F. S. WILCOX.

APPARATUS FOR TREATING KNITTED WEBS.

APPLICATION FILED JUNE 26, 1919.

1,340,809.

Patented May 18, 1920.

2 SHEETS—SHEET 1.

Fig. 1.

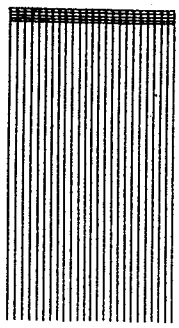


Fig. 2.

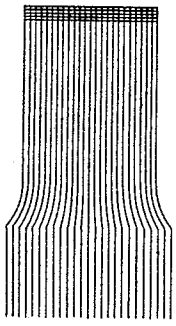


Fig. 3.

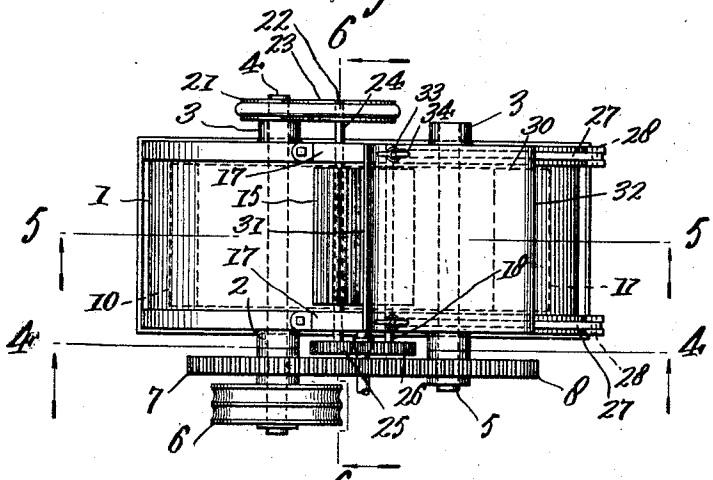
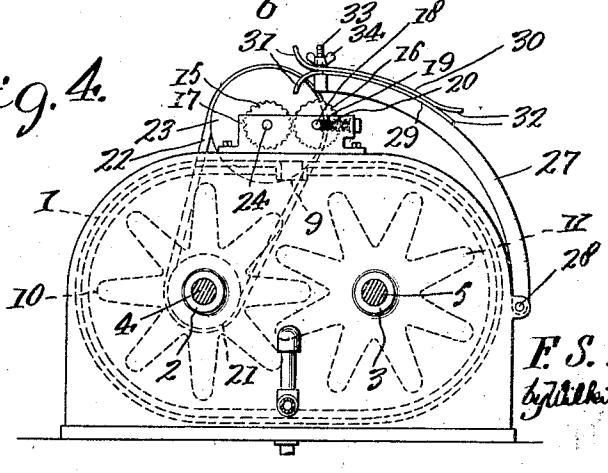


Fig. 4.



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2 SHEETS—SHEET 2.

Fig. 5.

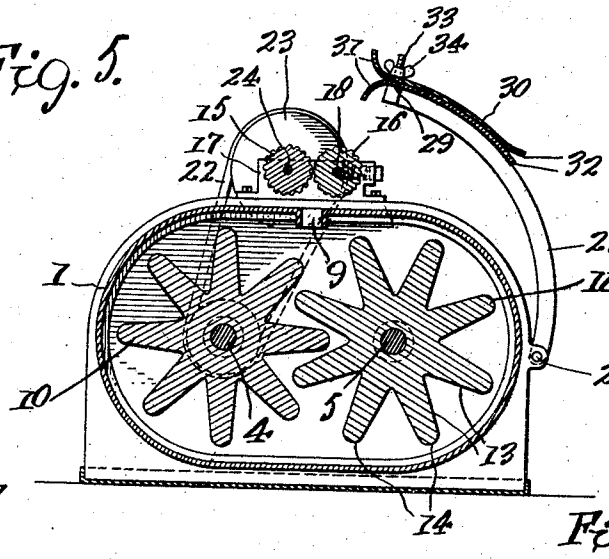


Fig. 7.

