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(54) **GRIPPER FOR A GRIPPER WEAVING MACHINE AND METHOD FOR MANUFACTURING SUCH A GRIPPER**

(57) The present invention relates to a gripper (1) for a gripper weaving machine and a method for manufacturing such a gripper (1), the gripper (1) comprising two interconnected clamping parts (2, 3) movable with respect to one another for clamping, the first clamping part (2) comprising two guiding recesses (4, 5) and the second clamping part (3) comprising corresponding guiding tongues (6, 7) protruding towards the first clamping part

(2), the guiding recesses (4, 5) and guiding tongues (6, 7) being positioned such that the guiding recesses (4, 5) receive the guiding tongues (6, 7) for sliding movement therein when the clamping parts (2, 3) move with respect to one another and the second clamping part (3) comprising a tongue body (9) comprising said guiding tongues (6, 7) and a main body (8) to which the tongue body (9) is fixed with a seam (10).

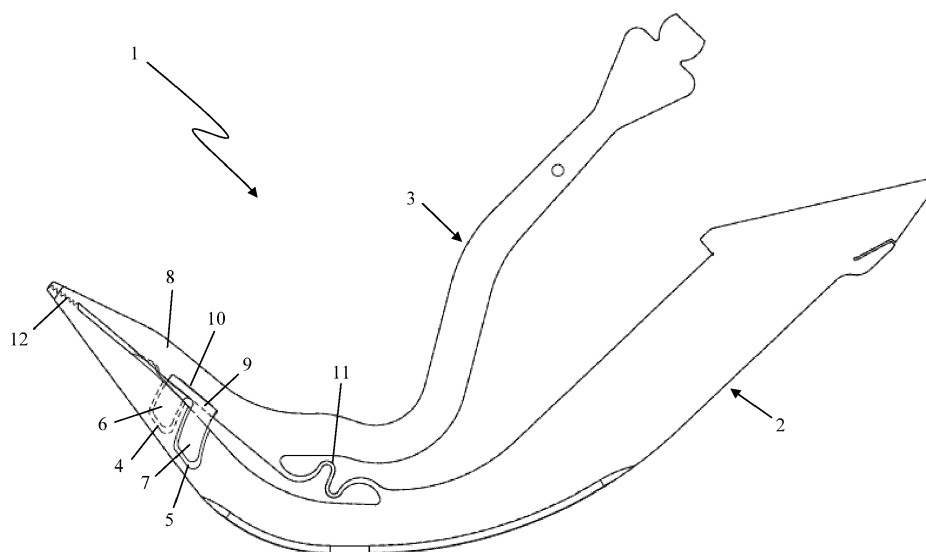


Fig. 1

Description

[0001] The present invention relates to a gripper for a gripper weaving machine, for example an Axminster gripper weaving machine, comprising two interconnected clamping parts movable with respect to one another for clamping, the first said clamping part comprising at least two guiding recesses and the second said clamping part comprising at least two corresponding guiding tongues protruding towards the first clamping part, the guiding recesses and guiding tongues being positioned such that the guiding recesses receive the guiding tongues for sliding movement therein when the clamping parts move with respect to one another.

[0002] The present invention additionally relates to a method for manufacturing such a gripper.

[0003] Grippers for Axminster gripper weaving machines are e.g. described in GB 1 344 979 A, EP 1 696 059 A2 and EP 1 365 052 B1.

In GB 1 344 979 A and EP 1 696 059 A2, the gripper clamping parts are hingedly connected by means of a hinge joint and are provided with corresponding guiding tongues and guiding recesses for aligning the clamping parts during movement thereof.

In EP 1 365 052 B1, the gripper clamping parts are interconnected by means of intermediate springy elements and are provided with staggered projections for aligning the clamping parts during movement thereof. These projections are however less suitable for aligning the clamping parts than guiding tongues and guiding recesses as in the grippers of GB 1 344 979 A and EP 1 696 059 A2. Such guiding tongues are however weaker parts of the gripper, which are subject to wear and can bend or break off. When the guiding tongues get worn out, the working of the gripper attenuates increasingly, especially when one of the guiding tongues breaks off, the other in itself not being able to assure a correct alignment of the clamping parts.

