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(54) GRIPPER FOR A GRIPPER WEAVING MACHINE

GREIFER FÜR EINE GREIFERWEBMASCHINE

PINCE POUR MÉTIER À TISSER À PINCE

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Description

TECHNICAL FIELD AND PRIOR ART

[0001] The invention relates to a gripper for a gripper weaving machine, a gripper weaving machine and a method for manufacturing a gripper. More particular, the invention relates to a gripper comprising a gripper profile and a clamp with a first jaw and a second jaw for clamping a weft thread between the first jaw and the second jaw.

[0002] Grippers for gripper weaving machines are disclosed for example in WO 2008/104355 A1 and WO 2011/134953 A2. It is known to attach one jaw such that this one jaw is resiliently deformable and/or moveable with respect to the other jaw, which other jaw is attached fixedly in position to the gripper profile, for example by welding this other jaw to the gripper profile.

SUMMARY OF THE INVENTION

[0003] It is the object of the invention to provide a gripper having a low susceptibility to failure, which can be manufactured with low manufacturing costs. It is a further object to provide a gripper weaving machine employing such a gripper and a method for manufacturing the gripper.

[0004] These objects are solved by a gripper with the features of claim 1, the gripper weaving machine with the features of claim 13, and the method with the features of claim 14. Preferred embodiments are defined in the dependent claims.

[0005] According to a first aspect, a gripper for a gripper weaving machine is provided comprising a gripper profile and a clamp with a first jaw and a second jaw for clamping a weft thread between the first jaw and the second jaw, wherein the first jaw is attached fixedly in position to the gripper profile, wherein at least a front end of the second jaw is moveable, in particular resiliently deformable, with respect to the first jaw, and wherein the first jaw has a mounting part provided with a slot for pinning the mounting part over the gripper profile.

[0006] In other words, the mounting part is provided with a slot and can be shifted or slid over a respective part of the gripper profile. This allows for a fixed positioning of the first jaw with respect to the gripper profile.

[0007] A connection between the jaws and the gripper profile has to withstand external forces that arise by opening the clamp in order to clean the clamp, for example for removing thread dust from the clamp, as well as internal forces, this means restoring forces of the second jaw forcing the second jaw towards the first jaw. Further, forces are acting on the connection due to a repeated acceleration and deceleration of the gripper in use as well as vibrations, for example vibrations caused by guiding the rapier in guide elements of the weaving machine. When mounting the first jaw to the gripper profile by means of a slot, a precise position is possible minimizing a deformation between the first jaw and the gripper profile. Further, stress concentrations are avoided and the risk of fatigue is reduced.

[0008] In preferred embodiments, the slot is directed towards a rear end of the gripper in order to avoid that weft threads enter the slot. In other words, the slot is directed opposite to the front ends of the jaws where a weft thread enters the clamp, in order to avoid that the weft thread enters the slot.

[0009] In preferred embodiments, the gripper profile is U-shaped with a top flank, a side flank, and a bottom flank, wherein the slot is adapted for pinning the mounting part over the top flank.

[0010] The slot for this purpose is adapted to the gripper profile, so that the first jaw can be pinned over a lug of the top flank of the gripper profile. Preferably, the slot is adapted so that the first jaw can be arranged over the top flank of the gripper profile with a small play or with a press-fit. In alternative, the mounting part is temporarily deformed for attaching the first jaw over the gripper profile for example by applying heat-shrink techniques.

[0011] In alternative or in addition, the first jaw is positioned over the gripper profile by means of the slot and, thereafter, welded to the gripper profile, wherein due to the coupling of the first jaw with the gripper profile via the slot, the forces acting in use on a weld line are reduced.

[0012] In preferred embodiments, the first jaw is removeably and replaceably attached to the gripper profile, wherein the first jaw is fixedly attached to the top flank by means of a screw. This allows replacing the first jaw when necessary, for example due to wear of the first jaw.

[0013] In one embodiment, an upper part of the mounting part functions as a clamping surface for clamping a weft thread. In order to avoid an interference with the thread entering the clamp, a screw head of the at least one screw is flush with or below said clamping surface of the mounting part of the first jaw.

[0014] In preferred embodiments, the top flank is provided with a lug, wherein the slot is inserted over the lug of the mounting part for pinning the mounting part over the lug of the top flank.

[0015] In one embodiment, the first jaw is an upper jaw arranged in use above the second jaw. In preferred embodiments, the first jaw is a lower jaw and the second jaw is an upper jaw arranged in use above the lower jaw.

[0016] In one embodiment, the two jaws are independently attached to the gripper profile. Preferably, the upper jaw and the lower jaw at their rear ends are coupled to each other by means of at least one screw, wherein the top flank of the gripper profile is sandwiched between the rear ends of the upper jaw and the lower jaw. This allows a fixed attachment of the jaws with respect to the gripper profile, and also allows a strengthening of the gripper profile made of a thin plate, as the top flank is sandwiched between the two jaws extending in the longitudinal direction, this means the movement direction of the gripper.

[0017] At least a front end of the second jaw is resiliently deformable and/or moveable with respect to the first jaw for clamping a weft thread between the jaws. In

preferred embodiments, a setting screw is provided in the region of a front end of the second jaw, wherein by means of the setting screw a minimum distance between the second jaw and the first jaw is adjustable. This allows to adjust the initial opening between the jaws.