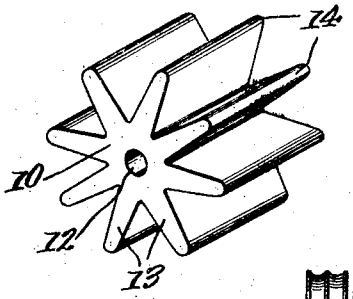


Fig. 6.

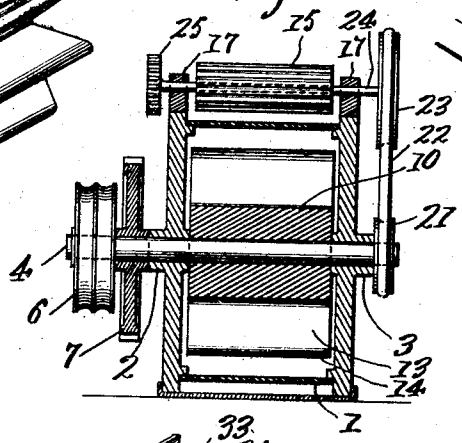


Fig. 8.

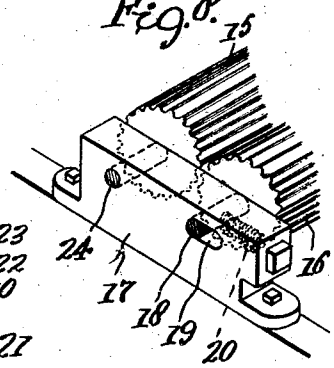
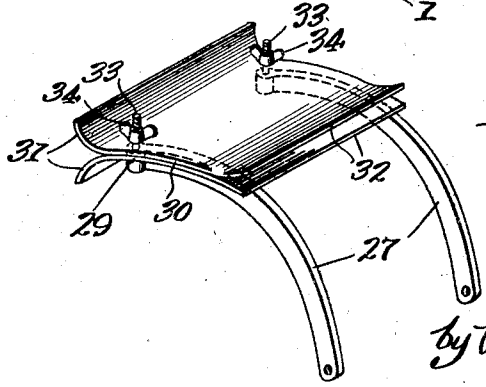


Fig. 9.



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR TREATING KNITTED WEBS.

1,340,809. Specification of Letters Patent. Patented May 18, 1920.

Application filed June 26, 1919. Serial No. 306,900.

To all whom it may concern:

Be it known that I, FRANK S. WILCOX, a citizen of the United States, residing at Union, in the county of Union and State of South Carolina, have invented certain new and useful Improvements in Apparatus for Treating Knitted Webs; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to improvements in apparatus for treating knitted webs, and more particularly consists in certain improvements over the U. S. Patent No. 1,181,789, granted May 2, 1916, for improvements in treating knitted webs.

It is an object of the present invention to rearrange and improve the apparatus shown and described in the aforesaid patent, more particularly in improving the construction of the beaters and in certain additions which provide for the mechanical feeding of the webs into the beaters and for withdrawing the webs after same have been subjected to the action of the beaters.

The invention consists in the constructions, combinations and arrangements hereinafter more fully described and pointed out in the claims.

In the accompanying drawings forming a part of this application, and in which similar reference symbols indicate corresponding parts in the several views:

Figure 1 represents a knitted web as it appears before being treated, the longitudinal lines representing the wales of the web.

Fig. 2 represents the same web after a portion of the same has been treated by passing it into the improved apparatus.

Fig. 3 is a top plan view of an apparatus constructed in accordance with the present invention.

Fig. 4 is a sectional view taken on the line 4—4 in Fig. 3.

Fig. 5 is a sectional view taken on the line 5—5 in Fig. 3.

Fig. 6 is a sectional view taken transversely through the machine on the line 6—6 in Fig. 3.

