CLAIMS

1. An energy guide chain for guiding lines, such as hoses, cables or the like, between two connection points, using chain links, which in each case comprise two opposing plates, in particular of plastics material, which are connected together by way of at least one crosspiece, the energy guide chain having two strings of plates in each case with an alternating succession of inner plates (101) and outer plates (102), the inner plates having inner overlap regions (103A, 103B) facing an inside of the chain and the outer plates having outer overlap regions (104A, 104B), with which adjacent plates in each case overlap and are connected together articulatedly and swivelably in a swivel plane about a swivel axis (A) and over a swivel angle, a first plate (102) of in each case two adjacent plates in the string of plates engaging for lateral stabilization with a circular arc-shaped guide region (120A, 120B) extending parallel to the swivel plane in a space (123) behind a retaining projection (121A, 121B) on a second plate of the two adjacent plates,

characterized in that

the retaining projection (121A, 121B) is spatially limited to a central vertical portion (h1) of a plate height and is of limited dimension in a circumferential direction around the swivel axis (A),

in that the guide region (120A, 120B) is arranged such that the guide region (120A, 120B) engages into the space (123) of the retaining projection (121A, 121B) in each swivel position throughout the swivel angle, and

in that the retaining projection (121A, 121B) has limited dimensions such that in each swivel position the circular arc-shaped guide region (120A, 120B) is engaged over by

the retaining projection (121A, 121B) only over a relatively minor proportion, preferably ≤ 33%, of the arc length or angular width (α) of the guide region (120A, 120B) and such that in each swivel position the circular arc-shaped guide region (120A, 120B) is not engaged over by the retaining projection (121A, 121B) over a predominant major proportion (β-α), in particular ≥ 66% of the arc length or angular width of the guide region (120A, 120B).

2. A plastics plate, preferably inner plate (101) for an energy guide chain, comprising two opposing overlap regions (103A; 103B) and a central region (105) located therebetween, each overlap region having either a swivel pin in one piece therewith or a pin receptacle (112) molded therein, in order to connect overlapping plates (101; 102) together swivelably in a swivel plane about a swivel axis (A) and over a swivel angle, and in each case two retaining projections (121A, 121B) being provided in one piece on the central region (105) and each retaining projection projecting over an associated space (123), into which an adjoining outer or inner plate (101; 102) may engage for lateral stabilization with a circular arc-shaped guide region (120A, 120B) extending parallel to the swivel plane,

characterized in that each retaining projection (121A, 121B) is of limited dimension (α) in a circumferential direction about the swivel axis (A), such that in each swivel position the circular arc-shaped guide region (120A, 120B) of an engaging plate is predominantly not engaged over by the retaining projection; and

in that the retaining projection (121A, 121B) and the guide region (120A, 120B) are arranged such that the guide region (120A, 120B) engages in each swivel position

throughout the swivel angle into the space (123) behind the retaining projection (121A, 121B).

3. A plate pair for an energy guide chain, comprising an inner plate (101) and an outer plate (102), each plate having two opposing overlap regions (103A, 103B; 104A, 104B) and one central region (105; 106) located therebetween and both plates being embodied for unilateral overlapping with their overlap regions; the outer plate (102) having, in each overlap region (104A, 104B), a swivel pin (110) in one piece therewith and the inner plate (101) having, in each overlap region (103A, 103B), a corresponding pin receptacle (112) molded therein, for connecting the two plates together swivelably in a plane about a swivel axis (A) and over a swivel angle; and two retaining projections (121A, 121B) being provided for lateral stabilization in one piece on the central region (105) of the inner plate and each retaining projection projecting over an associated space (123);

a circular arc-shaped guide region (120A, 120B) extending parallel to the swivel plane being provided for lateral stabilization at the front end in one piece at each overlap region (104A, 104B) of the outer plate (102) and being able to engage into the space (123) of a retaining projection;

characterized in that, on the central region (105) of the inner plate, each retaining projection (121A, 121B) is of limited dimension (α) in a circumferential direction about the swivel axis (A), such that in each swivel position the circular arc-shaped guide region (120A, 120B) of the engaging outer plate (102) is predominantly not engaged over by the retaining projection (121A, 121B); and

in that the retaining projection (121A, 121B) and the guide region (120A, 120B) are arranged such that the guide region (120A, 120B) engages in each swivel position throughout the swivel angle into the space (123) behind the retaining projection (121A, 121B).

4. An energy guide chain for guiding lines, such as hoses, cables or the like, between two connection points, using chain links, which in each case comprise two opposing plates, of plastics material, which are connected together by way of at least one crosspiece, the energy guide chain having two strings of plates in each case with identical offset plates (200) of plastics material, each offset plate (200) having a first overlap region (203B) and a second overlap region (203A) outwardly offset relative thereto, with which adjacent plates in each case overlap and are connected together articulatedly and swivelably in a plane about a swivel axis (A) and over a swivel angle, a first plate of in each case two adjacent plates in the string of plates engaging for lateral stabilization with a circular arc-shaped guide region (220) extending parallel to a swivel plane into a space behind a retaining projection (221) on a second plate of the two adjacent plates,
wherein the retaining projection (221) is spatially limited to a central vertical portion (h1) of a plate height and is of limited dimension in a circumferential direction around the swivel axis (A),
characterized in that
the retaining projection (221) and the guide region (220) are arranged such that the guide region (220) engages into the space of the retaining projection (221) in each swivel position throughout the swivel angle, and
in that the retaining projection (221) has limited

dimensions such that in each swivel position the circular arc-shaped guide region (220) is engaged over by the retaining projection (221) only over a minor proportion (α) of the arc length or angular width of the guide region (220) and such that in each swivel position the circular arc-shaped guide region (220) is not engaged over by the retaining projection (221) over a predominant major proportion of the arc length or angular width of the guide region (220).