[0018] The gripper profile in preferred embodiments is fixedly attached to a rapier for moving the gripper profile with the clamp into and out of a weaving shed. The rapier is for example a gripper band or a rigid gripper rod. In preferred embodiments, a reinforcement rib is provided, wherein the gripper profile is fixedly attached to the reinforcement rib, and attached to the rapier via the reinforcement profile. More particular, in preferred embodiments, the rapier is sandwiched between the bottom flank of the gripper profile and the reinforcement rib.

[0019] According to a second aspect, a gripper weaving machine comprising a gripper is provided.

[0020] According to a third aspect, a method for manufacturing a gripper for a gripper weaving machine comprising a gripper profile and a clamp with a first jaw and a second jaw for clamping a weft thread between the first jaw and the second jaw is provided, wherein the first jaw is attached fixedly in position to the gripper profile, wherein the second jaw is attached such that at least a front end of the second jaw is attached resiliently deformable and/or moveable with respect to the first jaw, wherein the first jaw has a mounting part provided with a slot, and wherein the mounting part is pinned over the gripper profile. When pinning the first jaw over the gripper profile, a fixed positioning is achieved.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021] In the following, an embodiment of the invention will be described in detail with reference to the drawings. Throughout the drawings, the same elements will be denoted by the same reference numerals.

Fig. 1 is a perspective view of a gripper according to the invention;

Fig. 2 is a top view of the gripper of Fig. 1;

Fig. 3 is a sectional view along line III-III of the gripper of Fig. 2;

Fig. 4 is an exploded view of the gripper of Fig. 1;

Fig. 5 is a perspective view of the gripper of Fig. 1, wherein an upper jaw of a clamp of the gripper is removed; and

Fig. 6 is an exploded view of a part of the gripper of Fig. 1.

DETAILED DESCRIPTION OF EMBODIMENTS OF THE INVENTION

[0022] Figs. 1 to 4 show an embodiment of a gripper 1 according to the invention in a perspective view, a top view, a sectional view and an exploded view, respectively. The gripper 1 shown in the figures comprises a gripper profile 2, a clamp 30 with a first jaw 3 and a second jaw 4, and a reinforcement rib 5. In the embodiment shown, the first jaw 3 is also referred to as the lower jaw or fixed jaw, while the second jaw 4 is also referred to as the upper jaw or moveable jaw. Fig. 5 is a perspective view of the gripper 1, wherein an upper jaw 4 is removed. The gripper 1 is for example a bringer gripper.

[0023] The gripper profile 2 is a plate bent into a U-shape with a top flank 6, a side flank 7 and a bottom flank 8. In other words, the top flank 6, the side flank 7 and the bottom flank 8 are designed as plate parts of a plate.

[0024] A weft thread (not shown) can be clamped between the upper jaw 4 and the lower jaw 3 of the clamp 30. For this purpose, in the embodiment shown the upper jaw 4 is made from a resiliently deformable material, wherein at least a front end 9 of the upper jaw 4 is resiliently deformable and/or moveable with respect to the lower jaw 3 and functions as a leaf spring. The upper jaw 4 is also referred to as leaf spring element.

[0025] The lower jaw 3 is a rigid element attached over the top flank 6 of the gripper profile 2. For attaching the lower jaw 3 to the gripper profile 2, a mounting part 10 of the lower jaw 3 is provided with a slot 11, and the lower jaw 3 is pinned over the top flank 6 of the gripper profile 2, wherein two legs 12, 13 of the mounting part 10 provided at opposite sides of the slot 11 are arranged at opposite surfaces of the top flank 6. The slot 11 is directed towards the rear end of the gripper 1 in order to avoid that weft threads (not shown) accidentally enter the slot 11 when moving the gripper 1 into or out of a weaving shed (not shown).

[0026] In the embodiment shown, the lower jaw 3 is further attached in position by means of a screw 14. A screw head of the screw 14 is flush with or arranged below a clamping surface 32 of the mounting part 10 of the lower jaw 3 directed towards the upper jaw 4. Hence, the screw 14 does not interfere with weft threads (not shown) entering the clamp 30 from the front end 34 of the lower jaw 3 and clamped between the upper jaw 4 and the lower jaw 3. The mounting part 10 is arranged near the front end 34 of the lower jaw 3. This makes a fixed positioning of the clamping surface 32 of the lower jaw 3 with respect to the top flank 6 possible.

[0027] As can best be seen in Fig. 4, the top flank 6 of the gripper profile 2 is provided with a lug 15 projecting away from the side flank 7, wherein the mounting part 10 of the lower jaw 3 is attached over said lug 15. In other words, for attaching the lower jaw 3 to the gripper profile 2, the lug 15 is inserted into the slot 11.

[0028] In the embodiment shown, the lower jaw 3 and the upper jaw 4 at their rear ends 16, 17 are coupled to

each other by means of two screws 18. The screws 18 are inserted from above and extend via two conical holes 19 provided at the rear end 17 of the upper jaw 4 and are screwed into two threaded holes 20 provided at the rear end 16 of the lower jaw 3. A first of these two screws 18 further extends via a through hole 21 provided at the top flank 6, whereas in the embodiment shown, the second of these two screws 18 does not intersect the top flank 6. In other embodiments, a further through hole is provided in the top flank 6 for the second of these two screws 18. In any case, the top flank 6 is sandwiched between the rear end 17 of the upper jaw 4 and the rear end 16 of the lower jaw 3 for attaching the clamp 30 to the top flank 6 of the gripper profile 2.

