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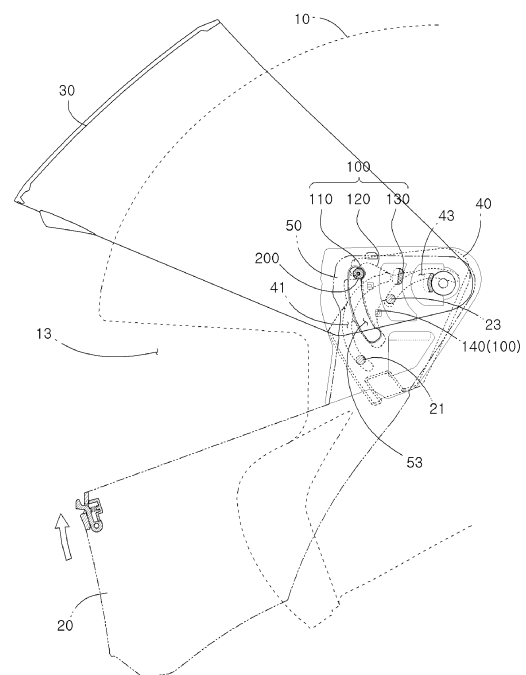
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(54) **ROTATION MECHANISM FOR HELMET**

(57) The present disclosure relates to a rotation mechanism for a helmet, and the rotation mechanism for a helmet according to the present disclosure is provided in a helmet comprising a helmet main body (10), a chin guard (20) which is rotatable with respect to the helmet main body (10), and a shield (30) which is rotatable with respect to the helmet main body (10), wherein the shield (30) is rotatably coupled to the chin guard (20), and when the chin guard (20) is rotated to an open position when the shield (30) is in an open position, the shield (30) is rotated within a predetermined angle with respect to the helmet main body (10) while being guided by a guiding portion (100) of the helmet main body (10).

FIG. 5



Description

[Technical Field]

5 **[0001]** The present disclosure relates to a rotation mechanism for a helmet.

[Background Art]

10 **[0002]** In general, it is mandatory to wear a helmet while driving a two wheeled vehicle with high speed to protect the wearer's head. The helmet has a front open portion to ensure the wearer's frontal field of view. In this instance, the helmet may include a shield that can selectively open and close the open portion to keep out wind, dust, etc. while driving. Additionally, the conventional helmet includes a chin guard to protect the wearer's chin as disclosed in the patent literature of the related literatures described below.

15 [RELATED LITERATURES]

[Patent Literature]

20 **[0003]** (Patent Literature 1) KR10-2014-0001141 A

[Disclosure]

[Technical Problem]

25 **[0004]** An aspect of the present disclosure relates to a rotation mechanism for a helmet in which while a shield in a rotatably coupled state to a chin guard is in an open position, when the chin guard is rotated to an open position, the shield is only rotated at a predetermined angle or less with respect to a helmet body with the guidance of a guide portion of the helmet body.

30 [Technical Solution]

35 **[0005]** A rotation mechanism for a helmet according to an embodiment of the present disclosure is provided in the helmet including a helmet body, a chin guard which is rotatable with respect to the helmet body and a shield which is rotatable with respect to the helmet body, wherein the shield is rotatably coupled to the chin guard, and wherein while the shield is in an open position, when the chin guard is rotated to the open position, the shield is rotated at a predetermined angle or less with respect to the helmet body with guidance of a guide portion of the helmet body.

[0006] Additionally, in the rotation mechanism for the helmet according to an embodiment of the present disclosure, the shield includes a control portion which moves along the guide portion and is configured to control the rotation of the shield.

40 **[0007]** Additionally, in the rotation mechanism for the helmet according to an embodiment of the present disclosure, the guide portion is formed as a step at a ratchet portion of the helmet body, and the control portion contacts the step and moves along the step.

[0008] Additionally, in the rotation mechanism for the helmet according to an embodiment of the present disclosure, the guide portion includes a first guide portion extended upward as it goes rearward, a second guide portion extended downward as it goes rearward from an end of the first guide portion, and a third guide portion extended rearward from an end of the second guide portion, and while the shield is in the open position, when the chin guard is rotated to the open position, the control portion moves along the first guide portion, the second guide portion and the third guide portion in that order.

45 **[0009]** Additionally, in the rotation mechanism for the helmet according to an embodiment of the present disclosure, the guide portion includes a fourth guide portion extended downward, and the control portion moves along the fourth guide portion when the shield is rotated to a closed position.

50 **[0010]** Additionally, in the rotation mechanism for the helmet according to an embodiment of the present disclosure, the control portion passes through a guide hole formed in the chin guard, the guide hole has a recessed groove portion at each of two ends, and a toothed portion between the two ends of the guide hole, and when the control portion is disposed at the two ends of the guide hole, the control portion is coupled to the groove portion by a force applied to the control portion in a direction, and when the control portion is disposed between the two ends of the guide hole, the control portion contacts the toothed portion.

55 **[0011]** Additionally, in the rotation mechanism for the helmet according to an embodiment of the present disclosure, the chin guard is rotatably coupled to a ratchet portion of the helmet body, two chin guard guide portions are formed in the

ratchet portion, and at least one of the two chin guard guide portions is extended rearward, two connection portions that move along the two chin guard guide portions are formed in the chin guard, and when the chin guard is rotated, the two connection portions move along the two chin guard guide portions.

[0012] Additionally, in the rotation mechanism for the helmet according to an embodiment of the present disclosure, while the shield is in the open position, when the chin guard is rotated to the open position, the chin guard is coupled to the shield, and when the chin guard is rotated to a closed position, the shield is rotated to the closed position.

[0013] Additionally, in the rotation mechanism for the helmet according to an embodiment of the present disclosure, any one of the chin guard or the shield has a first fastening portion, and the other one of the chin guard or the shield has a second fastening portion which is fastened with the first fastening portion.

[0014] Additionally, in the rotation mechanism for the helmet according to an embodiment of the present disclosure, the first fastening portion includes a first protruding portion protruded toward the second fastening portion, and a rotation portion configured to rotatably couple the first protruding portion to any one of the chin guard or the shield, and the second fastening portion includes a second protruding portion protruded toward the first fastening portion.

[0015] Additionally, in the rotation mechanism for the helmet according to an embodiment of the present disclosure, the first fastening portion further includes an elastic portion to provide an elastic force to rotate the first protruding portion toward the second fastening portion.

[0016] The features and advantages of the present disclosure will be apparent from the following detailed description in accordance with the accompanying drawings.

[0017] Prior to the description, it should be understood that the terms or words used in the specification and the appended claims should not be construed as limited to general and dictionary meanings, but rather interpreted based on the meanings and concepts corresponding to the technical spirit of the present disclosure on the basis of the principle that the inventor is allowed to define terms appropriately for the best explanation.

[Advantageous Effects]

[0018] According to the present disclosure, while the shield in the rotatably coupled state to the chin guard is in the open position, when the chin guard is rotated to the open position, the shield may be only rotated at the predetermined angle or less with respect to the helmet body with the guidance of the guide portion of the helmet body.

[Description of Drawings]

[0019]

FIG. 1 is an exploded perspective view of a rotation mechanism for a helmet according to an embodiment of the present disclosure.

FIGS. 2 to 12 are side views showing an operation process of a rotation mechanism for a helmet according to an embodiment of the present disclosure.

FIGS. 13 to 15 are side views showing an operation process of a shield of a rotation mechanism for a helmet according to an embodiment of the present disclosure.

FIGS. 16 and 17 are cross-sectional views showing an operation process of first and second fastening portions of a rotation mechanism for a helmet according to an embodiment of the present disclosure.

[Best Mode]

[0020] The objectives, particular advantages and new features of the present disclosure will be apparent from the following detailed description and exemplary embodiments in association with the accompanying drawings. In affixing the reference numbers to the elements of each drawing in the present disclosure, it should be noted that identical elements are given as identical numbers as possible although they are depicted in different drawings. Additionally, the terms such as "first", "second" or the like are used to distinguish one element from another, and the elements are not limited by the terms. Hereinafter, in describing the present disclosure, when it is determined that a certain description of related known technology may unnecessarily obscure the subject matter of the present disclosure, the detailed description is omitted.

[0021] Hereinafter, exemplary embodiments of the present disclosure will be described in detail with reference to the accompanying drawings.

[0022] FIG. 1 is an exploded perspective view of a rotation mechanism for a helmet according to an embodiment of the present disclosure, and FIGS. 2 to 12 are side views showing an operation process of the rotation mechanism for the helmet according to an embodiment of the present disclosure.

[0023] As shown in FIGS. 1 to 12, the rotation mechanism for the helmet according to this embodiment is equipped in the helmet including a helmet body 10, a chin guard 20 which is rotatable with respect to the helmet body 10, and a shield 30

which is rotatable with respect to the helmet body 10, wherein the shield 30 is rotatably coupled to the chin guard 20, and while the shield 30 is in an open position, when the chin guard 20 is rotated to the open position, the shield 30 is rotated at a predetermined angle or less with respect to the helmet body 10 with the guidance of a guide portion 100 of the helmet body 10.

[0024] Basically, the helmet body 10 plays a role in protecting a wearer's head. The helmet body 10 may be made of a shock absorbing material. For example, the helmet body 10 may include an outer shell of hard synthetic resin and having high strength, and an absorber disposed in the outer shell, made of an expanded polystyrene (EPS) foam and having proper strength and elasticity. A pad may be present inside the absorber to improve a snug fit.

[0025] Additionally, the chin guard 20 plays a role in protecting the wearer's chin, and may be extended in such an arc shape as a whole that it is disposed in front of the wearer's chin. In this instance, two ends of the chin guard 20 are rotatably coupled to a ratchet portion 40 on two sides of the helmet body 10, and the chin guard 20 rotates with respect to the helmet body 10 and is rotatable from a closed position to the open position. For example, the closed position may refer to a position when the chin guard 20 is disposed in front of the wearer's chin (see FIG. 2, the closed chin guard 20), and the open position may refer to a position when the chin guard 20 is disposed above the helmet body 10 (see FIG. 8, the open chin guard 20).

[0026] Additionally, the shield 30 plays a role in opening and closing an open portion 13 formed at the front side of the helmet body 10. In this instance, two ends of the shield 30 are rotatably coupled to an auxiliary ratchet portion 50 on two sides of the chin guard 20, and the shield 30 rotates with respect to the helmet body 10 and is rotatable from the closed position in which the open portion 13 is closed to the open position in which the open portion 13 is open. For example, the closed position may refer to a position when the shield 30 is disposed at the open portion 13 (see FIG. 2, the closed shield 30), and the open position may refer to a position when the shield 30 is disposed above the open portion 13 (see FIG. 4, the open shield 30).

[0027] Meanwhile, the ratchet portion 40 may have two chin guard guide portions 41, 43 extended in an arc shape, and the chin guard 20 may have two connection portions 21, 23 that move along the two chin guard guide portions 41, 43. Accordingly, when the chin guard 20 rotates, the two connection portions 21, 23 may move along the two chin guard guide portions 41, 43. For example, the two connection portions 21, 23 may be protrusions protruded from the inner surface of the chin guard 20, and the two chin guard guide portions 41, 43 may be slits extended in an arc shape along the ratchet portion 40. Specifically, at least one guide portion 43 of the two chin guard guide portions 41, 43 is extended rearward, and as the chin guard 20 rotates, at least one connection portion 23 of the two connection portions 21, 23 moves rearward along at least one chin guard guide portion 43 of the two chin guard guide portions 41, 43. Accordingly, the chin guard 20 does not rotate around an axis with respect to the helmet body 10, and as the chin guard 20 rotates, a relative position to the helmet body 10 may be moved (for example, the chin guard 20 may be moved rearward compared to when it rotates around an axis).

