Dec. 9, 1947. A. FRIEDMANN 2,432,304

YARN CARRIER FOR KNITTING MACHINES

Filed Feb. 13, 1947

FIG. 1.

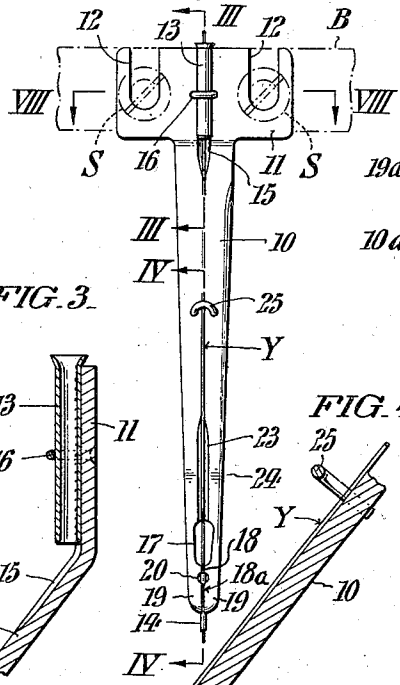


FIG. 10.

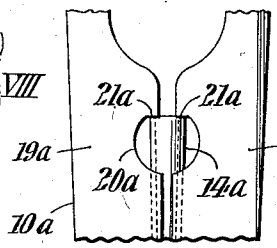


FIG. 2.

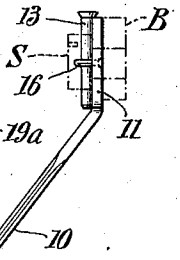


FIG. 3.

FIG. 4.

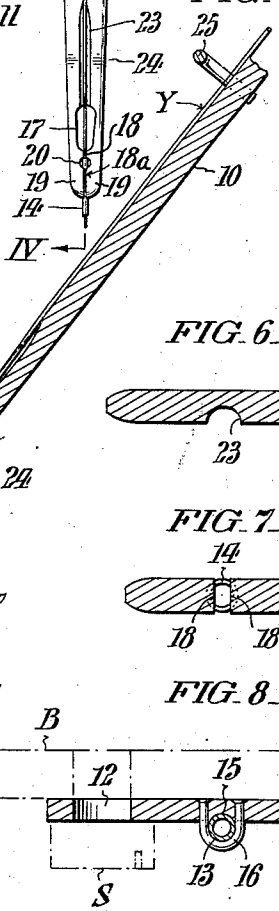


FIG. 5.

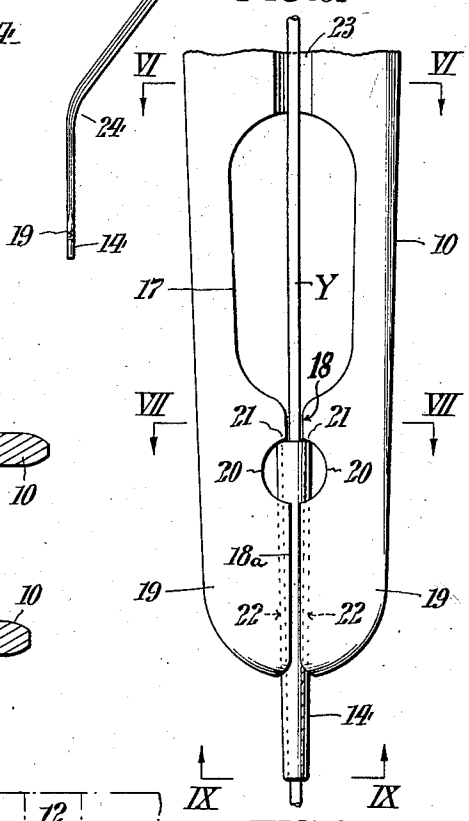
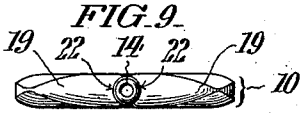


FIG. 6.

FIG. 7.

FIG. 8.

FIG. 9.