5. An offset plastics plate (200) for an energy guide chain, comprising a first overlap region (203B) and a second overlap region (203) offset outwardly relative thereto and a central region (205) located therebetween with a greater wall thickness at least in places, one overlap region of the first overlap region (203B) and the second overlap region (203) having a swivel pin (204) in one piece therewith and the other overlap region of the first overlap region (203B) and the second overlap region (203) having a corresponding receptacle (206), in order to connect overlapping plates together swivelably in a plane about a swivel axis (A) and over a swivel angle, and a free end of the one overlap region comprising at least one circular arc-shaped guide region (220) extending parallel to a swivel plane, which region has a wall thickness smaller than the wall thickness of the central region (205) and at least one retaining projection (221) being provided for lateral stabilization in one piece on the central region (205), behind which an adjoining plate may engage with a guide region (220) for lateral stabilization;
wherein each retaining projection (221) is of limited dimension (α) in a circumferential direction about the swivel axis,

characterized in that
the retaining projection (221) and the guide region (220) are arranged such that the guide region (220) engages into the space of the retaining projection (221) in each swivel position throughout the swivel angle, and **in that** the retaining projection (221) has limited dimensions such that in each swivel position the circular arc-shaped guide region (220) of the adjoining plate is predominantly not engaged over by the retaining projection (221).

6. The energy guide chain or plate according to one of Claims 1 to 5,
characterized in that each retaining projection (121A, 121B) is arranged within an angular range $\alpha < 60°$, preferably $\leq 45°$, bisected by the longitudinal central plane of the plate, about the adjacent swivel axis (A), preferably characterized in that the retaining projection (121A, 121B) is delimited in a circumferential direction about the swivel axis such that the circular arc-shaped guide region is covered in each swivel position over a maximum angle (α) about the swivel axis (A) amounting to $< 60°$, preferably $\leq 45°$.

7. The energy guide chain or plate according to one of Claims 1 to 6, characterized in that a radial engagement depth (r1) of the guide region (120A, 120B) into the space (123) covered by the retaining projection (121A, 121B) is less than 15% and preferably less than or equal to 12.5% of a circular arc radius (r2) of the guide region (120A, 120B).

8. The energy guide chain or plate according to one of Claims 1 to 7, characterized in that

- each retaining projection (121A, 121B) at least in part covers a plate opening (126), which extends through a central region (105) of the plate to a remote side surface of the plate; and/or in that
- each retaining projection (121A, 121B) is connected in one piece to the plate via a material bridge (127) with a greater wall thickness than the retaining projection (121A, 121B).

9. An inner plate or outer plate according to Claim 8, characterized in that two retaining projections (121A, 121B) cover the plate opening (126) through the central region and are preferably molded in one piece with a reinforced material bridge (127) over the plate opening (126).

10. The plate according to Claim 8 or 9, characterized in that the plate opening (126) has an edge-free, preferably substantially elliptical outline in a main plane of the plate and/or in that an opening edge (128) of the plate opening (126) is aligned congruently with a protruding edge (131A, 131B) of the retaining projection.

11. The energy guide chain or plate according to one of the preceding claims, characterized in that, to limit the swivel angle, one overlap region (104A, 104B) has at least three, preferably four stop projections (107), which in each case form two planar stop surfaces (107A, 107B), preferably perpendicular to the swivel plane, and the overlap region (103A, 103B) complementary thereto has at least three, preferably four corresponding receptacles (108) with in each case two planar counter stop surfaces (108A, 108B) preferably perpendicular thereto.

12. The energy guide chain or plate according to Claim 11, characterized in that in each case the overlap region,

which engages with the guide region into the space (123) of the retaining projection (121A, 121B), has the stop projections and a one-piece swivel pin (110), wherein the stop projections (107) and the swivel pin protrude laterally staggered relative to the guide region (120A, 120B) and/or from the swivel plane opposite the retaining projection (121A, 121B).

13. The energy guide chain or plate according to one of the preceding claims, characterized in that each plate has an outer plate surface and an inner plate surface the retaining projection (121A, 121B) does not protrude laterally beyond the outer plate surface and/or terminates flush with the outer plate surface.

14. The energy guide chain or plate according to one of Claims 1 to 13, characterized in that the retaining projection (121A, 121B) forms an inner retaining surface (125) for overlapping the guide region, which is embodied largely parallel to the swivel plane.

15. The energy guide chain or plate according to one of the preceding claims, characterized in that each retaining projection (121A, 121B) is arranged mirror-symmetrically to a longitudinal central plane of the plate and/or symmetrically to a vertical central plane (M) of the plate.

16. The energy guide chain or plate according to Claim 15, characterized in that a projection-less transverse wall region (124) extends on each side, mirror-symmetrically relative to the retaining projection (121A, 121B).

17. The energy guide chain or plate according to claim 10, characterized in that the protruding edge (131A, 131B) of

the retaining projection bulges outward convexly relative to the swivel axis (A).

18. The energy guide chain or plate according to one of the preceding claims, characterized in that the circular arc-shaped guide region (120A, 120B), for engagement behind the retaining projection (121A, 121), has a circular arc segment protruding at a front end on the overlap region (103A, 103B), which segment has a cross-section which is set back relative to an outer surface of the overlap region (103A, 103B).

19. The energy guide chain or plate according to one of the preceding claims, characterized in that each plate (101, 102; 200) is made in one piece from an injection-moldable plastics material, in particular of a fiber-reinforced thermoplastic.