[0028] Because the shield 30 is rotatably coupled to the auxiliary ratchet portion 50 of the chin guard 20, while the shield 30 is in the open position, when the chin guard 20 is rotated from the closed position to the open position, the shield 30 may be rotated too much with the rotation of the chin guard 20. However, the rotation mechanism for the helmet according to this embodiment may make sure that when the chin guard 20 is rotated from the closed position to the open position, the shield 30 may be only rotated at a predetermined angle or less with respect to the helmet body 10 with the guidance of the guide portion 100 of the helmet body 10.

[0029] Here, the guide portion 100 is formed at the ratchet portion 40 of the helmet body 10, and the shield 30 may include a control portion 200 configured to control the rotation of the shield 30 while it moves along the guide portion 100 when the chin guard 20 is rotated. For example, the guide portion 100 may be formed as a step at the ratchet portion 40 of the helmet body 10. Specifically, the step may be defined by the sidewall of a recess portion 45 (see FIG. 1) recessed in the ratchet portion 40. Additionally, the control portion 200 of the shield 30 may contact the step, and when the chin guard 20 is rotated, may move along the step (the guide portion 100). For example, the control portion 200 may be formed as a protruding pin protruded from the inner side of the two ends of the shield 30. In this instance, the control portion 200 may contact the step (the guide portion 100) formed at the ratchet portion 40 through a guide hole 53 that is formed at the auxiliary ratchet portion 50 of the chin guard 20 and extended in an arc shape.

[0030] More specifically, the guide portion 100 may include a first guide portion 110, a second guide portion 120 and a third guide portion 130. Here, the first guide portion 110 may be extended upward as it goes rearward, and the second guide portion 120 may be extended downward as it goes rearward from the end of the first guide portion 110. For example, the first guide portion 110 may be obliquely extended upward as it goes rearward, and the second guide portion 120 may be obliquely extended downward as it goes rearward. Additionally, the third guide portion 130 may be extended rearward from the end of the second guide portion 120. For example, the third guide portion 130 may be extended in an arc shape protruded upward. Here, while the shield 30 is in the open position, when the chin guard 20 is rotated from the closed position to the open position, the control portion 200 moves along the first guide portion 110, the second guide portion 120 and the third guide portion 130 in that order, and its related description will be described in detail below. Additionally, the guide portion 100 may include a fourth guide portion 140. Here, the fourth guide portion 140 may be disposed at a lower location than the first, second and third guide portions 110, 120, 130, and be extended downward. For example, the fourth

guide portion 140 may be extended in an arc shape protruded frontward. Here, when the shield 30 rotates from the open position to the closed position together with the chin guard 20, the control portion 200 moves along the fourth guide portion 140, and its related description will be described in detail below.

5 [Mode for Invention]

[0031] Specifically, as shown in FIGS. 2 to 4, when the shield 30 is rotated from the closed position to the open position, the control portion 200 of the shield 30 may move along the guide hole 53 (formed at the auxiliary ratchet portion 50 of the chin guard 20) extended in an arc shape. For example, when the shield 30 is in the closed position (see FIG. 2), the control portion 200 of the shield 30 may be disposed at the lower end of the guide hole 53, and when the shield 30 is in the open position (see FIG. 4), the control portion 200 of the shield 30 may be disposed at the upper end of the guide hole 53. Because the control portion 200 of the shield 30 only moves up to the two ends of the guide hole 53 of the auxiliary ratchet portion 50, the range of rotation of the shield 30 with respect to the chin guard 20 may be limited to a predetermined range. Meanwhile, when the shield 30 is rotated to the open position (see FIG. 4), the control portion 200 of the shield 30 may be disposed spaced a predetermined distance apart in the downward direction from the front end of the first guide portion 110.

[0032] Subsequently, as shown in FIGS. 5 and 6, while the shield 30 is in the open position, when the chin guard 20 is rotated from the closed position to the open position, the chin guard 20 and the shield 30 may be rotated together, and the control portion 200 of the shield 30 may be disposed in front of the first guide portion 110, and subsequently the control portion 200 of the shield 30 may come into contact with the first guide portion 110 and be guided to move from the front end to the rear end of the first guide portion 110. Because the first guide portion 110 is extended upward as it goes rearward, the shield 30 including the control portion 200 guided by the first guide portion 110 may move upward as it goes rearward with respect to the helmet body 10. In this instance, because the amount of rotation of the chin guard 20 is larger than the amount of rotation of the shield 30, the distance between the shield 30 and the chin guard 20 may be reduced. Additionally, the control portion 200 of the shield 30 may move a predetermined distance from the upper end of the guide hole 53 of the auxiliary ratchet portion 50 toward the lower end.

[0033] Subsequently, as shown in FIGS. 6 and 7, while the shield 30 is in the open position, when the chin guard 20 is further rotated to the open position, the control portion 200 of the shield 30 may come into contact with the second guide portion 120 and be guided to move from the front end to the rear end of the second guide portion 120. Because the second guide portion 120 is extended downward as it goes rearward, the shield 30 including the control portion 200 guided by the second guide portion 120 may move downward as it goes rearward with respect to the helmet body 10. In this instance, because the amount of rotation of the chin guard 20 is larger than the amount of rotation of the shield 30, the distance between the shield 30 and the chin guard 20 may be further reduced. Additionally, the control portion 200 of the shield 30 may move a predetermined distance toward the lower end of the guide hole 53 of the auxiliary ratchet portion 50 again.

[0034] Subsequently, as shown in FIG. 8, while the shield 30 is in the open position, when the chin guard 20 is rotated to the open position, the control portion 200 of the shield 30 may come into contact with the third guide portion 130 and be guided to move from the front end to the rear end of the third guide portion 130. Because the third guide portion 130 is extended rearward, the shield 30 including the control portion 200 guided by the third guide portion 130 may move rearward with respect to the helmet body 10. In this instance, because the amount of rotation of the chin guard 20 is larger than the amount of rotation of the shield 30, the chin guard 20 may be coupled to the shield 30. Additionally, the control portion 200 of the shield 30 may be disposed at the lower end of the guide hole 53 of the auxiliary ratchet portion 50. Accordingly, while the shield 30 is in the open position, when the chin guard 20 is rotated to the open position, the shield 30 may be only rotated at the predetermined angle or less with respect to the helmet body 10 without excessive rotation with the guidance of the guide portion 100 for the control portion 200 of the shield 30.

[0035] Additionally, as described above, when it rotates, the chin guard 20 does not rotate around an axis with respect to the helmet body 10, so its relative position to the helmet body 10 is moved, and as shown in FIGS. 5 to 8, the shield 30 coupled to the chin guard 20 may move with respect to the helmet body 10 in response to the movement of the chin guard 20 with the guidance of the guide portion 100 of the ratchet portion 40.

[0036] Meanwhile, as shown in FIGS. 9 to 12, after the chin guard 20 is coupled to the shield 30, when the chin guard 20 rotates from the open position to the closed position, the shield 30 coupled to the chin guard 20 also rotates from the open position to the closed position, and the control portion 200 of the shield 30 may be spaced apart from the third guide portion 130 (see FIG. 9), then come into contact with the fourth guide portion 140, and be guided to move from the upper end to the lower end of the fourth guide portion 140 (see FIGS. 10 to 12). Because the fourth guide portion 140 is extended downward, the shield 30 including the control portion 200 guided by the fourth guide portion 140 may move downward with respect to the helmet body 10. In this instance, because the shield 30 is coupled to the chin guard 20 and they rotate together, the control portion 200 of the shield 30 maintains its location at the lower end of the guide hole 53 of the auxiliary ratchet portion 50.

[0037] Meanwhile, the structure in which the shield 30 is rotatably coupled to the auxiliary ratchet portion 50 of the chin guard 20 will be described in detail. As shown in FIG. 1, the shield 30 may include a rotation axis 31 and a second guide 33.

Additionally, the auxiliary ratchet portion 50 of the chin guard 20 may include a movement portion 55 to which elasticity is applied in the rearward direction. Here, the rotation axis 31 may be protruded from the inner side of the shield 30, be rotatably coupled to the auxiliary ratchet portion 50, and be subjected to pressure in the rearward direction by the movement portion 55. Additionally, the second guide 33 may be protruded from the inner side of the shield 30, and be coupled to an arc-shaped first guide 57 formed in the movement portion 55 of the auxiliary ratchet portion 50 so that it moves along the first guide 57. As described above, because elasticity is applied to the movement portion 55 in the rearward direction, the force is applied to the shield 30 in the rearward direction through the rotation axis 31 subjected to pressure by the movement portion 55, and as a result, the force is also applied to the control portion 200 of the shield 30 in the rearward direction. In this instance, as shown in FIGS. 13 to 15, the guide hole 53 formed in the auxiliary ratchet portion 50 may have groove portions 53a, 53b recessed rearward at the two ends (the upper end and the lower end), respectively, and a toothed portion 53c between the two ends (upper end and lower end) of the guide hole 53. As described above, because the force is applied to the control portion 200 of the shield 30 in the rearward direction, when the control portion 200 is disposed at the upper or lower end of the guide hole 53 (see FIGS. 13 and 14), the control portion 200 may be coupled to the groove portions 53a, 53b to prevent the shield 30 from arbitrarily rotating. Additionally, because the force is applied to the control portion 200 of the shield 30 in the rearward direction, when the control portion 200 is disposed between the upper end and the lower end of the guide hole 53 (see FIG. 15), the control portion 200 may come into contact with the toothed portion 53c and provide clicking in response to the rotation of the shield 30.

[0038] As described above, while the shield 30 is in the open position, when the chin guard 20 is rotated to the open position, the chin guard 20 may be coupled to the shield 30, and afterwards when the chin guard 20 is rotated to the closed position, the shield 30 may be also rotated to the closed position (see FIGS. 9 to 12). Here, for the coupling of the chin guard 20 to the shield 30, as shown in FIG. 16, a first fastening portion 300 and a second fastening portion 400 may be provided. In this instance, the first fastening portion 300 may be formed at the central upper part of the chin guard 20, and the second fastening portion 400 that is fastened with the first fastening portion 300 may be formed at the central lower part of the shield 30. Specifically, the first fastening portion 300 may include a first protruding portion 310 protruded toward the second fastening portion 400, a rotation portion 320 to rotatably couple the first protruding portion 310 to the chin guard 20, and an elastic portion 330 to provide an elastic force to rotate the first protruding portion 310 toward the second fastening portion 400. In this instance, one end of the elastic portion 330 contacts the first protruding portion 310, and to support the other end of the elastic portion 330, a support portion 25 that supports the elastic portion 330 may be coupled to the chin guard 20. Additionally, the second fastening portion 400 may include a second protruding portion 410 protruded toward the first fastening portion 300. Accordingly, when the chin guard 20 is coupled to the shield 30, the second protruding portion 410 of the second fastening portion 400 may come into contact with the first protruding portion 310 of the first fastening portion 300 (see FIG. 16(B)), then the elastic portion 330 may be compressed, and the first protruding portion 310 may rotate around the rotation portion 320 in the inward direction of the chin guard 20. Subsequently, when the second protruding portion 410 of the second fastening portion 400 is disposed at the lower end of the first protruding portion 310 of the first fastening portion 300 (see FIG. 16(C)), the first protruding portion 310 may rotate toward the shield 30 by the elastic force of the compressed elastic portion 330, and the second protruding portion 410 and the first protruding portion 310 may be coupled to each other. As described above, as the second protruding portion 410 of the second fastening portion 400 and the first protruding portion 310 of the first fastening portion 300 are coupled to each other, the chin guard 20 may be coupled to the shield 30.

[0039] Meanwhile, as shown in FIG. 17, in the coupled state of the second protruding portion 410 of the second fastening portion 400 and the first protruding portion 310 of the first fastening portion 300, when the wearer rotates up the shield 30, because the second protruding portion 410 and the first protruding portion 310 are obliquely coupled to each other, the second protruding portion 410 may push the first protruding portion 310 in the inward direction of the chin guard 20. In this instance, when the first protruding portion 310 rotates around the rotation portion 320 in the inward direction of the chin guard 20, the first protruding portion 310 may be separated from the second protruding portion 410. Eventually, in the coupled state of the shield 30 to the chin guard 20, when the wearer rotates up the shield 30, the shield 30 may be naturally separated from the chin guard 20.

