

Weft introduction needle for a ribbon needle loom

Technical field

The invention relates to a weft introduction needle for
5 a ribbon needle loom according to the preamble of
claim 1.

Prior art

A weft introduction needle of the type initially
10 mentioned is known from CH 663 629 A. When the weft
introduction needle is used on a ribbon needle loom in
which a weft loop introduced into a shed is to be tied
off by means of an auxiliary thread on the side facing
away from the introduction side, disadvantages arise in
15 that the two limbs of the weft loop enter the effective
range of the knitting needle, thus making it more
difficult to tie off satisfactorily in a very confined
space.

20 Presentation of the invention

The object of the invention is to improve further the
weft introduction needle initially mentioned in order
to avoid said disadvantages.

25 The set object is achieved by means of the
characterizing features of claim 1. A guide element is
arranged on the arm, on a side facing away from the
guide bow, which extends, starting from the region of
the hook, over only a portion of the length of the arm.
30 The guide element forms, on the region facing away from
the hook, a deflection point for deflecting the free
limb of the weft loop. The free limb of the introduced
weft loop is thereby deflected, so that it does not
enter the effective range of the knitting needle, thus
35 ensuring a satisfactory tie-off of the weft loop by
means of an auxiliary thread, this being achieved in a
very confined space.

Advantageous developments of the weft introduction needle are specified in the dependent claims 2 to 6.

5 According to claim 2, the guide element may be designed as a second guide bow which is arranged on that side of the arm facing away from the first guide bow and which, engaging over the hook, extends, starting from the front end of the weft introduction needle, over only a portion of the length of the arm and is connected to
10 the latter, the connection point on the arm forming a deflection point for deflecting the free limb of the weft loop.

A particularly simple solution is described in claim 3,
15 according to which the guide element is designed as a guide groove which, starting from the hook, extends over the portion of the length of the arm on the outside of the arm, the curvature of the arm forming the deflection point.

20 Depending on the structural conditions of the ribbon needle loom, it may be advantageous, according to claim 4, to cause the guide element to extend over only the first third or the first quarter of the length of
25 the arm.

It is basically possible to arrange the first guide bow at the top and the guide element at the bottom, but a configuration of the weft introduction needle as
30 claimed in claim 5 is substantially more advantageous, according to which the first guide bow is arranged at the bottom and the guide element at the top.

There are also various configuration possibilities for
35 the design of the hook. The design as claimed in claim 6 is preferred, however, according to which the hook points toward the outside of the bent arm.

Brief description of the drawings

Exemplary embodiments of the invention are described in more detail below with reference to the drawings in which:

5

figure 1 shows the weaving region of a ribbon needle loom in a top view and in the form of a detail;

10

figure 2 shows a weft introduction needle for the ribbon needle loom of figure 1;

figure 3 shows the weaving region of a ribbon needle loom with a modified weft introduction needle in a top view and in the form of a detail;

15

figure 4 shows the weft introduction needle of figure 3 in a view of the head part according to IV of figure 3; and

figure 5 shows the weft introduction needle in the section V-V of figure 4.

20

Ways of implementing the invention

Figure 1 shows the weaving region of a ribbon needle loom. Warp threads 2 are opened by means of a shedding device, not illustrated in any more detail, into a shed, into which a weft loop 6 of a laterally supplied weft thread 8 is introduced by means of a weft introduction needle 4. On the side facing away from the introduction side, there is a knitting needle 10 which knits an auxiliary thread 12 together with the weft loop 6 in order to secure the weft loop. The secured weft loop 6 is beaten up at the beating-up edge 16 by means of a reed 14 so that a ribbon fabric 18 is obtained.

30

The weft introduction needle 4 is illustrated in more detail in figure 2. The weft introduction needle 4 has a bent arm 20 which is connected at one end 22 to a drive element 24 of the ribbon needle loom. A hook 28 for picking up the weft loop 6 is arranged at the other end 26. The arm 20 has, essentially over its entire

35

length, a lower, first guide bow 30 which with the arm forms a slot 32 for receiving at least one weft thread 8. At the end facing the hook 28, the guide bow 30 is firmly connected to the arm 20 via a connection part 5 34. Arranged on the side facing away from the first guide bow 30 is a guide element in the form of a second guide bow 36 which engages over the hook 28 and which, on the one hand, is fastened to the front end of the weft introduction needle, preferably to the connection 10 part 34 of the first guide bow 30, and, on the other hand, extends over only a portion, for example one quarter to one third, of the length of the arm 20 and is fastened to the latter. This fastening forms a deflection point 35 for deflecting the free limb 38 of 15 the weft loop 6. The length of the second guide bow is to be selected such that the free limb of the weft loop does not enter the effective range of the knitting needle.

