

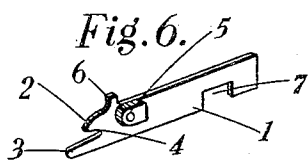
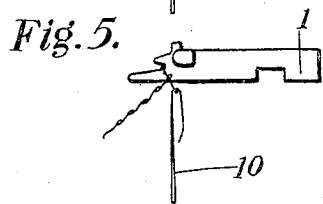
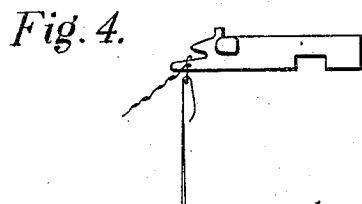
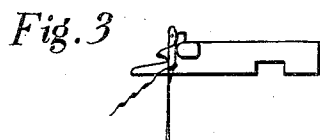
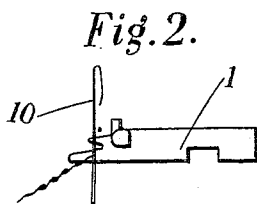
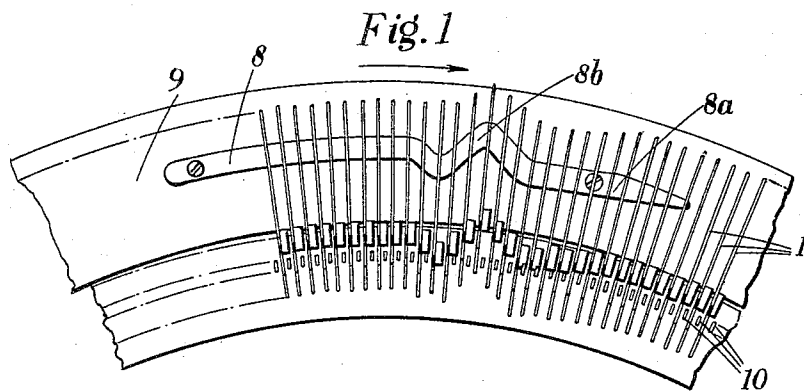
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T. H. JONES

1,901,751

KNITTING MACHINE SINKER

Filed March 8, 1929



INVENTOR
Thomas Henry Jones
BY Parker & Collings
ATTORNEYS

UNITED STATES PATENT OFFICE

THOMAS HENRY JONES, OF WOODTHORPE, ENGLAND

KNITTING MACHINE SINKER

Application filed March 8, 1929, Serial No. 345,521, and in Great Britain March 8, 1928.

This invention comprises new or improved thread controlling means for use in the production of knitted fabrics and has more particular reference to the production of fabric or machines employing reciprocating bearded needles.

Heretofore it has been the practice on this class of machine to utilize means for sinking thread loops upon the needles and separate and independently operable means for pressing the needle beards during the knocking over or casting off of knitted loops from said needles.

According to the present invention sinker elements are provided which serve the dual purpose of controlling thread fed to the reciprocating needles and of pressing the needle beards.

Another feature of the invention consists in the provision of reciprocating sinkers so constructed and operated as to guide thread beneath the needle beards, press said beards to permit casting off of old thread loops and subsequently press the newly formed loops forward on the needles and hold the work i. e. the fabric clear of same and down against the upward movement of said needles during the rising motion thereof.

By this means separate sinkers and pressers and independent operating and timing mechanisms therefor are obviated, and the knitting process is simplified.

For the purpose of more fully describing the nature of this invention reference will now be made to the accompanying drawing, wherein:—

Figure 1 illustrates the invention applied to a circular knitting machine and shows in plan a sinker cam with combined sinker and presser elements operated thereby, the sinker carrier being removed to show the operation more clearly.

Figures 2, 3, 4 and 5 are diagrammatic detail views illustrating respectively, the relative positions occupied by a sinker element and its adjacent needle when laying a thread on said needle, the positions at the time of pressing the needle beard, the positions at the time of knocking over the old loop, and the positions immediately subse-

quent to said knocking over before the needle rises.

Figure 6 is a perspective view of a combined sinker and presser element in accordance with the invention.

In a convenient method of carrying out the invention same will be described by way of example as applied to a circular knitting machine wherein a series of sinkers are mounted to reciprocate radially within tricks in an annular sinker ring mounted concentrically to the circular row or bed of needles, a cam device associated with said ring functioning to impart radial motion to said sinkers at the required time.

Each sinker 1, which is of the usual strip metal, is formed at its forward end with two nebs or noses 2, 3, (Figure 6) the lower neb 3 projecting forward to a greater distance than the upper neb 2 and serving as a holder for the web being knitted, and the throat 4 between the nebs being of rearwardly tapering formation.