[0040] Although the foregoing description describes the first fastening portion 300 formed in the chin guard 20 and the second fastening portion 400 formed in the shield 30, the scope of protection of the present disclosure is not necessarily limited thereto, and the first fastening portion 300 may be formed in the shield 30 and the second fastening portion 400 may be formed in the chin guard 20.

[0041] While the present disclosure has been hereinabove described in detail through the specific embodiments, this is provided to describe the present disclosure in detail, and the present disclosure is not limited thereto, and it is obvious that modifications or changes may be made by those having ordinary skill in the art within the technical spirit of the present disclosure.

[0042] Such modifications and changes of the present disclosure fall in the scope of the present disclosure, and the scope of protection of the present disclosure will be apparent from the appended claims.

[Detailed Description of Main Elements]

5	10:	Helmet body	13:	Open portion
	20:	Chin guard	21, 23:	Connection portion
	25:	Support portion	30:	Shield
	31:	Rotation axis	33:	Second guide
	40:	Ratchet portion	41, 43:	Chin guard guide portion
	50:	Auxiliary ratchet portion	53:	Guide hole
10	53a, 53b:	Groove portion	53c:	Toothed portion
	55:	Movement portion	57:	First guide
	100:	Guide portion	110:	First guide portion
	120:	Second guide portion	130:	Third guide portion
	140:	Fourth guide portion	200:	Control portion
15	300:	First fastening portion	310:	First protruding portion
	320:	Rotation portion	330:	Elastic portion
	400:	Second fastening portion	410:	Second protruding portion

[Industrial Applicability]

[0043] The present disclosure provides the rotation mechanism for the helmet in which while the shield in the rotatably coupled state to the chin guard is in the open position, when the chin guard is rotated to the open position, the shield may be only rotated at the predetermined angle or less with respect to the helmet body with the guidance of the guide portion of the helmet body.

Claims

1. A rotation mechanism for a helmet, provided in the helmet including a helmet body, a chin guard which is rotatable with respect to the helmet body and a shield which is rotatable with respect to the helmet body,

wherein the shield is rotatably coupled to the chin guard, and
 wherein while the shield is in an open position, when the chin guard is rotated to the open position, the shield is rotated at a predetermined angle or less with respect to the helmet body with guidance of a guide portion of the helmet body.

2. The rotation mechanism for the helmet according to claim 1, wherein the shield includes a control portion which moves along the guide portion and is configured to control the rotation of the shield.

3. The rotation mechanism for the helmet according to claim 2, wherein the guide portion is formed as a step at a ratchet portion of the helmet body, and
 wherein the control portion contacts the step and moves along the step.

4. The rotation mechanism for the helmet according to claim 2, wherein the guide portion includes:

a first guide portion extended upward as it goes rearward;
 a second guide portion extended downward as it goes rearward from an end of the first guide portion; and
 a third guide portion extended rearward from an end of the second guide portion, and
 wherein while the shield is in the open position, when the chin guard is rotated to the open position, the control portion moves along the first guide portion, the second guide portion and the third guide portion in that order.

5. The rotation mechanism for the helmet according to claim 2, wherein the guide portion includes a fourth guide portion extended downward, and
 wherein the control portion moves along the fourth guide portion when the shield is rotated to a closed position.

6. The rotation mechanism for the helmet according to claim 2, wherein the control portion passes through a guide hole formed in the chin guard,

wherein the guide hole has a recessed groove portion at each of two ends, and a toothed portion between the two ends of the guide hole, and
 wherein when the control portion is disposed at the two ends of the guide hole, the control portion is coupled to the groove portion by a force applied to the control portion in a direction, and when the control portion is disposed between the two ends of the guide hole, the control portion contacts the toothed portion.

7. The rotation mechanism for the helmet according to claim 1, wherein the chin guard is rotatably coupled to a ratchet portion of the helmet body,

wherein two chin guard guide portions are formed in the ratchet portion, and at least one of the two chin guard guide portions is extended rearward,
 wherein two connection portions that move along the two chin guard guide portions are formed in the chin guard, and
 wherein when the chin guard is rotated, the two connection portions move along the two chin guard guide portions.

8. The rotation mechanism for the helmet according to claim 1, wherein while the shield is in the open position, when the chin guard is rotated to the open position, the chin guard is coupled to the shield, and when the chin guard is rotated to a closed position, the shield is rotated to the closed position.

9. The rotation mechanism for the helmet according to claim 8, wherein any one of the chin guard or the shield has a first fastening portion, and
 wherein the other one of the chin guard or the shield has a second fastening portion which is fastened with the first fastening portion.

10. The rotation mechanism for the helmet according to claim 9, wherein the first fastening portion includes:

a first protruding portion protruded toward the second fastening portion; and
 a rotation portion configured to rotatably couple the first protruding portion to any one of the chin guard or the shield, and
 wherein the second fastening portion includes a second protruding portion protruded toward the first fastening portion.

11. The rotation mechanism for the helmet according to claim 10, wherein the first fastening portion further includes an elastic portion to provide an elastic force to rotate the first protruding portion toward the second fastening portion.