[0004] An object of the current invention is to provide a more failsafe version of such a gripper.

[0005] This object is achieved by providing a gripper for a gripper weaving machine, for example an Axminster gripper weaving machine, comprising two interconnected clamping parts movable with respect to one another for clamping, the first said clamping part comprising at least two guiding recesses and the second said clamping part comprising at least two corresponding guiding tongues protruding towards the first clamping part, the guiding recesses and guiding tongues being positioned such that the guiding recesses receive the guiding tongues for sliding movement therein when the clamping parts move with respect to one another and wherein the second clamping part comprises a tongue body comprising said guiding tongues and a main body to which the tongue body is fixed with a seam.

[0006] Such a seam forms a visible line that is formed when the main body and the tongue body are joined over a certain area. They can e.g. be joined by means of braz-

ing or laser welding or gluing, etc. This can be done with or without adding additional material to the seam.

This seam now forms the weakest part of the clamping part. When a guiding tongue breaks off, now the whole tongue body will break off and the whole gripper will be out of order. The working of the gripper will no longer fade increasingly, resulting in a non-optimal working during a longer period, but will suddenly be aborted, resulting in a failsafe version of such a gripper. The gripper will be repaired such that it can again work in an optimal way. As both guiding tongues are together joined to the main body as part of the tongue body, the seam is much larger than when the guiding tongues would separately be joined to the main body. In this way, the seam is not too weak either, such that the correct working of such a gripper lasts for a comparable period as with the known grippers.

[0007] As the tongue body is now made separately, the guiding tongues can also be made stronger than when they are formed as an integral part of the clamping part.

[0008] Preferably, the tongue body of a gripper according to the invention comprises a base, from which the guiding tongues extend. The main body is then preferably provided with a recess, in which the base of the tongue body is placed. In this way, as the base is embedded in the main body, forces acting on the tongue body are better transferred to the main body, such that the connection between the tongue body and the main body is made stronger.

Even more preferably, the base of the tongue body and the recess of the main body then have corresponding forms.

[0009] The two said guiding tongues preferably extend laterally on opposite faces of the tongue body, such that forces acting on the guiding tongues due to the entering of the first clamping part between the guiding tongues can at least partially compensate each other, such that the connection between the tongue body and the main body is less subject to these forces.

[0010] In a furthermore preferred embodiment of a gripper according to the invention, the guiding tongues are staggered. The guiding recesses in the first clamping part are then also staggered, such that the first clamping part is less weakened due to the provision of the guiding recesses therein.

[0011] The guiding tongues are furthermore preferably positioned near the ends of the clamping parts between which the pile yarn is to be clamped, as the correct alignment of the clamping parts is most crucial at those ends.

[0012] In a particularly preferred embodiment the lengths of the guiding tongues and guiding recesses are chosen such that a part of the guiding tongues remains retained within the respective guiding recesses when the clamping parts move with respect to one another. In this way, in each position of the clamping parts between a completely open position and a completely closed position, at least part of the guiding tongues is engaged in

the respective guiding recesses.

[0013] In a specifically preferred embodiment of a gripper according to the invention, the clamping parts are interconnected by means of at least one intermediate resilient element. Such intermediate resilient element is less prone to wear than a hinged joint. The at least one intermediate resilient element of such embodiment preferably is made as an intermediate resilient strip.

The clamping parts and the intermediate resilient element of such embodiment are preferably made of the same material.

The first clamping part, the main body and the intermediate resilient element of such embodiment are preferably made of one piece.

[0014] The object of the intention is also achieved by providing a method for manufacturing a gripper for a gripper weaving machine, for example an Axminster gripper weaving machine, comprising two interconnected clamping parts movable with respect to one another for clamping, the first clamping part comprising at least two guiding recesses and the second said clamping part comprising at least two corresponding guiding tongues protruding towards the first clamping part, the guiding recesses and guiding tongues being positioned such that the guiding recesses receive the guiding tongues for sliding movement therein when the clamping parts move with respect to one another, wherein a tongue body is provided with the two said guiding tongues, a main body is provided and the tongue body is fixed to the main body with a seam in order to form the second clamping part.

