Dec. 5, 1939. L. BOGGERO ET AL 2,182,653

BALL FRINGED BRAID

Filed Aug. 17, 1938

Fig. 3

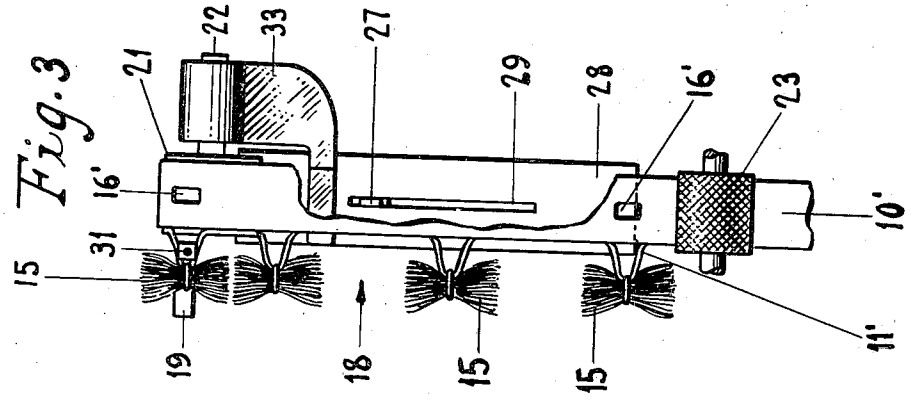


Fig. 2

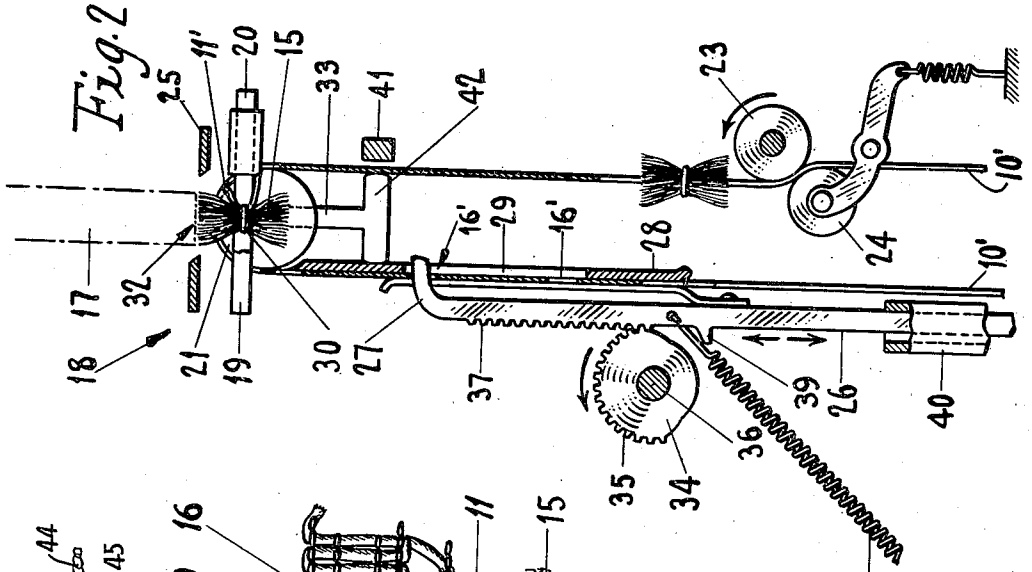


Fig. 1

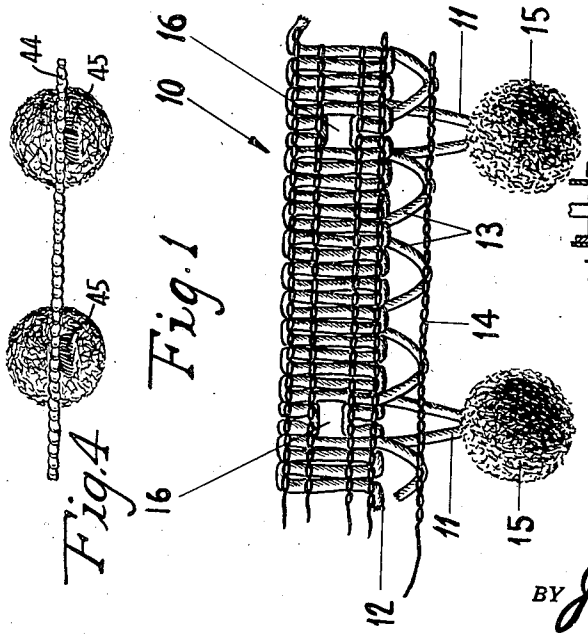
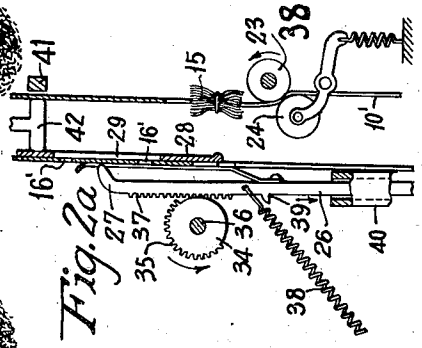


Fig. 4

Fig. 2a



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BALL FRINGED BRAID

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7 Claims. (Cl. 28—1)

This invention relates to improvements in that class of woven, braided or knitted fabric having at one edge regularly recurring loops to which may be attached pompons or other ornamented pendants.