[0029] When coupling the two jaws 3, 4 at their rear ends, the front end of the upper jaw 4 remains resiliently deformable and/or moveable with respect to the lower jaw 3 for clamping a weft thread (not shown) between the two jaws 3, 4. In the embodiment shown, further a setting screw 22 is screwed in the region of a front end of the upper jaw 4, which contacts a top surface of the top flank 6, such that by means of the setting screw 22 a minimum distance between the upper jaw 4 and the lower jaw 3 is adjustable.

[0030] For moving the gripper into and out of a weaving shed (not shown) during weaving, the gripper is attached to a rapier 35. In the embodiment shown, the gripper 1 further comprises the reinforcement rib 5, wherein the gripper profile 2 is fixedly attached to the reinforcement rib 5. More particular, the reinforcement rib 5 is attached via the rapier 35 to a top surface of the bottom flank 8 by means of at least two fastening screws 23 and a screw 36. The screws 23 extend successively through the conical holes 24 provided at the bottom flank 8 of the gripper profile 2 and the conical holes 37 provided at the rapier 35 to be screwed into screw holes 25 provided in the reinforcement rib 5. The screw 36 extends successively through a conical hole 24 provided at the bottom flank 8, a conical hole 37 provided at the rapier 35 and through a through hole 26 provided in the reinforcement rib 5 to be screwed into a screw hole 33 provided in the lower jaw 3. For example, a further through hole 27 is provided in the top flank 6 allowing the screw 36 entering the top flank 6. Due to this, the rapier 35 is sandwiched between the reinforcement rib 5 and the bottom flank 8 of the gripper profile 2 by means of the screws 23 and the screw 36. As via the lower jaw 3, the top flank 6 of the gripper profile 2 in addition is attached to the reinforcement rib 5, the fixation of the gripper profile 2 to the reinforcement rib 5 is improved. Further, the rapier 35 is attached to the reinforcement rib 5 by means of additional screws 38 extending through conical holes 37 in the rapier 35, which screws 38 are screwed into screw holes 25 provided in the reinforcement rib 5. In this case, the gripper profile 2 is less subjected to deformations, so that a risk of a break due to fatigue is further reduced.

[0031] At the opposite ends, the upper jaw 4 is provided with two curved end portions 28, which are arranged in openings 29 of the top flank 6. This rules out the risk of the upper jaw 4 damaging warp threads when the gripper 1 is moved through a weaving shed. The bottom flank 8 of the gripper profile 2 is further provided with a positioning element 31, wherein a weft thread (not shown) can be positioned between the clamp 30 formed by the upper and the lower jaw 3, 4 and the positioning element 31, as described for example in WO 2008/104355 A1, the content of which is herewith incorporated by reference.

[0032] The gripper 1 is easy to manufacture by arranging a first jaw 3 over the top flank 6 of the gripper profile 2. As indicated in Fig. 6 with arrow P, the slot 11 of the mounting part 10 is shifted or slid over the lug 15 of the gripper profile 2, this means that the lug 15 of the gripper profile 2 is arranged between the legs 12, 13 forming the slot 11 of the mounting part 10. This allows an exact and fixed positioning of the first jaw 3 with respect to the gripper profile 2. Furthermore, this allows an exact positioning of the first jaw 3 with respect to the second jaw 4. Thereafter the first jaw 3 can be secured or pinned over the top flank 6 of the gripper profile 2 by means of the screw 14 extending through the through hole 39 in the lug 15. This allows a secure connection between the first jaw 3 and the top flank 6 of the gripper profile 2, in particular a connection at the height of the slot 11 and the lug 15 of the top flank 6. Besides the connection of the first jaw 3 with the top flank 6 according to the invention via the mounting part 10 and the screw 14 arranged adjacent to the front end 34 of the first jaw 3, also a connection via a screw 18 adjacent to the rear end 16 of the first jaw 3 is provided.

[0033] The invention is not limited to the illustrated exemplary embodiments, and various variations are conceivable within the scope of protection as defined by the claims.

Claims

1. Gripper for a gripper weaving machine comprising a gripper profile (2) and a clamp (30) with a first jaw (3) and a second jaw (4) for clamping a weft thread between the first jaw (3) and the second jaw (4), wherein the first jaw (3) is attached fixedly in position to the gripper profile (2), and wherein at least a front end (9) of the second jaw (4) is moveable with respect to the first jaw (3), **characterized in that** the first jaw (3) has a mounting part (10) provided with a slot (11) for pinning the mounting part (10) over the gripper profile (2).

2. Gripper according to claim 1, **characterized in that** the slot (11) is directed towards a rear end (16) of the first jaw (3) of the gripper (1).

3. Gripper according to claim 1 or 2, **characterized in that** the gripper profile (2) is U-shaped with a top flank (6), a side flank (7), and a bottom flank (8),

wherein the slot (11) is adapted for pinning the mounting part (10) over the top flank (6) of the gripper profile (2).

4. Gripper according to claim 3, **characterized in that** the slot (11) for pinning the mounting part (10) over the top flank (6) is adapted so that the first jaw (3) of the gripper (1) is arranged over the top flank (6) with a small play or with a press-fit.

