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(54) **Improved arrangement for mounting the needle of the drawing gripper in weaving looms with continuous weft feed.**

(57) In a drawing gripper for weaving looms with continuous weft feed, the fixed claw (1) comprises a hemispherical protuberance (8) in the needle pivoting area, and the oscillating needle (3) correspondingly comprises a complementary hemispherical cavity (9). Said protuberance (8) and said cavity (9) define together a spherical hinge, which is held together by the action of the same spring (6) which causes the engagement of the oscillating needle (3) with the fixed claw (1) of the gripper.

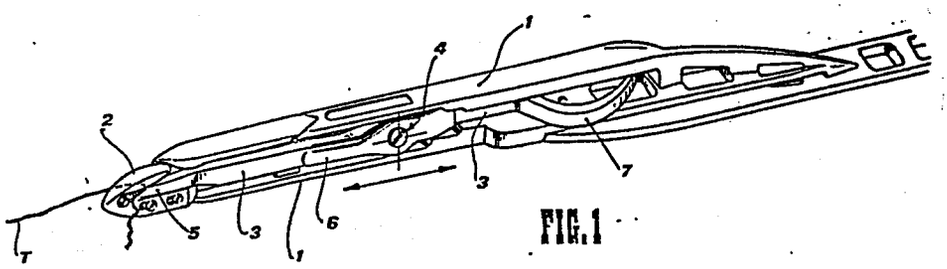

FIG.1

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"IMPROVED ARRANGEMENT FOR MOUNTING THE NEEDLE OF THE DRAWING GRIPPER IN WEAVING LOOMS WITH CONTINUOUS WEFT FEED"

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The present invention relates to improvements in the drawing grippers for weaving looms of the type with continuous weft feed, and it concerns more precisely an improved arrangement for mounting the oscillating needle of a drawing gripper.

Drawing grippers are already known, wherein the weft thread to be conveyed through the shed is locked in said grippers, between a fixed claw - usually shaped with a hook end - and a needle oscillating in respect of said claw, under the opposing actions of spring means which cause the engagement thereof with said hook end for gripping and retaining the weft, and of pressure means operated by a member of the loom for releasing said weft. In these grippers the needle is pivoted - for its oscillation in respect of the claw - by means of a pin hinge arranged about half way through the needle length and subjected to wear, like any device of this type. After a prolonged use of the gripper, it therefore easily happens that, as a result of said wear and failing any possible recovery of the slacks determined by such wear, an adequately precise coupling of the needle with the claw portion onto which it must tighten the weft thread is no longer guaranteed. This determines the requirement to replace the gripper even if, in every other respect, said gripper could still continue to be used for a long time.

The present invention proposes to overcome this drawback, by supplying a drawing gripper of the aforementioned type wherein the needle is mounted by an improved arrangement, with possibility to recover the slacks deriving from wear of the hinge through which the needle is pivoted on the claw.

The improved mounting arrangement according to the invention is characterized in that, the fixed gripper claw comprises a hemispherical cavity in the needle pivoting area, and the gripper needle

correspondingly comprises a complementary hemispherical protuberance, said protuberance and said cavity defining together a spherical hinge, and in that said hinge is held together by the action of the same spring which causes the engagement of the oscillating needle with the fixed claw.

Preferably, said spring is a leaf spring and its action has the effect of a compression inmparted on the needle towards the claw by means of a screw, whose head bears on said spring and whose care crosses the needle to screw into the claw.

The invention is now described in further detail, by mere way of example, with reference to the accompanying drawing, which represents a preferred embodiment thereof and in which:

Fig. 1 is an axonometric view of the drawing gripper comprising the needle mounting device according to the invention;

Fig. 2 is a cross section view through the area of the mounting device of figure 1, along a horizontal plane; and

Fig. 3 is a cross section view through the area of the mounting device of figure 1, along a vertical plane.

With reference to the drawing, figure 1 illustrates a drawing gripper of the type in which, to a fixed claw 1 ending into a hook 2 there is associated a needle 3 oscillating in respect of 4. The end 5 of the needle 3 is normally held in engagement with the hook 2 of the claw 1 by the action of a leaf spring 6, for gripping and retaining the weft thread T, while said engagement can be removed, for releasing the thread T, by imparting a pressure onto the other end 7 of the needle, suitably shaped as a projecting are, causing the needle itself to oscillate in respect of 4 against the action of the spring 6.

The invention concerns an improved arrangement for mounting the needle 3 on the claw 1. According to this arrangement, the fixed gripper claw 1 comprises, in the needle pivoting area 4, a hemispherical protuberance 8 with a cylindrical extension 8', while

the needle 3 correspondingly comprises a hemispherical cavity 9, complementary to the protuberance 8, and a hole 10 into which is housed the extension 8' of said protuberance 8. The needle 3 is coupled with the claw 1 by mating the protuberance 8 of said claw with the cavity 9 of the needle, whereupon the two parts are fixedly connected together by a screw 11, the head 12 of which engages the compression spring 6, and the core 13 of which is screwed into the claw 1 through the extension 8' of the protuberance 8, said extension being housed with a wide slack into the hole 10 of the needle 3.