It has been found in practice that when elongated loops are formed from an edge of a woven fabric by extending the wefts at predetermined points beyond the normal selvage edge, that there is a distinct tendency for the loops to twist and partially close up.

An object of this invention is to provide a braid having at one edge regularly recurring loops and having an individual thread spaced from said edge and being interwoven or interbraided with said loops for reinforcing and maintaining said loops with their bight portions lying open in the plane of the braid.

Another object of this invention is to provide zig-zag threads connecting the said individual thread with the said selvage edge so as to cause said individual thread to lie in the plane of the braid and spaced in parallel relation from one edge of said braid.

Another object of this invention is to form the individual thread by means of a chain stitch having a series of interlocked stitches so as to permit ravelling of the said thread and separating the zig-zag loops from the elongated loops after attaching pompons to said elongated loops and so that the ball fringed braid will have a border with large and small loops appearing as individual elements and with the pompons or pendants attached in outstanding relation to the elongated loops.

Another object of this invention is to provide a fabric strip having engaging means at spaced intervals whereby it may be fed through a pompon or ball-making machine and the said pompon attached thereto in said spaced relation.

Another object of this invention is to provide an ornamented ball fringed braid of the above type, especially designed for machine manufacture and quantity production.

With the above and other objects in view, the invention will be hereinafter more particularly described, and the combination and arrangement of parts will be shown in the accompanying drawing and pointed out in the claims which form part of this specification.

Reference will now be had to the drawing, wherein like numerals of reference designate corresponding parts throughout the several views, in which:

Figure 1 is a plan view illustrating the ball fringed braid having spaced apertures fabricated therein and by means of which the balls are attached automatically.

Figure 2 shows diagrammatically, in front elevation, pompon binding and braid feeding mechanism and means whereby the spaced apertures in a looped braid are utilized for intermittently arresting the feeding motion.

Figure 2a shows diagrammatically the means for arresting the feeding motion just at the moment of release.

Figure 3 is a side elevation of the mechanism shown in Figure 2.

Figure 4 is a side view of a modified ball fringed braid having laterally extending projections.

In the illustrated embodiment of the invention, the numeral 10 indicates a fabric header-strip having at its lower edge regularly recurring elongated loops 11. The loops have been formed by extending weft threads below the lower edge 12.

For the purpose of retaining the loops 11 in open position in the plane of the braid 10, we have provided substantially zig-zag threads forming loops 13 of smaller length than the elongated loops 11. The loops 13 are positioned intermediate the elongated loops 11. An individual chain-stitched thread 14 parallel with the lower edge 12 has been spaced from said edge a distance sufficient to permit connection with the lower ends of the short loops 13 and with both sides of each of the elongated loops 11.

We have found from actual practice that the above arrangement prevents the twisting of the long loops 11. This non-twisting feature of the loops 11 makes it possible to feed the braid 10 through a ball attaching mechanism with the loops in constantly open position ready for instantly attaching a ball 15 to each loop.

For the purpose of feeding the looped braid 10 through a pompon making and attaching machine for attaching pompons to each of the elongated loops, we have formed through apertures 16 in equally spaced relation in the braid and by means of which the movement of the braid may be made intermittently a definite pitch-distance, step-by-step, while it is impelled by suitably formed rotary friction feeding rollers embodied in the machine. The apertures 16 provide means for engaging the braid 10 by a pawl, and when this engagement takes place the movement of the braid is stopped. The stoppage periods of the pompon making mechanism is timed to permit the cutting of a pompon length of yarn and the attachment of a pompon to each of the loops 11.

This attaching of the pompons takes place continually and with absolute precision.

Referring more in detail to the drawing shown in Figures 2, 2*a* and 3, the method whereby pompons are made and attached to a looped braid is as follows:

A bundle of yarn 17, assembled side-by-side, is fed vertically from spools (not shown) to a pompon forming and attaching mechanism 18, shown diagrammatically in Figures 2 and 3. The mechanism 18 comprises two wire-bending dies 19 and 20 which clamp a binding wire around the yarn 17. The wire is fed in a continuous length into the path of the wire bending dies, as is well known in the art.

The mechanism for attaching pompons to braid loops comprises spring-pressed feed rollers 23 and 24, a pivoted aperture engaging bar 26, a roller 21 mounted on a shaft 22, a vise 41, and a slotted plate 28.

