted state and an extended state; and a lock mechanism; wherein the lock mechanism is configured for a disengaged state to allow movement of the sheet and an engaged state to block movement of the sheet as claimed therein is not present in the invention of Group II. The special technical feature of the Group II invention: a base comprising an attachment point comprising: a roller; a web comprising a catch configured to extend between the roller and the attachment point of the base; an actuator configured to operate the roller; wherein the catch of the web is configured to engage the attachment point of the base when the web is fully extended; wherein the actuator is configured to retract the web onto the roller when the catch of the web is disengaged from the attachment point of the base as claimed therein is not present in the invention of Group I.

Groups I and II lack unity of invention because even though the inventions of these groups require the technical feature of a component for a vehicle comprising a base; a roller, this technical feature is not a special technical feature as it does not make a contribution over the prior art.

Specifically, US 2005/0121152 A1 to Weinbrenner teaches a component for a vehicle comprising a base; a roller (A window shade for motor vehicles is provided that includes a base unit in which the windup shaft is rotatably supported. The guide groove extends through the plug-type pin such that after the installation, the pull bar can be arbitrarily moved back and forth between the guide rail and the coupling device when the roller blind web is respectively retracted and pulled out, para. 0072).

Since none of the special technical features of the Group I or II inventions are found in more than one of the inventions, unity of invention is lacking.