At the upper part of the sinker immediately to the rear of the upper neb 2, is a small portion 5 or lug projecting laterally to one side of the sinker, the front face of said portion being advantageously rounded or convex. This lateral projection may be affixed to the sinker by a small rivet.

A small upstanding portion 6 is also advantageously formed or provided at the top of the sinker the purpose of same being hereinafter set forth. This upstanding part 6 may be an integral portion of the sinker itself and of the same thickness of metal.

The underside of the sinker 1 is suitably recessed at 7 to accommodate one or more upstanding cam pieces or ribs 8 provided on the sinker cam ring 9 (see Figure 1) for the purpose of imparting radial movement to the sinkers, or alternatively butts may be formed on the sinkers coacting with cam grooves.

The needles 10 are vertically reciprocated in the usual manner to produce the stitch, and in operation, when the needles rise to take thread, said thread is fed from any suitable guide to the needle preferably across the front edge or face of the upstand-

ing portion 6 of the sinker. This serves to ensure the thread being carried from the feed well up against the needle shank and being positively passed beneath the beard. As the sinker moves forward i. e. towards the needles, said needles move down, and immediately the thread has passed beneath the needle beard the lateral projection 5 of the advancing sinker presses the beard and permits the loop already formed on the needle stem to rise on to the beard for being cast off, this position being shown in Figure 3.

The sinker is then retracted to a suitable extent to permit the old loop to pass off by the continued downward motion of the needle, and during this withdrawal of the sinker the newly laid loop passes down the upper inclined neb on to the lower neb to the position shown in Figure 4, after which when the needle is fully down the sinker is again immediately moved forward and the loop is drawn back over the said lower neb and pulled into the rear end of the sinker throat 4 as shown in Figure 5, the needle still being held down. While in this position the sinker functions to hold or press the work, which extends from the needles, forward out of the vertical path of movement of the needles and permits the latter to rise clear of said work which is pulled down the needle shanks. By this means the use of a weight for drawing the fabric forward off the needles may be dispensed with.

By feeding thread across the upper inclined neb 2 of the sinker an easier draw off said thread is effected during the downward motion of the needle.

The cam piece 8 (Figure 1) is designed at the part 8a to project the sinker elements 1 until the pressing position is reached, the sinkers being subsequently acted upon by the V portion 8b, one side of which retracts said sinkers for permitting casting off of old loops from the needles, and the other side of said V again projecting the sinkers. Closely following the V part 8b the cam piece 8 is shaped to retract the sinkers to their normal position.

This invention can be used with particular advantage on circular machines of the type described in the specification of my prior U. S. Patent No. 1,690,729, wherein one or more pieces of flat fabric is or are produced on needles extending round a portion only of the circumference of the machine, and wherein, if bearded needles are employed, difficulty is experienced in pressing the end needles of the row or each row when utilizing a presser wheel which travels alternately in opposite directions along said needle row.

I claim:—

1. In a knitting machine, reciprocally

mounted bearded needles, a plurality of sinker elements arranged to be projected between said needles, needle presser devices arranged to be actuated in unison with the sinker elements, means for laying threads on the needles while they are in their upper position and the sinkers are in normal retracted position and means constructed to cause (1) said sinker elements and said presser devices to be projected from their normal retracted positions toward the needles whereby the presser devices are caused to press the beards and permit casting off of old loops during downward movement of the needles, (2) then to cause retraction of the sinker elements while the needles are down, (3) then to again project the said elements to press the new loops forward and hold the fabric clear of the needle beards during the upward movement of the needles, and finally (4) to return the sinker elements to their retracted position as the needles attain their uppermost position.

2. A knitting machine such as described in claim 1, characterized by the means that cause operation of the sinker elements and presser devices, being a single cam acting on the sinker elements.

3. In a knitting machine, reciprocally mounted bearded needles, a plurality of sinker elements constructed and mounted to have sliding movements only and arranged to be projected between the said needles, a laterally projecting part on each sinker element constituting a presser for the needle beards, cam mechanism formed with a part arranged to cause the said sinker elements to be first projected from their normal positions toward the needles whereby said projecting pressers engage the beards of the needles and permit the casting off of old loops during the downward movements of the needles, said cam mechanism having another part arranged to cause retraction of the sinker elements while the needles are down, and having another part that project the sinker elements to press the new loops just formed forwardly and to hold the fabric clear of the needle beards during the upward movements of the needles, and having still another part that returns the sinker elements to their retracted positions as the needles attain their uppermost position.

4. A knitting machine such as described in claim 3 further characterized by the sinkers being formed with throats at their forward ends to actuate the thread and also formed with upwardly projecting parts at the tops thereof serving to guide the thread to the needle shanks as the sinkers are moved forwardly.

THOMAS HENRY JONES.