Fig. 7 is a perspective view of one of the beaters.

Fig. 8 is a fragmentary perspective view of the corrugated rolls through which the webs are introduced to the beaters; and

Fig. 9 is a perspective view of the improved fabric holder.

Referring more particularly to the drawings, 1 represents a casing having bearings 2 and 3 in the side walls thereof, in which are journaled a pair of shafts 4 and 5. A pulley 6 on the shaft 4 provides for rotating the same and a like rotary motion, though in an opposite direction, is transmitted from the shaft 4 to the companion shaft 5 by means of the intermeshing gear wheels 7 and 8 fixed on the ends of such shafts outside of the casing 1, as clearly shown in Fig. 3.

Fast on the shafts 4 and 5 within the casing 1, are the beaters which rotate in opposite directions together with the shafts, such beaters having intersecting paths for encountering the webs which are introduced through an opening 9 in the top of the casing and subjecting the webs to a beating action from opposite sides, which action takes place in the direction of the wales of the web.

In the aforesaid Patent No. 1,181,789, the beaters were constituted of rods which have been found to accumulate loose threads which interfere with their proper action; and moreover these rods become easily bent, and when so bent interfere with one another, in some instances, to such an extent as to stop the machine. I improve the action and construction of such beater rods by substituting therefor solid iron castings or segment wheels 10 and 11 made with perforated hubs 12 to receive the shafts, and with radiating integral arms 13 extending from the hub 12 and rounded at their outer edges to form the beaters 14.

The arms 13 of the wheels 10 and 11 are adapted to intermesh, as shown in Fig. 5, in order to permit the beater surfaces 14 to have intersecting paths. The construction of these solid wheels avoids the likelihood of loose threads accumulating on the beaters 14, and such solid wheels are not subject to become distorted, twisted, or bent out of place, but are well calculated to preserve their form; and the same are heavier and have a more effective action on the webs than the rods used in accordance with the

aforesaid patent. These solid segment wheels also produce superior results inasmuch as the action of the same is no longer a beating action but is rather a rubbing action, which is essentially different from that produced by the steel rods in the machine set out in the above referred to patent.

Moreover, these beater wheels are carried on shafts 4 and 5 which are supported at both ends by the bearings 2 and 3; whereas in the prior construction shown in the aforesaid patent, the beater frame is mounted on one end of a shaft which has a support in only one side of the casing or hood, and consequently the present device will not be so apt to wear loose on account of the leverage developed by the pressure of the beater bars.

Furthermore, in accordance with the present invention, I provide a pair of corrugated rolls 15 and 16, which are supported in bearings 17 bolted or otherwise secured to the top of the casing or hood 1, and which are arranged above the opening 9 through which the webs are introduced to the beaters. The purpose of providing two corrugated rolls 15 and 16, is to enable the webs to be introduced by mechanical means, as the method of introducing the webs by hand is uncertain, and for this reason not attended with the best results. The mechanical means insures the introduction of the stocking or other webs in the proper path between the two series of beaters 14, so that even results are produced; whereas, where the matter is left to the judgment of the operative, the beaters either remain too long or not long enough in contact with the fabric, producing accordingly too narrow or too wide results.

As indicated in Fig. 8, the corrugated roll 15 has a fixed bearing in the block 17, while the companion roll 16 is provided with trunnions 18 that are fitted to slide horizontally in slots 19 made in the bearing block 17, and coil springs 20, or the like, are arranged in engagement with the trunnions 18 for the purpose of yieldingly urging the corrugated roll 16 toward the other roll 15, so that these two corrugated rolls tightly bind on the web that is fed therethrough into the beaters.

The shaft 4 beyond the bearing 3, as shown in Figs. 3 and 6, carries a pulley 21 which is engaged by one end of a belt 22, which also passes about a larger pulley 23 on the rearwardly extended end 24 of one of the gudgeons of the corrugated roll 15, and the parts just described operate to drive the roll 15 in a clockwise direction, as viewed in the position shown in Fig. 5. As shown in Fig. 3, intermeshing pinions 25 and 26 on the forward trunnions of the corrugated rolls provided for driving the movable roll 16 in an opposite direction to the roll 15, or in a counter-clockwise direction, as looked at in Fig. 5.

