~~Transverse bar and chain link with transverse bar~~

CLAIMS

1. A transverse bar (4) for releasably connecting two side portions (3) of a chain link (2) of an energy guide chain (1), wherein the transverse bar (4) has two ends, wherein at least at one or at both ~~of its~~ ends of the transverse bar (4) has a fixing region (7) for releasably fastening to the respective side portion (3) and wherein the fixing region (7) of the transverse bar (4) includes a locking element (8) which is transferable into a locking position and an unlocking position, wherein in the locking position the transverse bar (4) is non-releasably locked to the side portion (3) and in the unlocking position the transverse bar (4) is releasable from the side portion (3), wherein the locking element (8) includes an actuating portion (9) for selectively transferring same into ~~its~~a locking or ~~its~~into a unlocking position, and a locking portion (10) for locking engagement with the side portion (3), ~~**characterised in that**~~ wherein the locking element (8) is in the form of a pivotal part and upon actuation of the locking element (8) the locking portion (10) is moved in a pivotal movement at least in a part of ~~its~~the movement of the locking portion from the locking position into ~~its~~the unlocking position or vice-versa, wherein a holding region (11) of the transverse bar (4) for the locking element (8) is provided,
characterised in that a holding region (11) of the transverse bar (4) for the locking element (8) is provided, the holding region (11) has an arcuate guide (12) which upon actuation of the locking element (8) causes a pivotal movement thereof at least over a part of or the complete movement of the locking element (8) between the locking position and the unlocking position of the locking element,
wherein the arcuate guide is in the form of a guide passage and
wherein the locking portion of the locking element is guided within the guide passage.

~~2. A transverse bar according to claim 1 characterised in that the holding region of the transverse bar for the locking element has an arcuate guide which upon actuation of the locking element causes a pivotal movement thereof at least over~~

~~a part of or the complete movement of the locking element between its locking position and its unlocking position.~~

~~3~~2. A transverse bar according to ~~one of claims 1 or 2~~claim 1, characterised in that the transverse bar (4) has a top side which in the mounted state of the transverse bar (4) at the side portion is facing away from an interior of the energy guide chain,

the arcuate guide of the transverse bar holding region for the locking element has an upper arcuate guide (12a) facing towards the transverse bar top side and a lower arcuate guide (12b) facing away from the transverse bar top side for respectively guiding the locking element (8) in ~~its~~ the pivotal movement.

~~4~~3. A transverse bar according to one of claim~~s~~ 1 ~~to~~or ~~3~~2 characterised in that the locking portion (10) of the locking element (8) is of an arcuate configuration.

~~5~~4. A transverse bar according to one of claims 1 to ~~4~~3 characterised in that the locking portion (10) of the locking element (8) is guided in the arcuate guide of the transverse bar holding region (11) for the locking element (8).

~~6~~5. A transverse bar according to one of claims 1 to ~~5~~4 characterised in that the actuating region of the locking element (8) projects laterally from the locking portion (10) thereof.

~~7~~6. A transverse bar according to one of claims 1 to ~~6~~5 characterised in that the locking element (8) is in the form of a substantially rigid component.

~~8~~7. A transverse bar according to one of claims 1 to ~~7~~6 characterised in that at ~~its~~the end region of the transverse bar (4) the locking portion (10) of the locking element (8) has a flat contact surface (14) for contact with a holding region (11) of the side portion (3).

~~9~~8. A transverse bar according to one of claims 1 to ~~8~~7 characterised in that ~~on the one hand~~ the locking element (8) ~~and on the other hand the transverse bar holding region of the side portion for the locking element or the transverse bar~~ has ~~corresponding~~ latching means (15) for fastening the locking element (8) in ~~its~~the locking position of the locking element (8) to a side portion of a chain link.

~~10~~9. A transverse bar according to claim ~~9~~8 characterized in that the latching

means (15) are arranged in the guide passage of the arcuate guide (12) for the locking element (8).

1~~1~~0. A transverse bar according to one of claims 1 to ~~10~~9 characterised in that the holding region (11) of the transverse bar has retainer means (17) which cooperate with the locking element (8) and which are preferably arranged in the guide passage of the arcuate guide (12) for the locking element (8).

1~~2~~1. A transverse bar according to one of claims 1 to 1~~1~~0 characterised in that the locking element (8) can be locked and unlocked by manual actuation.

1~~3~~2. A side portion (3) of a chain link (2) of an energy guide chain (1) having a holding portion for releasably fastening a transverse bar (4) and optionally with a transverse bar (4), wherein the side portion (3) has laterally spaced large-area side surfaces (21) and upper and lower narrow sides (22) which connect the side surfaces (21) and which extend in ~~the~~a longitudinal direction of the chain (1), wherein the holding portion (20) for the transverse bar (8) has a recess (23) which is open in ~~the~~a direction of side surface (21) for receiving a locking element (8) of a transverse bar (4) for lockingly fastening ~~the~~said transverse bar (4) to the side portion (3) in order to secure the transverse bar (4) against a spacing from the side ~~plate~~portion (3) in a direction transversely relative to the longitudinal direction of the transverse bar (4), **characterised in that** the holding portion (20) of the side portion (3) for the transverse bar (4) is of such a configuration that the transverse bar (4) can be loosely inserted into the holding portion (20) of the side portion (3) for the transverse bar (4) from a direction perpendicularly to ~~the~~a narrow side (22) of the side portion (3), extending in the longitudinal direction of the chain (1), in ~~the~~a region of which the holding portion (20) is arranged, until reaching ~~the~~a transverse bar target position in which ~~it~~the transverse bar (4) is lockable with the side portion (3) with a locking element (8).

1~~4~~3. A side portion according to claim 1~~3~~2 ~~having~~in combination with a transverse bar, **characterised in that** the holding portion (20) of the side portion (3) for the transverse bar (4) has two lateral recesses which are each respectively open at two sides, namely on the one hand towards the narrow side (22) of the side portion (3) at which the holding region is arranged and on the other hand in the longitudinal direction of the chain (1), the recesses respectively have facing towards ~~the~~ an interior of the chain link (2) a contact surface (26) for holding projections (27) of the transverse bar (4), that engage into the recess, and the

respective recess has an undercut configuration (26) of the transverse bar holding portion, which prevents a spacing of the side portion (3) and the transverse bar (4) in the transverse bar longitudinal direction.

15 ~~5~~4. A chain link of an energy guide chain having a transverse bar (4) according to one of claims 1 to 1~~2~~1 and/or ~~a~~at least one or two, side portions (3) according to one of claims 1~~3~~2 and/or 1~~4~~3.

16 ~~6~~5. A chain link ~~or~~of an energy guide chain according to claim 1~~5~~4 wherein both side portions (3) in relation to ~~the~~ two holding regions of a transverse bar (4) or in relation to ~~the~~ two oppositely disposed transverse bar ends (6) of both transverse bars (4) of a chain link (2) are in accordance with claim 1~~3~~2 and/or 1~~4~~3.

17 ~~7~~6. An energy guide chain comprising chain links (2) according to claim 1~~5~~4 or claim 1~~6~~5.