5. Gripper according to claim 3 or 4, **characterized in that** the mounting part (10) of the first jaw (3) is fixedly attached over the top flank (6) by means of a screw (14).

6. Gripper according to claim 5, **characterized in that** the screw head of the at least one screw (14) is flush with or is below a clamping surface (32) at the mounting part (10) of the first jaw (3).

7. Gripper according to any one of claims 3 to 6, **characterized in that** the top flank (6) is provided with a lug (15), wherein the lug (15) is inserted into the slot (11) for pinning the mounting part (10) over the top flank (6).

8. Gripper according to any one of claims 3 to 7, **characterized in that** the first jaw (3) is a lower jaw and the second jaw (4) is an upper jaw arranged in use above the lower jaw.

9. Gripper according to claim 8, **characterized in that** the first jaw (3) and the second jaw (4) at their rear ends (16, 17) are coupled to each other by means of at least one screw (18), wherein the top flank (6) of the gripper profile (2) is sandwiched between the rear ends (16, 17) of the first jaw (3) and the second jaw (4).

10. Gripper according to any one of claims 1 to 9, **characterized in that** a setting screw (22) is provided in the region of a front end (9) of the second jaw (4), wherein by means of the setting screw (22) a minimum distance between the second jaw (4) and the clamping surface (32) of the first jaw (3) is adjustable.

11. Gripper according to any one of claims 1 to 10, **characterized in that** a reinforcement rib (5) is provided, wherein the gripper profile (2) is fixedly attached to the reinforcement rib (5).

12. Gripper according to claim 11, **characterized in that** the first jaw (3) is attached by a screw (14) to the top flank (6) of the gripper profile (2) and the first jaw (3) is attached by a screw (36) to the bottom flank (8) of the gripper profile (2).

13. Gripper weaving machine comprising a gripper (1) according to any one of claims 1 to 12.

14. Method for manufacturing a gripper (1) for a gripper weaving machine comprising a gripper profile (2) and a clamp (30) with a first jaw (3) and a second jaw (4) for clamping a weft thread between the first jaw (3) and the second jaw (4), wherein the first jaw (3) is attached fixedly in position to the gripper profile (2) and wherein the second jaw (4) is attached such that at least a front end (9) of the second jaw (4) is moveable with respect to the first jaw (3), **characterized in that** the first jaw (3) has a mounting part (10) provided with a slot (11), wherein the mounting part (10) is pinned over the gripper profile (2).

Patentansprüche

1. Greifer für eine Greiferwebmaschine umfassend ein Greiferprofil (2) und eine Klemme (30) mit einer ersten Backe (3) und einer zweiten Backe (4) zum Klemmen eines Schussfadens zwischen der ersten Backe (3) und der zweiten Backe (4), wobei die erste Backe (3) ortsfest am Greiferprofil (2) befestigt ist, und wobei mindestens ein vorderes Ende (9) der zweiten Backe (4) gegenüber der ersten Backe (3) bewegbar ist, **dadurch gekennzeichnet, dass** die erste Backe (3) ein Montageteil (10) aufweist, das mit einem Schlitz (11) zum Stecken des Montageteils (10) über dem Greiferprofil (2) versehen ist.

2. Greifer nach Anspruch 1, **dadurch gekennzeichnet, dass** der Schlitz (11) zu einem hinteren Ende (16) der ersten Backe (3) des Greifers (1) gerichtet ist.

3. Greifer nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** das Greiferprofil (2) U-förmig mit einer Oberflanke (6), einer Seitenflanke (7) und einer Unterflanke (8) ausgebildet ist, wobei der Schlitz (11) zum Stecken des Montageteils (10) über der Oberflanke (6) des Greiferprofils (2) angepasst ist.

4. Greifer nach Anspruch 3, **dadurch gekennzeichnet, dass** der Schlitz (11) zum Stecken des Montageteils (10) über der Oberflanke (6) so angepasst ist, dass die erste Backe (3) des Greifers (1) mit einem geringen Spiel oder mit einer Presspassung über der Oberflanke (6) angeordnet ist.

5. Greifer nach Anspruch 3 oder 4, **dadurch gekennzeichnet, dass** das Montageteil (10) der ersten Backe (3) mittels einer Schraube (14) fest über der Oberflanke (6) befestigt ist.

6. Greifer nach Anspruch 5, **dadurch gekennzeichnet, dass** der Schraubenkopf der mindestens einen Schraube (14) bündig mit oder unterhalb einer

Klemmfläche (32) am Montageteil (10) der ersten Backe (3) angeordnet ist.

7. Greifer nach einem der Ansprüche 3 bis 6, **dadurch gekennzeichnet, dass** die Oberflanke (6) mit einem Ansatz (15) versehen ist, wobei der Ansatz (15) in den Schlitz (11) eingesetzt ist zum Stecken des Montageteils (10) über der Oberflanke (6).

8. Greifer nach einem der Ansprüche 3 bis 7, **dadurch gekennzeichnet, dass** die erste Backe (3) eine untere Backe ist und die zweite Backe (4) eine obere Backe ist, die im Gebrauch oberhalb der unteren Backe angeordnet ist.

9. Greifer nach Anspruch 8, **dadurch gekennzeichnet, dass** die erste Backe (3) und die zweite Backe (4) an ihren hinteren Enden (16, 17) mittels mindestens einer Schraube (18) miteinander gekoppelt sind, wobei die Oberflanke (6) des Greiferprofils (2) sandwichartig zwischen den hinteren Enden (16, 17) der ersten Backe (3) und der zweiten Backe (4) eingeklemmt ist.