[0015] In a specific method, the tongue body is fixed to the main body by means of brazing. In an alternative specific method, the tongue body is fixed to the main body by means of laser welding.

[0016] In a preferred embodiment of a method according to the invention, the main body comprises a guiding recess and the tongue body comprises a base, from which the guiding tongues extend and the tongue body is placed with its base in the recess of the main body before fixing the tongue body to the main body.

[0017] The present invention will now be explained in more detail by means of the following detailed description of some embodiments of a gripper and a method according to the present invention. The aim of this description is solely to give illustrative examples and to indicate further advantages and features of the invention, and can thus not be interpreted as a limitation of the area of application of the invention or of the patent rights defined in the claims.

[0018] In this detailed description, reference numerals are used to refer to the attached drawings, in which

- Fig. 1 shows an embodiment of a gripper according to this invention in front view;
- Fig. 2 shows the gripper of figure 1 in front view, without the tongue body;
- Fig. 3 shows the tongue body of the gripper of figure 1 in front view;

- Fig. 4 shows the tongue body of the gripper of figure 1 in top view.

[0019] The illustrated gripper (1) for a gripper weaving machine, for example an Axminster gripper weaving machine, comprises two interconnected clamping parts (2, 3) which are movable with respect to one another between an open position and a closed position, wherein a pile yarn can be clamped between the clamping parts (2, 3) and can be released.

[0020] The clamping parts (2, 3) are interconnected by means of an intermediate resilient strip (11).

The first clamping part (2) of the gripper (1) is provided with two guiding recesses (4, 5), which are staggered and positioned at opposite faces of the clamping part (2). The second clamping part (3) of the gripper (1) comprises a main body (8) and a tongue body (9), which are interconnected by brazing with a seam (10). Alternatively, the tongue body (9) could be joined with the main body (8) by means of laser welding. The tongue body (9) comprises a base (14) and two guiding tongues (6, 7), which are staggered and extend on lateral sides from the base (14). The main body (8) is provided with a recess (13) in which the base (14) of the tongue body (9) is placed.

[0021] The guiding recesses (4, 5) in the first clamping part (2) and the guiding tongues (6, 7) in the second clamping part (3), are positioned such that the guiding recesses (4, 5) receive the guiding tongues (6, 7) for sliding movement therein. In this way, these guiding recesses (4, 5) and guiding tongues (6, 7) assure a correct alignment of the gripper parts (2, 3).

The lengths of the guiding tongues (6, 7) and guiding recesses (4, 5) are chosen such that in each position of the clamping parts (2, 3), at least part of the guiding tongues (6, 7) is retained within the respective guiding recesses (4, 5).

At the ends where the pile yarn is clamped, the clamping parts (2, 3) are provided with a toothing (12), such that the yarn will not get loose from the clamping parts (2, 3) when the gripper (1) takes along the pile yarn. The guiding tongues (6, 7) and guiding recesses (4, 5) are positioned near the toothing (12).

[0022] The clamping parts (2, 3) and the resilient element (11) are made of the same material.

The first clamping part (2), the main body (8) and the intermediate resilient strip (11) are made of one piece. The intermediate strip (11) is made small enough to assure that it is elastic, such that the clamping parts (2, 3) can move with respect to each other due to the elastic properties of this intermediate strip (11).

