

Aug. 7, 1928.

1,679,624

W. S. PARKER

SPRING BEARD NEEDLE MECHANISM

Filed April 27, 1925

Fig. 1.

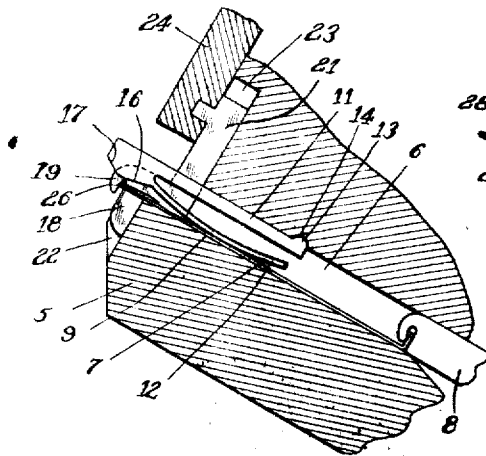


Fig. 2.

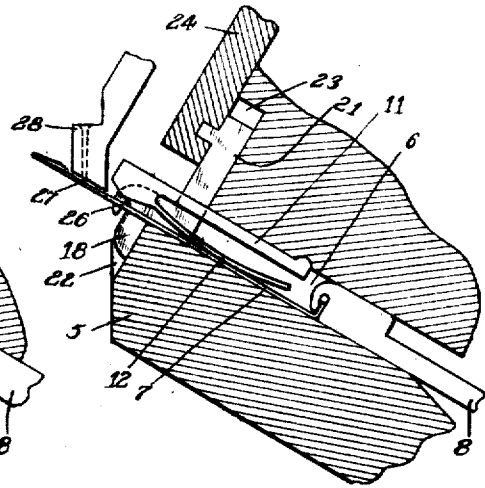


Fig. 3.

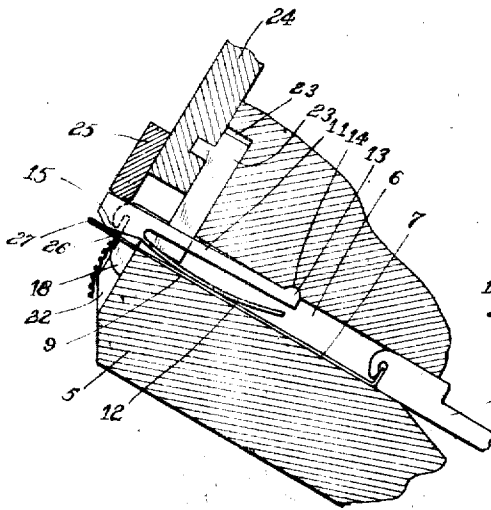
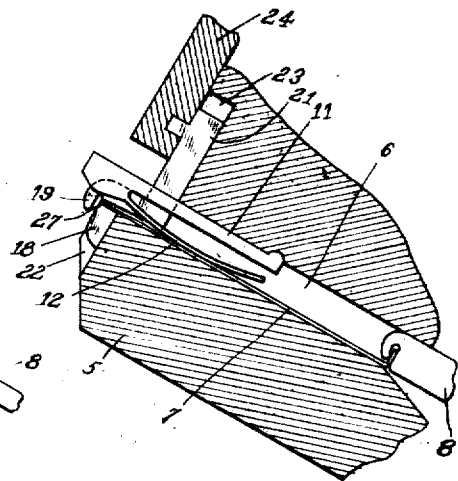


Fig. 4.



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Patented Aug. 7, 1928.

1,679,624

UNITED STATES PATENT OFFICE.

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SPRING-BEARD-NEEDLE MECHANISM.

Application filed April 27, 1925. Serial No. 26,015.

This invention relates to spring beard needle mechanism for straight knitting machines.

The primary purpose of the invention is to provide improved means for closing the needle beard and for pressing the needle against its seat on the bed.