10. Greifer nach einem der Ansprüche 1 bis 9, **dadurch gekennzeichnet, dass** im Bereich eines vorderen Endes (9) der zweiten Backe (4) eine Stellschraube (22) vorgesehen ist, wobei mittels der Stellschraube (22) ein Mindestabstand zwischen der zweiten Backe (4) und der Klemmfläche (32) der ersten Backe (3) einstellbar ist.

11. Greifer nach einem der Ansprüche 1 bis 10, **dadurch gekennzeichnet, dass** eine Verstärkungsrippe (5) vorgesehen ist, wobei das Greiferprofil (2) fest an der Verstärkungsrippe (5) befestigt ist.

12. Greifer nach Anspruch 11, **dadurch gekennzeichnet, dass** die erste Backe (3) mit einer Schraube (14) an der Oberflanke (6) des Greiferprofils (2) befestigt ist und die erste Backe (3) mit einer Schraube (36) an der Unterflanke (8) des Greiferprofils (2) befestigt ist.

13. Greiferwebmaschine umfassend einen Greifer (1) nach einem der Ansprüche 1 bis 12.

14. Verfahren zum Herstellen eines Greifers (1) für eine Greiferwebmaschine umfassend ein Greiferprofil (2) und eine Klemme (30) mit einer ersten Backe (3) und einer zweiten Backe (4) zum Klemmen eines Schussfadens zwischen der ersten Backe (3) und der zweiten Backe (4), wobei die erste Backe (3) ortsfest am Greiferprofil (2) befestigt ist, und wobei die zweite Backe (4) so befestigt ist, dass mindestens ein vorderes Ende (9) der zweiten Backe (4) gegenüber der ersten Backe (3) bewegbar ist, **dadurch gekennzeichnet, dass** die erste Backe (3) ein Montageteil (10) aufweist, das mit einem Schlitz (11) versehen ist, wobei das Montageteil (10) über dem Greiferprofil (2) gesteckt ist.

Revendications

1. Pince pour une machine à tisser à pinces comprenant un profil de pince (2) et une pince (30) avec une première mâchoire (3) et une deuxième mâchoire (4) pour serrer un fil de trame entre la première mâchoire (3) et la deuxième mâchoire (4), dans laquelle la première mâchoire (3) est fixée de manière fixe en position sur le profil de pince (2), et dans laquelle au moins une extrémité avant (9) de la deuxième mâchoire (4) est mobile par rapport à la première mâchoire (3), **caractérisée en ce que** la première mâchoire (3) présente une partie de montage (10) prévue d'une fente (11) pour épingler la partie de montage (10) sur le profil de pince (2).

2. Pince selon la revendication 1, **caractérisée en ce que** la fente (11) est dirigée vers une extrémité arrière (16) de la première mâchoire (3) de la pince (1).

3. Pince selon la revendication 1 ou 2, **caractérisée en ce que** le profil de pince (2) est en forme de U avec un flanc supérieur (6), un flanc latéral (7), et un flanc inférieur (8), dans lesquels la fente (11) est adaptée pour épingler la partie de montage (10) sur le flanc supérieur (6) du profil de pince (2).

4. Pince selon la revendication 3, **caractérisée en ce que** la fente (11) pour épingler la partie de montage (10) sur le flanc supérieur (6) est adaptée de sorte que la première mâchoire (3) de la pince (1) est disposée sur le flanc supérieur (6) avec un petit jeu ou avec un ajustement serré.

5. Pince selon la revendication 3 ou 4, **caractérisée en ce que** la partie de montage (10) de la première mâchoire (3) est fixée de manière fixe sur le flanc supérieur (6) au moyen d'une vis (14).

6. Pince selon la revendication 5, **caractérisée en ce que** la tête de vis de l'au moins une vis (14) est au ras de ou est en dessous d'une surface de serrage (32) au niveau de la partie de montage (10) de la première mâchoire (3).

7. Pince selon l'une quelconque des revendications 3 à 6, **caractérisée en ce que** le flanc supérieur (6) est prévu d'une patte (15), dans laquelle la patte (15) est insérée dans la fente (11) pour épingler la partie de montage (10) sur le flanc supérieur (6).

8. Pince selon l'une quelconque des revendications 3 à 7, **caractérisée en ce que** la première mâchoire

(3) est une mâchoire inférieure et la deuxième mâchoire (4) est une mâchoire supérieure disposée en utilisation au-dessus de la mâchoire inférieure.

9. Pince selon la revendication 8, **caractérisée en ce que** la première mâchoire (3) et la deuxième mâchoire (4) sont couplées les unes aux autres à leurs extrémités arrière (16, 17) au moyen d'au moins une vis (18), dans laquelle le flanc supérieur (6) du profil de pince (2) est pris en sandwich entre les extrémités arrière (16, 17) de la première mâchoire (3) et de la deuxième mâchoire (4).

10. Pince selon l'une quelconque des revendications 1 à 9, **caractérisée en ce qu'**une vis de réglage (22) est prévue dans la région d'une extrémité avant (9) de la deuxième mâchoire (4), dans laquelle au moyen de la vis de réglage (22) une distance minimale entre la deuxième mâchoire (4) et la surface de serrage (32) de la première mâchoire (3) est réglable.

