We claim:

1. A hinge joint mechanism comprising

- a fixed component includes a plurality of curved portions and at least one straight portion;
- a movable component includes a plurality of curved portion and a plurality of straight portions;

said hinge joint mechanism provides a relative rotation between the two surfaces of the hinge joints to rotate the movable component by a desired amount relative to the fixed component.

2. The hinge joint mechanism as claimed in claim 1, wherein the movable component rotates with respect to the fixed component as long as the curved portion of the movable component meshes with the curved portion of the fixed component thereby interlocking the movable component and the fixed component.

3. The hinge joint mechanism as claimed in claim 1, wherein the meshing surface of the movable component comprises at least one convex zone and at least one concave zone.

4. The hinge joint mechanism as claimed in claim 1, where the meshing surface of the fixed component comprises at least one convex zone and at least one concave zone.

5. The hinge joint mechanism as claimed in claim 1, wherein the meshing surface of the movable and fixed components comprise a plurality of contiguous zones of different curvatures with or without the same centre of curvatures.

6. The hinge mechanism as claimed in claim 5, wherein said meshing surface optionally includes a surface of infinite curvature.

7. The hinge joint mechanism as claimed in claim 1, wherein different zones of the fixed component and movable component mesh at a plurality of different angular positions during a hinge motion.

8. The hinge joint mechanism as claimed in claim 1, wherein the rotation is limited to a predetermined level depending on the meshing surfaces having different local radius of curvature in different meshing zones.

9. The hinge joint mechanism as claimed in claim 1, wherein the movable portion and the fixed portion are assembled or disassembled only in a substantially axial direction of the hinge joint.

10. The hinge joint mechanism as claimed in the preceding claims is used in a transport container.

CLAIMS

1. A hinge joint mechanism comprising:

a first component comprising a plurality of curved portions and at least one straight portion disposed between at least two curved portions, wherein one of the at least two curved portions is a terminus of the first component;

a second component comprising a plurality of curved portions and at least one straight portion disposed between at least two curved portions, wherein one of the at least two curved portions is a terminus of the second component;

wherein said hinge joint mechanism provides a relative rotation between the second component and the first component;

wherein during the rotation, the first and second components maintain contact against each other at at least one of the straight or curved portions of both the first and second components,

wherein in an open position, the second component is substantially enveloped by the first component;

wherein the terminus of the second component has a greater length than the terminus of the first component;

wherein the terminus of the second component comprises an arc forming substantially at least a semicircle, and the terminus of the first component comprises an arc forming less than a semicircle;

wherein the terminus of the second component maintains contact with the first component during the rotation;

wherein the terminus of the first component comes into contact with both an inner surface and an outer surface of the second component during rotation; and

wherein the first component and the second component are configured to be assembled or disassembled only in a substantially axial direction of the hinge joint.

2. The hinge joint mechanism as claimed in claim 1, wherein the second component rotates with respect to the first component as long as at least one of the curved portions of the second component interacts with at least one of the curved portions of the first component thereby interlocking the second component and the first component.

3. The hinge joint mechanism as claimed in claim 1, wherein the plurality of curved portions of the second component are designed to contour against the plurality of curved potions of the first component.

4. The hinge joint mechanism as claimed in claim 1, wherein the at least one straight portion of the second component is designed to contour against the at least one straight portion of the first component.

5. The hinge joint mechanism as claimed in claim 1, wherein different zones of the first component and second component interact at a plurality of different angular positions during a hinge motion.

6. The hinge joint mechanism as claimed in claim 1, wherein the rotation of the second component about the first component is constrained by the first component.

7. The hinge joint mechanism as claimed in claim 1, wherein the hinge joint mechanism is part of a transport container.