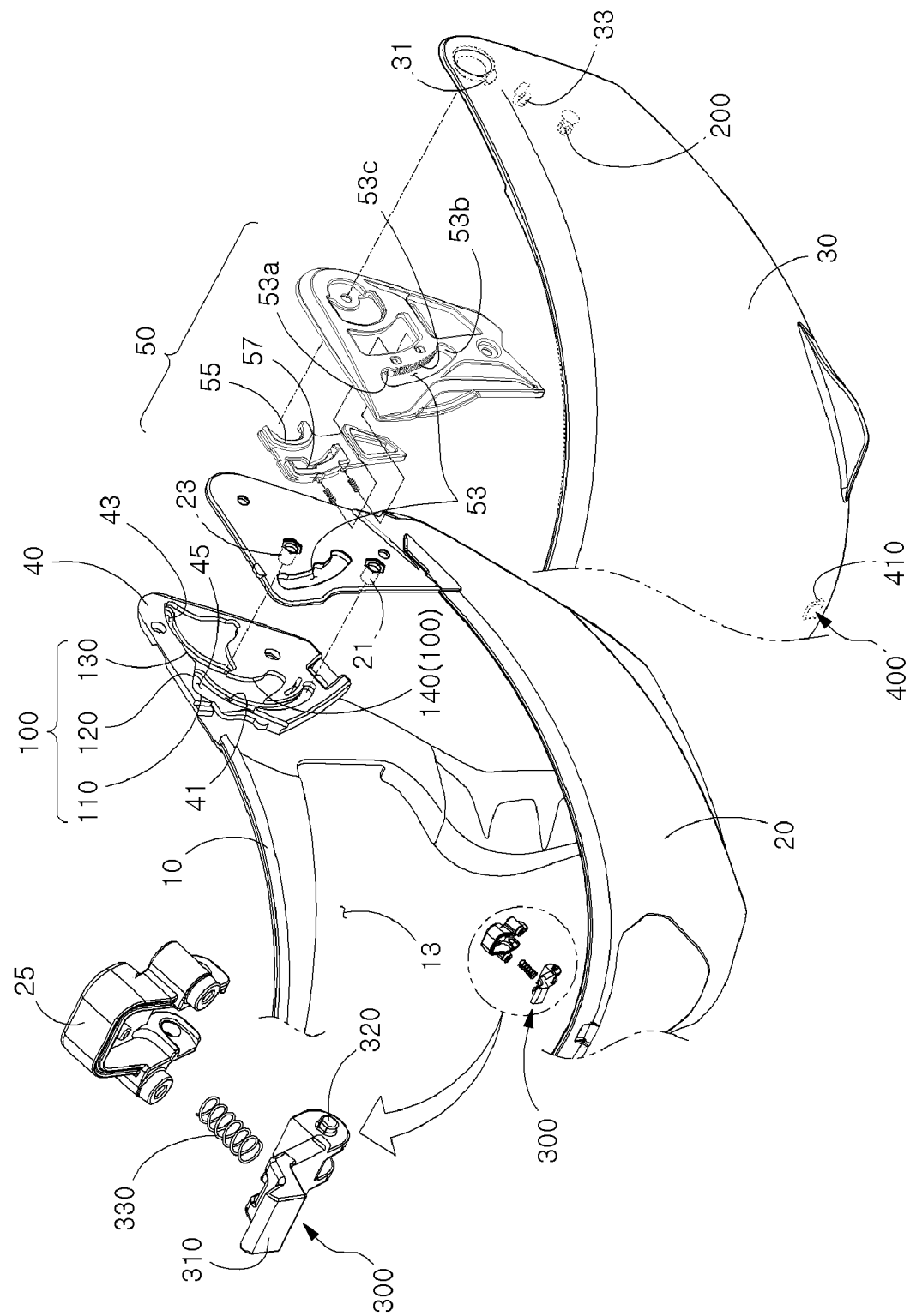


FIG. 1

FIG. 2

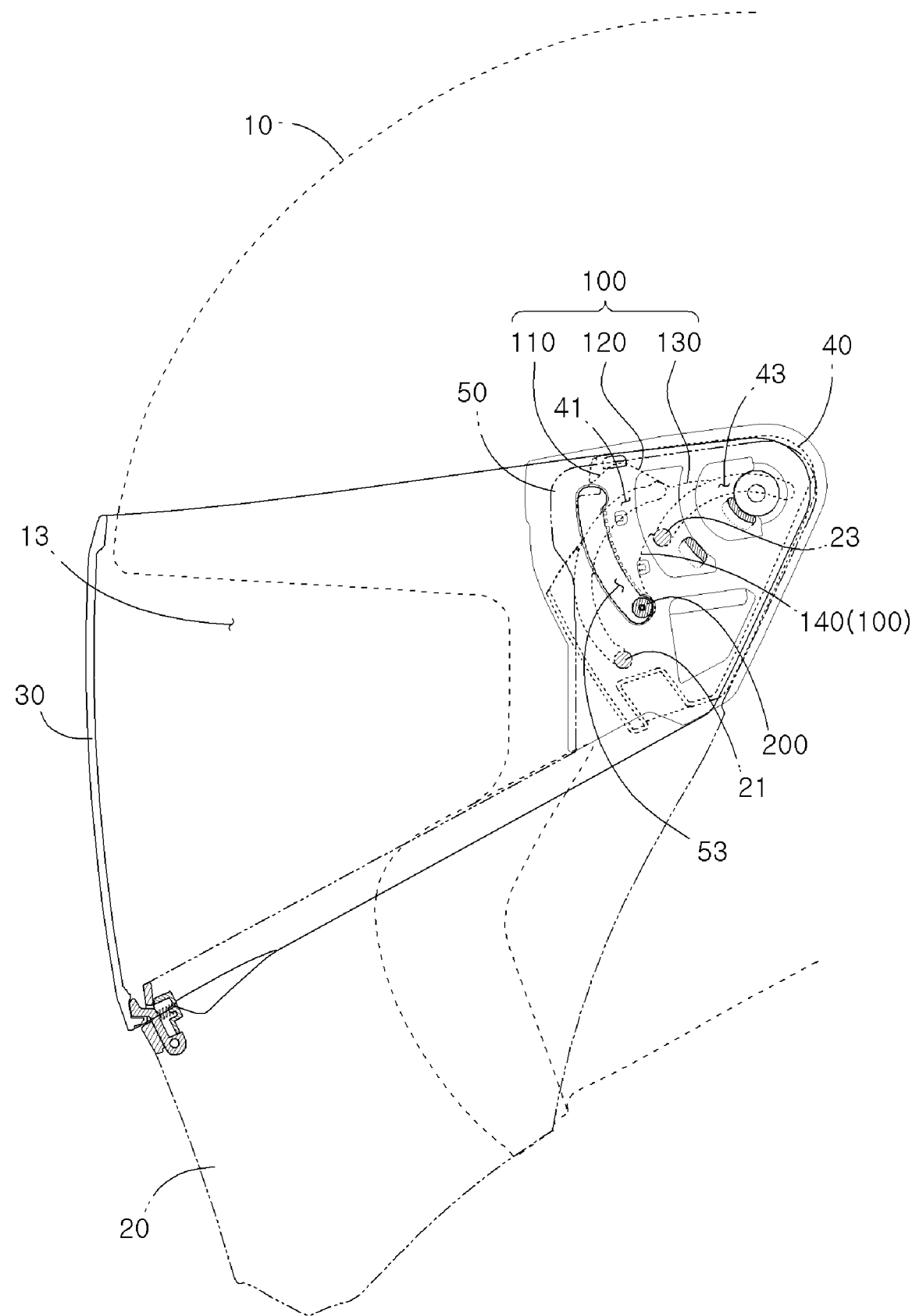


FIG. 3

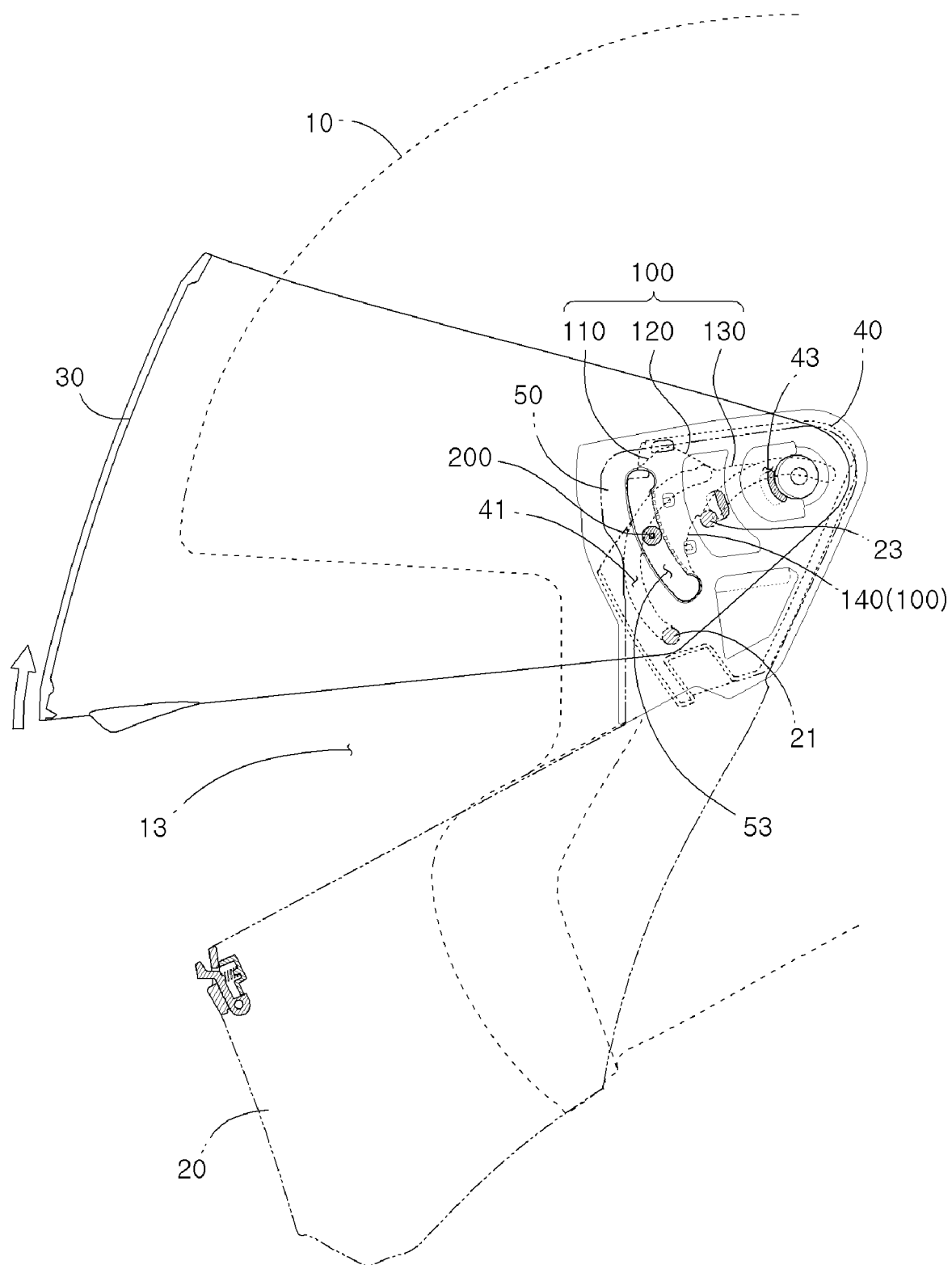


FIG. 4

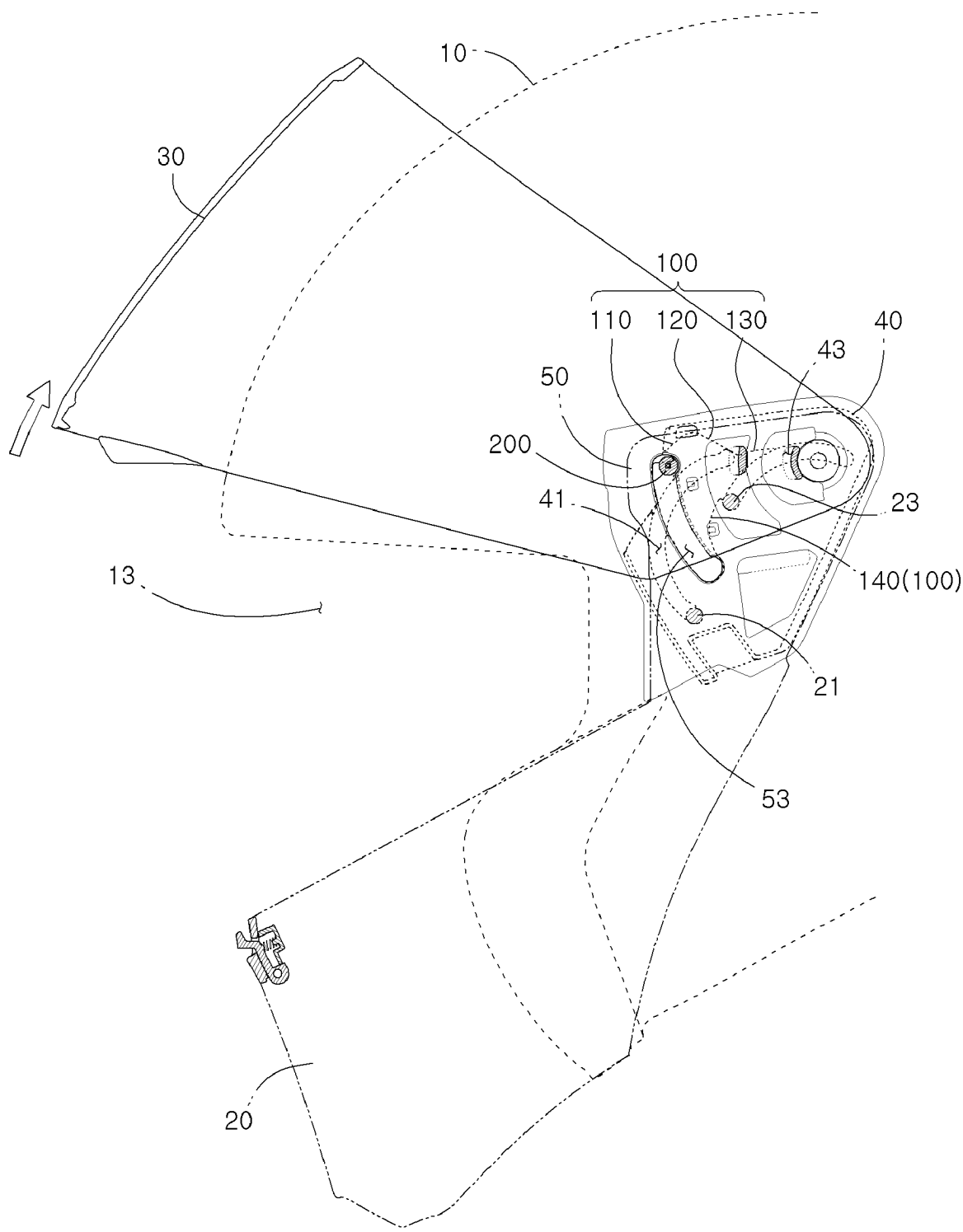


FIG. 5

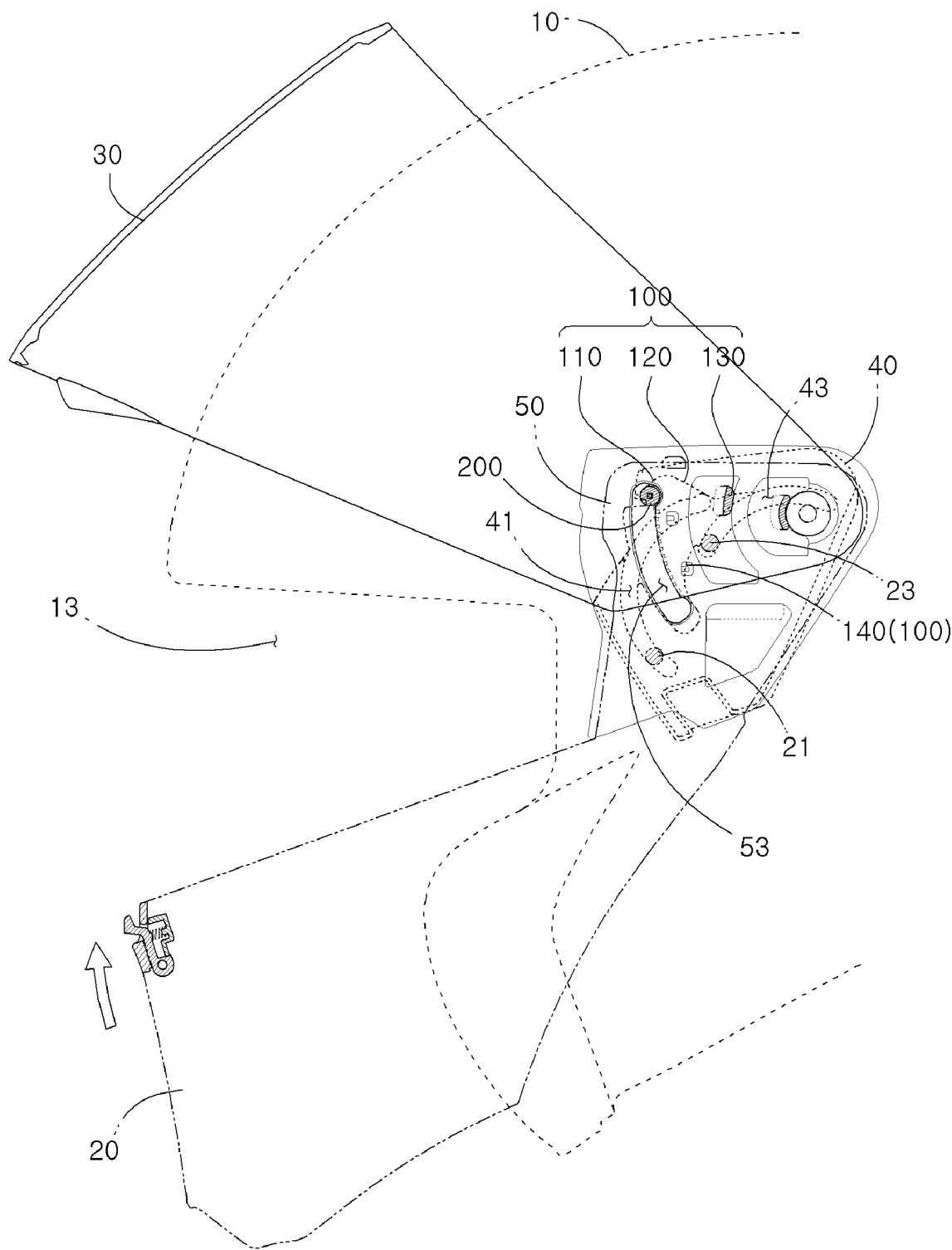


FIG. 6

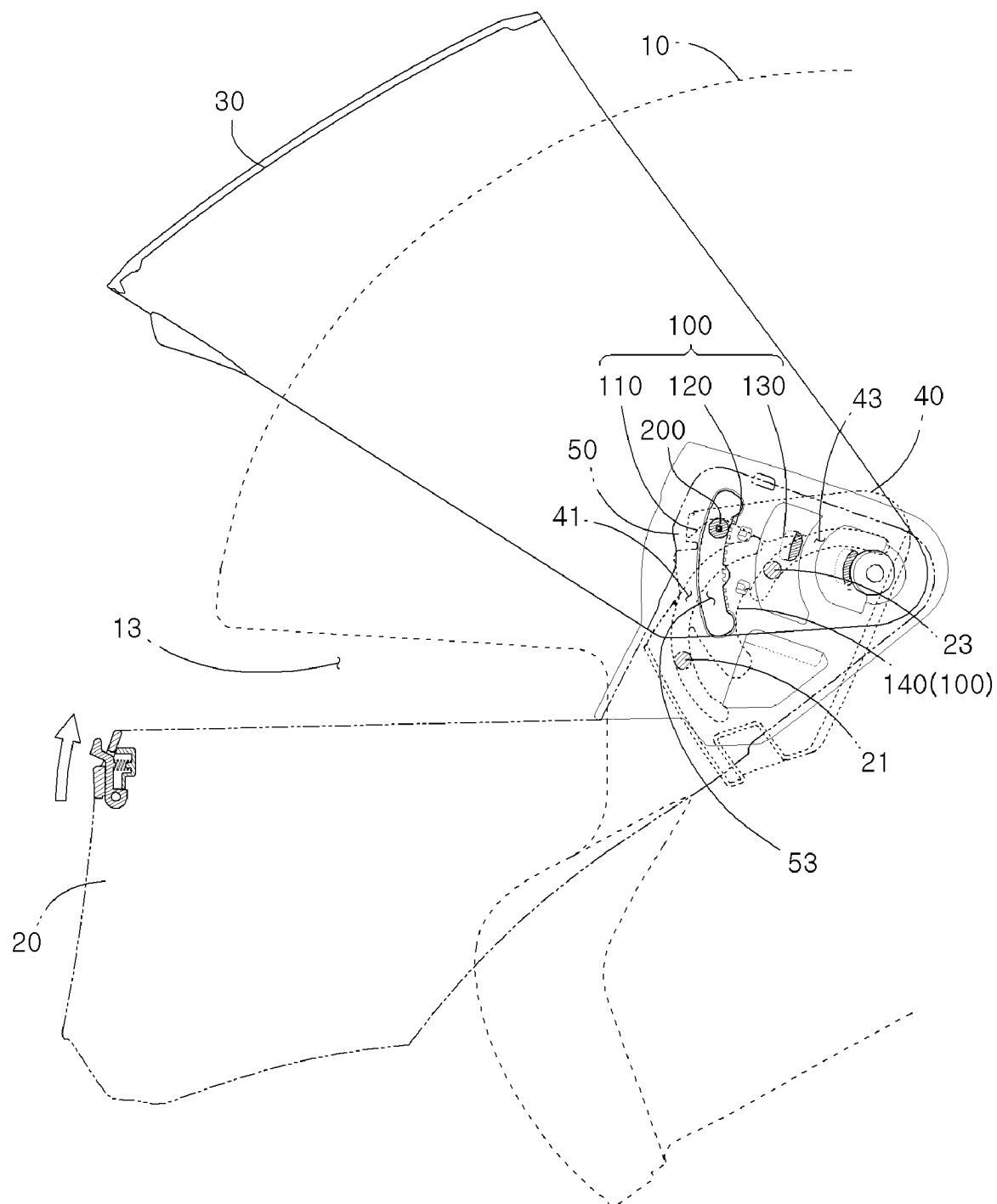


FIG. 7

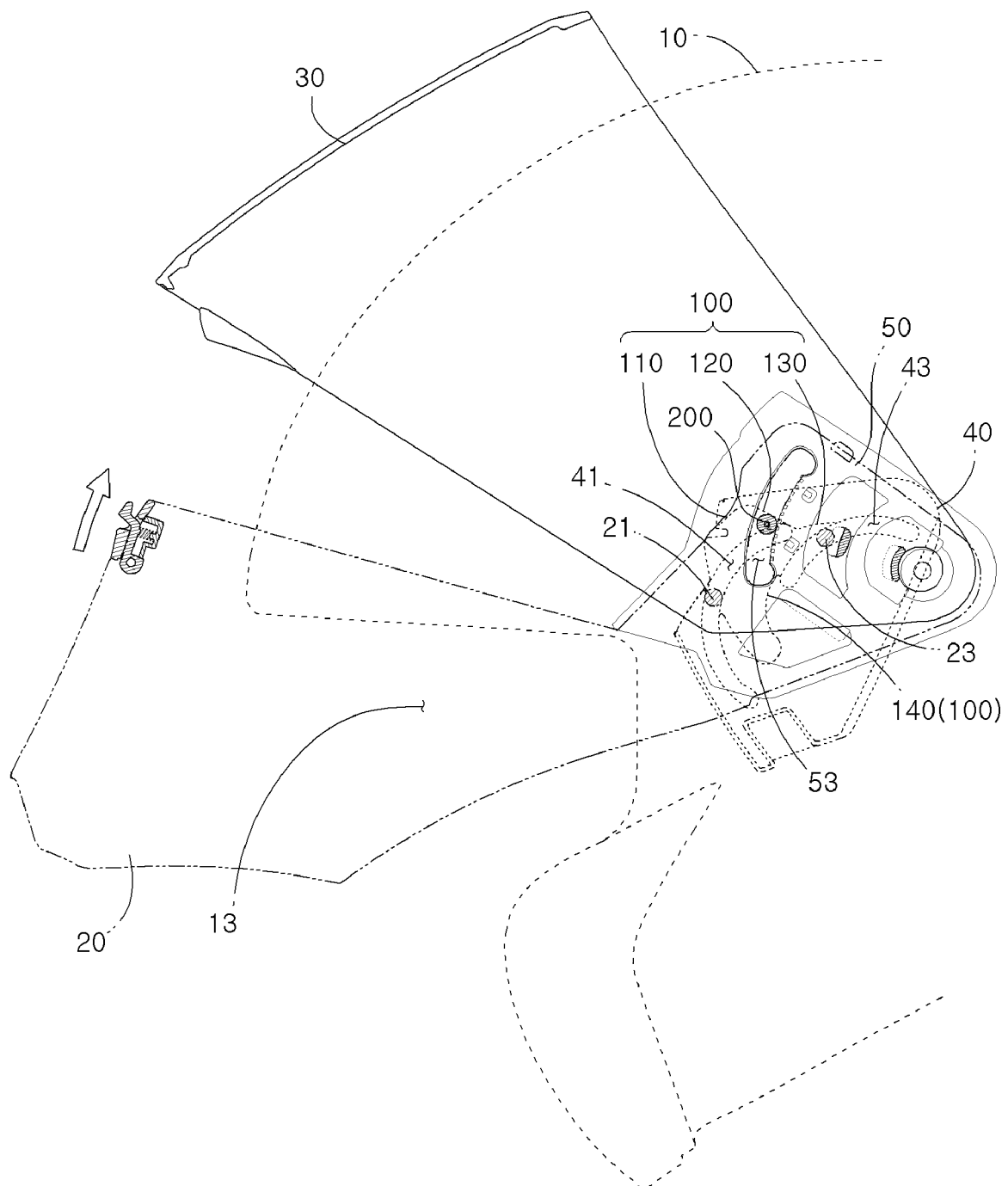


FIG. 8

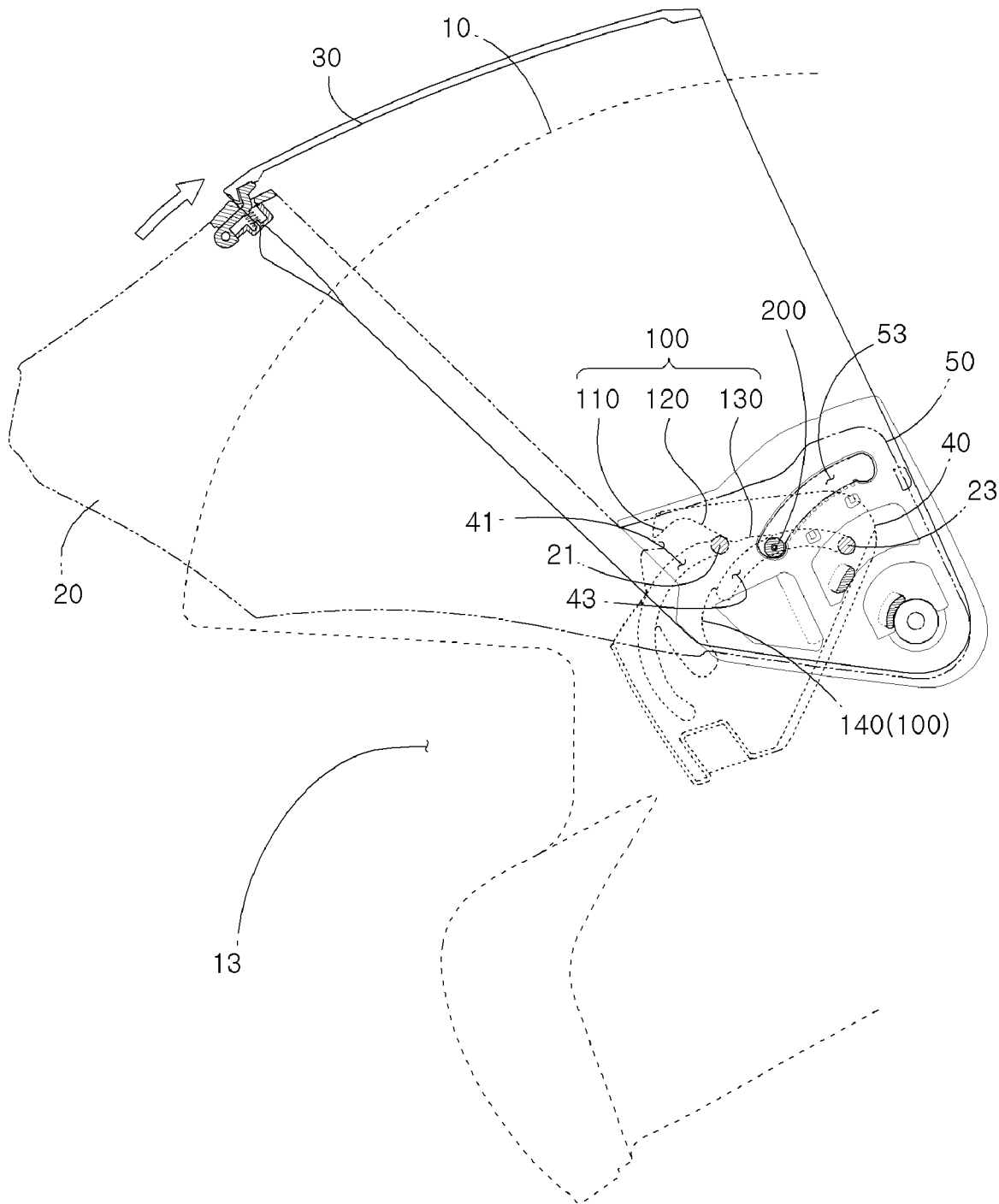


FIG. 9

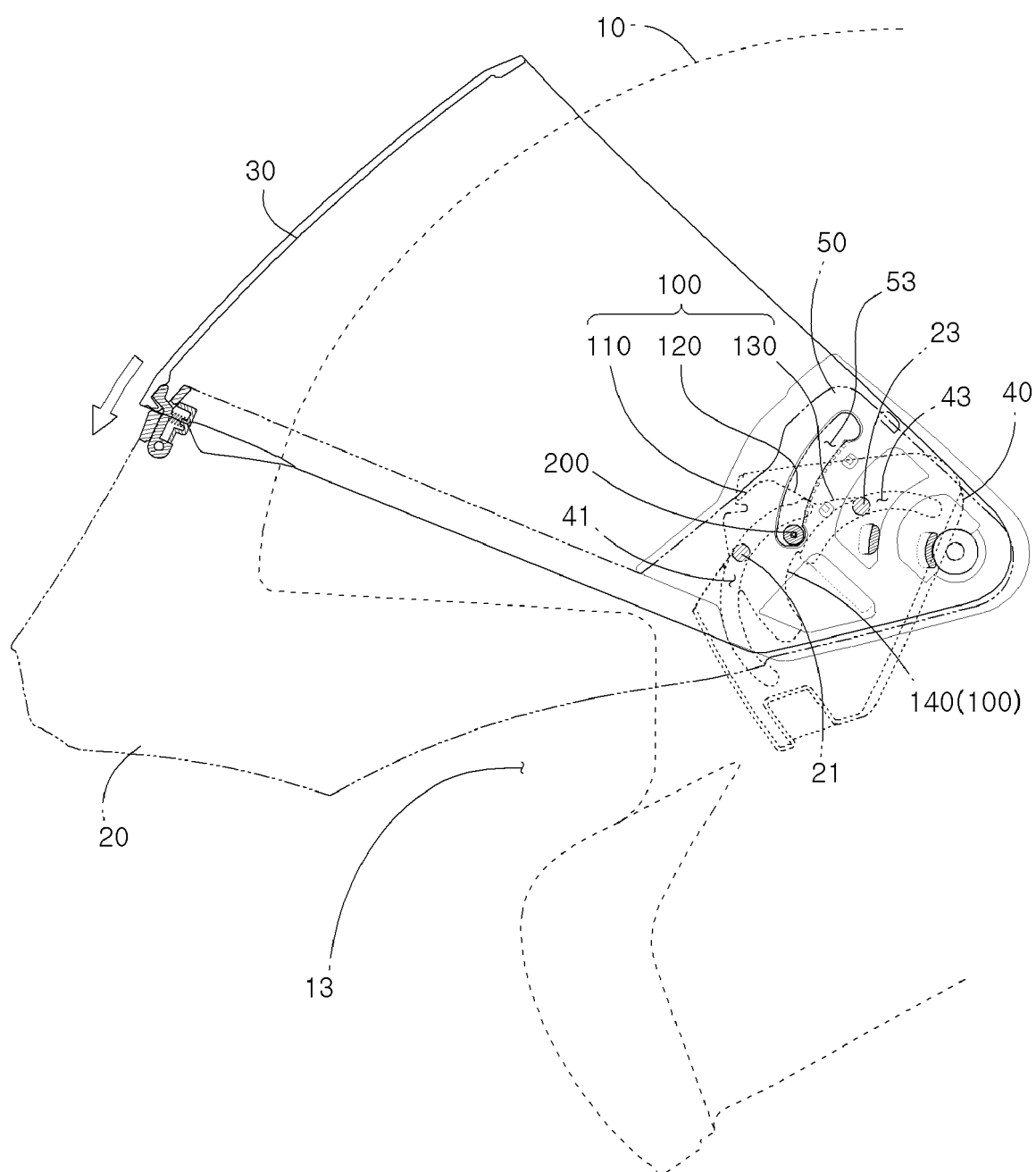


FIG. 10

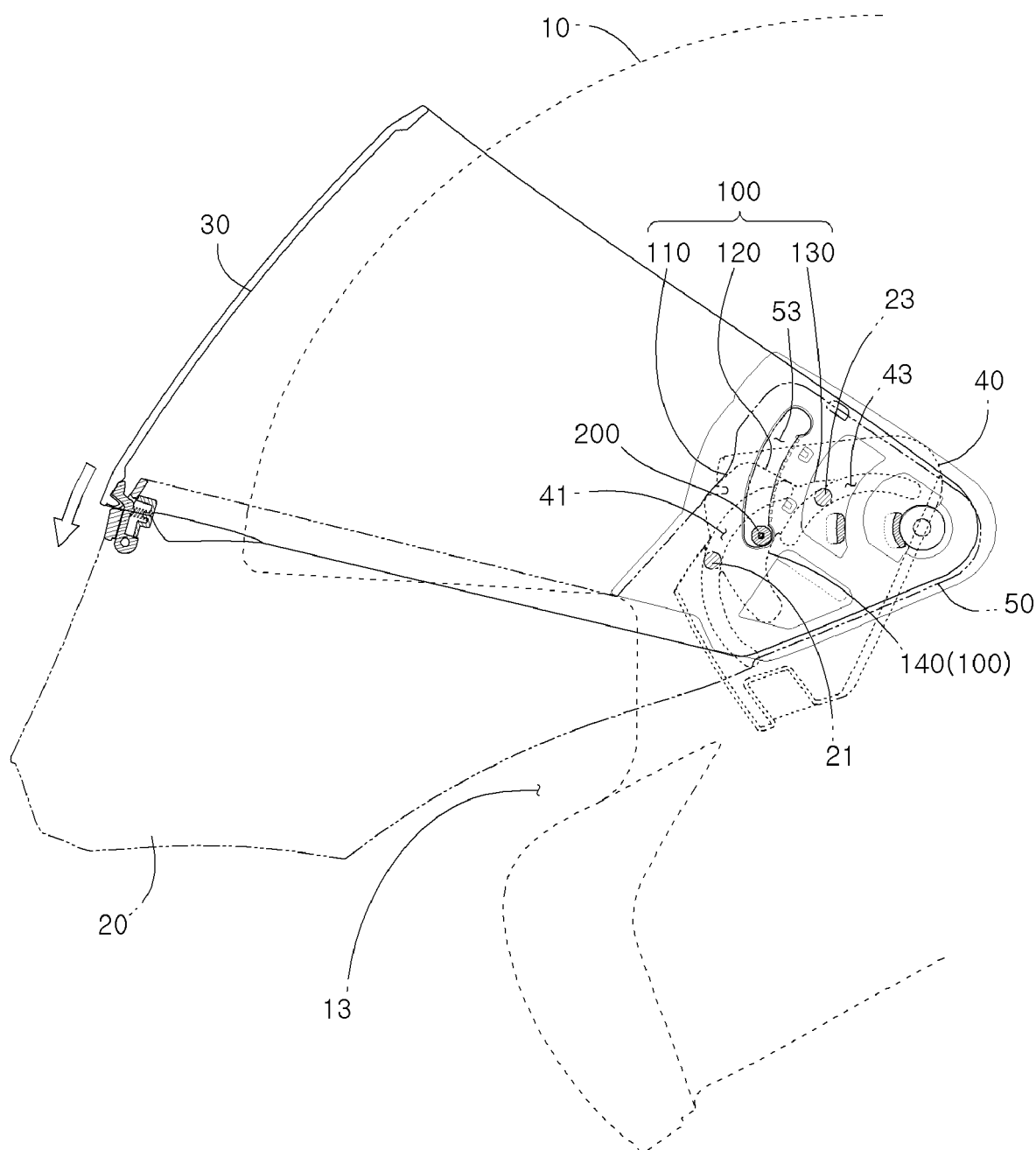


FIG. 11

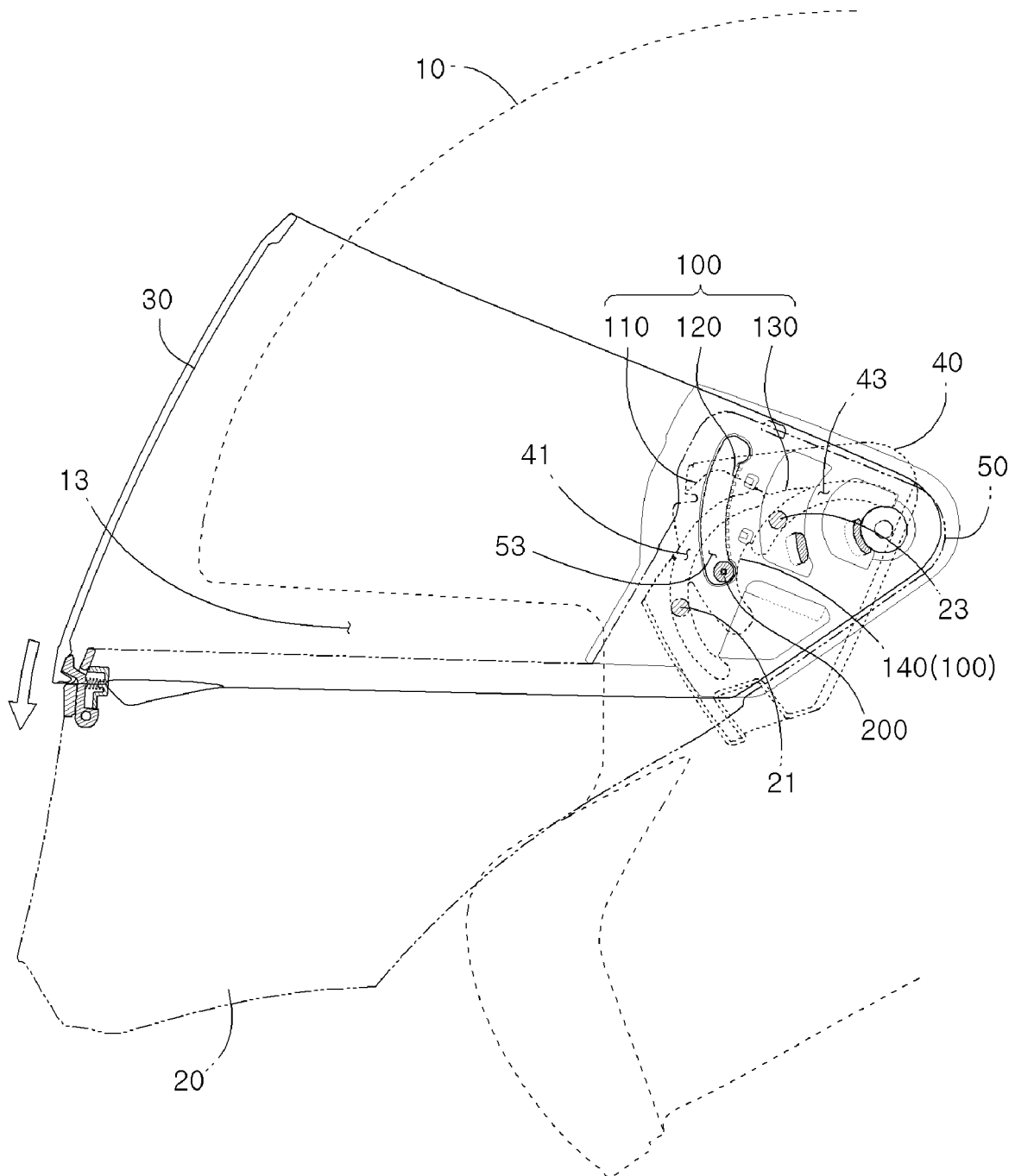


FIG. 12

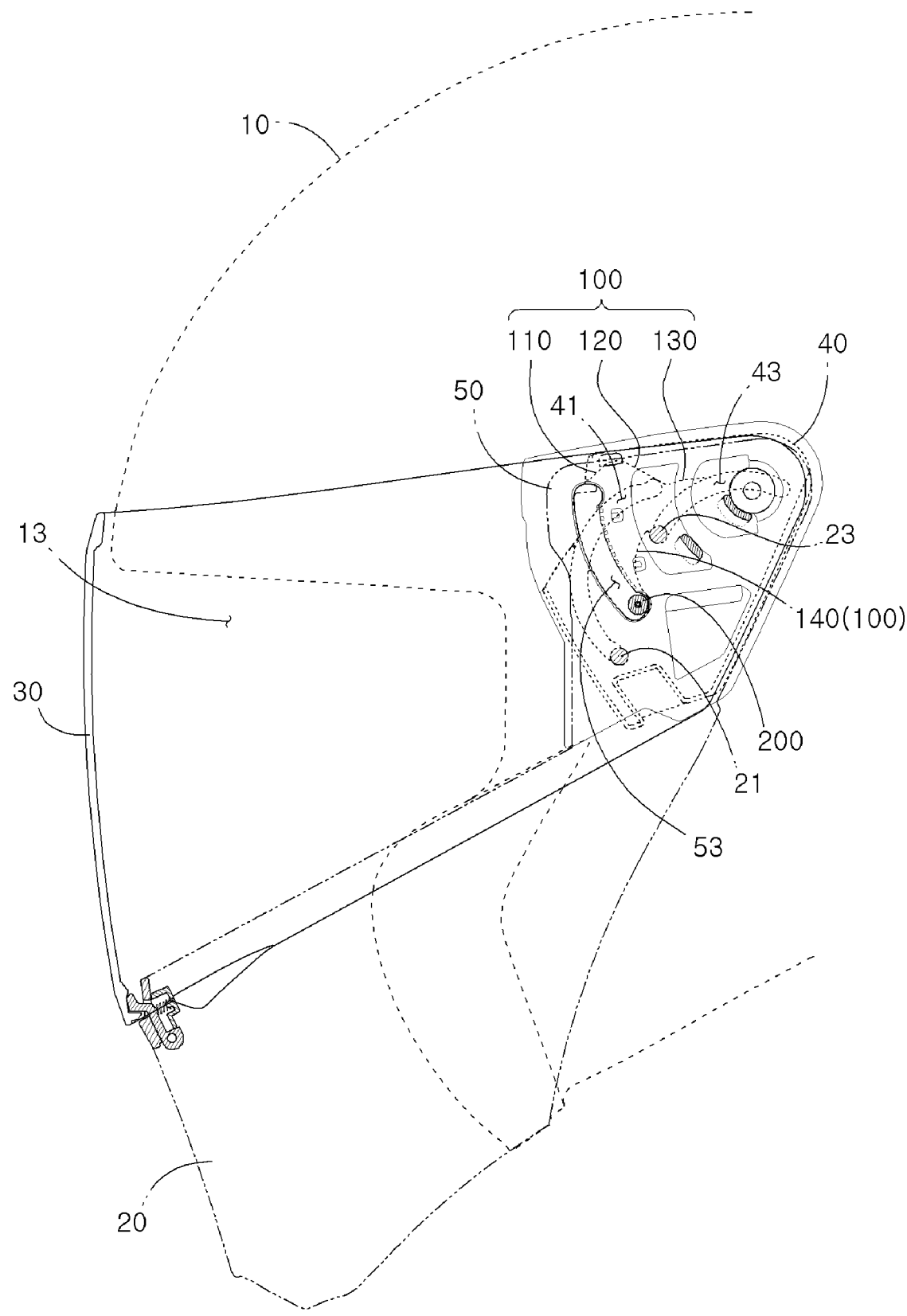


