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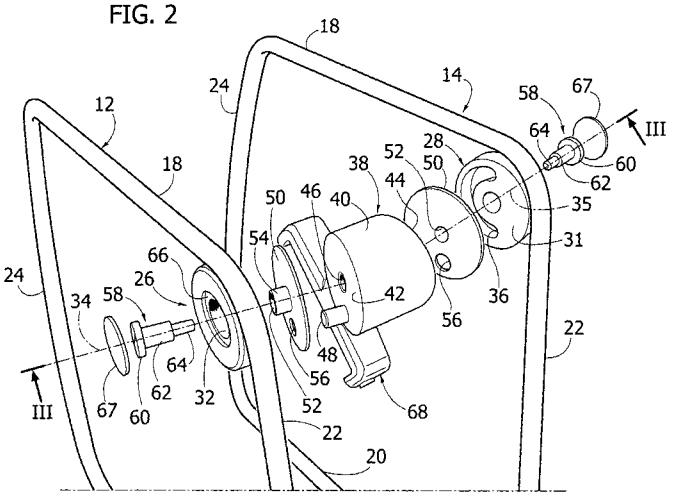
(54) A folding piece of furniture

(57) A folding piece of furniture comprising:
- a first leg (12) and a second leg (14), which are mobile between a closed condition and an open condition;
- a first hub (26) and a second hub (28), which are fixed, respectively, to the first leg (12) and to the second leg (14), the first hub (26) and the second hub (28) having, respectively, a first plane cam surface (30) and a second plane cam surface (30,31),
- a rotary joint (38) comprising a body (40;92) having a third plane cam surface (42) and a fourth plane cam surface (44), the third plane cam surface (42) and the fourth plane cam surface (44) being contained in respective non-parallel planes, the rotary joint (38) being mobile with respect to said hubs (26,28) between a first position corresponding to the closed condition of the legs (12,14) and a second position corresponding to the open condition of the legs (12,14),
- a first connection element (58) and a second connection element (58) for connecting the rotary joint (38) in a rotatable way, respectively, to the first hub (26) and to the second hub (28) about a first axis of rotation (34) and a second axis of rotation (35), the first and the second axes of rotation (34,35) being orthogonal to the first plane cam surface (30) and third plane cam surface (42) and, respectively, to the second plane cam surface (31) and fourth plane cam surface (44), wherein the first connection element (58) and the second connection element (58) keep the first plane cam surface (30) and the third plane cam surface (42) and, respectively, the second plane cam surface (31) and the fourth plane cam surface (44) constantly parallel to one another, and
- a resting element (16) connected to the rotary joint (38) and mobile between a first position corresponding to the closed condition of the legs (12,14) and a second position corresponding to the open condition of the legs (12,14).

FIG. 2



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Description

[0001] The present invention relates to a folding piece of furniture, such as, for example, a stool, a table, a chair or the like.

[0002] In the state of the art there exist many types of folding pieces of furniture that can assume a closed configuration of minimum encumbrance and an open configuration of use.

[0003] The object of the present invention is to provide a folding piece of furniture with a simple and versatile mechanism of opening and closing that will enable pieces of furniture of various types to be made.

[0004] According to the present invention, the above object is achieved by a piece of furniture having the characteristics forming the subject of Claim 1.

[0005] The present invention will now be described in detail with reference to the annexed drawings, which are provided purely by way of non-limiting example and in which:

- Figure 1 is a perspective view of a first embodiment of a piece of furniture according to the present invention in the open condition;
- Figure 2 is an exploded perspective view of the part indicated by the arrow II in Figure 1;
- Figure 3 is a cross section according to the line III-III of Figure 2;
- Figures 4 to 8 are lateral views illustrating the sequence of opening of the piece of furniture of Figure 1;
- Figures 9 to 13 are top plan views corresponding to Figures 4 to 8;
- Figure 14 is a perspective view illustrating a second embodiment of a piece of furniture according to the present invention in the open condition;
- Figure 15 is an exploded perspective view of the part indicated by the arrow XV in Figure 14;
- Figure 16 is a partially exploded perspective view of the part indicated by the arrow XVI in Figure 15;
- Figure 17 is a cross section according to the line XVII-XVII of Figure 16;
- Figures 18 to 23 are lateral views illustrating the sequence of opening of the piece of furniture of Figure 14;
- Figures 24 to 29 are top plan views corresponding to Figures 18 to 23;
- Figure 30 is a perspective view of a third embodiment of a piece of furniture according to the present invention in the open condition;
- Figure 31 is a perspective view of the part indicated by the arrow XXXI in Figure 2;
- Figures 32 to 36 are lateral views illustrating the sequence of opening of the piece of furniture of Figure 30; and
- Figures 37 to 41 are top plan views corresponding to Figures 32 to 36.

[0006] With reference to Figure 1, designated by 10 is a first embodiment of a piece of furniture according to the present invention.

[0007] The piece of furniture 10 is in the form of a stool or of a table. The piece of furniture 10 comprises a first leg 12 and a second leg 14 and a resting element 16 that constitutes a seat in the case of a stool or else a resting surface in the case of a table.

[0008] With reference to Figure 4, the legs 12, 14 are identical to one another and each of them has substantially the form of a quadrangular frame formed by a bent metal element and comprising a top branch 18, a bottom branch 20, a first upright, 22 and a second upright 24. The top branch 18 and the bottom branch 20 are parallel to one another, the first upright 22 extends in a vertical direction and the second upright 24 is inclined. Each leg 12, 14 in a side view has substantially the form of a right trapezium.

[0009] With reference to Figures 2 and 3, the piece of furniture 10 comprises a first hub 26 and a second hub 28, fixed, respectively, to the first leg 12 and to the second leg 14. The hubs 26, 28 are fixed, for example by means of welding, in the corner formed between the top branch 18 and the first upright 22 of each leg 12, 14. Each hub 26, 28 has a respective plane cam surface 30, 31 and a through hole 32. The axes of the holes 32, designated, respectively, by 34 and 35, are orthogonal to the respective cam surfaces 30, 31. Each hub 26, 28 moreover has an open arched groove 36 on the respective cam surface 30, 31 extending according to an arc of circumference with centre on the respective axis 34, 35. The arched groove 36 extends according to an arc with an amplitude of approximately 180°.

[0010] With reference to Figures 2 and 3, the piece of furniture 10 comprises a rotary joint 38 including a body 40 having two plane cam surfaces 42, 44 contained in respective non-parallel planes. The body 40 has two open holes 46 on the respective cam surfaces 42, 44 and with respective axes inclined with respect to one another. The axis of each hole 46 coincides with the respective axis 34, 35 of the respective hub 26, 28. The body 40 has two pins 48 projecting from the cam surfaces 42, 44 and eccentric with respect to the axis 34, 35 of the hole 46. The cam surface 42 is set facing and parallel to the cam surface 30 of the first hub 26. The cam surface 44 is set facing and parallel to the cam surface 31 of the second hub 28. Preferably, a disk 50 made of a material with a low coefficient of friction is set between the cam surfaces 30, 42 and 31, 44 set facing one another. The disk 50 has a central hole 52 surrounded by a collar 54 that fits into the hole 32 of the respective hub 26, 28. The disk 50 moreover has an eccentric hole 56, within which the respective eccentric pin 48 of the rotary joint 38 extends.

[0011] With reference to Figures 2 and 3, each hub 26, 28 is connected to the rotary joint 38 by means of a respective pin 58. Each pin 58 has a head 60, a first cylindrical portion 62, and a second cylindrical portion 64 with

diameter smaller than the diameter of the first cylindrical portion 62. The head 60 of each pin 58 is preferably housed in a lowered seat 66 of the respective hub 26, 28, closed by a respective plug 67.

[0012] Each pin 58 extends coaxially with respect to the respective axis 34, 35. The first cylindrical portion 62 of each pin 58 engages in a rotatable way the hole 32 of the respective hub 26, 28. The collar 54 surrounds the first cylindrical portion 62 and is set like a bushing between the outer surface of the first cylindrical portion 62 and the inner surface of the hole 32. The second cylindrical portion 64 of each pin 58 is fixed in the respective hole 46 of the rotary joint 38. Said fixing can be obtained by means of interference drive fit, welding, gluing or threaded coupling. The connection between each hub 26, 28 and the rotary joint 38 obtained by means of the pins 58 keeps the cam surfaces 30, 31 of each hub 26, 28, constantly parallel with respect to, and set facing, the cam surfaces 42, 44 of the rotary joint 38, and enables rotation of the rotary joint 38 with respect to the hubs 26, 28. The pins 58 could be replaced by connection elements of a different type, designed to make a rotary connection between the rotary joint 38 and the respective hubs 26, 28, keeping the cam surfaces 30, 42 and 31, 44 constantly parallel to one another in pairs. The engagement between the pins 48 of the rotary joint 38 and the respective arched grooves 36 limits the movement of rotation of the rotary joint 38 with respect to the hubs 26, 28. In particular, the movement of rotation of the rotary joint 38 about the axes 34, 35 has an amplitude of approximately 180°.

[0013] Once again with reference to Figures 2 and 3, the rotary joint 38 comprises a flange 68, which is connected in a rotatable way to the body 40 about an axis 70 contained in a median plane with respect to the planes containing the cam surfaces 42, 44. The rotary connection between the flange 68 and the body 40 is obtained by means of a pin 72 that engages in a rotatable way a hole 74 of the flange 68 with interposition of a bushing 76. The pin 72 has an end 78 fixed in a hole 80 of the body 40, for example by means of threaded coupling.

[0014] The flange 68 carries an articulation pin 82 with a axis 84 transverse with respect to the axis 70. The resting element 16 of the piece of furniture 10 is articulated to the flange 68 about the axis 84. The resting element 16 can oscillate about the axis 84 of the flange 68, and the flange 68 can in turn oscillate about the axis 70 with respect to the body 40 of the rotary joint 38. Consequently, the resting element 16 can perform movements of oscillation about two mutually orthogonal axes (the axes 70 and 84) with respect to the body 40 of the rotary joint 38.

[0015] Figures 4 and 9 illustrate the piece of furniture 10 in a closed configuration. In this condition, the legs 12, 14 are substantially contained in respective planes parallel to one another, and the resting element 16 extends between the two legs 12, 14, substantially according to a plane parallel to the planes of the two legs 12, 14.

[0016] Figures 5 to 8 and 10 to 13 illustrate, in side view and in plan view respectively, the sequence of operations for bringing the piece of furniture 10 into its open configuration. In a first step (illustrated in Figures 5 and 10), the resting element 16 is turned upwards in the direction indicated by the arrow 86. This movement causes the rotation of the body 40 of the rotary joint 38 in a vertical plane. The rotation of the body 40 controls a movement of divarication of the legs 12, 14 as a result of the contact between the cam surfaces 42, 44 of the body 40 with the respective cam surfaces 30, 31 of the hubs 26, 28.

[0017] The movement of rotation upwards of the resting element 16 terminates when the pins 48 of the body 40 come into contact with the ends of the arched grooves 36 of the hubs 26, 28. Figures 6 and 11 illustrate the piece of furniture at the end of the movement of raising of the resting element 16. In this condition, as may be seen in particular in Figure 11, the two legs 12, 14 are set substantially to form a V and are contained in respective convergent vertical planes.

[0018] At this point, the resting element 16 is turned through approximately 90° about the axis 70. Figures 7 and 12 show the piece of furniture 10 at the end of said rotation of the resting element 16. During rotation of the resting element 16 about the axis 70, the legs 12, 14 remain immobile since the body 40 of the rotary joint 38 remains stationary with respect to the hubs 26, 28.

[0019] Finally, the resting element 16 is made to oscillate about the axis 84 until it comes into contact with the top branches 18 of the legs 12, 14. In this condition, the piece of furniture 10 is in its open configuration, illustrated in Figures 1, 8, and 13.

[0020] A second embodiment of a piece of furniture according to the present invention is illustrated in Figures 14 to 29. In these figures, the elements corresponding to the ones described previously are designated by the same reference numbers.

[0021] Figure 14 illustrates the piece of furniture 10 of this second embodiment in the open condition. As in the case described previously, the piece of furniture 10 is in the form of a stool or of a table. The main difference with respect to the embodiment described previously is that, in the open configuration, the legs 12, 14 of the piece of furniture 10 are substantially contained in respective planes inclined with respect to a vertical plane. This disposition enables a greater stability of the piece of furniture to be obtained.

[0022] With reference to Figure 15, the piece of furniture 10 comprises, in a way identical to what has been described previously, a first hub 26 and a second hub 28 having respective cam surfaces 30, 31. Also in this case, each hub 26, 28 has a central through hole 32 and an arched groove 36. The arched groove 36 has an angular amplitude smaller than what is envisaged in the preceding embodiment.

[0023] The main difference with respect to the embodiment described previously regards the rotary joint 38. In this second embodiment, the rotary joint 38 comprises

an external body 90 and an internal body 92, which can turn with respect to the external body 90 between two end-of-travel positions.

[0024] With reference in particular to Figures 16 and 17, the external body 90 of the rotary joint 38 has substantially the form of a ring with a cylindrical hole 94. The internal body 92 has a cylindrical portion that mates in rotation with the cylindrical hole 94 of the external body 90 with interposition of a bushing 96. The internal body 92 can rotate with respect to the external body 90 about an axis 97 orthogonal to the plane of representation of Figure 17 and coinciding with the axis of the cylindrical hole 94. The internal body 92 has two portions that project from opposite sides of the external body 90. The internal body 92 has two cam surfaces 42, 44 contained in non-parallel planes, similar to what is envisaged in the preceding embodiment. The internal body 92 has holes 46 engaged by the respective pins 58, as described previously. The internal body 92 moreover has pins 48 that engage the arched grooves 36 of the hubs 26, 28 in a way similar to what was described previously.

[0025] With reference to Figure 17, the internal body 92 has an angular groove 98 that is engaged by an end 100 of the pin 72, which defines the axis of oscillation 70 of the flange 68. The engagement between the groove 98 and the end 100 of the pin 72 defines two end-of-travel positions of the internal body 92 with respect to the external body 90, which are angularly staggered with respect to one another by approximately 90°.

[0026] With reference to Figures 14 and 15, the first uprights 22 of the legs 12, 14 are provided with respective connection elements 102 fixed to the ends of a flexible bar 104, for example made of elastomeric material, which connects the two legs 12, 14 to one another. The bar 104 could also be provided in the embodiment illustrated in Figures 1 to 13. The bar 104 prevents the legs 12, 14 from rotating separately when the piece of furniture 10 is lifted off the floor.

[0027] Figures 18 to 23 and 24 to 29 illustrate, in side view and in plan view respectively, the sequence of opening of the piece of furniture of this second embodiment of the invention.

[0028] With reference to Figures 18 and 24, in the closed configuration the resting element 16 is situated between the legs 12, 14 and extends in a plane parallel to the planes containing the legs 12, 14.

[0029] Starting from the closed configuration illustrated in Figures 18 and 24, for opening the piece of furniture 10 the resting element 16 is rotated upwards in the direction indicated by the arrow 86 in Figure 19. In a first step of the movement of rotation upwards of the resting element 16, the external body 90 of the rotary joint 38 rotates together with the resting element 16, but the internal body 92 of the rotary joint 38 remains immobile. The amplitude of the movement of rotation, during which the internal body 92 remains immobile is equal to the angular extension of the groove 98 (Figure 17) of the internal body 92. During this first step of the movement of raising of the resting element 16, the legs 12, 14 remain immobile, as illustrated in Figure 25. In the condition illustrated in Figure 19, the external body 90 and the internal body 92 of the rotary joint 38 are in an end-of-travel position. By continuing to rotate the resting element 16 in the direction indicated by the arrow 86, the internal body 92 of the rotary joint 38 rotates in a way fixed with respect to the external body 90.

[0030] As illustrated in Figures 20 and 26, the further rotation of the resting element 16 in the direction indicated by the arrow 86 produces a rotation of the internal body 92 of the rotary joint 38 with respect to the hubs 26, 28. This rotation causes a displacement of the legs 12, 14, as illustrated in Figure 26. Figures 21 and 27 illustrate the piece of furniture 10 at the end of the movement of rotation upwards of the resting element 16. In this configuration, the pins 48 of the internal body 92 come to bear upon the ends of the arched grooves 36 and prevent any further rotation of the resting element 16 in the direction 86. In this condition, the legs 12, 14 assume the open condition, in which they are contained in respective planes inclined with respect to a vertical plane. The bottom branch 20 of each leg 12, 14 is displaced outwards with respect to the top branch 18 of the same leg.