11. Pince selon l'une quelconque des revendications 1 à 10, **caractérisée en ce qu'**une nervure de renforcement (5) est prévue, dans laquelle le profil de pince (2) est fixé de manière fixe à la nervure de renforcement (5).

12. Pince selon la revendication 11, **caractérisée en ce que** la première mâchoire (3) est fixée au flanc supérieur (6) du profil de pince (2) par une vis (14) et la première mâchoire (3) est fixée au flanc inférieur (8) du profil de pince (2) par une vis (36).

13. Machine à tisser à pinces comprenant une pince (1) selon l'une quelconque des revendications 1 à 12.

14. Procédé pour fabriquer une pince (1) pour une machine à tisser à pinces comprenant un profil de pince (2) et une pince (30) avec une première mâchoire (3) et une deuxième mâchoire (4) pour serrer un fil de trame entre la première mâchoire (3) et la deuxième mâchoire (4), dans lequel la première mâchoire (3) est fixée de manière fixe en position sur le profil de pince (2) et dans lequel la deuxième mâchoire (4) est fixée de sorte qu'au moins une extrémité avant (9) de la deuxième mâchoire (4) est mobile par rapport à la première mâchoire (3), **caractérisé en ce que** la première mâchoire (3) présente une partie de montage (10) prévue d'une fente (11), dans lequel la partie de montage (10) est épinglée sur le profil de pince (2).

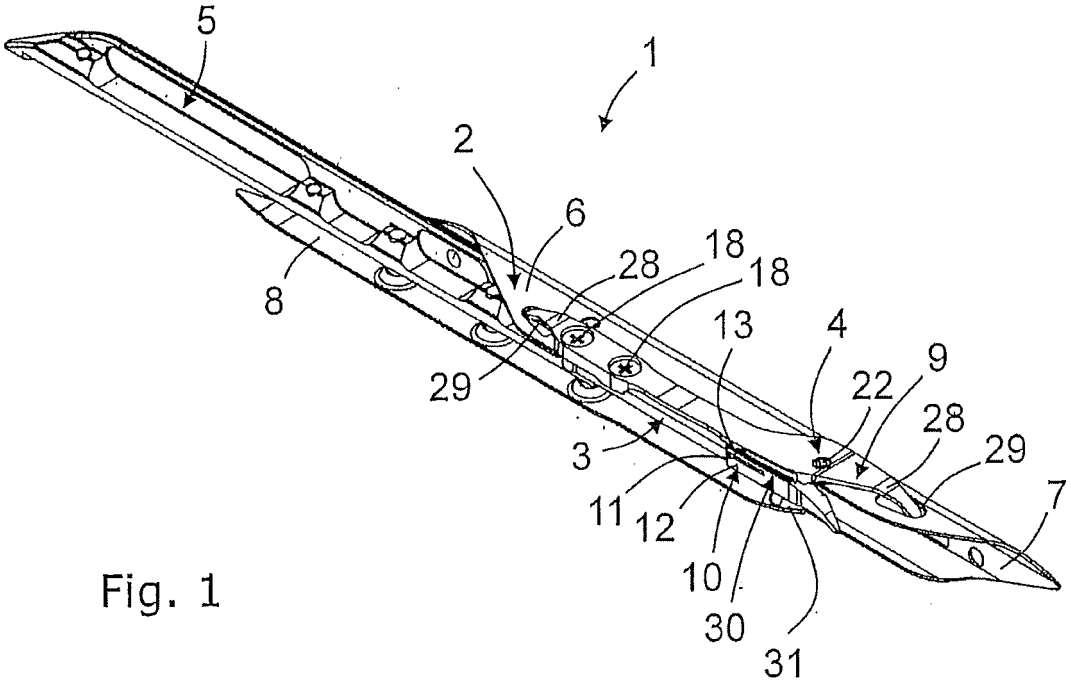
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Fig. 1