FIG. 13

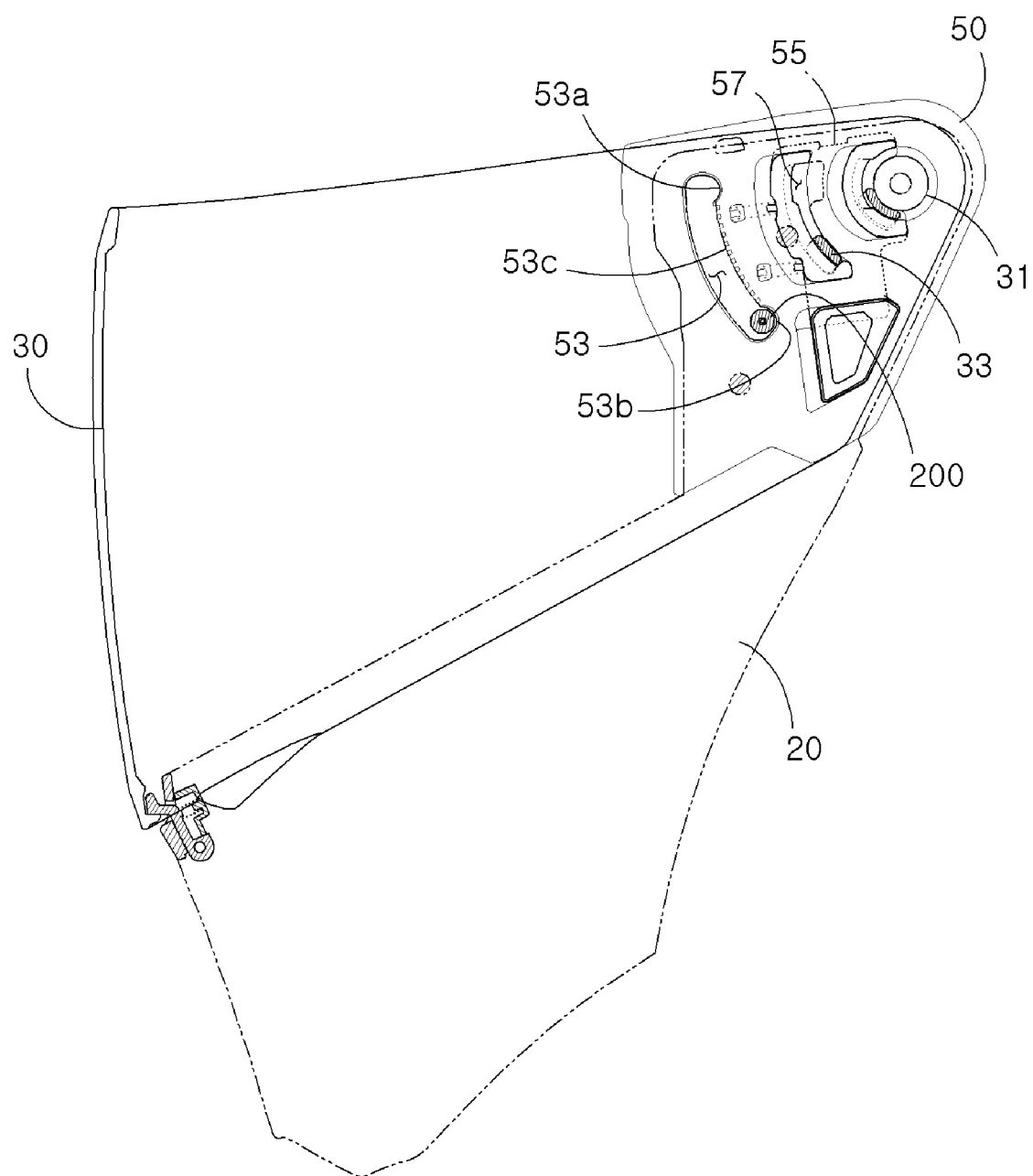


FIG. 14

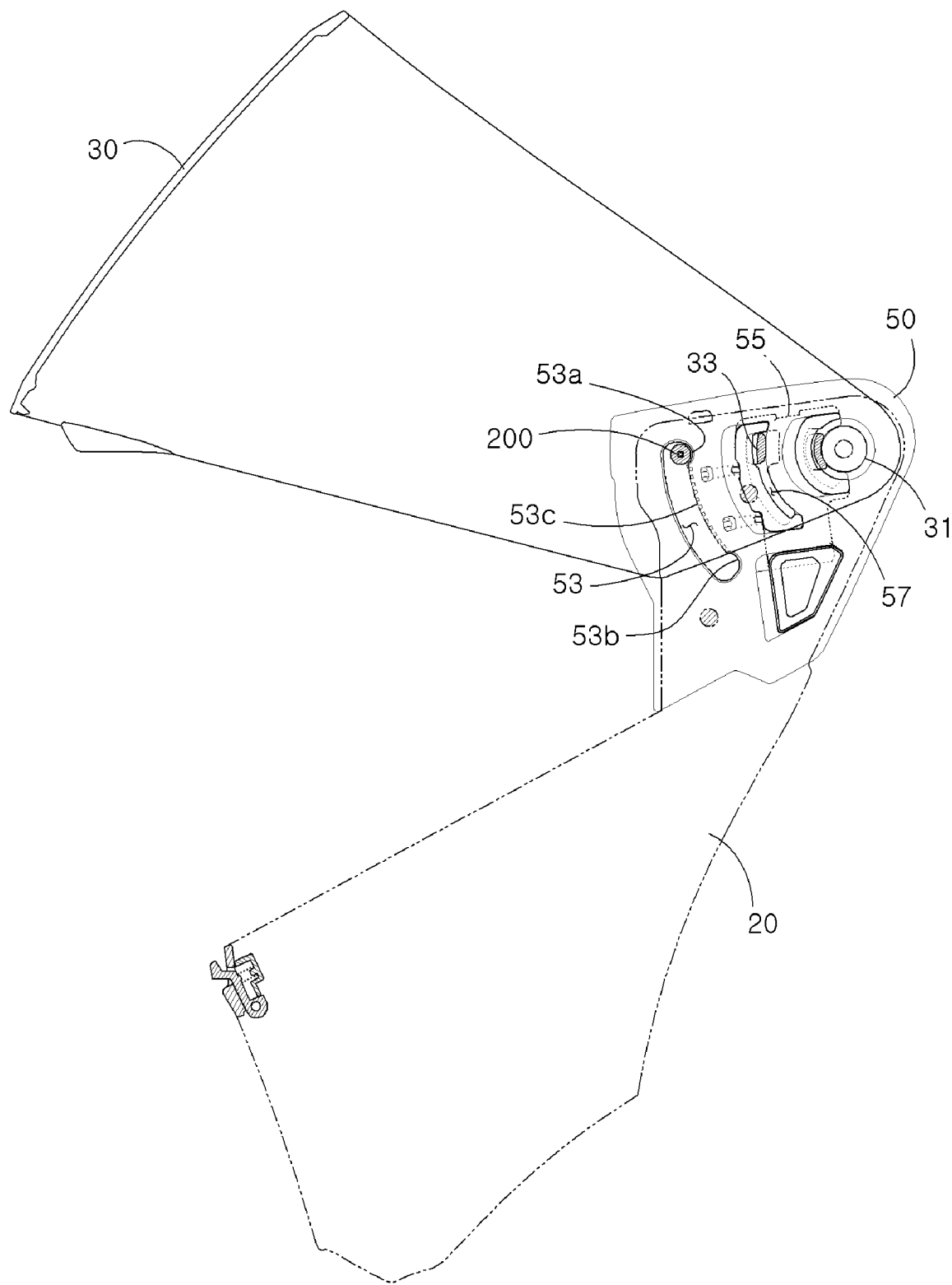


FIG. 15

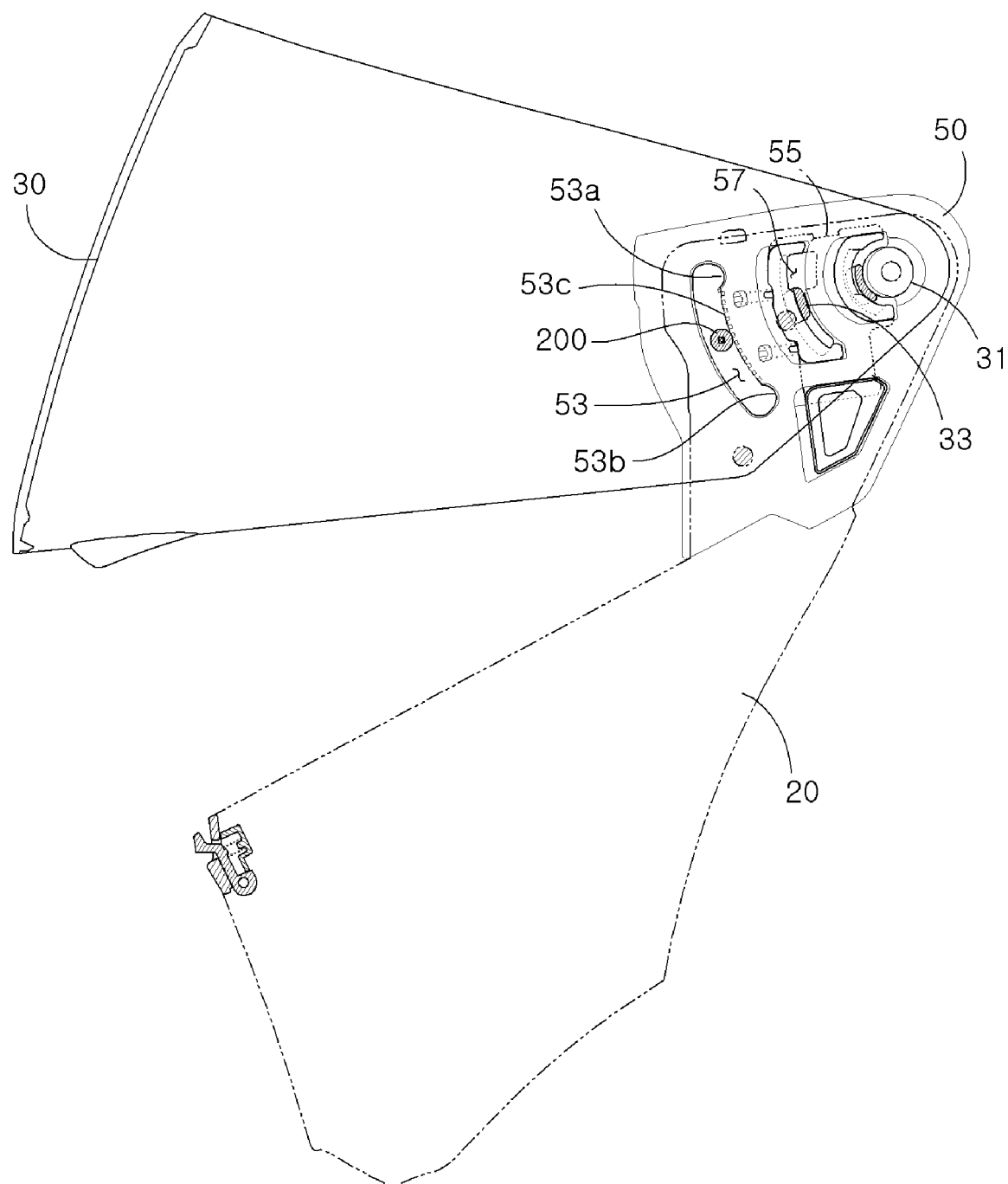


FIG. 16

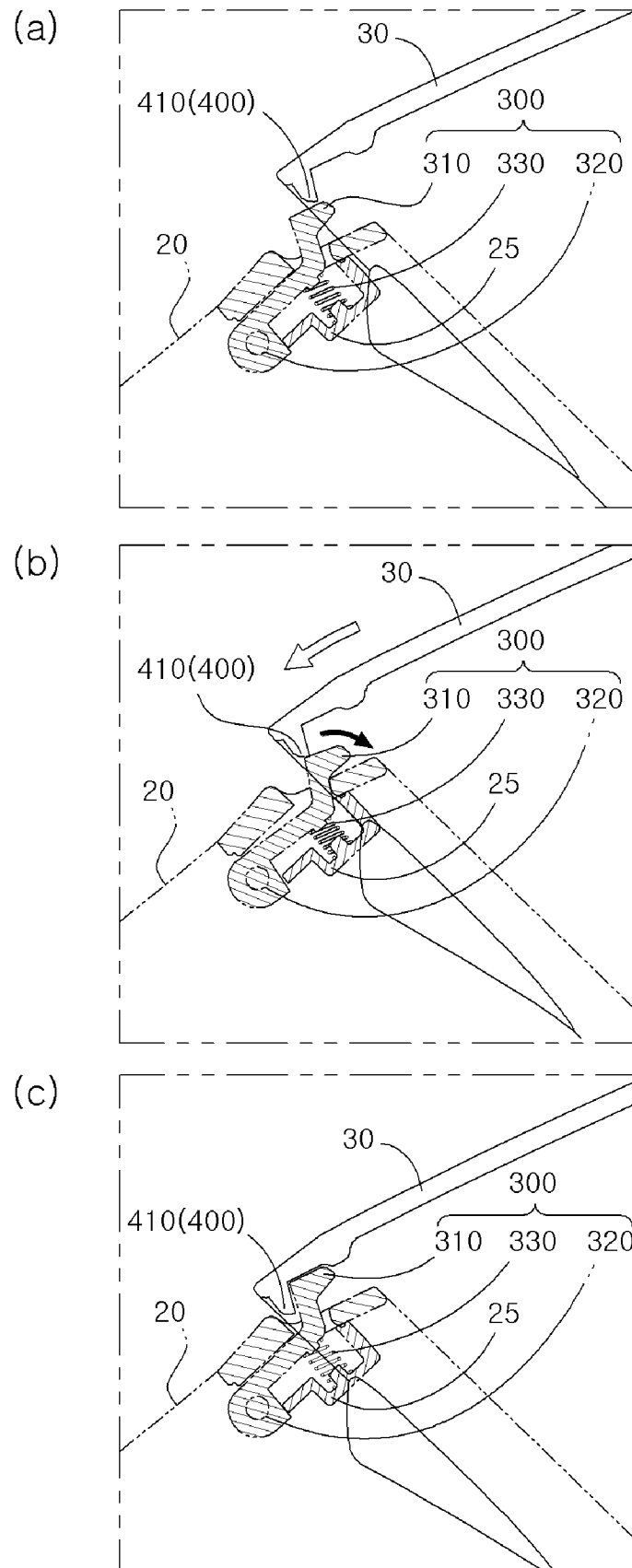
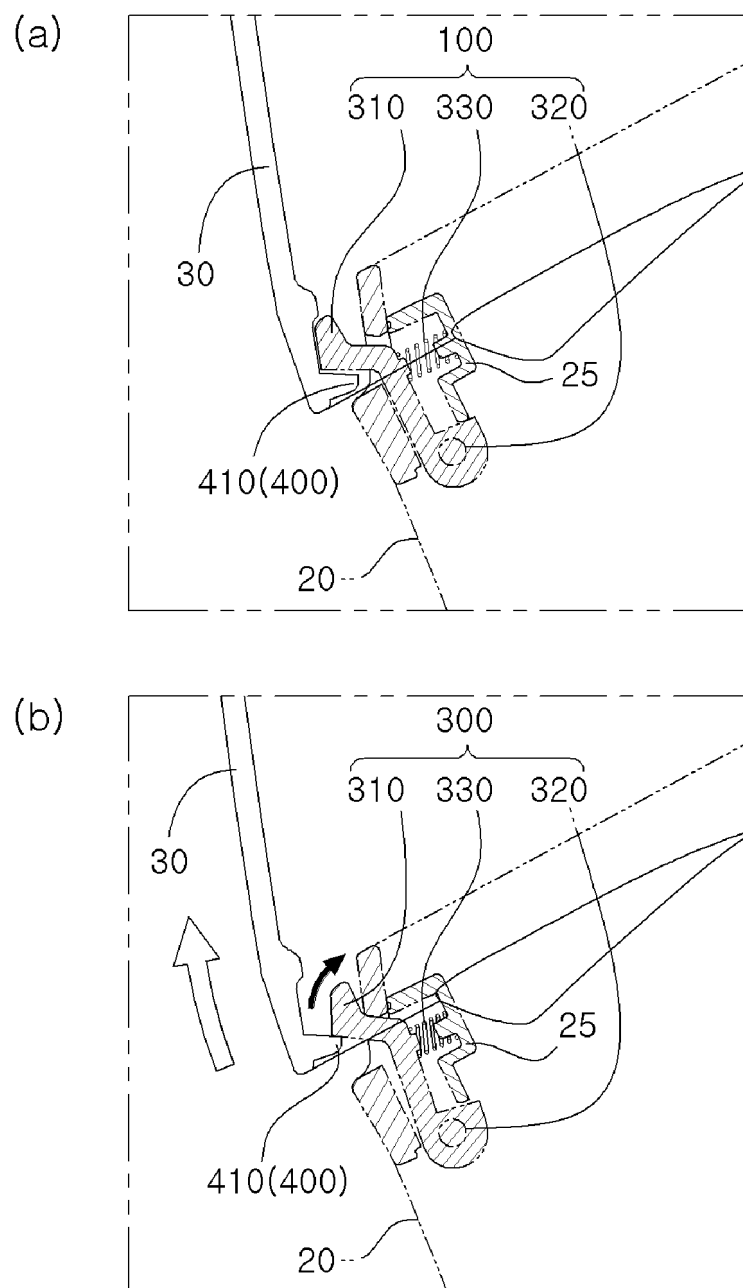


FIG. 17



INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR2023/005522

A. CLASSIFICATION OF SUBJECT MATTER

A42B 3/22(2006.01)i; A42B 3/20(2006.01)i

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)

A42B 3/22(2006.01); A42B 3/00(2006.01); A42B 3/04(2006.01); A42B 3/18(2006.01); A42B 3/32(2006.01)

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