[0031] Next, as illustrated in Figures 22 and 28, the resting element 16 is turned through 90° about the axis 70. The legs 12, 14 remain immobile during this movement of the resting element 16.

[0032] Finally, the resting element 16 is turned about the axis 84 until it comes to rest with the top branches 18 of the legs 12, 14, as illustrated in Figures 23 and 29, which show the piece of furniture 10 in its open condition.

[0033] Figures 30 to 41 illustrate a third embodiment of a piece of furniture according to the present invention. The elements corresponding to the ones described previously are designated by the same reference numbers. In this embodiment, the piece of furniture 10 assumes the form of a chair including a first leg 12, a second leg 14, and a resting element 16 including a backrest 108 and a seat 110. The seat 110 is articulated to the backrest 108 about a transverse axis 111. Each leg 12, 14 comprises a top branch 18, a bottom branch 20, and two uprights 22, 24.

[0034] With reference to Figure 31, the legs 12, 14 carry a first hub 26 and a second hub 28. In this embodiment, the hubs 26, 28 are set at the centre of the respective top branches 18 of the legs 12, 14 and are preferably formed in a way integral with the respective legs. The hubs 26, 28 have respective cam surfaces 30, 31 and respective through holes 32. The hubs 26, 28 have respective pins 48 projecting from the cam surfaces 30 eccentric with respect to the respective central hole 32.

[0035] A rotary joint 38 is connected in a rotatable way to the first hub 26 and to the second hub 28. The rotary joint 38 has a body 40 with two plane cam surfaces 42, 44 contained in respective non-parallel planes. The cam surfaces 42, 44 are constantly parallel and set facing the cam surfaces 30, 31 of the hubs 26, 28. Formed on the

cam surface 42 are a central hole 46 and an arched groove 36. The arched groove 36 is engaged by the pin 48 projecting from the cam surface 30 of the hub 26.

[0036] The rotary joint 40 is connected to the first hub 26 by means of a pin 58. The pin 58 has a head 60, a first cylindrical portion 62, and a second cylindrical portion 64. The first cylindrical portion 62 engages in a rotatable way the hole 32 about an axis 34. The second cylindrical portion 64 is fixed in the hole 46 of the body 40. The axis 34 is orthogonal to the cam surfaces 30, 42.

[0037] The body 40 of the rotary joint 38 has an integral shaft 112 projecting from the cam surface 44. The shaft 112 has a circular portion 114 and a hexagonal portion 116. The circular portion 114 engages in a rotatable way the hole 32 of the hub 28. The hexagonal portion 116 is fixed in a hexagonal hole 118 formed in a body 120 formed integrally in a bottom edge of the backrest 108. The connection between the shaft 112 and the body 120 performs the same function as the pin 58. The rotary joint 38 is connected in a rotatable way to the hubs 26, 28 about two axes 34, 35 inclined and incident with respect to one another. A pin 48 projecting from the cam surface 31 of the second hub 28 engages an arched groove (not visible in Figure 33) formed on the cam surface 44 of the body 40. The cam surfaces 30, 31 of the hubs 26, 28 are constantly parallel to the cam surfaces 42, 44 of the body 40.

[0038] Figures 32 to 36 and 37 to 41 illustrate, respectively, in lateral views and in top plan views, the sequence for bringing the piece of furniture 10 of this third embodiment from the closed condition to the open condition.

[0039] In the closed condition illustrated in Figures 32 and 37, the second leg 14 is set between the first leg 12 and the backrest 108. The seat 110 is folded against the backrest 108.

[0040] Starting from the closed configuration illustrated in Figures 32 and 37, the resting element 16 (including the backrest 108 and the seat 110) is turned through 180°. During rotation of the resting element 16, the rotary joint 38 turns in a way fixed with respect to the resting element 16. The contact between the cam surfaces set facing one another 42, 30 and 44, 31 of the rotary joint 38 and of the hubs 26, 28 causes a movement of the legs from a closed condition to a divaricated condition. Figures 33, 38 and 34, 39 illustrate two intermediate steps of the movement of rotation of the resting element 16. Figures 35 and 40 show the piece of furniture 10 at the end of the movement of rotation through 180° of the resting element 16. The end-of-travel positions of the resting element in a raised position and in a lowered position are defined by the end-of-travel positions of the pins 48 in the respective arched grooves 36. The legs 12, 14 are substantially contained in respective inclined planes converging upwards. The bottom branches 20 of the legs 12, 14 are parallel and set at a distance from one another in a longitudinal direction.

[0041] Finally, as illustrated in Figures 38 and 43, the seat 110 is turned downwards until it comes to rest with its top part of the legs 12, 14, as illustrated in Figures 36 and 41.

Claims

1. A folding piece of furniture comprising:

- a first leg (12) and a second leg (14), which are mobile between a closed condition and an open condition;
- a first hub (26) and a second hub (28), which are fixed, respectively, to the first leg (12) and the second leg (14), the first hub (26) and the second hub (28) having, respectively, a first plane cam surface (30) and a second plane cam surface (31);
- a rotary joint (38) comprising a body (40; 92) having a third plane cam surface (42) and a fourth plane cam surface (44), the third plane cam surface (42) and the fourth plane cam surface (44) being contained in respective non-parallel planes, the rotary joint (38) being mobile with respect to said hubs (26, 28) between a first position corresponding to the closed condition of the legs (12, 14) and a second position corresponding to the open condition of the legs (12, 14);
- a first connection element (58) and a second connection element (112, 120) for connecting the rotary joint (38) in a rotatable way, respectively, to the first hub (26) and to the second hub (28) about a first axis of rotation (34) and a second axis of rotation (35), the first and the second axes of rotation (34, 35) being orthogonal to the first and third plane cam surfaces (30, 42) and, respectively, to the second and fourth plane cam surfaces (31, 44), wherein the first connection element (58) and the second connection element (112, 120) keep the first and the third plane cam surfaces (30, 42) and, respectively, the second and the fourth plane cam surfaces (31, 44) constantly parallel to one another; and
- a resting element (16) connected to the rotary joint (38) and mobile between a first position corresponding to the closed condition of the legs (12, 14) and a second position corresponding to the open condition of the legs (12, 14).

2. The piece of furniture according to Claim 1, wherein said rotary joint (38) comprises a flange (68), which can turn with respect to said body (40, 92) about a third axis (70) contained in a median plane with respect to the planes containing said third and fourth plane cam surfaces (42, 44), said resting element (16) being articulated to said flange (68) about a fourth axis (84) orthogonal to said third axis (70).

3. The piece of furniture according to Claim 1, wherein a travel-limiting device is provided between said rotary joint (38) and said hubs (26, 28), said travel-limiting device including at least one pin (48), which is mobile in a respective arched groove (36).

4. The piece of furniture according to Claim 1, wherein at least one of said first and second connection elements comprises a pin (58) having a head (60), a first cylindrical portion (62), and a second cylindrical portion (64) with a diameter smaller than the diameter of said first cylindrical portion (62), said first cylindrical portion (62) engaging in a rotatable way a through hole (32) of a respective hub (26, 28), and wherein said second cylindrical portion (64) is fixed in a hole (46) formed in said body (40; 92).

5. The piece of furniture according to Claim 1, wherein said rotary joint (38) comprises an external body (90) and an internal body (92), which can turn with respect to said internal body (90), and wherein said third and fourth cam surfaces (42, 44) are formed on said internal body (92).

6. The piece of furniture according to Claim 5, wherein a travel-limiting device (98, 100) between said external body (90) and said internal body (92).

7. The piece of furniture according to Claim 1, wherein each of said legs (12, 14) has substantially the form of a quadrangular frame with a top branch (18) and a bottom branch (20) connected to one another by two uprights (22, 24).

8. The piece of furniture according to Claim 7, wherein each of said hubs (26, 28) is set at a vertex between said top branch (18) and one of said uprights (22).

9. The piece of furniture according to Claim 7, wherein each of said hubs (26, 28) is set at the centre of the top branch (18) of the respective leg (12, 14).

10. The piece of furniture according to Claim 1, wherein said resting element (16) is a seat of a stool or a resting surface of a table.

11. The piece of furniture according to Claim 1, wherein said resting element (16) comprises a backrest (108) and a seat (110) articulated to the backrest (108) about a transverse axis (111).

FIG. 1

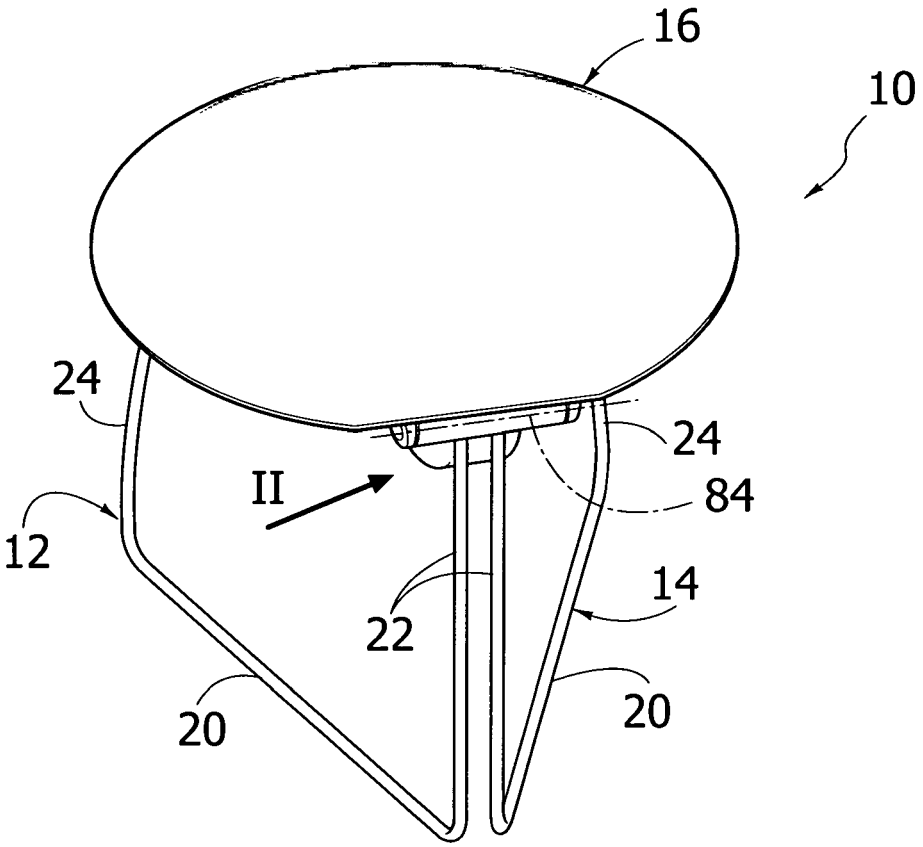

FIG. 2

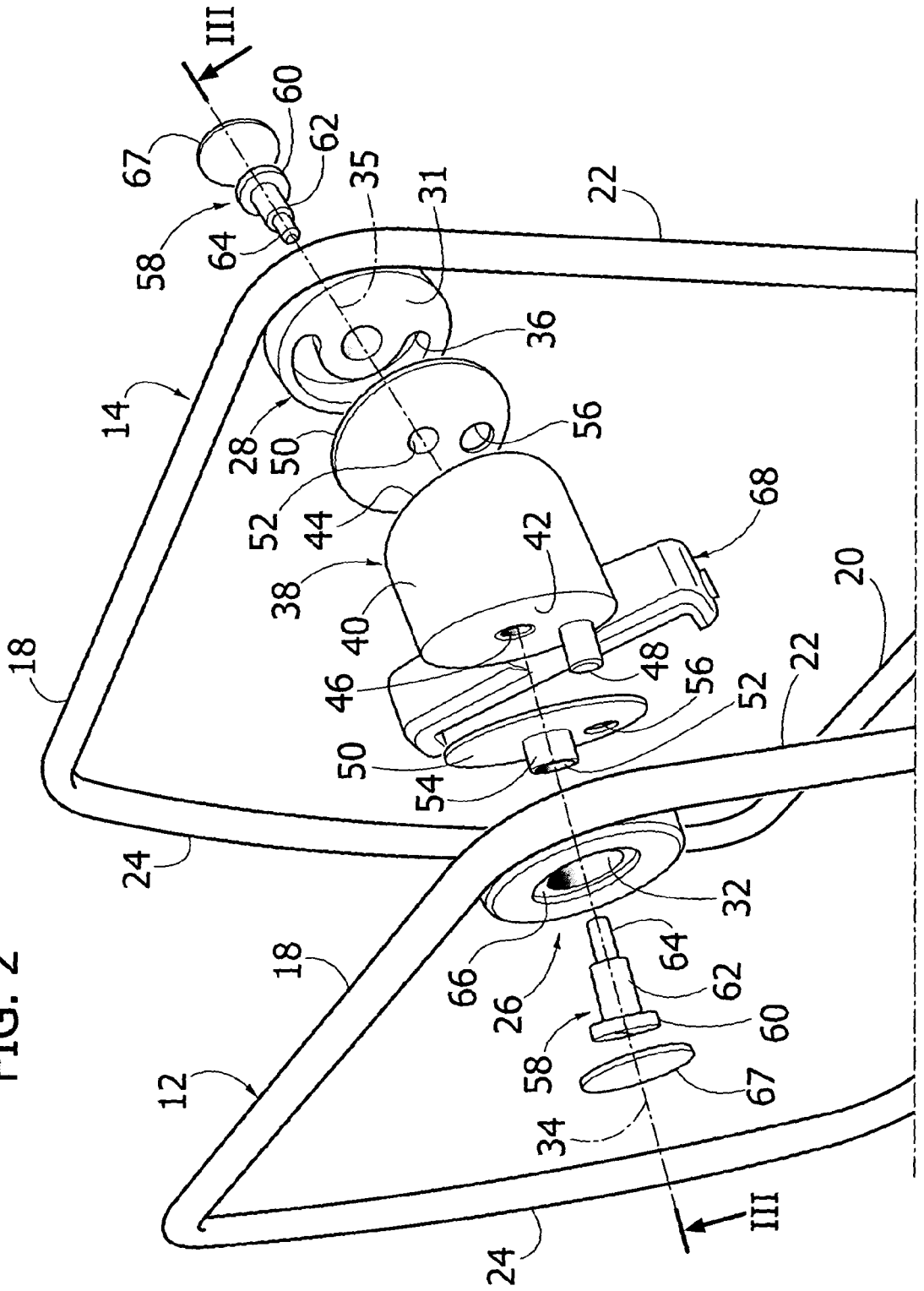
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FIG. 3