This arrangement allows to obtain a fully satisfactory hinge for mounting the needle 3, so that this latter may oscillate in respect of the fixed claw 1, not only when the gripper is new, but also after wear between the hinge parts: in fact, such wear creates no inconveniences, as the slacks which could modify the reciprocal positions between the needle and the claw (and thus influence negatively the gripping and retaining of the weft thread T between the hook 2 and the end 5 of the needle 3) are constantly and continuously recovered, thanks to the special design and to the way of working of the hinge.

CLAIMS

1) Improved arrangement for mounting the needle oscillating in respect of the fixed claw of a drawing gripper for weaving looms with continuous weft feed, characterized in that, said fixed claw comprises a hemispherical protuberance in the needle pivoting area, and said needle correspondingly comprises a complementary hemispherical cavity, said protuberance and said cavity defining together a spherical hinge, and in that, said hinge is held together by the action of the same spring which causes the engagement of the oscillating needle with the fixed claw.

2) Mounting arrangement as in claim 1), wherein said spring is a leaf spring and its action has the effect of a compression imparted on the needle towards the claw by means of a screw, whose head bears on said spring and whose core crosses the needle to screw into the claw.

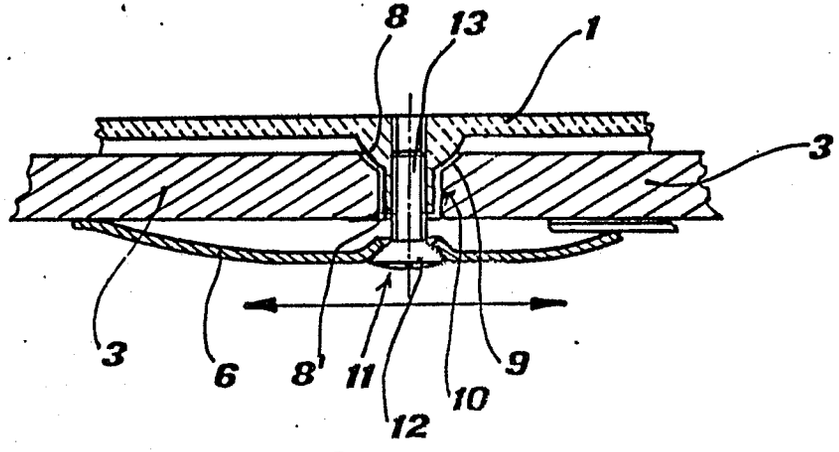

FIG. 2

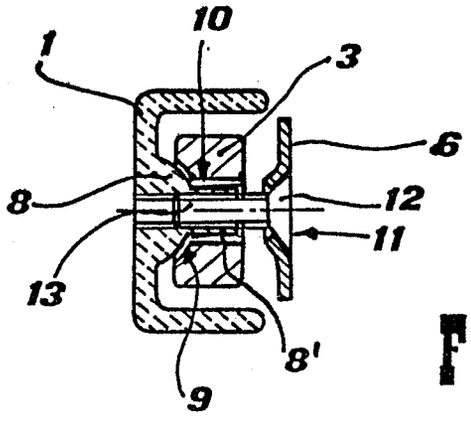

FIG. 3

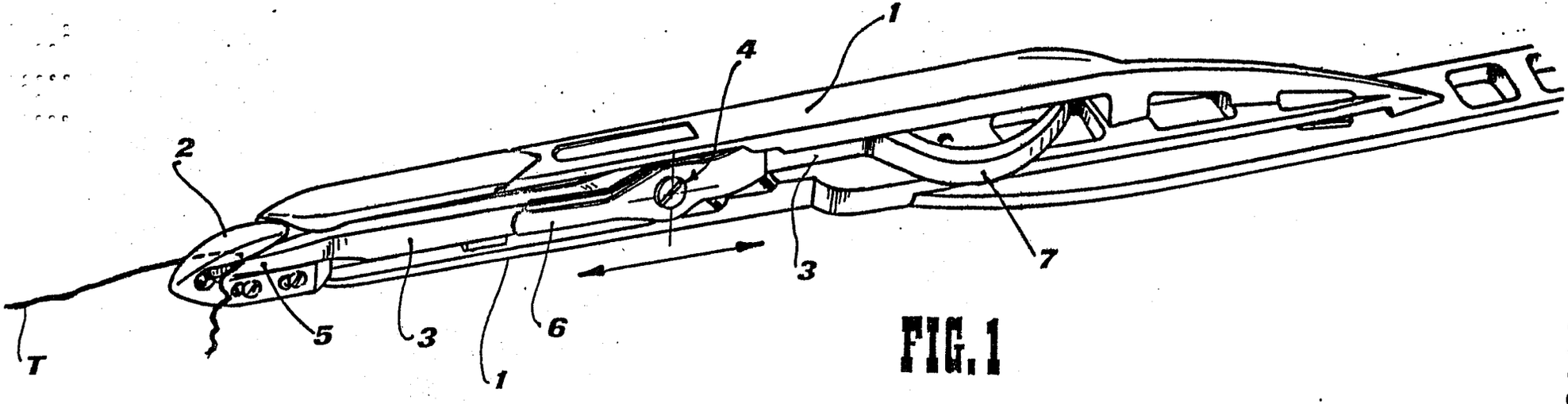

FIG. 1

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