

A YARN GUIDE OF A KNITTING MACHINE

FIELD OF THE INVENTION

The present invention relates to a yarn guide of a knitting machine, and more particularly to a yarn guide of a knitting machine that assists two yarns to form a counter wrap knitting status.

BACKGROUND OF THE INVENTION

A towel fabric knitting method is a prior art in the textile industry, and the method includes a wrap knitting ring and a counter wrap knitting ring to wrap the bottom of a yarn ring. For example, the inventor of the present invention has filed and obtained R.O.C. Patent Publication No. M247596 that discloses a single-sided counter wrap knitted towel sinker plate of a circular knitting machine, and the sinker plate is installed at the yarn looping position of the circular knitting machine with an inclined angle, and the sinker plate comprises a nose section, an abdomen section coupled with an end of the nose section, and a throat section coupled to another end of the nose section, and one side of the throat section includes a first distal surface and the abdomen section includes a second distal surface. When the sinker plate is installed at the circular knitting machine, the first distal surface is substantially in a horizontal plane and the second distal surface is an inclined plane, and a yarn loop is propped up to the highest horizontal position by the nose section.

R.O.C. Patent Publication No. 454770 has disclosed an

improved needle tracks of a double-sided towel counter wrap knitting, which primarily designs the tip of a half needle section of a needle track of a knitting machine to be elevated, so that the knitting needle can operate with two sinker plates of different
5 shapes to move alternately along the needle track, so as to hook and pull the wool loop and the base yarn to constitute the double-sided towel counter wrap knitting. When the knitting needle travels to the elevated area at the tip of the half needle section, the knitting needle is lifted by the elevated area to avoid the needle latch of the
10 knitting needle from being squeezed by the sinker plate which will cause a broken yarn. R.O.C. Patent Publication No. 376909 had disclosed a novel caltrop-shaped structure of a counter wrap towel knitting machine comprises a first caltrop-shaped module, a second caltrop-shaped module, a third caltrop-shaped module, a fourth
15 caltrop-shaped module, a fifth caltrop-shaped module, a sixth caltrop-shaped module, a seventh caltrop-shaped module, and an eighth caltrop-shaped module, and one of the first, second and third caltrop-shaped modules can be selected to fit the size of the sliding track and different sizes according to the user's requirements, so as
20 to fine tune the yarn to have the desired length of the wool loop.

From the description above, a sinker plate or a caltrop-shaped module is used regardless of the warp knitting or counter warp knitting, and thus making the overall mechanical design more complicated and difficult. Therefore, it is an important subject for
25 manufacturers in the textile field to design a simple mechanism for

the wrap knitting or counter wrap knitting.

SUMMARY OF THE INVENTION

The primary objective of the present invention is to install a yarn guide plate on a side of a knitting needle, so that a wool yarn
5 with an additional effect can be knitted into a base yarn in a counter wrap knitting status to produce the base fabric. When the wool yarn and the base yarn are hooked, the yarn guide plate presses the base yarn to the bottom of the wool yarn to define a counter wrap
10 knitting status of two yarns, and thus achieving the effect of fixing the bottom of the wool yarn into the base fabric.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the invention;

FIG. 2 is an exploded view of the structure of the invention; and

FIGS. 3A to 3D are schematic views of part of the assembly of the
15 invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention will now be described in more detail hereinafter with reference to the accompanying drawings that show
20 various embodiments of the invention.

Referring to FIGS. 1 and 2 for the perspective view and the bottom view of the present invention, a structure of a yarn guide plate 50 of a knitting machine comprises a needle disc and a needle barrel (not shown in the figure) which include a plurality of knitting
25 needles 10 and a plurality of entry knitting needles 20 respectively,

and the plurality of knitting needles 10 and the plurality of entry
knitting needles 20 are installed alternately, so that the plurality of
knitting needles 10 and the plurality of entry knitting needles 20 can
carry out the weaving job of a fabric having a yarn ring surface on
5 one side by the needle disc and the needle barrel, wherein the fabric
includes a base yarn 40 for forming the base fabric of the fabric (not
shown in the figure) and a wool yarn 30 for forming the yarn ring
surface. In the figures, the wool yarn 30 is disposed at the external
end of the knitting needle 10 and hooked to the wool yarn 30 by a
10 needling action. Since the knitting needle 10 and the entry
knitting needle 20 are installed alternately, therefore when the two
knitting needles 10 hook the wool yarn 30, the wool yarn 30 will be
sheathed onto the entry knitting needle 20 to form a yarn ring 31.
After several times of the weaving process, the yarn ring 31 forms
15 the foregoing yarn ring surface. The needle disc and the needle
barrel continue moving to drive the knitting needle 10 which is
hooked with the wool yarn 30 to hook the base yarn 40 and carry
out the base fabric knitting procedure. In the meantime, the
bottom of the yarn ring 31 is woven into the base fabric, so as to
20 achieve the effect of fixing the yarn ring 31.