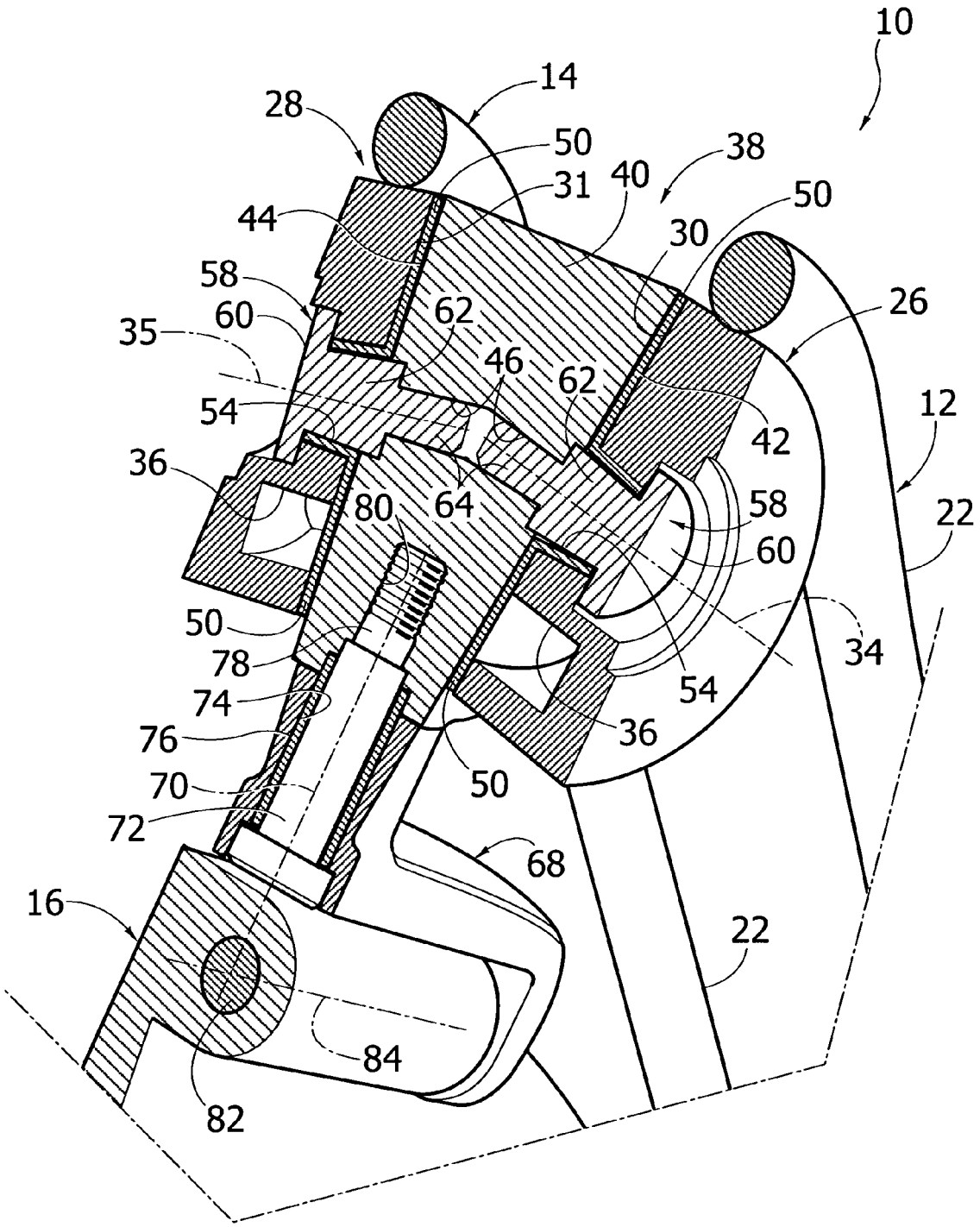
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FIG. 4

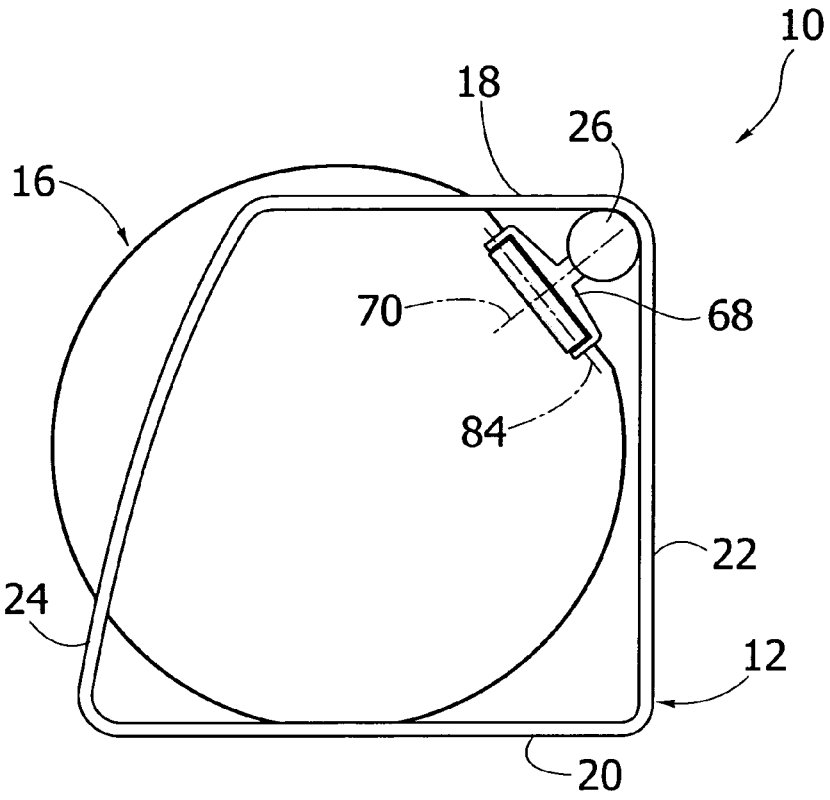

FIG. 9

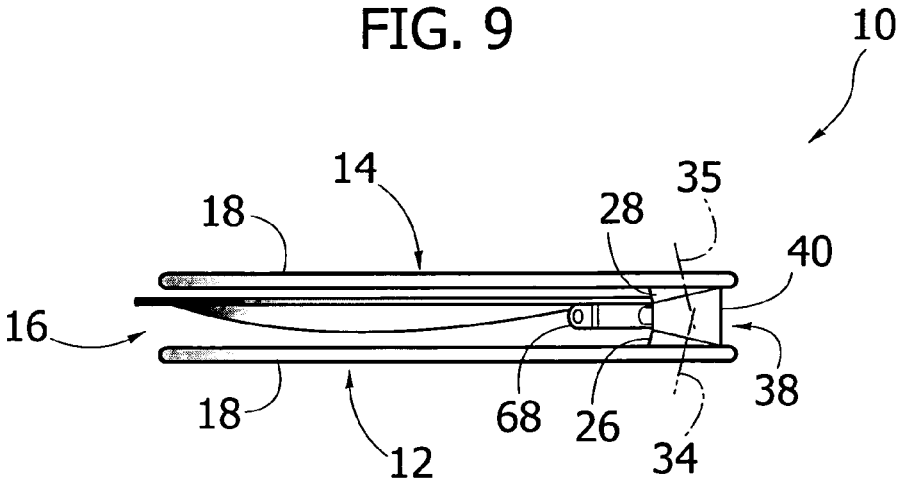

FIG. 5

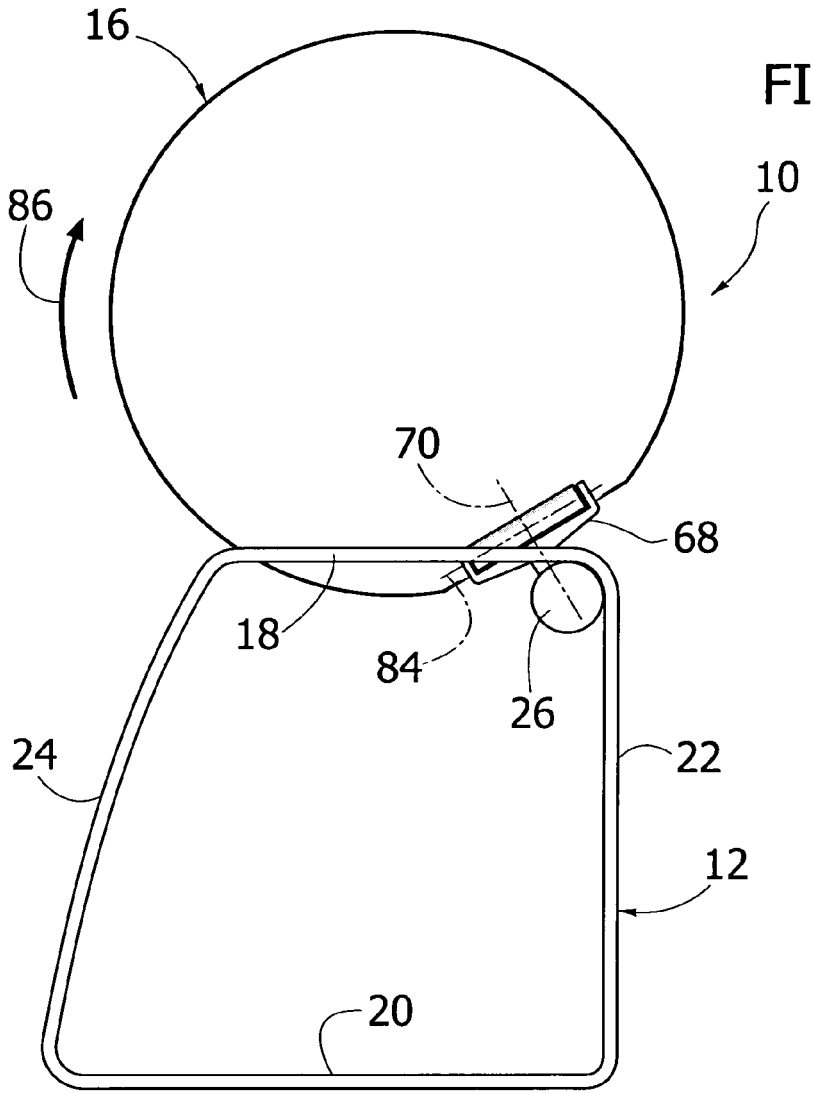
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FIG. 10

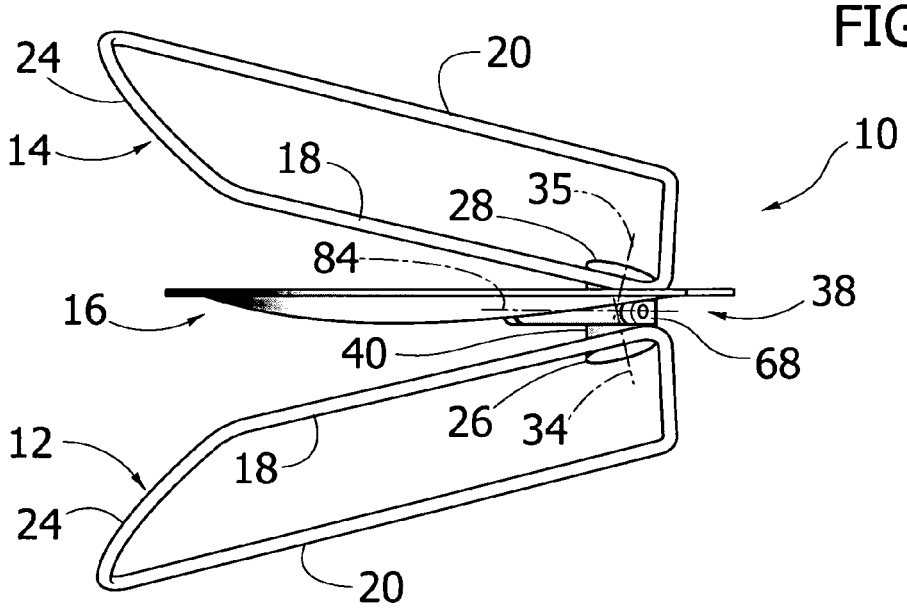
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FIG. 6

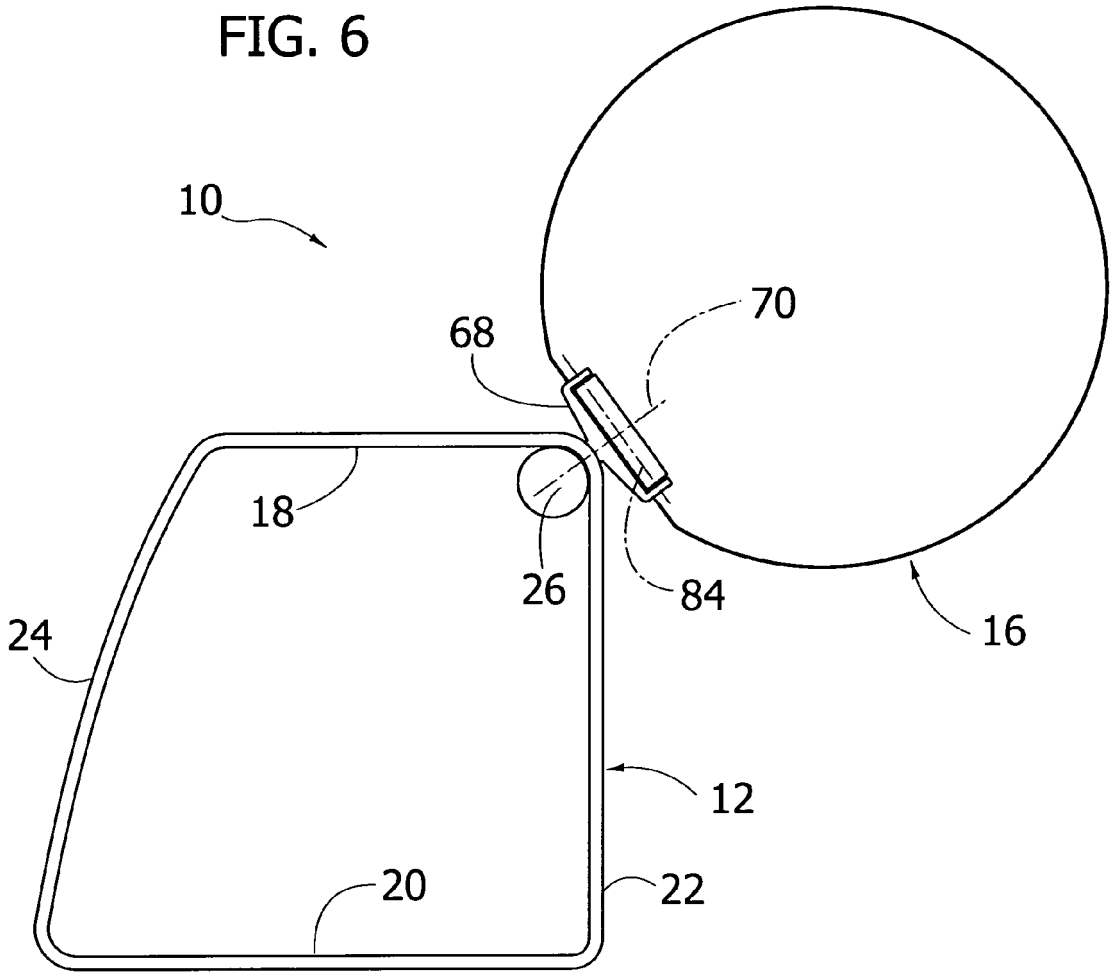
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FIG. 11

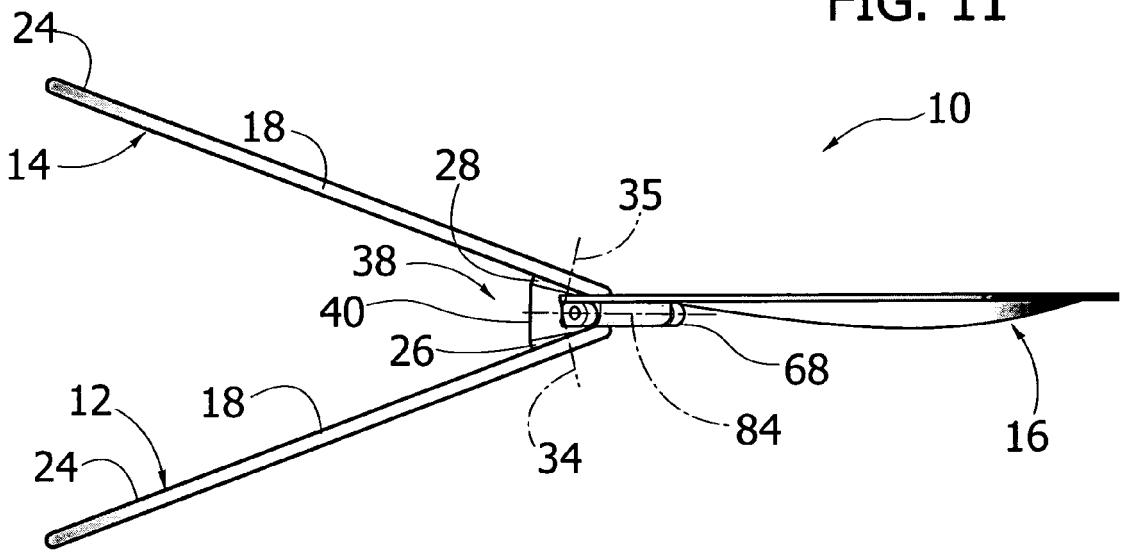
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FIG. 7