WITNESSES:

A. J. Brittingham

George L. Comly

INVENTOR:

Albert Friedmann,

BY Paul & Paul

ATTORNEYS.

Patented Dec. 9, 1947

2,432,304

UNITED STATES PATENT OFFICE

2,432,304

YARN CARRIER FOR KNITTING MACHINES

Albert Friedmann, Reading, Pa., assignor to Karl Lieberknecht, Inc., Reading, Pa., a corporation of Pennsylvania

Application February 13, 1947, Serial No. 728,326

5 Claims. (Cl. 66—126)

1

This invention relates to yarn carriers for knitting machines, more particularly straight knitting machines of the "Cotton" type such as are commonly used in the production of fashioned hosiery and similar articles.

The aim of my invention is to provide a carrier of the kind referred to which is simple in construction and lends itself to economic fabrication in quantity at small cost; which can be readily and quickly secured to or removed from the endwise reciprocable bar for transverse back and forth in front of the needles of the machine whereto the yarn is to be fed; and which is capable of controlling and guiding the yarn with imposition of minimum strain or friction thereupon as it is drawn from its source of supply.

How the foregoing and other important advantages are realized in practice will appear from the following detailed description of the attached drawings, wherein

Fig. 1 is a view showing my improved yarn carrier in front elevation.

Fig. 2 shows the carrier in side elevation as viewed from the right of Fig. 1.

Figs. 3 and 4 are fragmentary front views of the carrier in vertical section taken as indicated by the angled arrows III—III and IV—IV in Fig. 1 and drawn to a larger scale.

Fig. 5 is a fragmentary view in front elevation of the lower or delivery end of the carrier likewise drawn to a larger scale.

Figs. 6 and 7 are cross sections taken as indicated respectively by the angled arrows VI—VI and VII—VII in Fig. 5.

Fig. 8 is a cross section taken as indicated by the angled arrows VIII—VIII in Fig. 1; and

Fig. 9 shows the tip or delivery end of the carrier in bottom plan.

Figs. 6, 7 and 8 are horizontal sections taken as indicated respectively by the arrows VI—VI, VII—VII and VIII—VIII in Fig. 1.

Fig. 10 is a fragmentary view corresponding to Fig. 5 and showing a modification.

As herein illustrated, my improved yarn carrier is characterized by having a flat downwardly tapering finger 10 which is pendent from, and integral with, a crosswise rectangular top portion 11. From Fig. 2 it will be observed that the finger also decreases gradually in thickness from the region of its mergence into the top portion 11 to its tip. In order that the carrier may be readily and quickly connected to or removed the endwise reciprocating carrier bar of the knitting machine indicated in dash and dot lines and designated B in Figs. 1 and 2, its crosswise top portion 11 is provided with notches 12 for passage of the shanks of headed securing screws S. The finger 10 may be given an angular configuration as shown in Fig. 2 or it may be made substantially straight depending upon which carrier bar (whereof there are usually several one behind another) of the machine the carrier is to be used.

2

For guidance of the yarn indicated Y, the carrier is provided at its top with a receiving tube 13 which is comparatively large in diameter and bore, and at its lower end with a delivery tube 14 which is tapered and of which the diameter of the bore at the bottom is substantially equal to the gauge of the yarn. Except for being flared at its upper end to facilitate entry of the yarn, the receiving tube 13 is cylindric and set into a cross sectionally concave groove 15 in the front face of the finger along its central longitudinal axis. A staple 16 fashioned from wire with its extremities anchored in the attaching upper portion 11 of the carrier serves as a friction means for holding the tube 13 in place. Near its lower end, the finger 10 has a relatively large vertically-elongate round-ended opening 17, and immediately below the latter is a much smaller circular opening 20, the two being connected by a central slit 18. A narrower slit 18a extends downward from the circular opening to the tip of the finger for reception of the delivery tube 14, with incidental formation of clamp jaws 19. The side edges of the slit 18a are longitudinally grooved as at 22 for lodgment of the tube 14 centrally of the thickness of the finger tip, with its upper end stopped against shoulders 21 formed by the top of circular opening 20. In order to confine the yarn Y which is to be guided to a direct and straight path in the interval between the tubes 13 and 14, the front face of the finger 10 is longitudinally grooved medially as at 23 at the region of the bend 24 and provided at the half-way point with an eye 25, which, like the upper tube securing element 16, is shown as having the form of a staple with its ends similarly anchored in said finger.