The key point of the present invention resides on that the
counter wrap knitting method is used to weave the wool yarn 30
into the base fabric. Referring to FIGS. 2 and 3A to 3D for the
explode view and schematic views of the movement of the present
25 invention, the knitting needle 10 includes a yarn hooking section

101 for hooking yarns and a needle latch 102 for movably including
yarns therein, and one side of the knitting needle 10 has a yarn
guide plate 50 with an inclined surface 51, so that the needle disc
can be shifted to drive the wool yarn 30 and the base yarn 40 into
5 the yarn hooking section 101 and a first yarn hooking position of
the needle latch 102. The needle disc continues shifting to enter
the base yarn 40 into a second yarn hooking position of the yarn
hooking section 101, and the yarn guide plate 50 presses the base
yarn 40 at the first yarn hooking position (as shown in FIG. 3A) and
10 the knitting needle 10 is drawn back by the continuous movement
of the needle disc, such that the base yarn 40 advances gradually
towards the yarn hooking section 101, but the base yarn 40 is still
pressed by the inclined surface 51 of the yarn guide plate 50 to
attach the surface the knitting needle 10 to advance (as shown in
15 FIG. 3B). Until the base yarn 40 at the second yarn hooking
position enters the yarn hooking section 101 and the needle latch
102 is covered and sealed, the base yarn 40 will be located under
the wool yarn 30 (as shown in FIG. 3D). In the meantime, the
wool yarn 30 is woven into the base fabric. The wool yarn 30 is at
20 the top and the base yarn 40 is at the bottom and the status of
weaving the base fabric which is the feature of the counter wrap
knitting or the counter wrap knitting. The base yarn 40 weaves the
wool yarn 30 into the base fabric on another side opposite to the
yarn ring 31, and thus achieving the effect of fixing the bottom of

the yarn ring 31 to the wool yarn 30. If the yarn ring 31 is pulled, the yarn ring 31 will not be loosened or fallen out from the base fabric easily.

While the invention has been described by way of example
5 and in terms of a preferred embodiment, it is to be understood that the invention is not limited thereto. To the contrary, it is intended to cover various modifications and similar arrangements and procedures, and the scope of the appended claims therefore should be accorded the broadest interpretation so as to encompass all such
10 modifications and similar arrangements and procedures.

What is Claimed is:

1. A yarn guide of a knitting machine, installed to said knitting machine for assisting said knitting machine to weave a fabric having a yarn ring surface, and said yarn guide comprising:
 - 5 a base yarn, for forming a base fabric of said fabric;
 - a wool yarn, for forming a yarn ring surface;
 - a plurality of knitting needles disposed at a needle disc of said knitting machine, and said knitting needle includes a yarn hooking section and a needle latch, and said needle disc is
 - 10 shifted to respectively enter said wool yarn and said base yarn into said yarn hooking section and a first yarn hooking position of said needle latch, and said needle disc continues shifting to enter said base yarn into a second yarn hooking position of said yarn hooking section; and
 - 15 a yarn guide plate, disposed on a side of said knitting needle for pressing said first yarn hooking position to said base yarn, and said second yarn hooking position forms a counter wrap knitting status when said wool yarn and said base yarn are disposed on the top and at the bottom.
- 20 2. The yarn guide of a knitting machine of claim 1, wherein said yarn guide plate includes an inclined surface for pressing said base yarn.
3. The yarn guide of a knitting machine of claim 1, wherein said plurality of entry knitting needles are disposed at a needle

barrel of said knitting machine, and said plurality of entry knitting needles and said plurality of knitting needles are installed alternately for sheathing said wool yarn to produce said yarn ring.

- 5 4. The yarn guide of a knitting machine of claim 3, wherein wool yarn at the bottom of said yarn ring weaves said base yarn into said base fabric by a counter wrap knitting status.