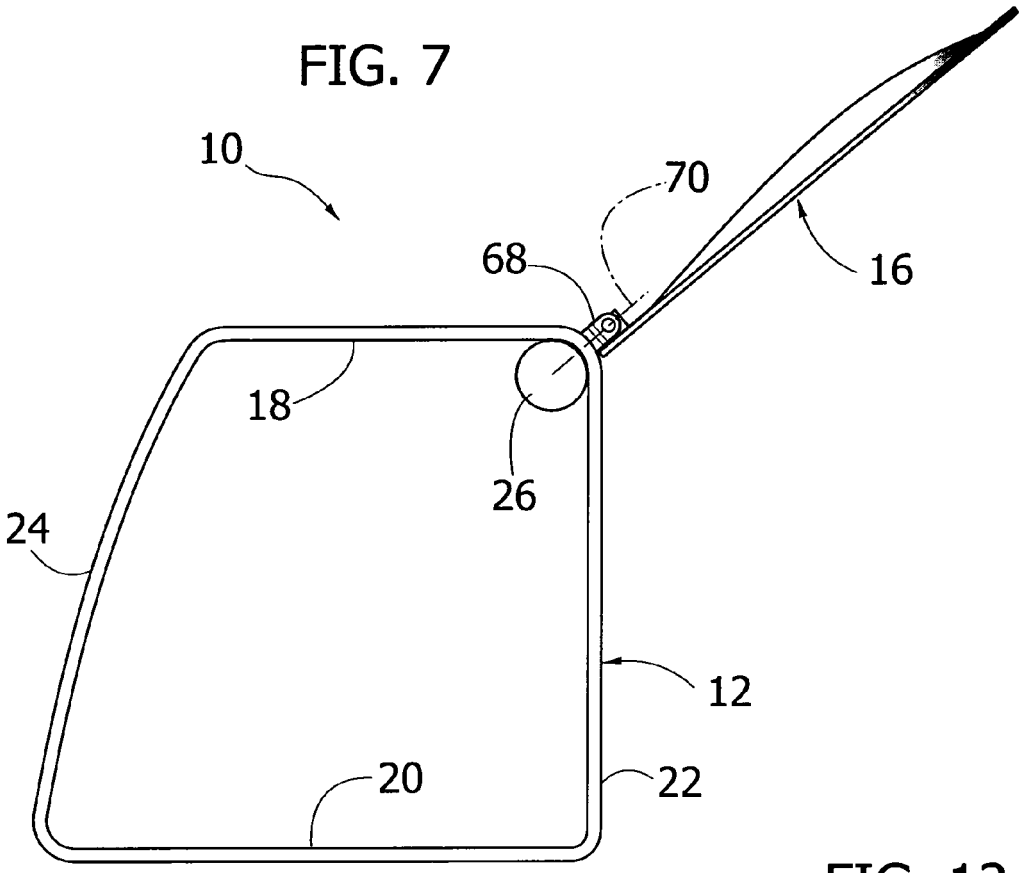
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FIG. 12

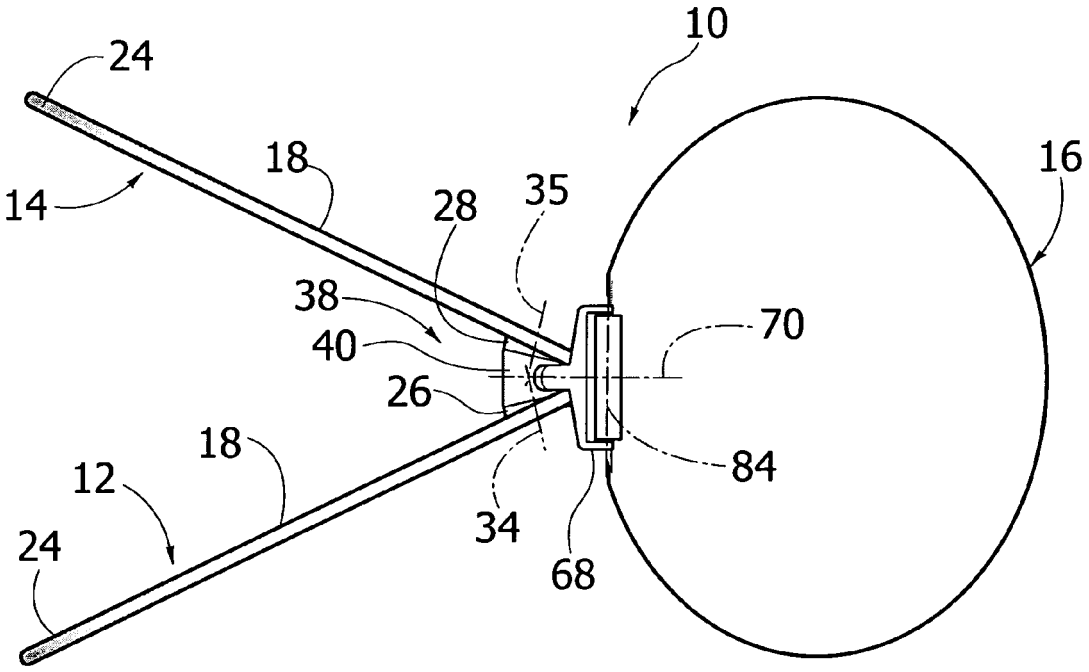
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FIG. 8

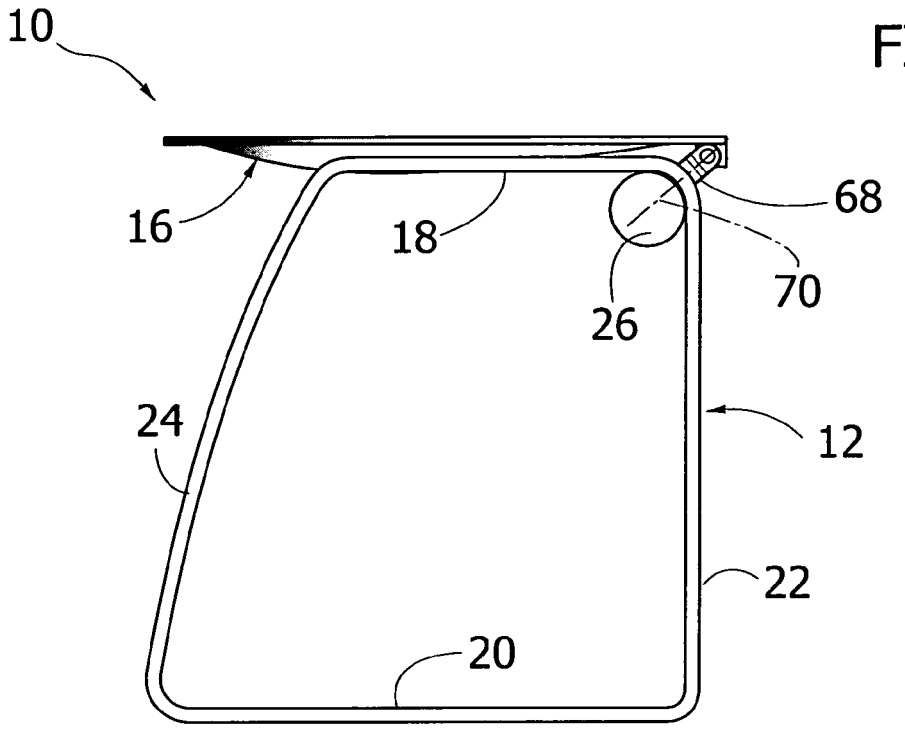

FIG. 13

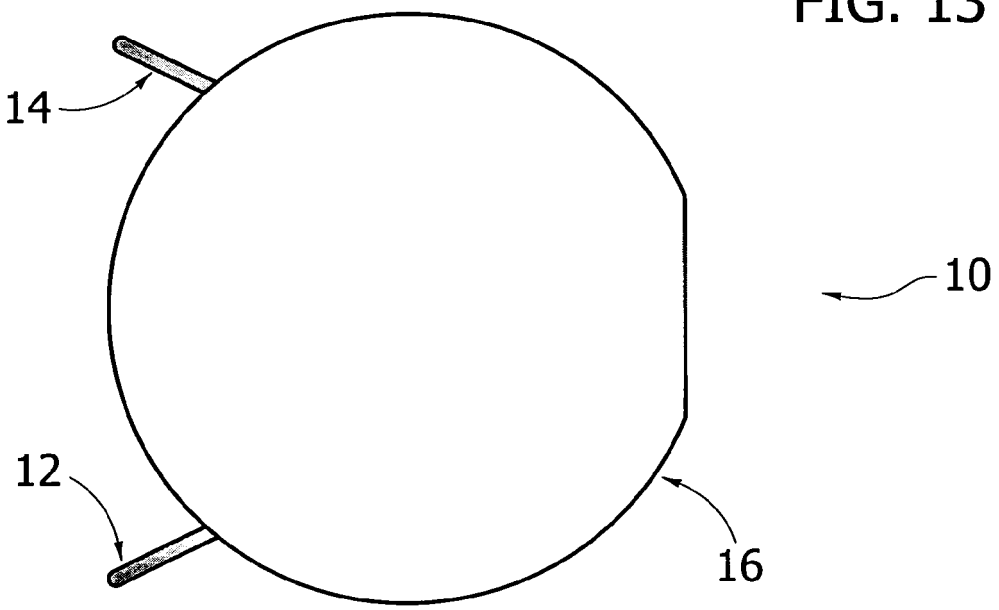

FIG. 14

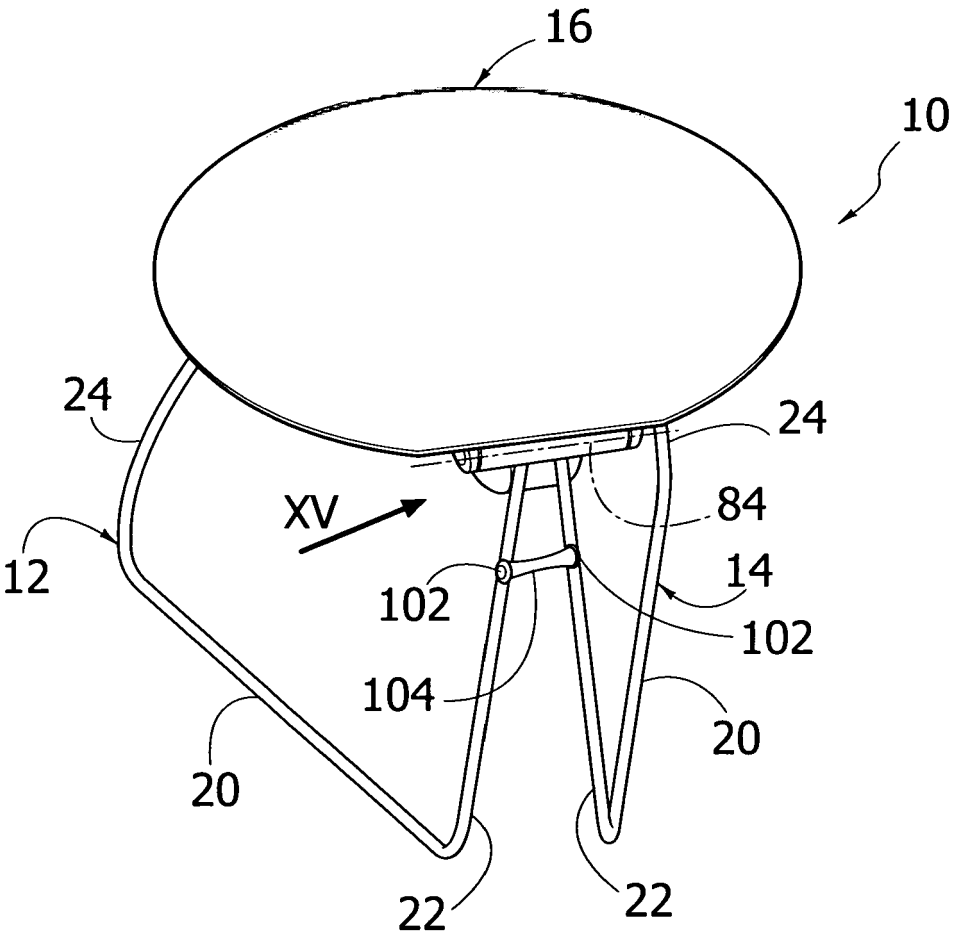

FIG. 15

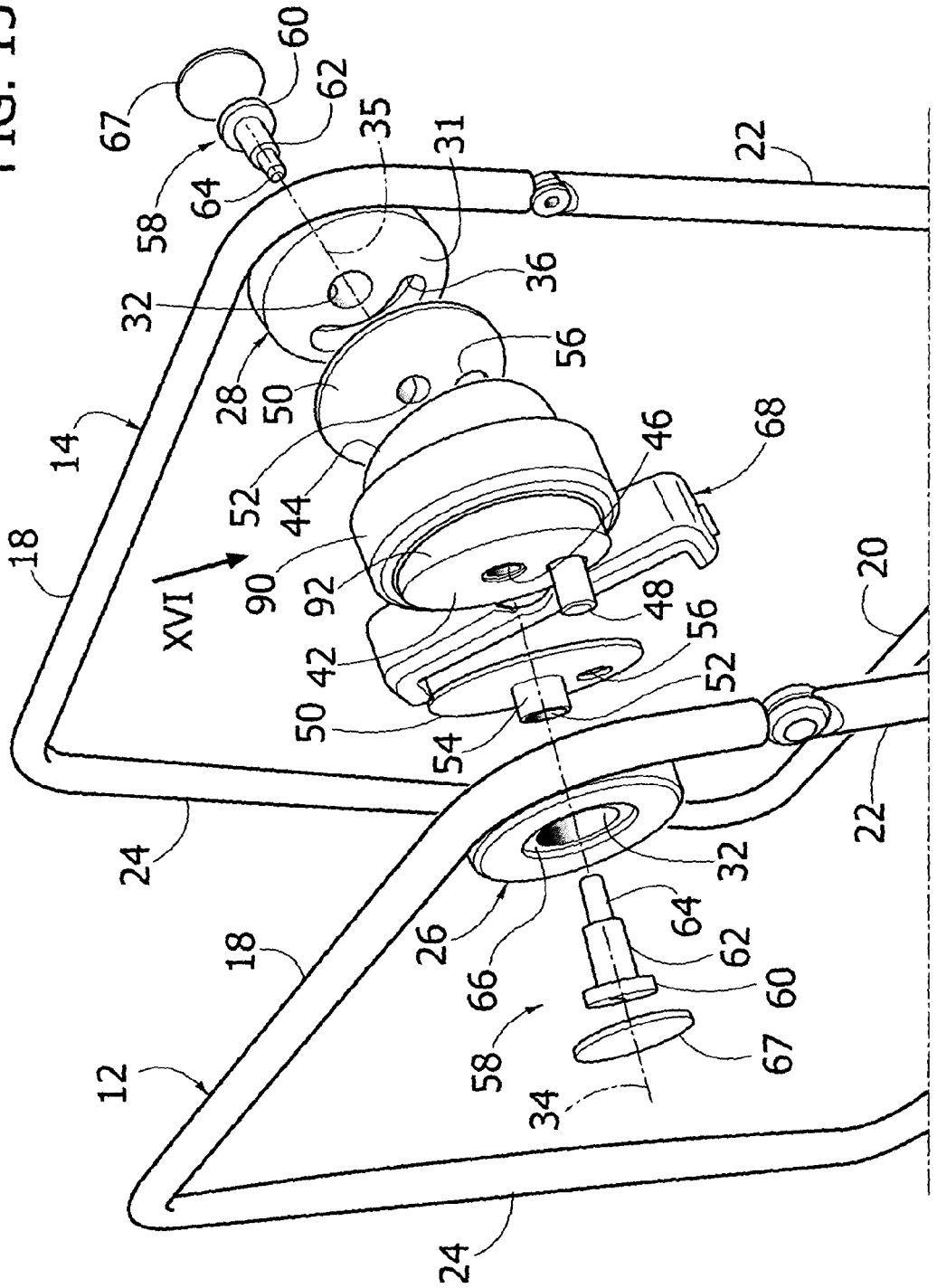
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FIG. 16