In furtherance of this general object my invention contemplates the provision of a combined beard closer and needle-pressing spring in a single member which in the preferred embodiment also serves as a filler spring in the needle slot and is pivotally but removably located in such slot. In this form of the invention the pivotal connection serves to properly locate said member in the needle slot. It also allows said member to be actuated by a suitable cam which imparts the beard closing movement. A further advantage is that the spring which presses the needle against its seat also serves to return the beard closer to the normal position.

I have also aimed to provide an improved organization of parts comprising a spring beard needle, a web holder, a combined needle-pressing and beard closing member, and a cam for actuating said member to close the beard.

Other objects and attendant advantages will be appreciated by those skilled in this art as the invention becomes better understood by reference to the following description when considered in connection with the accompanying drawing in which—

Figures 1, 2, 3 and 4 are fragmentary vertical sections through the needle bed of a straight knitting machine embodying my improvements, showing positions which the parts occupy at successive stages in knitting.

My invention is adapted for either a single or double row straight knitting machine; and in the present drawings I have shown its application to only a single row, it being understood that this application will be duplicated for a double row.

The needle bed 5 may be of any suitable or preferred construction having a series of needle slots 6. A spring beard needle designated generally by 7, disposed in each slot, is adapted to be moved lengthwise therein by suitable means such as a jack 8 to perform the knitting operation. It is desired to yieldingly urge the needle against a seat 9 on the bed with just sufficient pressure to

properly hold the needle in position. This is accomplished by means of a filler spring comprising in this instance a shank 11 and a spring portion 12 joined at one end and formed from a single piece of metal. In order to locate and hold this spring member in the needle slot the shank is provided at one end with a lug 13 which enters a recess 14 in the top wall of said slot. This construction also enables quick removal of the spring member through the upper end of the needle slot as is required for assembling and disassembling purposes. Said lug 13 has preferably an arcuate face, and the face of the recess or socket 14 is similarly shaped so as to provide a pivotal connection with the bed structure, the purpose of which will be presently apparent.

Said spring member has an additional function, namely, that of a beard closer and, to this end, is shaped at the juncture between the shank 11 and spring portion 12 to provide a beard closing portion 15. The under side of this portion is shaped to provide downwardly converging surfaces 16 and 17 the purpose of which will be presently described.

The web holder designated generally by 18 may be of any suitable or preferred construction and at present has a web hook 19 and a shank 21 in offset relation mounted to slide in slots 22 and 23 respectively, in the bed structure, perpendicular to the needle slot. Suitable means such as a cam 24 may be employed for advancing and retracting the web holder.

The beard closing movement may be imparted by any suitable means such, for example, as a cam 25 adapted to pass over the beard closing end 15 of the spring member and press said end downwardly in a beard closing movement, this movement being permitted by reason of the pivotal connection of the shank 11 with the bed structure established by the lug 13 in the recess 14. When the cam 25 is withdrawn the beard closer will be returned to its normal position by the action of the spring 12.

The operation is as follows: In the normal position with the needle retracted the knitted fabric or web will be held down by the web hook 19 and the last knitted loop indicated by 26 will be held in the eye of the needle. Said loop 26 will be held on the

needle by the web holder when the needle is advanced to take new yarn as shown in Fig. 2. At this time the new yarn 27 will be laid across the needle by a yarn distributor 28.

5 When the needle is drawn down the yarn 27 will be drawn beneath the needle beard into the eye of the needle as shown in Fig. 3. During this down stroke of the needle and just before the needle beard reaches the loop 26 the cam 25 will act to depress the beard closing end 15 of the spring member sufficiently to bring its inclined surface 17 into the path of the beard and close the latter. The closed end of the beard will therefore
15 be in a position to pass through the loop 26. In view of the short interval that the beard is held closed the inclined surface 16 permits the loop to pass over the point of the beard before the latter is released by the cam 25.
20 As the needle continues in this down stroke the web holder will be withdrawn by action of the cam 24, thus withdrawing the web hook 19 and permitting the closed needle beard to pass through the loop 26 which will be shed over the new loop 27 as the latter is drawn down by the needle. The final position of the knitting operation is shown in Fig. 4, in which the new loop 27 is held both by the needle and the web holder.

