April 2, 1940. A. F. VERBEEK 2,195,907

FLAT KNITTING MACHINE AND SINKERS THEREFOR

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Fig. 1

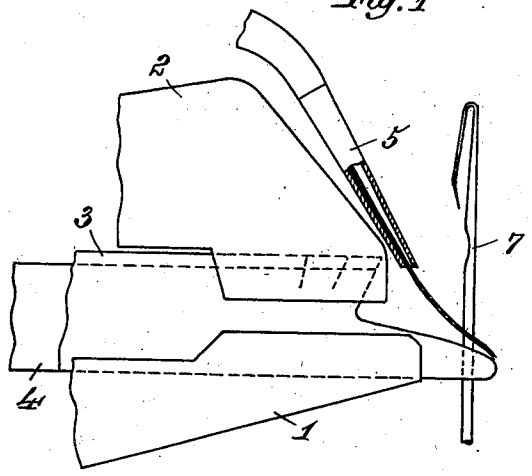


Fig. 2

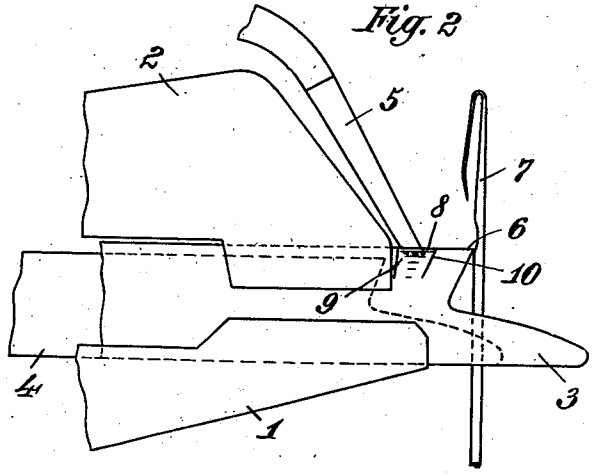


Fig. 3

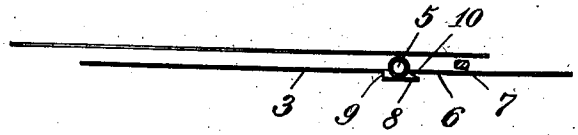
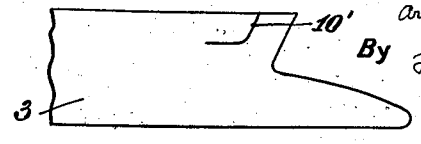


Fig. 4



Inventor
Arnold F. Verbeek

By Fish, Holdath, Levy & Jenney

Attorneys

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FLAT KNITTING MACHINE AND SINKERS THEREFOR

Arnold Friedrich Verbeek, Oberlungwitz, Germany

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3 Claims. (Cl. 66—110)

This invention relates to improvements in flat knitting machines and more particularly to knitting machines which are intended to produce plated goods and utilise a plurality of yarn carriers for this purpose.

An object of this invention is to prevent sinkers which may be deflected by an inaccurately or wrongly positioned yarn carrier or carriers during the sinking of the loops from causing trouble when the nose of said sinkers enters the frame needle division.

The problem of stopping the yarn carriers without shock is one of long standing. If the said carriers are not brought satisfactorily to a standstill without shock it may easily occur that they do not stop in the position desired. When this happens the loop sinkers, which are subsequently driven forward by the slur cocks and are situated within the range of the yarn carrier, are laterally deflected or bent by the wrongly positioned yarn carrier. This is liable to cause the noses of the sinkers to strike the frame needles, which may cause troubles, such especially as a breakage of needles. The danger is particularly great in the case of the production of plated goods. As is well known, in plating, the ground yarn carrier must only be given a short lead over the plating yarn carrier. This short lead makes it difficult to mount the usual shock-reducing means whereby an endeavour is made to stop the yarn carriers without shock.

In accordance with this invention yarn carriers are permitted to assume inaccurate or wrong positions, but a provision is made enabling for the nose portion of sinkers having been deflected by inaccurately positioned yarn carriers subsequently to return by its own resilience into the predetermined position prior to its entry into the plane of the frame needle shanks.

The means for enabling the sinker noses to spring back into their correct positions may consist, for example, in the provision on the upper edge of the sinkers of suitably spaced cuts or incisions inclined with respect to a longitudinal axis, so that between said cuts there are formed lamellae or tongues yielding resiliently in lateral direction. The said resilient members are formed on the sinkers operating within the reach of the yarn carrier end positions in such way that they interfere with the path of the yarn carrier ends when the sinker noses are in a position shortly preceding their entering into the plane of the frame needles. Should it happen that a yarn carrier takes a wrong end position, the nose portion of the obstructed sinker will be laterally deflected by engagement with the end of the yarn carrier during forward motion of the sinker until after a further advance of said sinker its lamella comes into the path of the end of the yarn carrier. At this moment the nose springs back into its correct position, the lamella being then deflected alone.