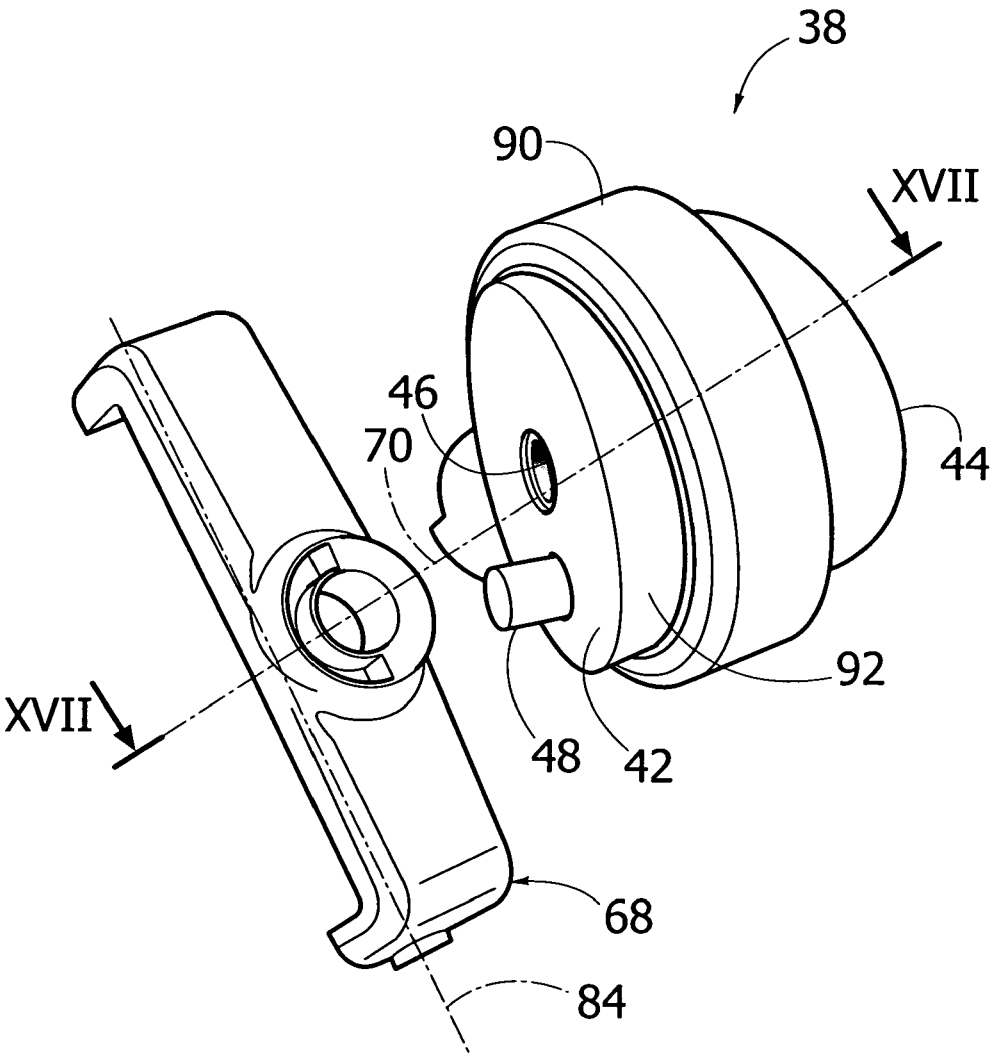

FIG. 17

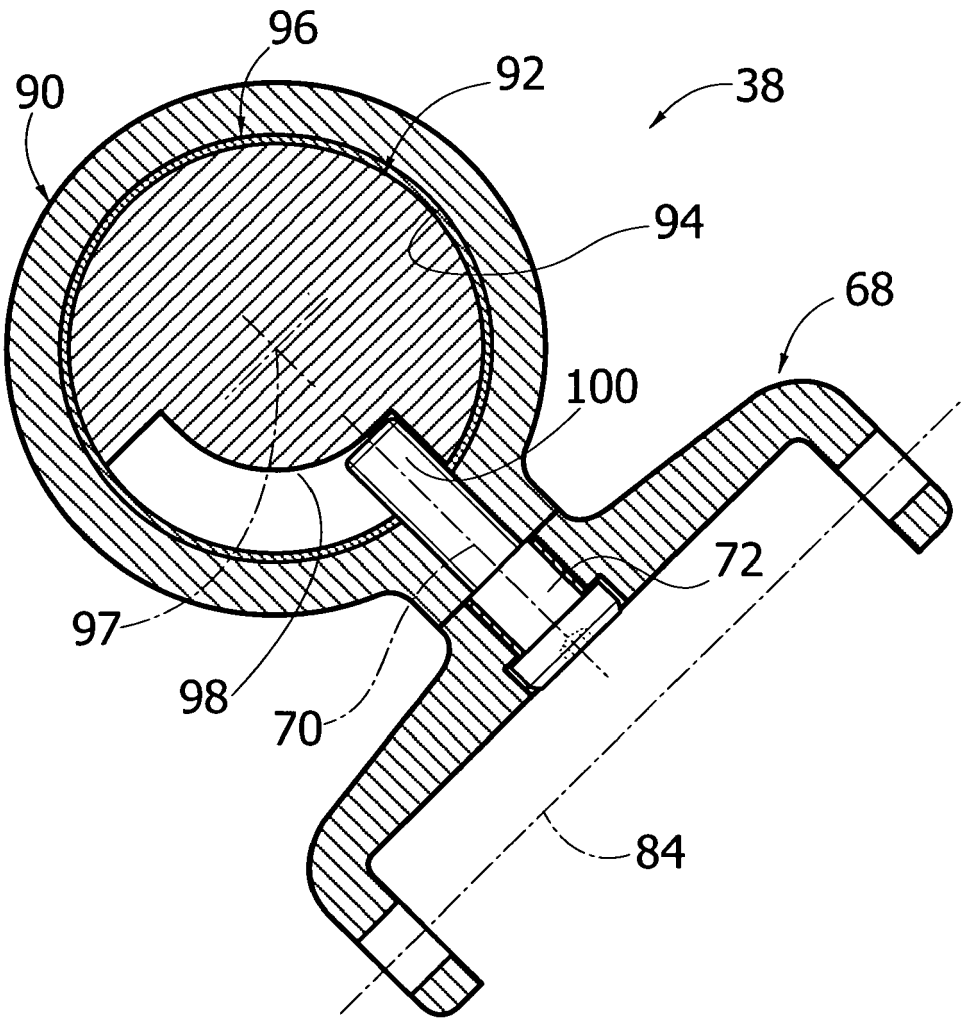

FIG. 18

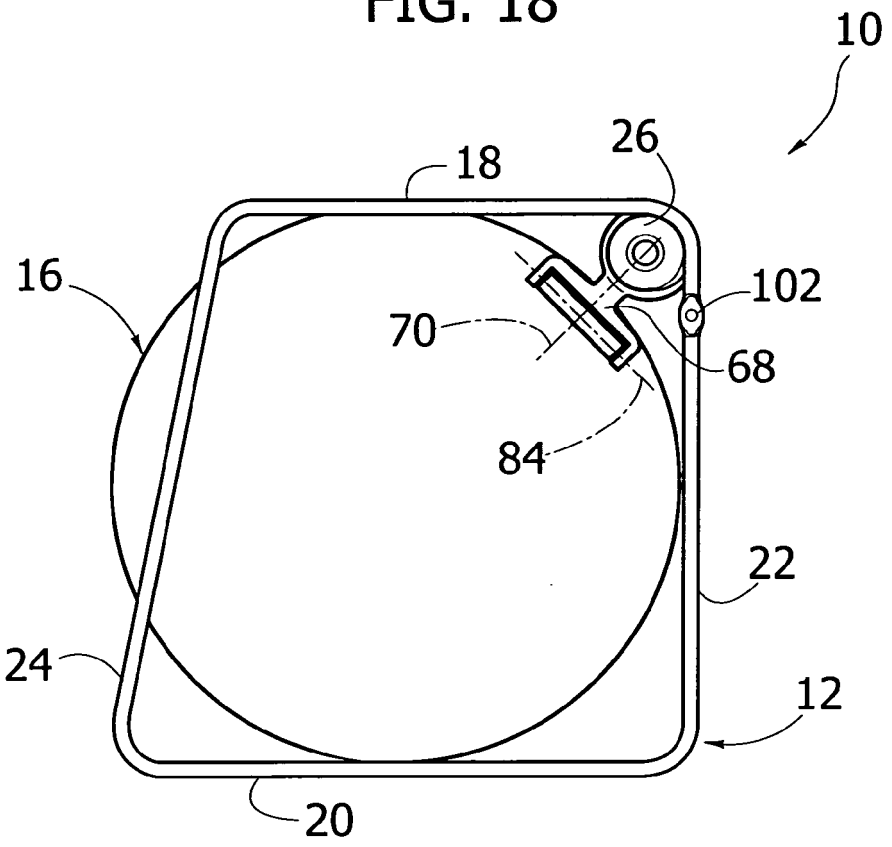
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FIG. 24

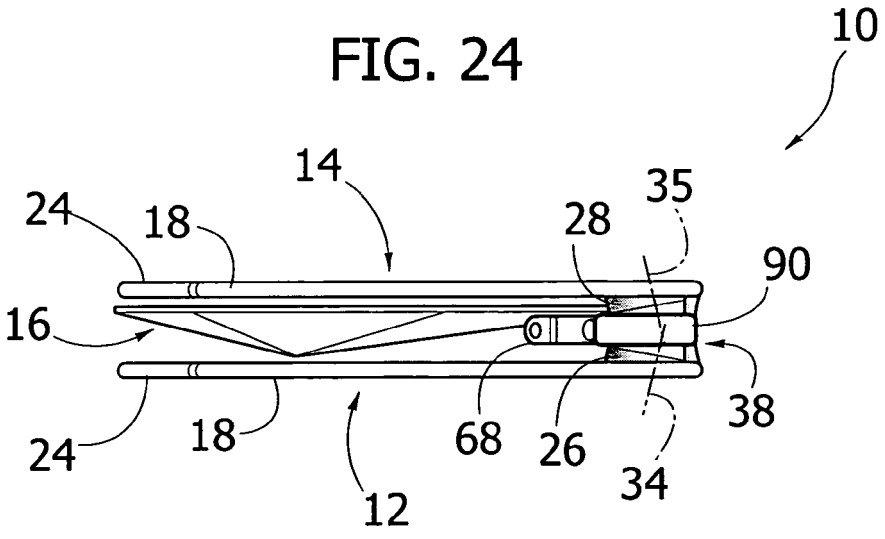
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FIG. 19

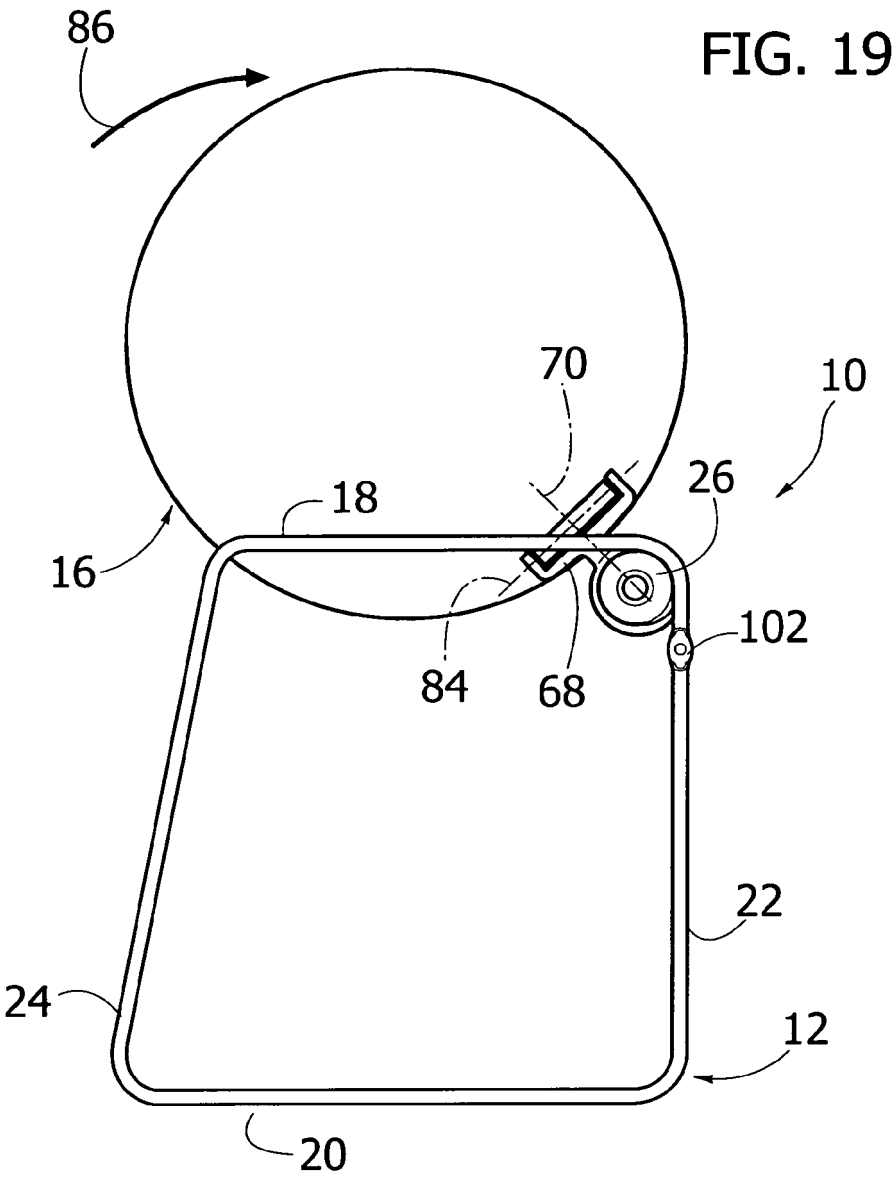
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FIG. 25

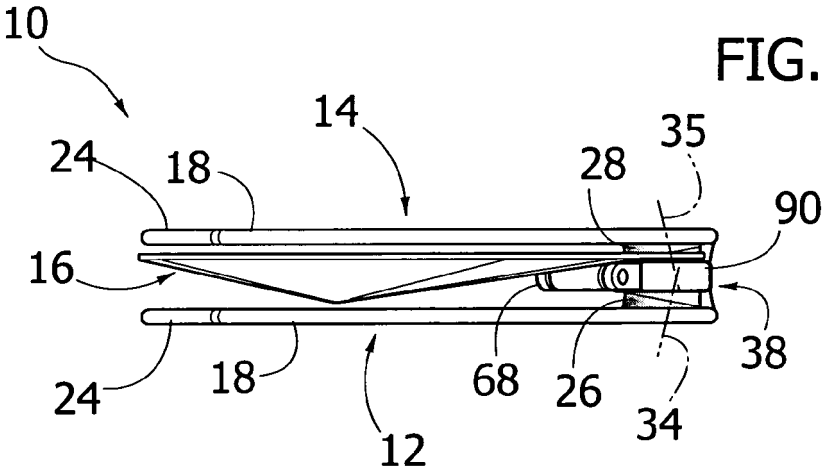
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FIG. 20

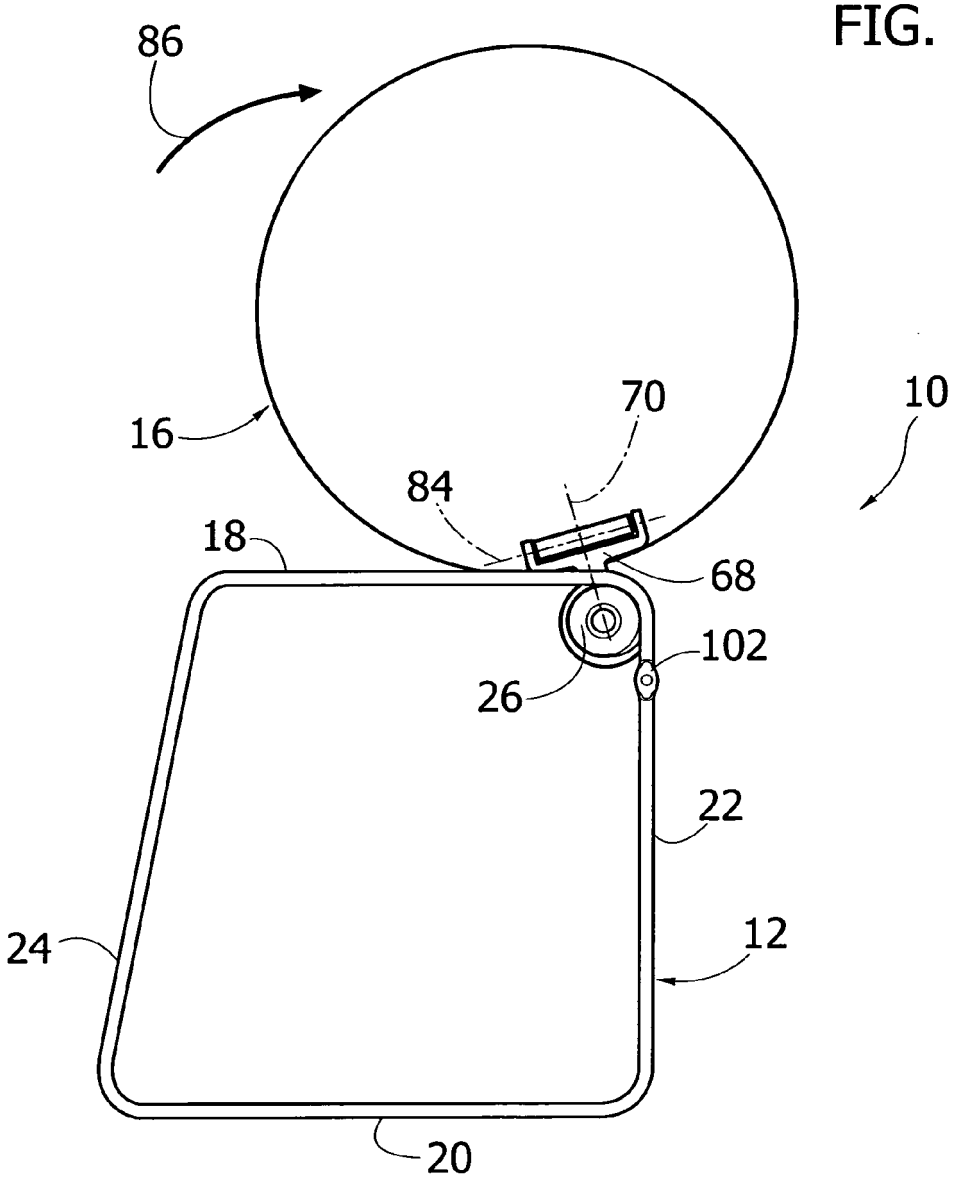
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FIG. 26