30 It is believed that the foregoing conveys a clear understanding of the objects prefaced above and while I have illustrated but a single working embodiment it should be understood that changes may be made in details of construction without departing from the spirit and scope of the invention as expressed in the appended claims in which—

I claim:

1. A single part for a knitting machine equipped with spring beard needles, comprising a needle-pressing spring portion for seating a needle in its bed and a beard closer portion.

2. Spring beard needle mechanism including a single member having a resilient part for pressing the needle against its bed and another part for closing the beard, the resilient part serving normally to move the last mentioned part from beard closing position to retracted position.

3. The combination with a spring beard needle in the bed of a knitting machine, of a unitary beard closer and needle-pressing filler spring for seating the needle in the bed.

4. Spring beard needle mechanism including a needle-pressing leaf spring for seating a needle in its bed having a beard-closing portion at one end.

5. Spring beard needle mechanism including a pivoted beard-closing member having integral therewith a needle-pressing spring for seating a needle in its bed.

6. In combination with a needle bed having a needle slot and a spring beard needle

therein, of a leaf spring in said slot for pressing the needle against the bed, and a beard closer on the spring.

7. The combination with a spring beard needle, of a shank having a locating pivot at one end, a beard closing portion at the opposite end, and a leaf spring extending longitudinally relative to the shank and acting between it and the needle to exert pressure on the needle at a point intermediate the ends of the shank.

8. Spring beard needle mechanism including a single member for pressing the needle against its bed and for closing the beard, said member being pivotally mounted and adapted to swing on its pivot for closing the beard.

9. Spring beard needle mechanism including a single member for pressing the needle against its bed and for closing the beard, said member being pivotally mounted and adapted to swing on its pivot for closing the beard, and being removably held in position by the pressure of the needle-pressing spring.

10. In a knitting machine, an integrally formed beard closer and filler spring adapted to fill the needle slot and press the needle against its seat and further adapted to be moved in a beard closing movement.

11. In a knitting machine, an integrally formed member providing a shank and a needle-pressing spring for seating a needle in its bed joined at one end and shaped at the juncture thereof to provide a beard closing portion.

12. In a knitting machine, an integrally formed member providing a shank and a needle-pressing spring joined at one end and shaped at the juncture thereof to provide a beard closing portion, and a locating lug on said shank at the end thereof remote from the beard closer, upon which lug said member is adapted to pivot in the beard closing movement.

13. In a knitting machine, the combination with a needle bed, a spring beard needle operated therein and an element for imparting a beard closing movement, of a single part arranged for operation by the beard closing element to close the beard of the needle, and also arranged to press the needle to its bed.

14. In a knitting machine, the combination with a needle bed, a spring beard needle operated therein and an element for imparting a beard closing movement, of a single part arranged for operation by the beard closing element to close the beard of the needle, and also arranged to press the needle to its bed and return itself to normal retracted position after the beard closing operation.

15. In a knitting machine, the combination with a needle bed, a spring beard needle

dle operating therein, and an element for imparting a beard closing movement, of a single element having a rigid part and a resilient part for performing four functions to wit:—the rigid part interlocking in the needle bed to hold the element detachably in place therein and also providing a beard closing portion arranged for operation by the beard closing element to close the beard of the needle, and the resilient portion serv-

ing normally to press the needle to its bed and to return the element to its normal retracted position after the beard closing operation.

16. A knitting machine as set forth in claim 16 wherein the resilient portion of the single element referred to serves to hold the element by its rigid part in interlocked relation in the needle bed.

WILLIAM S. PARKER.

CERTIFICATE OF CORRECTION.

Patent No. 1,679,624.

Granted August 7, 1928, to

WILLIAM S. PARKER.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 3, line 16, claim 16, for the numeral "16" read "15"; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 28th day of August, A. D. 1928.

(Seal)

M. J. Moore,
Acting Commissioner of Patents.

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