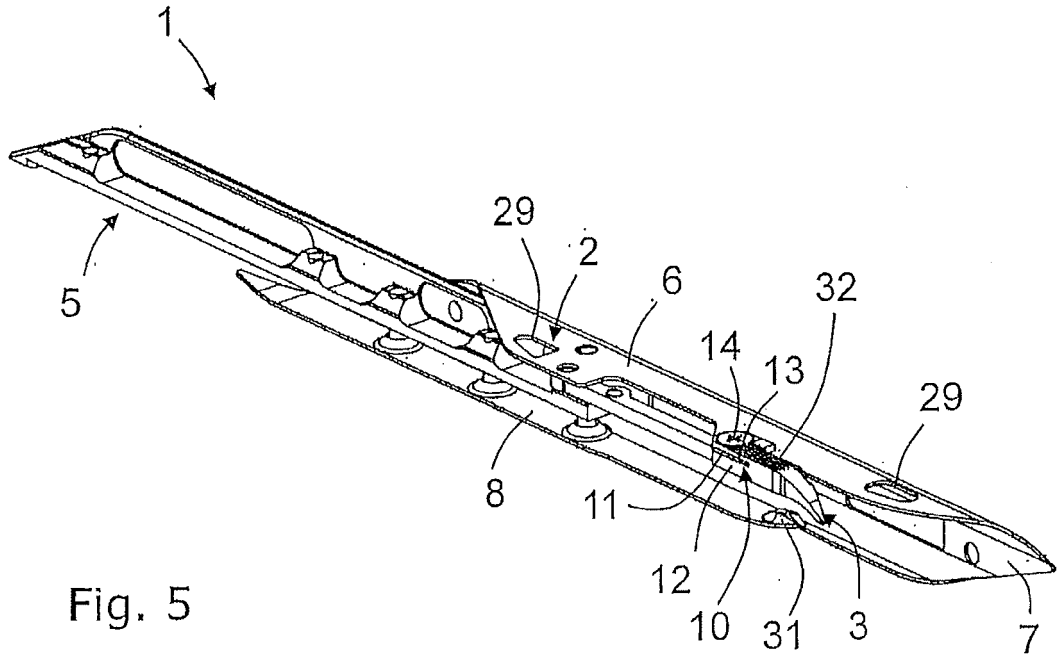
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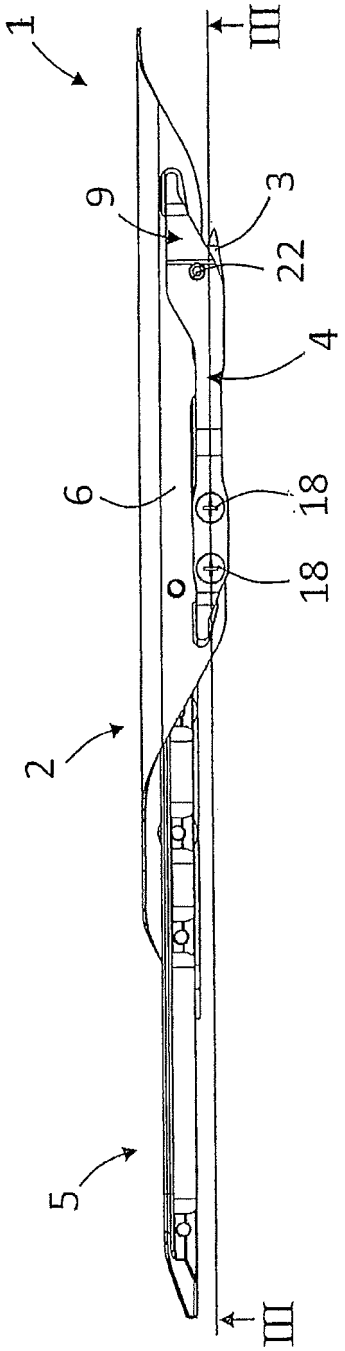
Fig. 5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III
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4
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III

Fig. 2

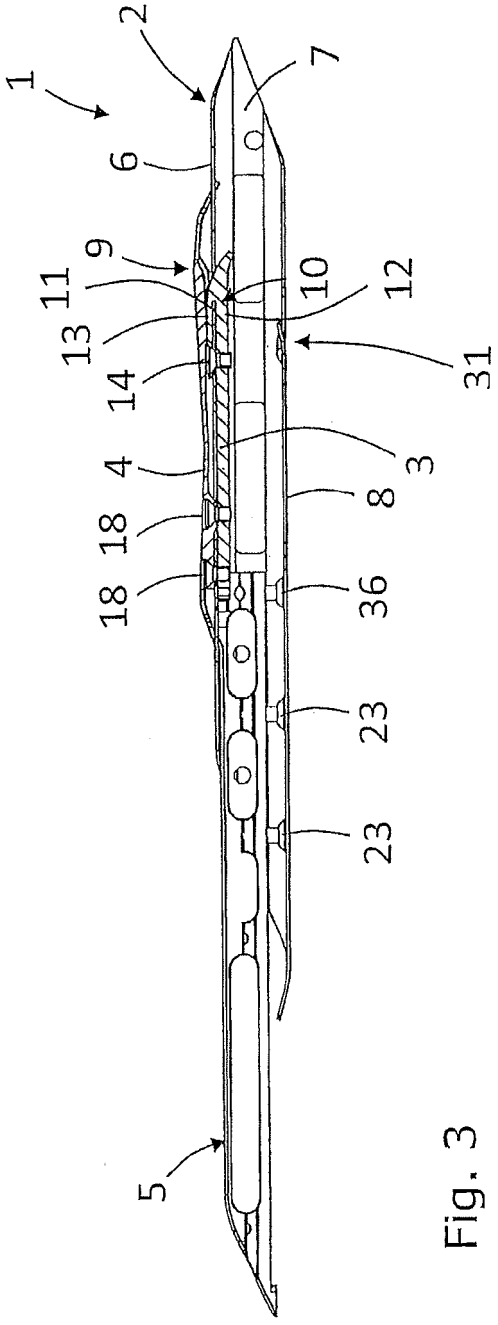
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Fig. 3