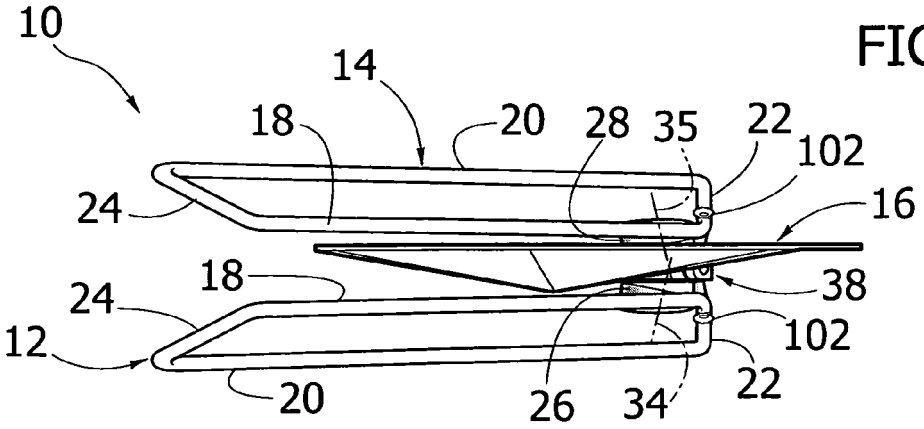
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FIG. 21

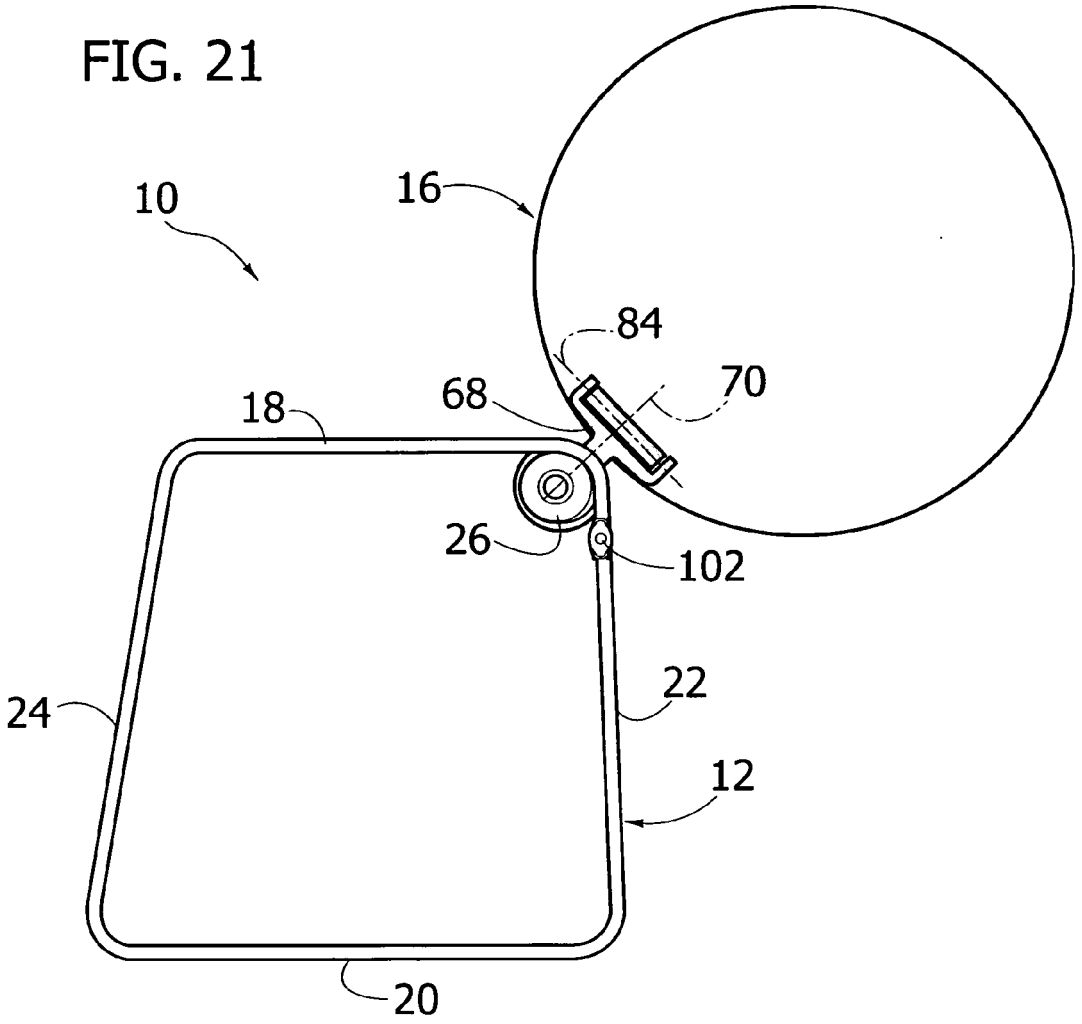
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FIG. 27

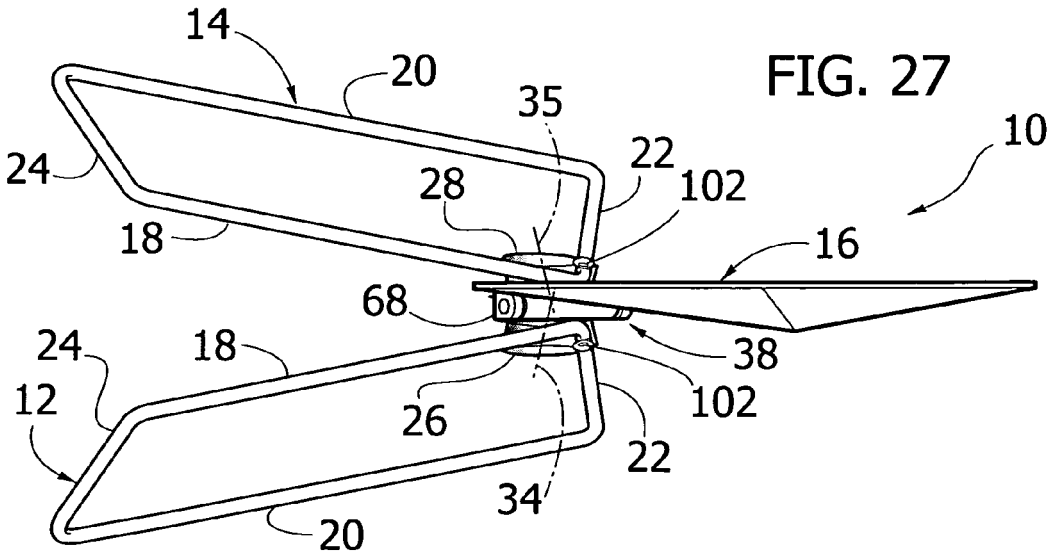
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FIG. 22

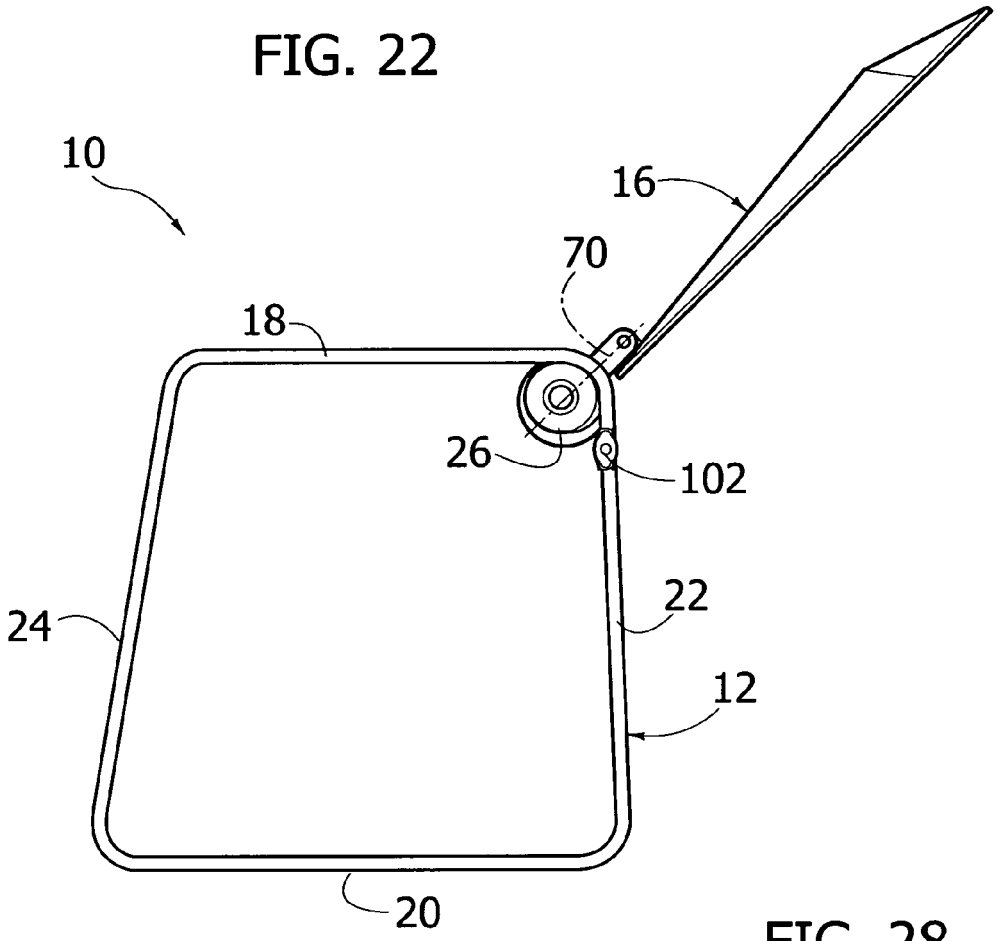
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FIG. 28

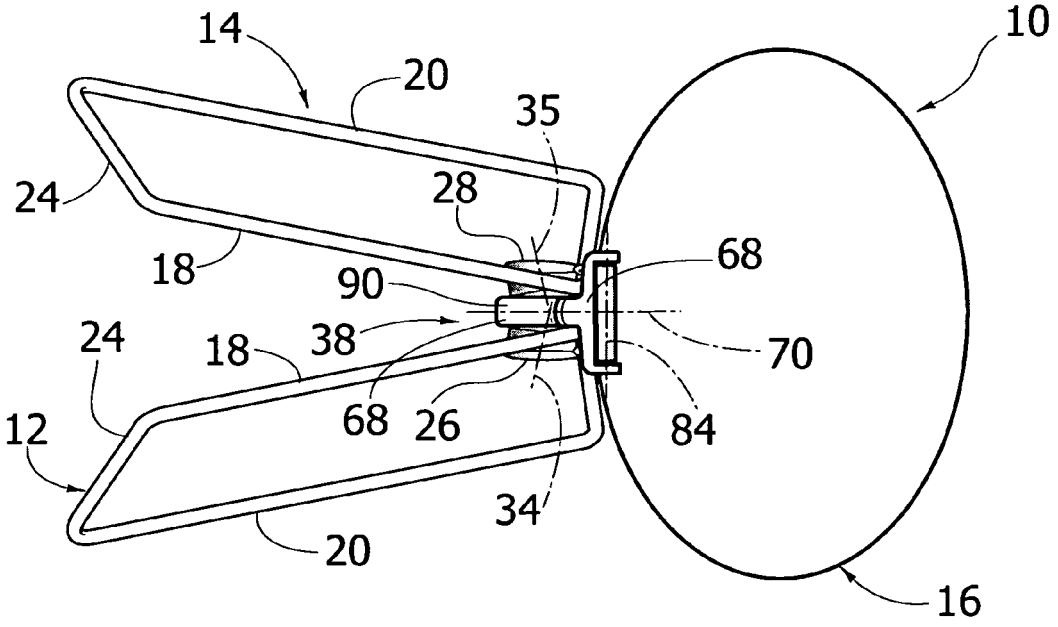
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FIG. 23