A constructional example of the invention is shown in the drawing, in which:

Fig. 1 shows the position of the sinkers before the sinking of the loops;

Fig. 2 shows the position of the sinkers during the sinking of the loops;

Fig. 3 is a plan view of the position according to Fig. 2;

Fig. 4 shows another form of the cut.

The figures show a portion of the sinker head of a normal flat knitting machine, the other parts whereof, which are not necessary for understanding the invention, having been omitted.

In Fig. 1, the bottom rail of the sinker head is shown at 1, 2 denotes the cover of the sinker head, 3 the loop or jack sinkers and 4 the dividing sinkers. The guide tube of a yarn carrier is shown at 5, and 7 are the frame needles of the frame needle bar.

In Fig. 2 it is assumed that the tube 5 stands in a wrong position, i. e. in the path of the loop sinker 3. Upon the forward movement of the said sinker, the latter strikes the said tube 5, the sinker nose 6 coming into contact with the lower end thereof, causing said nose to be deflected laterally. In order now to prevent the nose 6 from striking against the frame needle 7, a resilient lamella 8 is formed by oblique cuts 9 and 10 in the sinker extending downwards from the upper edge thereof. As soon as the part of the sinker situated between the nose 6 and the cut 10 has slipped past and out of engagement with the yarn tube 5, the sinker nose springs back into the normal guiding plane of the sinker, while the lamella 8 alone is now deflected laterally by the tube 5. Fig. 3 shows this position in plan.

As stated above, the lamella 8 is formed in Figs. 1 to 3 by two cuts. A greater number of cuts may, however, be employed, or a single cut 10' as shown in Fig. 4 may suffice if the latter is extended at its lower end substantially parallel to the upper edge to within a short distance in front of the sinker cover 2. This latter arrangement has certain advantages with regard to the return movement of the sinkers.

The use of resilient lamellae or tongues compared with other possible means has the ad-

vantage that the guiding of the sinkers in the sinker bed in the vertical direction remains assured. On the other hand, the lamella or tongue cannot give rise to any difficulties on movement of the sinkers in the horizontal direction upon their return movement, because at that moment the brake pressure on the yarn carrier bar has ceased, and consequently the yarn carrier has returned to its proper position. Therefore the lamella or tongue springs back from its laterally deflected position into the plane of the sinker.

Moreover, owing to the oblique direction of the cut 9 the lower end of the edge at the base of said cut enters the sinker bed first, whereby the return guidance of said lamella or tongue is assisted and a smooth jerkless return motion thereof under all circumstances is assured.

It will be understood that the invention is not limited to the specific embodiment shown, and that various deviations may be made therefrom without departing from the spirit and scope of the appended claims.

What I claim is:

1. In a flat knitting machine comprising a sinker head embodying a bottom rail member and a cover member and having slidably mounted therein loop sinkers and dividing sinkers cooperating with frame needles and with yarn carrier tubes, the provision on the said loop sinkers of lamellae or tongues formed by cuts extending downwardly from the upper edges thereof and adapted to be resiliently deflected by an inaccurately or wrongly positioned yarn carrier tube or tubes which interfere with the path of said loop sinkers, the nose portions of the sinkers being allowed to spring back into their correct position as soon as they have slipped past and out of engagement with the obstructing yarn carrier tube and prior to their entry into the plane of the frame needle shanks.

2. In a flat knitting machine comprising a sinker head having slidably mounted therein sinkers cooperating with frame needles and with yarn carrier tubes, the provision on the said loop sinkers of resilient lamellae or tongues formed by oblique cuts in said sinkers extending downwards from the upper edge thereof, the conformation of said cuts being such that by return movement of a sinker the lower end of said cuts enters the sinker bed first, whereby the return guidance of said lamellae or tongues is assisted and a smooth jerkless return motion thereof is assured.

3. In a flat knitting machine comprising a sinker head embodying a bottom rail member and a cover member and having slidably mounted therein loop sinkers and dividing sinkers cooperating with frame needles and with yarn carrier tubes, the provision on the said loop sinkers of lamellae or tongues formed by a single cut extending downwards in an oblique direction from the upper edge thereof and having its lower end substantially parallel and extending to within a short distance in front of said sinker cover member.

ARNOLD FRIEDRICH VERBEEK.