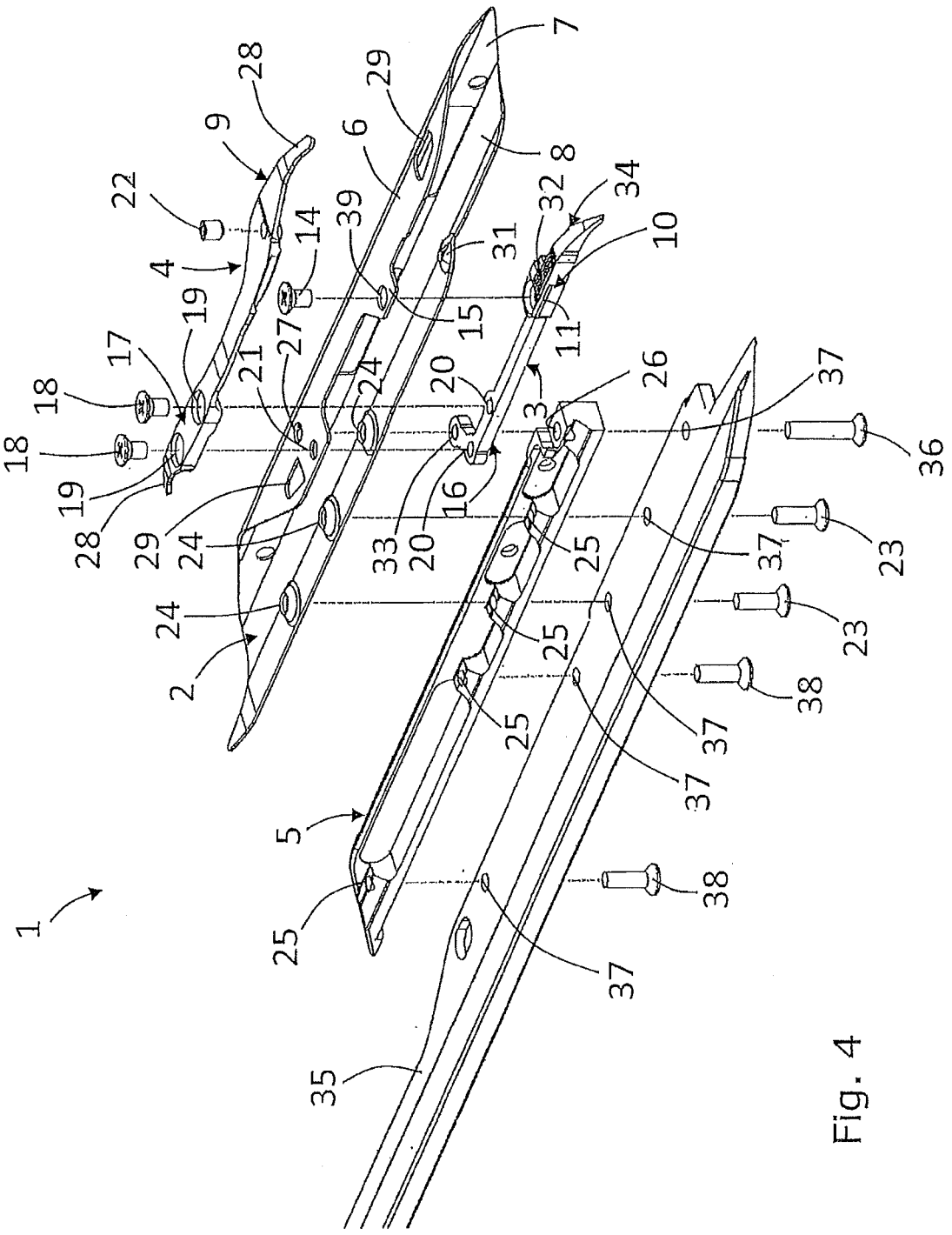
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Fig. 4

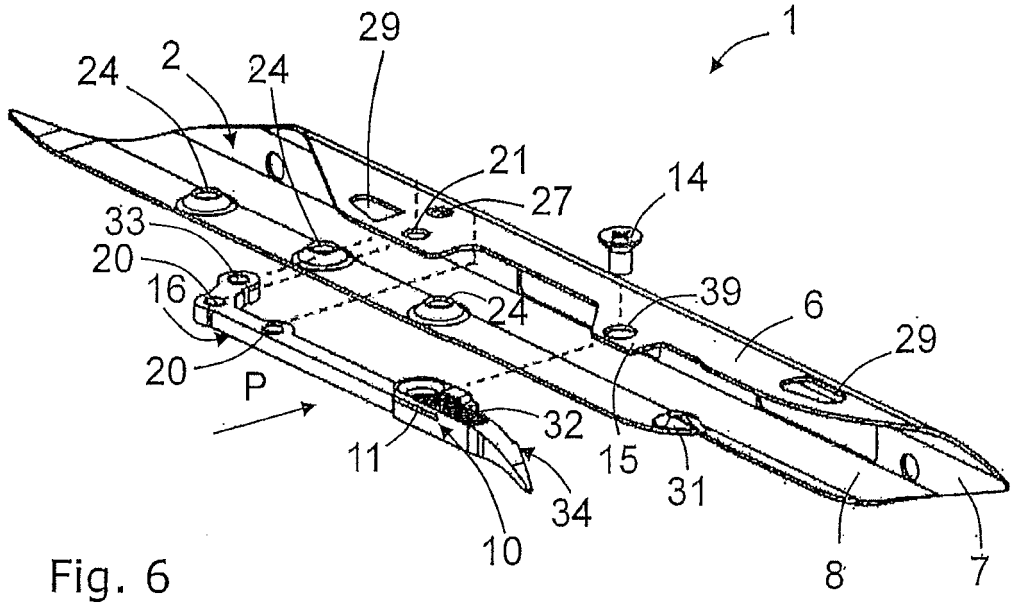

Fig. 6

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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- WO 2011134953 A2 **[0002]**