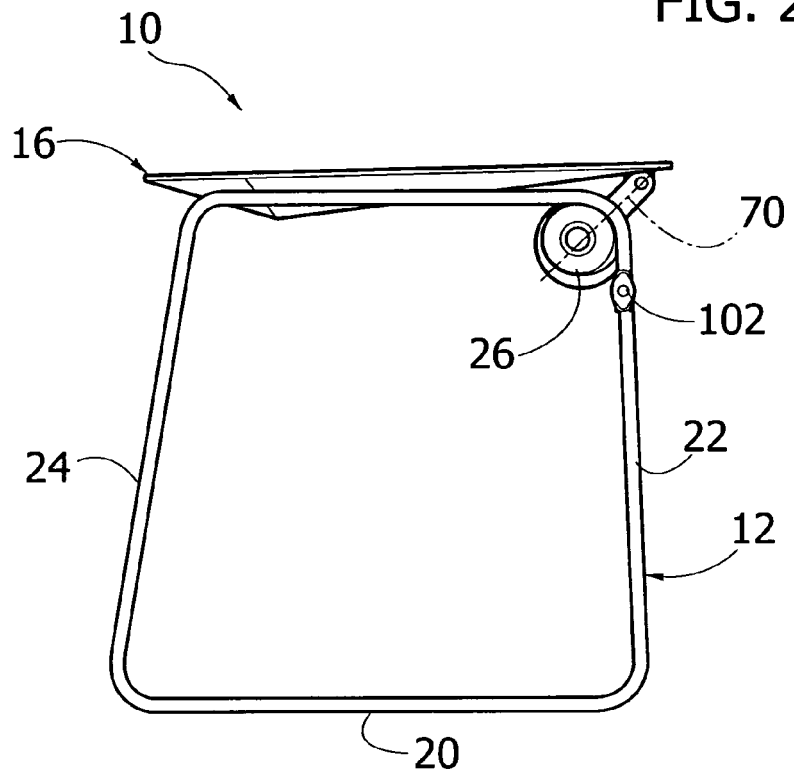


FIG. 29

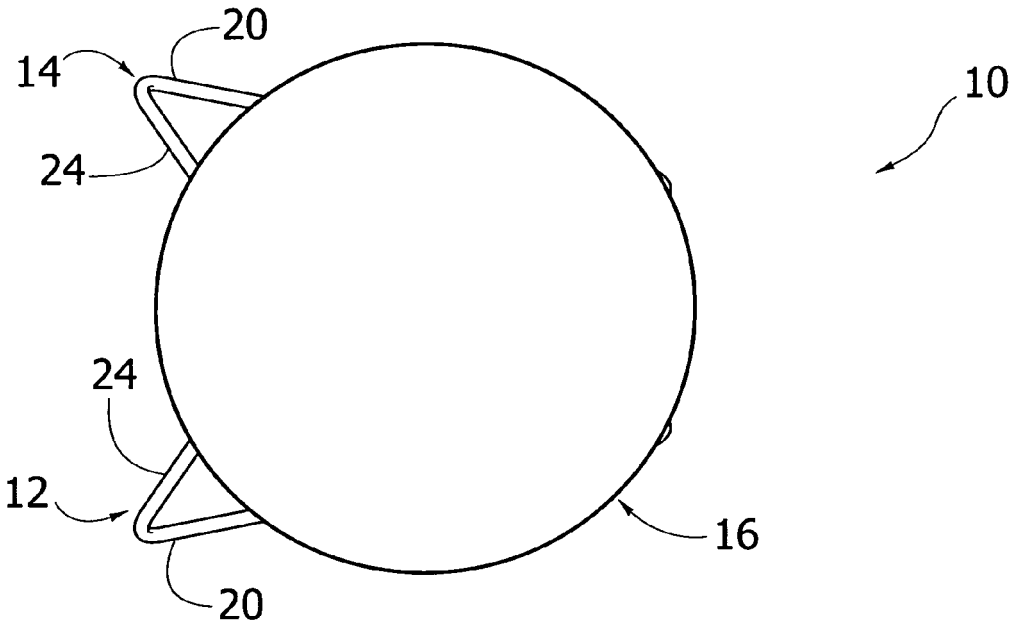


FIG. 30

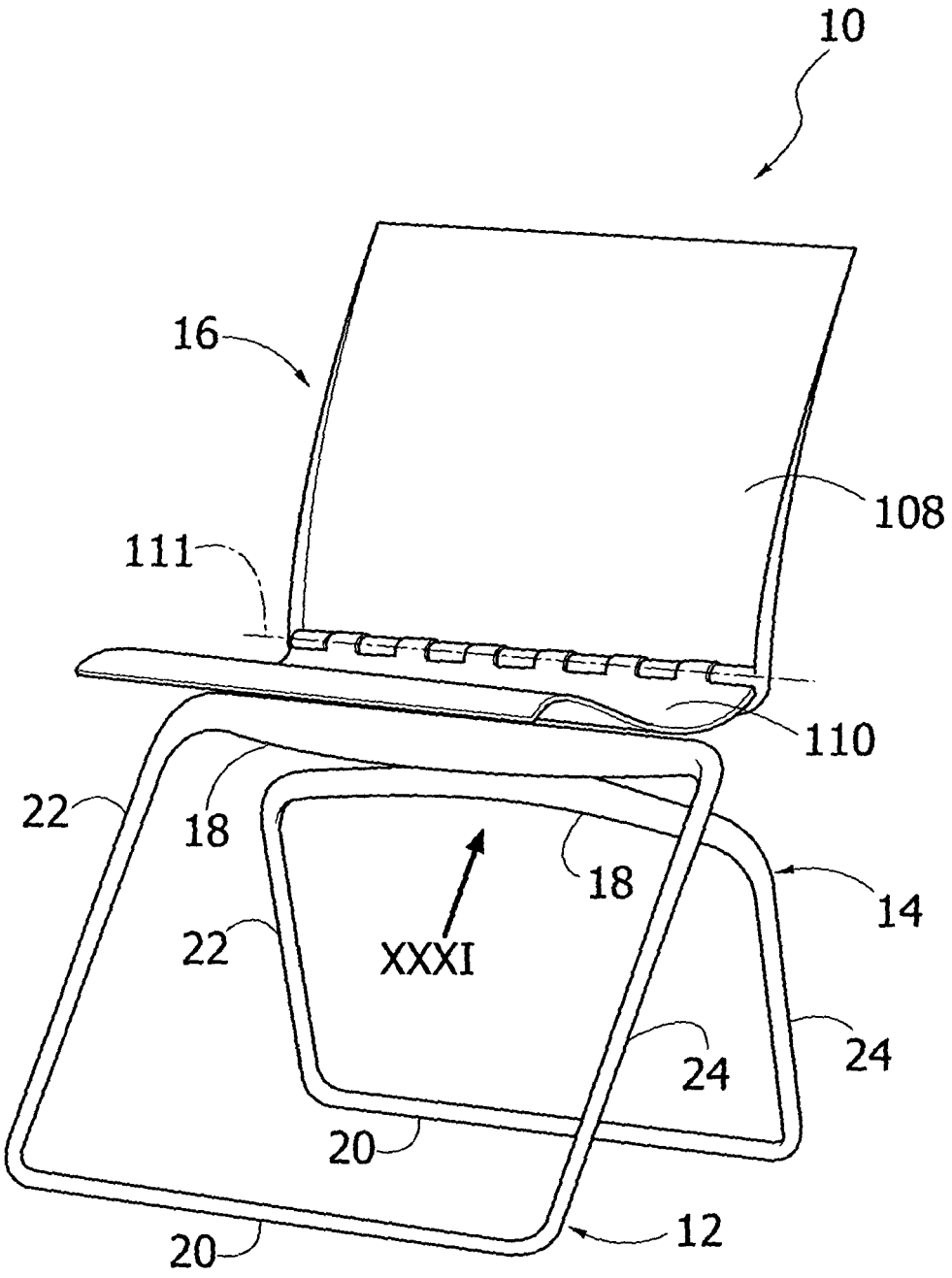
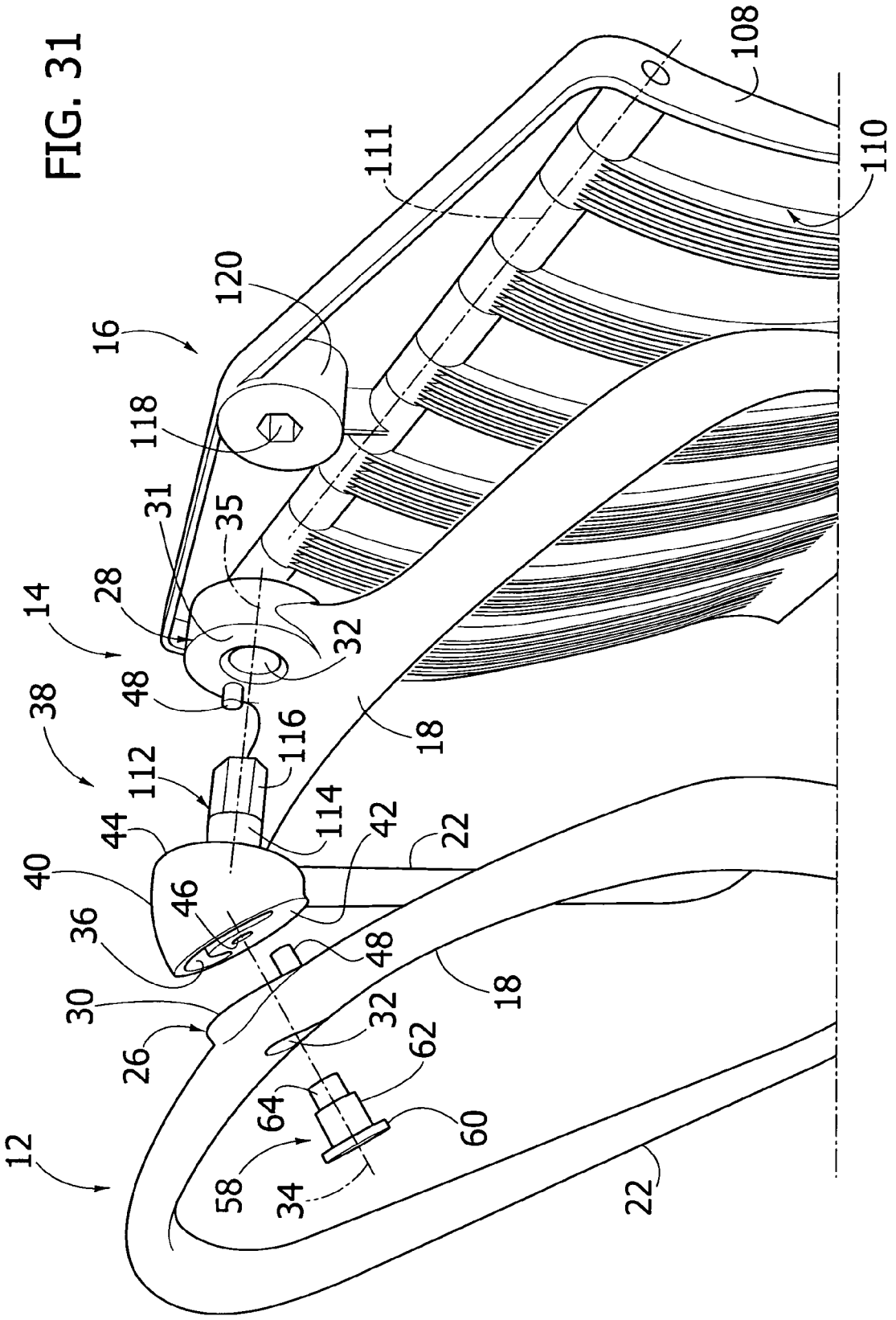


FIG. 31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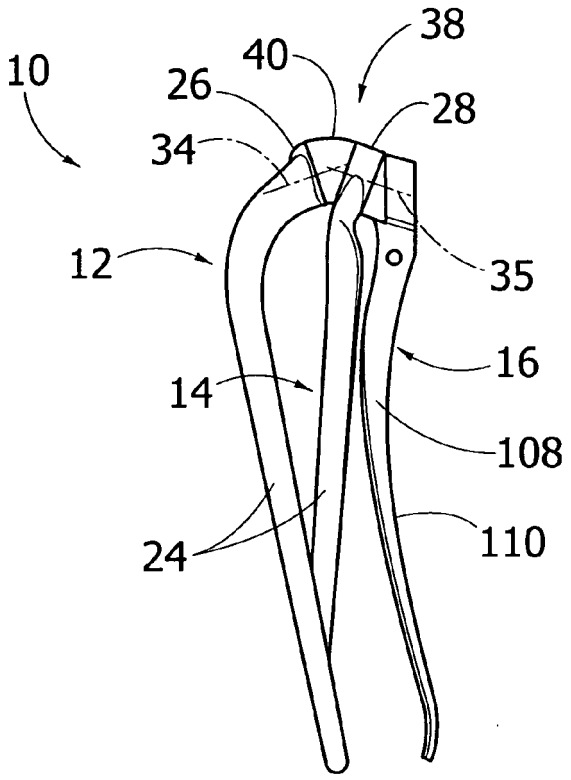
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FIG. 32

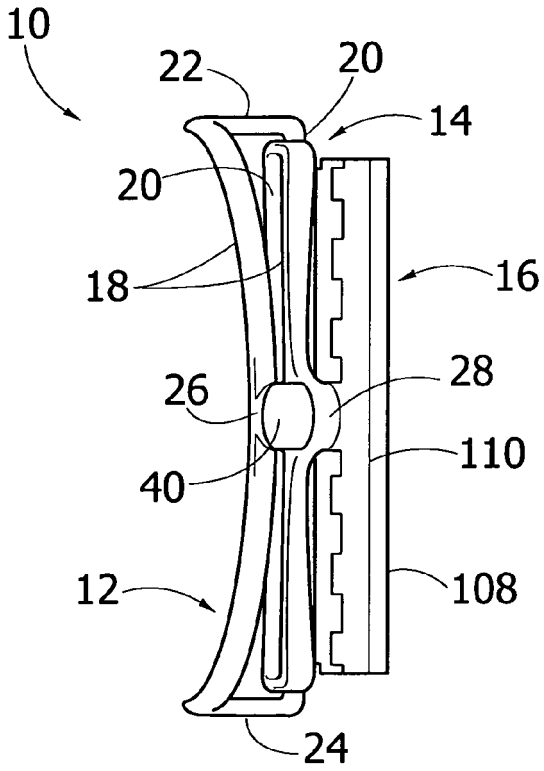
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FIG. 37

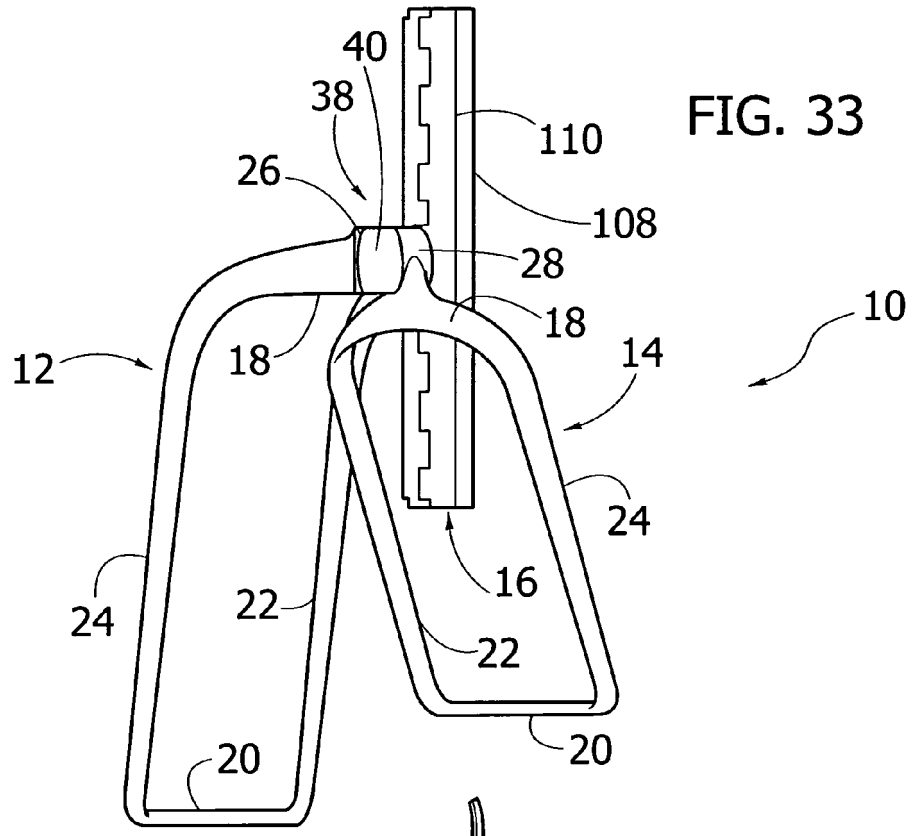
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FIG. 33

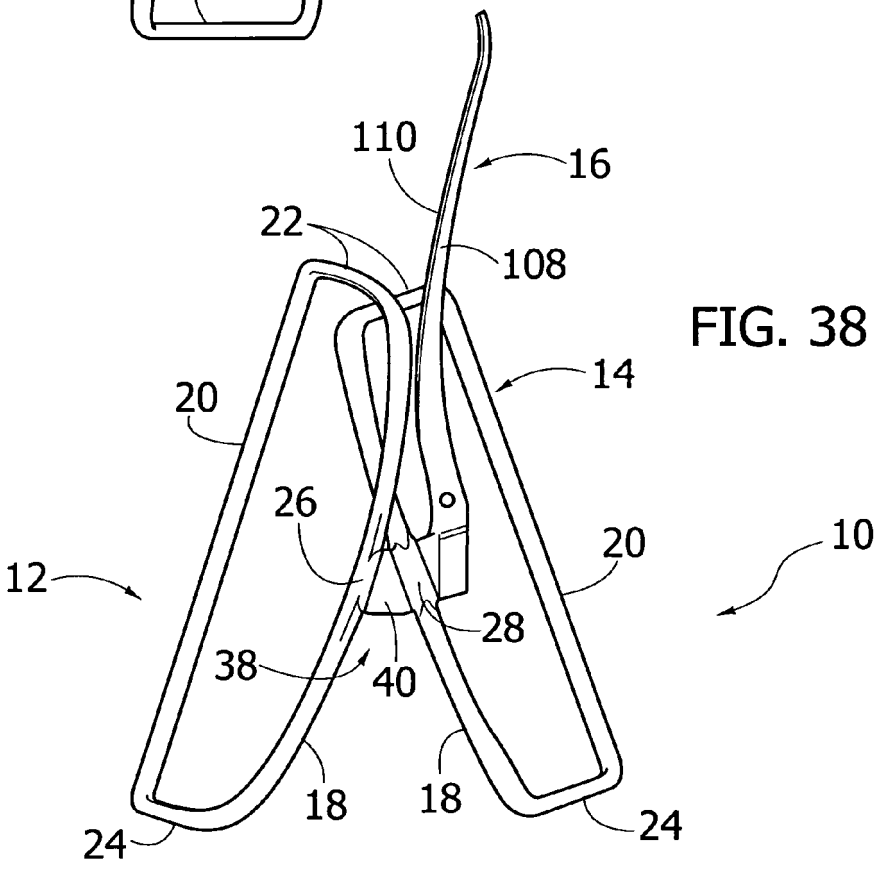
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FIG. 38