I also preferably provide a fabric holder which consists of a pair of curved arms 27 pivoted on or near the casing, as indicated at 28, and carrying a pair of curved plates 29 and 30 having out-turned front and rear edges 31 and 32 forming flaring mouths for receiving the fabric or webs; and with these plates are associated some means for clamping same tightly together on the fabric which, in the instance shown, is provided by bolts 33 and winged nuts 34 threaded on the bolts 33 and adapted to bind against the top plate 30.

Of course cams or springs might be substituted for the nuts or bolts, or any other means might be used to accomplish this result. The fabrics are intended to be introduced through the flaring mouth 22, through the curved plates 30; and the thumb nuts 34 thereupon tightened to force the plates together and clamp the web holder therebetween so as to hold same in a smooth condition, in which they are delivered to the corrugated rolls 15 and 16 through the opposite flaring mouth 31.

When the fabric has been introduced the required distance being fed automatically to the beaters 14 by the corrugated rolls 15 and 16, it can be withdrawn by a quick horizontal pull in the direction of the slots 19 in which the trunnions 18 of the roll or cylinder 16 move horizontally. The horizontal pull on the web causes the roll 16 to move back in opposition to the action of the springs 20 and widens the gap between the two rolls so as to permit the quick release of the web from the beaters.

The fabric holder is also useful in exerting this horizontal pull and in withdrawing the web from the beaters, such fabric holder being arranged to tightly clamp the upper portion of the webbing while the lower portion thereof is allowed to pass through the corrugated rolls into the beaters; and after this lower portion has been subjected for a sufficient time and throughout a sufficient area to the action of said beaters, the fabric holder may be moved by hand, causing the same to swing about the beaters 28 of the arms 27, thus pulling the fabric upwardly and horizontally toward the right, as appears in Figs. 4 and 5; and this action will cause the release of the corrugated roll 16 and enable the lower portion of the web to be removed from the casing and rolls.

From the foregoing description, taken in connection with the accompanying drawings, it will be appreciated that I have provided an improved apparatus in which the fabrics may be held more firmly and positively than can be accomplished by hand, and that the results produced are more uniform and better than when the material is fed by hand; and that in accordance with the invention described herein, the construc-

tion and action of the beaters is attended with improved results.

It is obvious that those skilled in the art may vary the details of construction and arrangements of parts without departing from the spirit of my invention, and therefore I do not wish to be limited to such features except as may be required by the claims.

I claim:

1. Apparatus for treating knitted webs comprising a pair of heavy wheels rotating in opposite directions and having solid blades adapted to intermesh and formed at their outer edges with beaters, said beaters traveling in intersecting paths, substantially as described.

2. Apparatus for treating knitted webs comprising a pair of heavy solid cast segment wheels having perforated hubs and integral radial solid blades with beater surfaces formed at the outer free edges of the radial blades, and shafts going through said hubs for driving the wheels in opposite directions, the blades of the two wheels adapted to intermesh whereby the beater surfaces may travel in intersecting paths, substantially as described.

3. Apparatus for treating knitted webs including beating means, a pair of oppositely rotating corrugated feeding rolls for advancing the web into said beating means, one of said corrugated rolls being slidably journaled, spring means for urging said slidable roll against the companion roll, means for actuating said corrugated rolls, the webs adapted to be released from the rolls by the movement of said slidable roll, substantially as described.

4. Apparatus for treating knitted webs including beating means, feeding means for advancing the webs into said beating means, and a fabric holder near said feeding means, said holder including a pair of pivoted arms, curved plates having outwardly flaring ends mounted near the free ends of said arms, and means for clamping said plates together against the knitted web, substantially as described.

FRANK SEMPLE WILCOX.