Claims

1. Gripper (1) for a gripper weaving machine, comprising two interconnected clamping parts (2, 3) movable with respect to one another for clamping, the first said clamping part (2) comprising at least two guiding

- recesses (4, 5) and the second said clamping part (3) comprising at least two corresponding guiding tongues (6, 7) protruding towards the first clamping part (2), the guiding recesses (4, 5) and guiding tongues (6, 7) being positioned such that the guiding recesses (4, 5) receive the guiding tongues (6, 7) for sliding movement therein when the clamping parts (2, 3) move with respect to one another, **characterized in that** the second clamping part (3) comprises a tongue body (9) comprising said guiding tongues (6, 7) and a main body (8) to which the tongue body (9) is fixed with a seam (10).
2. Gripper (1) according to claim 1, **characterized in that** the tongue body (9) comprises a base (14), from which the guiding tongues (6, 7) extend and the main body (8) is provided with a recess (13), in which the base (14) of the tongue body (9) is placed.
 3. Gripper (1) according to claim 1, **characterized in that** the two said guiding tongues (6, 7) extend laterally on opposite faces of the tongue body (9).
 4. Gripper (1) according to claim 3, **characterized in that** the two said guiding tongues (6, 7) are staggered.
 5. Gripper (1) according to claim 1, **characterized in that** the two said guiding tongues (6, 7) are positioned near the ends of the clamping parts (2, 3).
 6. Gripper (1) according to claim 1, **characterized in that** the lengths of the guiding tongues (6, 7) and the guiding recesses (4, 5) are chosen such that a part of the guiding tongues (6, 7) remains retained within the respective guiding recesses (4, 5) when the clamping parts (2, 3) move with respect to one another.
 7. Gripper (1) according to any of the preceding claims, **characterized in that** the clamping parts (2, 3) are interconnected by means of at least one intermediate resilient element (11).
 8. Gripper (1) according to claim 7, **characterized in that** the clamping parts (2, 3) and the intermediate resilient element (11) are made of the same material.
 9. Gripper (1) according to claim 7, **characterized in that** the first clamping part (2), the main body (8) and the intermediate resilient element (11) are made of one piece.
 10. Method for manufacturing a gripper (1) for an Axminster gripper weaving machine, comprising two interconnected clamping parts (2, 3) movable with respect to one another for clamping and releasing a pile yarn, the first clamping part (2) comprising at least two guiding recesses (4, 5) and the second said clamping part (3) comprising at least two corresponding guiding tongues (6, 7) protruding towards the first clamping part (2), the guiding recesses (4, 5) and guiding tongues (6, 7) being positioned such that the guiding recesses (4, 5) receive the guiding tongues (6, 7) for sliding movement therein when the clamping parts (2, 3) move with respect to one another, **characterized in that** a tongue body (9) is provided with the two said guiding tongues (6, 7), a main body (8) is provided and the tongue body (9) is fixed to the main body (8) with a seam (10) in order to form the second clamping part (3).
 11. Method according to claim 10, **characterized in that** the tongue body (9) is fixed to the main body (8) by means of brazing.
 12. Method according to claim 10, **characterized in that** the tongue body (9) is fixed to the main body (8) by means of laser welding.
 13. Method according to any of claims 10 to 12, **characterized in that** the main body (8) comprises a recess (13) and the tongue body (9) comprises a base (14), from which the guiding tongues (6, 7) extend and that the tongue body (9) is placed with its base (14) in the recess (13) of the main body (8) before fixing the tongue body (9) to the main body (8).