Korean utility models and applications for utility models: IPC as above

Japanese utility models and applications for utility models: IPC as above

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

eKOMPASS (KIPO internal) & keywords: 헬멧 (helmet), 가이드 (guide), 쉴드 (shield), 턱 (chin), 회동 (turn)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	KR 10-1858483 B1 (SHOEI CO., LTD.) 16 May 2018 (2018-05-16) See claim 1; paragraphs [0008], [0043]-[0047] and [0099]-[0101]; and figures 4-8, 12 and 18.	1-7
Y		8-11
Y	KR 10-2021-0092798 A (JIANGMEN PENGCHENG HELMETS LTD.) 26 July 2021 (2021-07-26) See paragraph [0034]; and figure 6.	8
Y	WO 2015-110764 A1 (ASTONE HELMETS PARTNERS) 30 July 2015 (2015-07-30) See paragraph [0055]; and figure 3.	9-11
A	US 8011025 B2 (LEE, T. L.) 06 September 2011 (2011-09-06) See entire document.	1-11
A	KR 10-2021-0154370 A (KIDO SPORTS CO., LTD.) 21 December 2021 (2021-12-21) See entire document.	1-11

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

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

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“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

14 August 2023

Date of mailing of the international search report

14 August 2023

Name and mailing address of the ISA/KR

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Telephone No.

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/KR2023/005522

Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
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WO 2015-110764 A1	30 July 2015	None	
US 8011025 B2	06 September 2011	US 2008-0216215 A1	11 September 2008
KR 10-2021-0154370 A	21 December 2021	None	

Form PCT/ISA/210 (patent family annex) (July 2022)

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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