The carrier may be die stamped or otherwise fashioned from metal or any other suitably stiff material preferably with incidental rounding or bevelling of the side edges of the finger portion as indicated in the drawings by the line shading, and the lower portion of the slit 18 bored or drilled to provide the grooves 21 in its side edges. After the drilling, the jaw portions at tip of the finger are pinched so that the slit sides are made to conform to the taper of the delivery tube 14, whereupon the tip is hardened by tempering and

thereby made springy. The staples 16 and 25 may be applied either before or after the drilling and hardening steps above referred to as desired or found convenient. With the finger thus prepared, the delivery tube 14 is forced, large end first, upward into the slit 18a until its top encounters the shoulders 21 at the top of the opening 20, the side portions or jaws of the tip spreading to permit this action and finally springing back to effectively embrace said tube as best shown in Fig. 5. By reason of its taper, the tube 14 is securely held against the possibility of accidental displacement during operation of the carrier. When the tube 14 has become worn, it can however be removed by reversing the foregoing procedure, i. e., by forcing it out of the slit 18a from above, and replaced by a new one. The receiving tube 13 at the top of the carrier is applied simply by forcing it downward through the eye of the staple 25 until the flare at its upper end encounters the top edge of the cross portion 11 of the carrier. Here again, removal is effected by a reversed operation when renewals become necessary. Through provision of the open notches 12, it will be seen that the carrier can be adjusted up or down as may be required or removed from the bar B without entailing complete removal and possible loss of the securing screws S.

In Fig. 10, I have illustrated a modification wherein the opening 20a is broached to provide straight transverse shoulders 21a for abutment of the upper end of the delivery tube 14a. This construction is advantageous in that it insures the provision of a positive stop for the tube 14a and precludes any camming action between the shoulders 21a and the tube top as said tube is inserted such as might cause undue spreading of the jaws 19a.

Having thus described my invention, I claim:

1. A yarn carrier for straight knitting machines in the form of a finger fashioned from stiff flat material with a relatively wide vertically elongate medially disposed opening adjacent its lower end, a smaller circular opening immediately below the elongate opening, a longitudinal slit connecting the two openings, a narrower slit with longitudinally grooved side edges extending downward from the smaller opening to the tip of the finger, and a delivery tube for the thread clampingly engaged in the grooved slit with its top end stopped against shoulders formed by the top of the circular opening.

2. A yarn carrier according to claim 1, wherein the delivery tube is tapered from top to bottom; and wherein the grooved portion of the smaller slit is correspondingly configured to insure retainment of the delivery tube.

3. A yarn carrier according to claim 1, in which the finger has a crosswise attaching portion at its upper end with downwardly-open clearance notches for the shanks of headed securing screws engaged in a supporting carrier bar of the machine.

4. A yarn carrier according to claim 1, wherein the finger has a receiving guide tube for the thread in a medial groove longitudinally of its top, and wherein said receiving guide tube is held in place by an embracing staple whereof the ends are anchored in the finger.

5. A yarn carrier bag according to claim 1, wherein the finger is provided medially of its upper end with a receiving thread guide tube; and at a point intermediate said receiving guide tube and the delivery tube with an auxiliary guide eye for the thread.

ALBERT FRIEDMANN.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
Re. 19,486	Kane	Mar. 5, 1935
1,675,556	Howie	July 3, 1928
2,076,751	Thierfelder, Sr.	Apr. 13, 1937
2,289,256	Feustel	July 7, 1942
2,366,137	Weisbecker	Dec. 26, 1944

FOREIGN PATENTS

Number	Country	Date
685,507	Germany	Dec. 19, 1939
804,564	France	Aug. 3, 1936