20 As can be seen particularly from figure 1, the second guide bow 36 steers the free limb 38 of the weft loop 6 out of the effective range of the knitting needle 10, so that the free limb 38 is not picked up when the auxiliary thread 12 is being knitted in. If the second 25 guide bow 36 were absent, the free limb of the weft loop 8 would follow the path 38a indicated by dashes and consequently enter the effective range of the knitting needle 10, with the result that it would at least be more difficult to tie off the weft loop 6 30 reliably by means of the auxiliary thread 12. Figure 1 indicates that a plurality of weft threads 8, 8a, 8b may be supplied via the guide member 40, which lie in the slot 32 of the first guide bow 30 and can be brought into engagement selectively with the hook 28 of 35 the weft introduction needle in a way not illustrated in any more detail, as is known from the prior art.

Figures 3 to 5 illustrate a further exemplary embodiment of a weft introduction needle 4a which

corresponds to that of figures 1 and 2, and therefore identical parts are given the same reference symbols. In the weft introduction needle of figures 3 to 5, the guide element is designed as a guide groove 42 which, starting from the hook 28a, runs over a portion of the length of the arm 20, specifically on its outside which to that extent faces away from the guide bow 30. The selected weft thread 8 is lifted in the region of the connection part 34 out of the lower slot 32 into the upper region of the hook 28a and thus enters the hook 28a. When the weft introduction needle 4a swings into the shed, the weft thread 8 is guided in the guide groove 42, the curvature of the arm 20 forming the deflection point 35a which deflects the weft limb to an extent such that it does not enter the effective range of the knitting needle, not illustrated in any more detail here.

List of reference symbols

2	Warp thread
4	Weft introduction needle
4a	Weft introduction needle
6	Weft loop
8	Weft thread
8a	Weft thread
8b	Weft thread
10	Knitting needle
12	Auxiliary thread
14	Reed
16	Beating-up edge
18	Ribbon fabric
20	Bent arm
22	End
24	Drive element
26	End
28	Hook
28a	Hook
30	First guide bow
32	Slot
34	Connection part
35	Deflection point
35a	Deflection point
36	Second guide bow
38	Limb
38a	Path
40	Guide member
42	Guide groove

Patent claims

1. A weft introduction needle for a ribbon needle loom, which has a bent arm (20) which can be fastened
5 at one end (22) to a drive element (24) of a ribbon needle loom and at the other end (26) has a hook (28, 28a) for picking up a weft loop (6), the arm (20) being assigned, essentially over its entire length, a guide bow (30) which with the arm (20) forms a longitudinal
10 slot (32) for receiving at least one weft thread (8, 8a, 8b) and which is connected at the end facing the hook (28, 28a) to the arm (20) via a connection part (34), characterized in that the arm (20) has arranged on it, on a side facing away from the guide bow (30), a
15 guide element (36, 42) which extends, starting from the region of the hook (28, 28a), over only a portion of the length of the arm (20), the guide element (36, 42) forming, on the region facing away from the hook (28, 28a), a deflection point (35, 35a) for deflecting the
20 free limb (38) of the weft loop (6).

2. The weft introduction needle as claimed in claim 1, characterized in that the guide element is designed as a second guide bow (36) which is arranged
25 on that side of the arm (20) facing away from the first guide bow (30) and which, engaging over the hook (28), extends, starting from the front end of the weft introduction needle (4), over only a portion of the length of the arm (20) and is connected to the latter,
30 the connection point on the arm forming the deflection point (35).

3. The weft introduction needle as claimed in claim 1, characterized in that the guide element is designed as a guide groove (42) which, starting from
35 the hook (28a), extends over the portion of the length of the arm (20) on the outside of the arm (20), the curvature of the arm (20) forming the deflection point (35a).

4. The weft introduction needle as claimed in one of claims 1 to 3, characterized in that the guide element (36, 42) extends over the first third to a quarter of the length of the arm (20).

5. The weft introduction needle as claimed in one of claims 1 to 4, characterized in that the first guide bow (30) is arranged at the bottom and the guide element (36, 42) is arranged above the latter.

6. The weft introduction needle as claimed in one of claims 1 to 5, characterized in that the hook (28, 28a) points toward the outside of the bent arm (20).