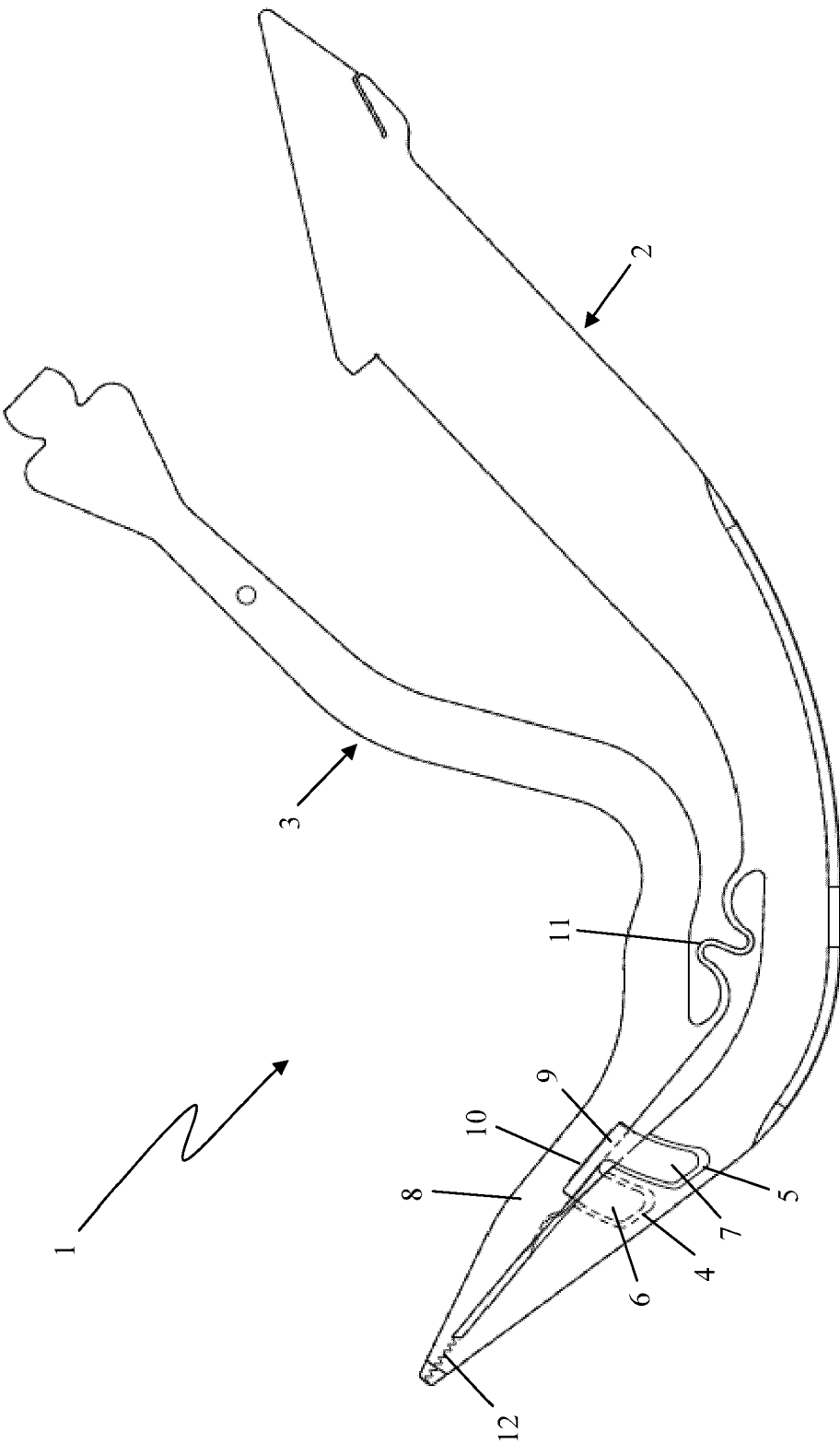


Fig. 1

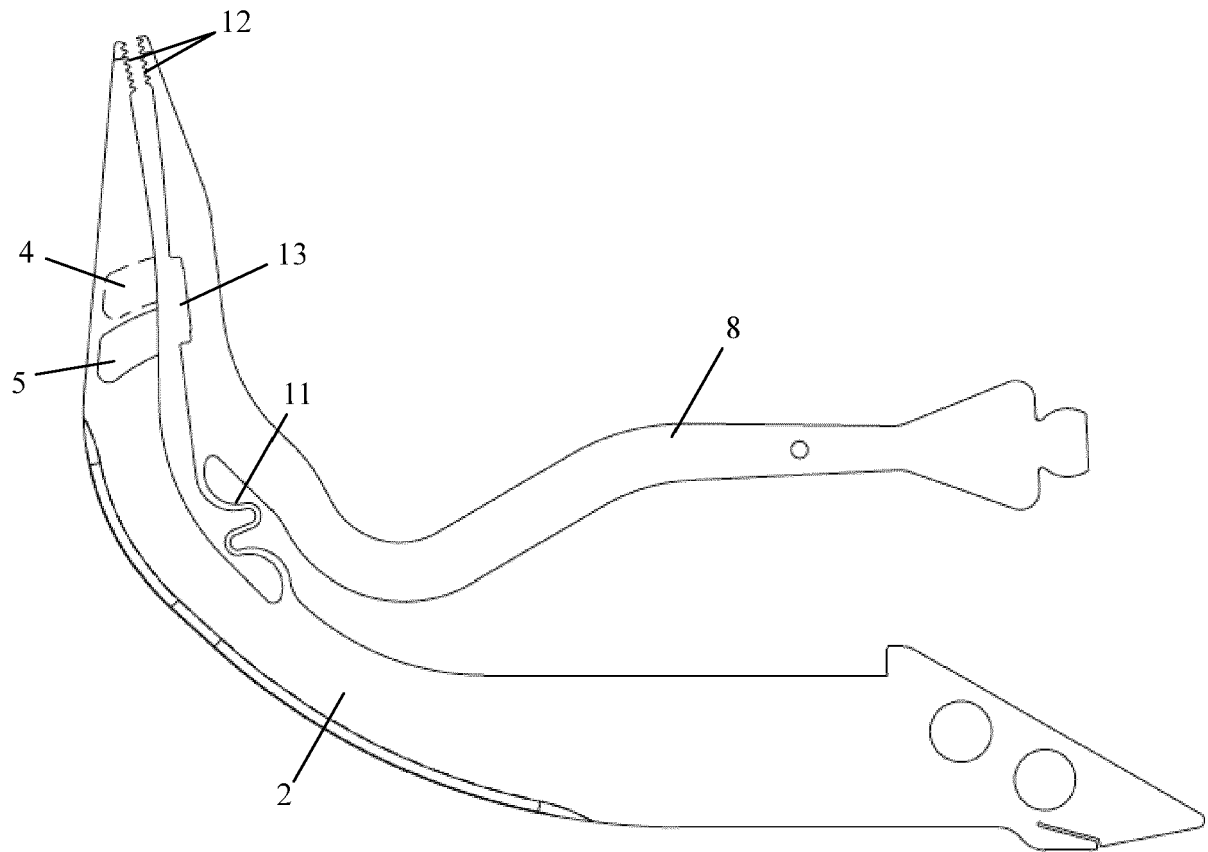


Fig. 2

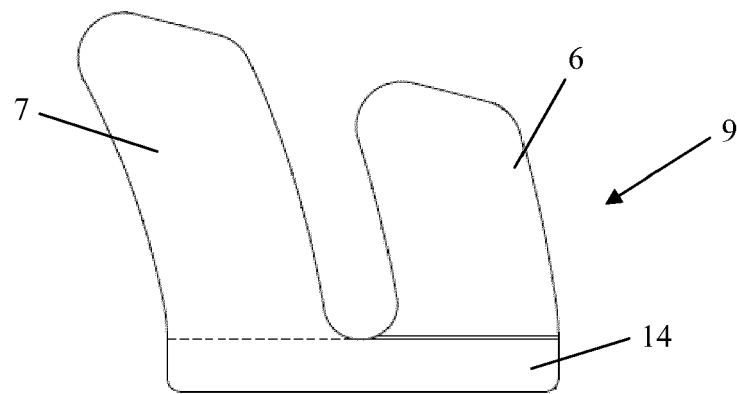


Fig. 3

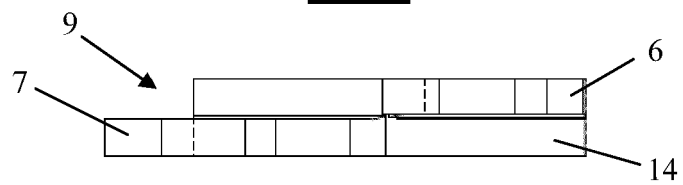


Fig. 4

REFERENCES CITED IN THE DESCRIPTION

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