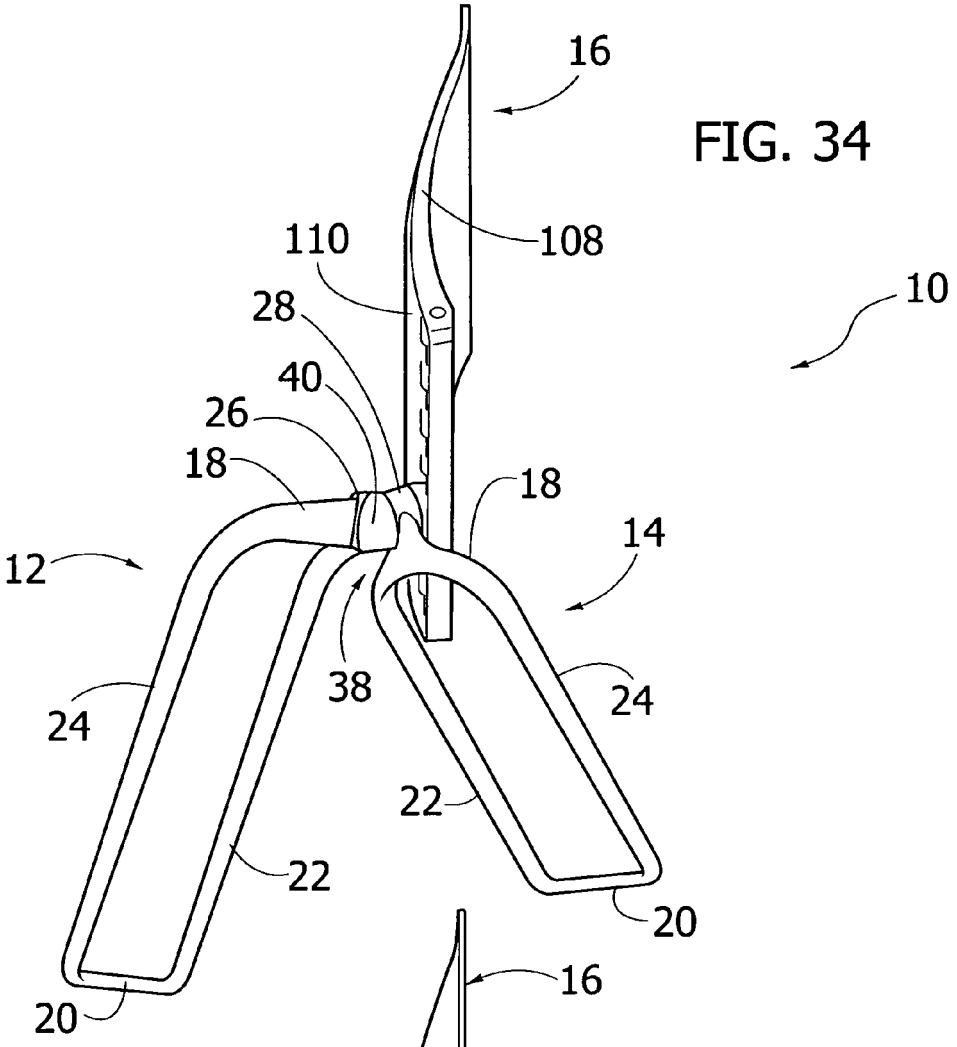
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FIG. 34

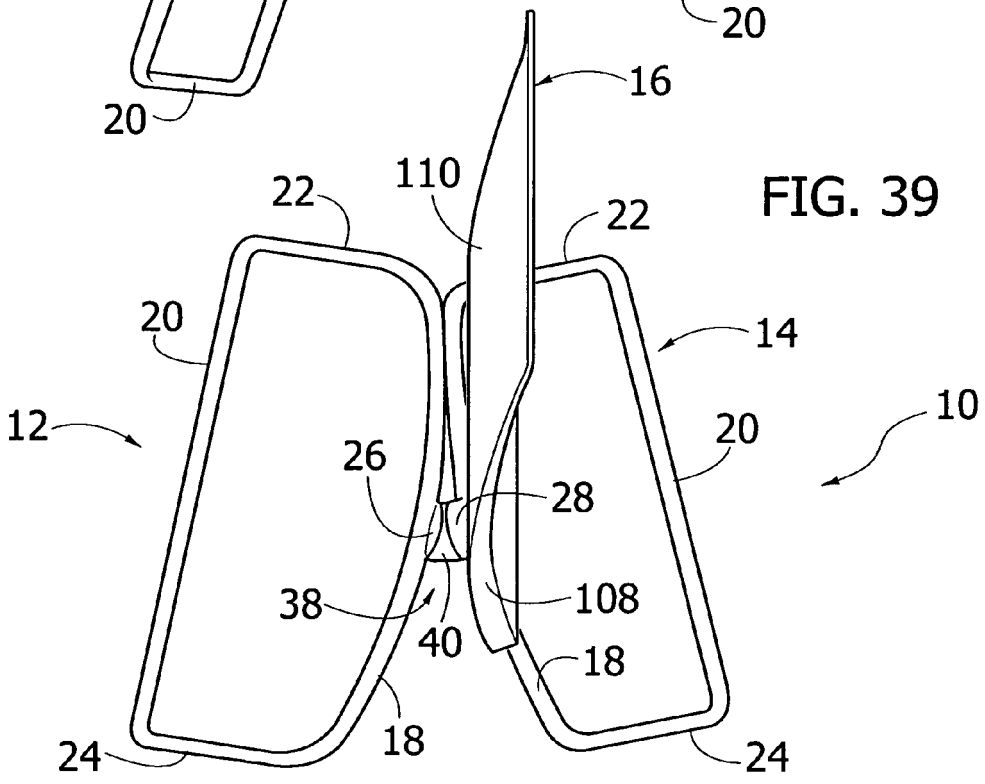
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FIG. 39

FIG. 35

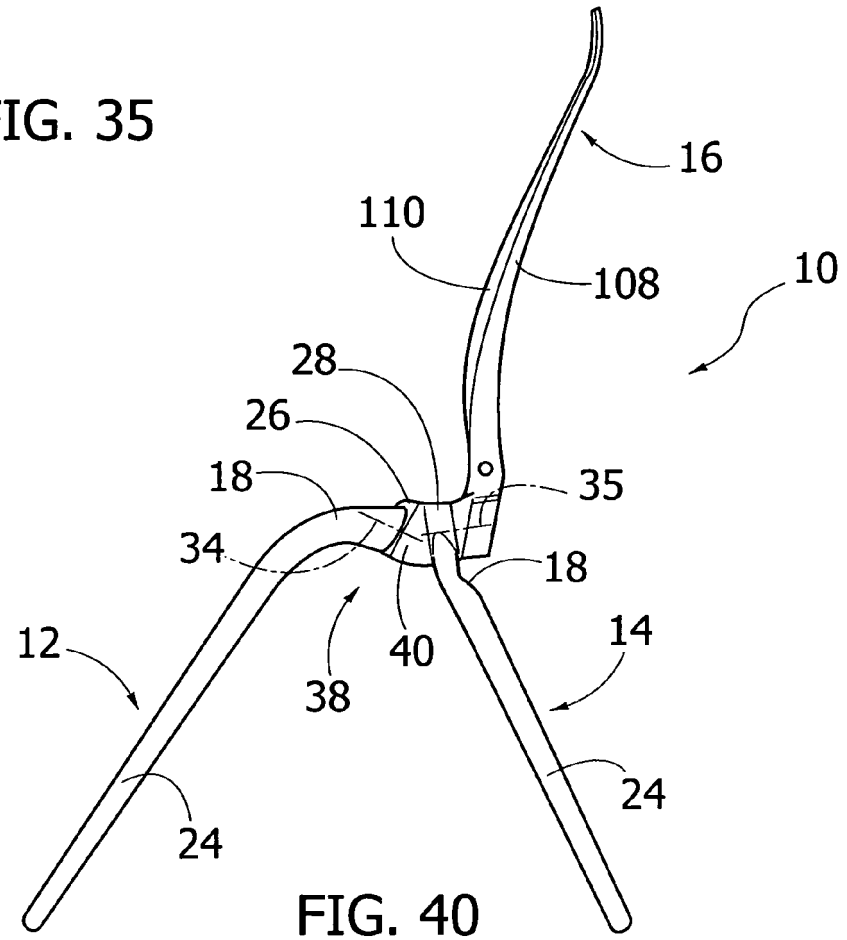
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FIG. 40

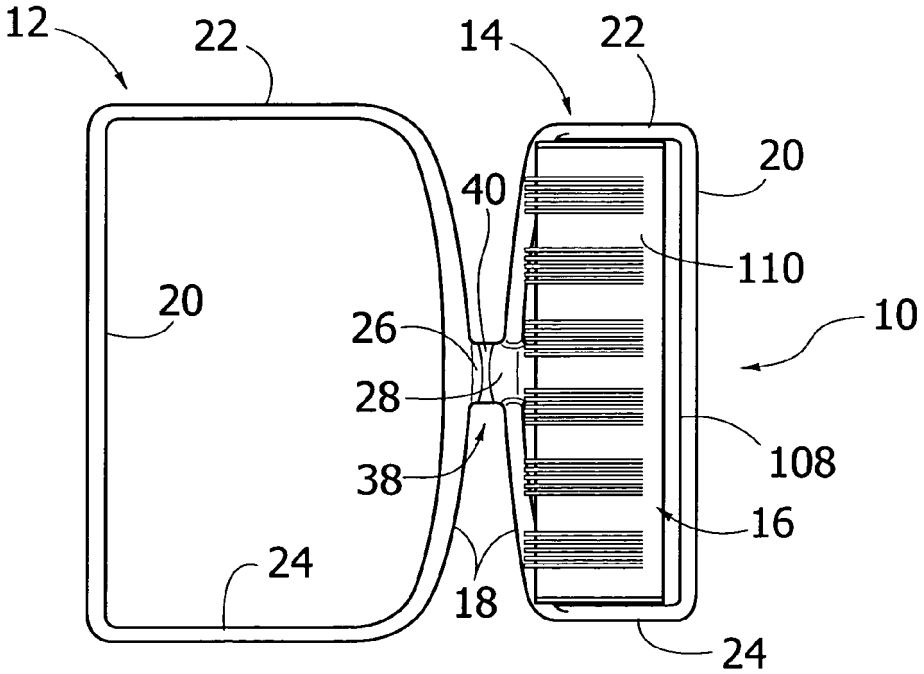
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FIG. 36

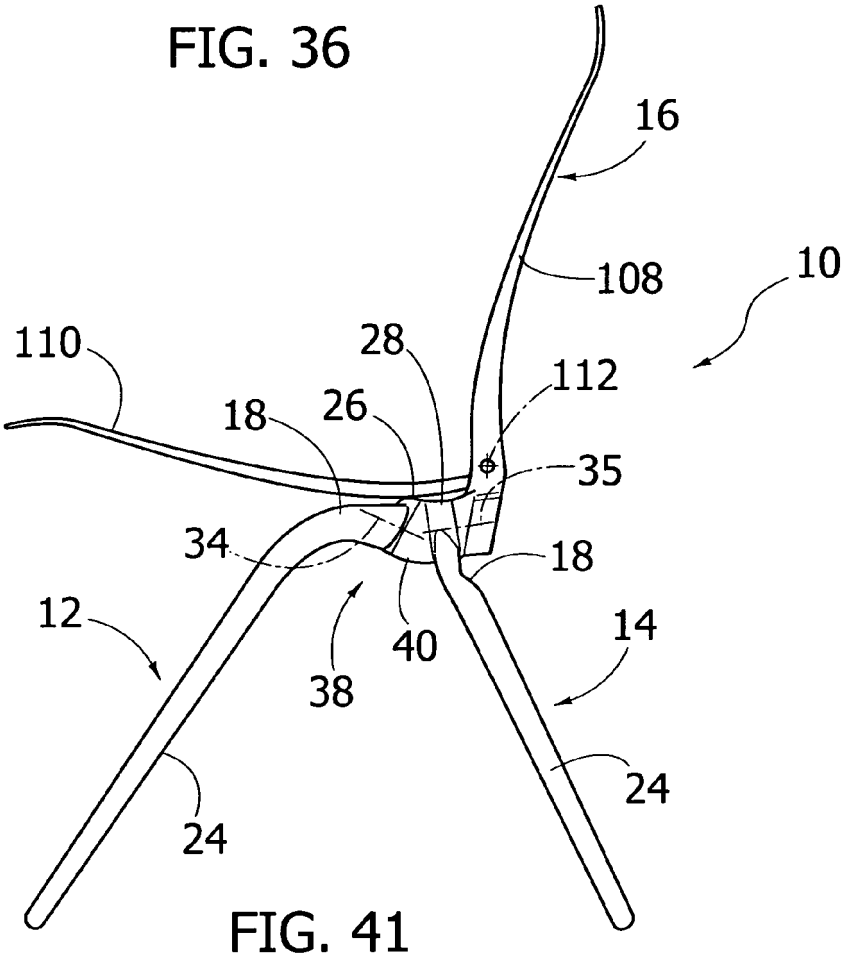
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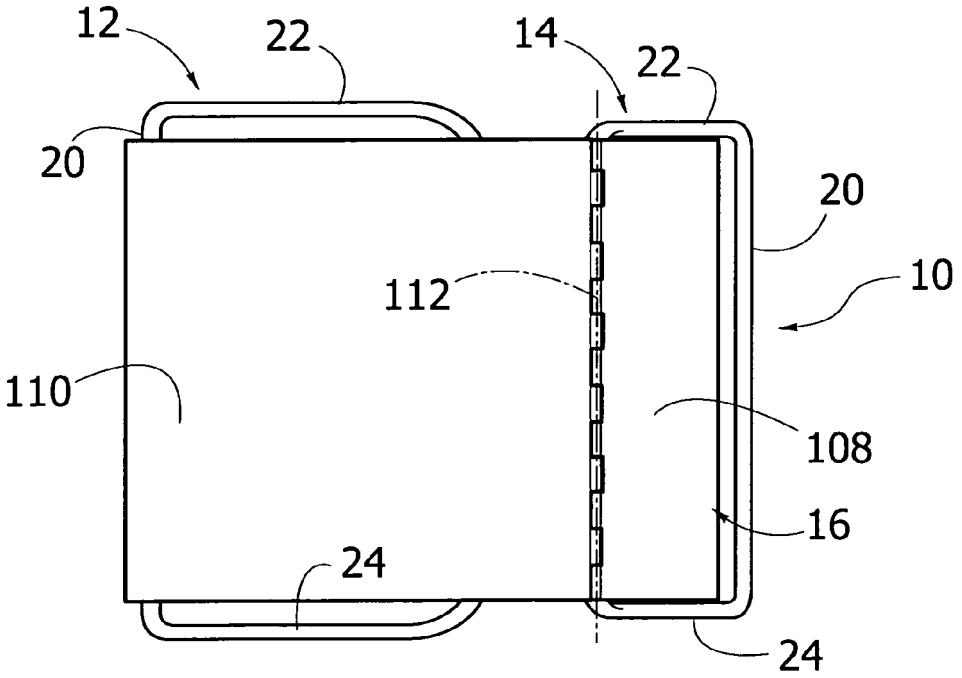
FIG. 41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EUROPEAN SEARCH REPORT

Application Number
EP 09 42 5192

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 20 2006 003762 U1 (WINI BUEROMOEBEL GEORG SCHMIDT [DE]) 12 July 2007 (2007-07-12) * the whole document *	1,10	INV. A47C4/18 A47B3/08
A	DE 35 44 815 A1 (BRESSMER SONJA [DE]) 19 June 1987 (1987-06-19) * the whole document *	1	
A	EP 1 287 760 A (DAUPHIN FRIEDRICH W GMBH [DE]) 5 March 2003 (2003-03-05) * the whole document *	1	

TECHNICAL FIELDS SEARCHED (IPC)

A47C
A47B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	6 November 2009	Alff, Robert

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3

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06-11-2009

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