The bar 26 is mounted for motion in a substantially vertical plane adjacent one side of the braid and is designed to engage an aperture 16' in the braid 10'. The mechanism for actuating the bar 26 vertically comprises a gear 34 best shown in Figure 2. The gear 34 has teeth 35 on only about one-half its circumference and is mounted on a shaft 36 and rotates in the direction shown by the arrow. The bar 26 has a number of rack teeth 37 corresponding to and meshing with the teeth 35 on the gear 34. A spring 38 is fastened to the bar 26 and is positioned in a direction to cause engagement of the teeth 35 and 37. The spring 38 also pulls the bar 26 downward after the gear teeth 35 come out of engagement with the teeth 37. The bar 26 has a lateral projection 39 which strikes a frame member 40 and serves to limit the downward movement of the said bar. Due to the limit stop 39, the topmost tooth on the bar remains high enough so as to be engageable by the gear teeth 35.

It is to be noted that the plate 28 is fastened to a bracket 33 in which the shaft 22 is mounted. The bracket 33 and the plate 28 are in operative engagement with a lever (not shown) which causes lateral movement of the plate 28 thus permitting the braid 10' to disengage from the projection 27 and allowing the bar 26 to be moved downward by the spring 38.

When the rotation of the segmental gear 34 brings the teeth 35 into engagement with the teeth 37 of the bar 26 they raise the bar to the position shown in Figure 2.

The vise 41 is designed to grip the braid 10' and clamp the braid against an extension 42 of the bracket 33, to permit the bar 26 to be moved downwardly by the spring 38 without pulling the braid backwards. While the braid is held by the vise 41, the rollers 23 and 24 continue to rotate but cannot feed the braid, there being relative slippage therebetween.

Operation

With the vise 41 in an open position, as shown in Figure 2, a braid 10' is passed over the roller 21 and is fed by frictional contact between the two continuously rotating rollers 23 and 24. The bar 26 has a lateral projection 27 which engages an aperture 16' in the braid 10', when the said projection is in a lower position than that shown in Figure 2. The projection enters the aperture and holds the braid against an upright rear plate 28 having a slot 29 for receiving said projection. The bar 26 and the engaged braid move up.

The rollers 23 and 24 pull the braid until the bar 26 and engaged braid move to a desired upper position as shown in Figure 2, when a loop 11' comes into alinement with the binding wire 30. The bar 26 is caused to momentarily stop in its upper position, at which time the vise 41 closes and the rollers 23 and 24 slip and stop feeding the braid. One of the wire bending dies 19 has a sharp pointed projection 31 extending therefrom and positioned in central alinement with the uppermost loop 11' and assures the alinement of the said loop with the wire bending mechanism. The binding wire 30 is caused to pass through the uppermost loop and secures the loop to a pompon 15 which is formed simultaneously.

When a loop becomes attached to a pompon, a shears 25 cuts the yarn 17 along the dot-and-dash line 32. When the yarn is cut, the wire binding dies open and release the pompon and the loop. The plate 28 is moved laterally to the right and away from the bar 26 permitting the projection 27 to disengage from the braid 10'. Rotation of the segmental gear 34 causes the teeth 35 and 37 to mesh intermittently. The teeth 37 of the bar 26 are now disengaged from the gear teeth 35 permitting the bar 26 to be pulled downward by the spring 38, as shown in Figure 2*a*.

The slotted plate 28 returns to its initial position as shown in Figure 2 and the vise 41 opens after which the above mentioned operations are repeated.

Referring to Figure 1 it will be noted that the apertures 16 have been spaced apart so as to be in alinement with the elongated loops 11. However, this spacing may be made so that the apertures and the loops will not be in alinement but will be spaced in proportion. The timing of the arresting periods in the motion of the braid is of sufficient duration to permit a pompon to be cut and bound and attached with precision to each of the elongated loops.

It is to be noted that the braid 10' shown in Figures 2 and 3 is a modification of the braid 10. The braid 10' is without the ornamental loops 13. The loops 13 may be omitted when the elongated loops 11' are made of relatively rigid cord. It is furthermore to be noted that an apertured fabric strip may be used without loops and in which case the pompons will be attached directly to the bottom selvage edge.

It is furthermore to be noted that we may provide a modified fabric strip 44 having lateral projections 45, as shown in Figure 4 in place of the apertures 16', 16' and in which case the lateral projection 27 of the bar 26 will engage the lateral projections of the strip and function similarly as a means for intermittently arresting the motion of the strip.

Referring to Figure 1, it will be noted that the braid 10 has been made by triple wefts, preferably on a knitting machine, that is, the braid has a layer comprising a series of wefts in its front face, a layer comprising a series of wefts in its rear face and an intermediate layer comprising a series of wefts. The three layers are connected by a plurality of chain stitch threads running lengthwise of the braid. This is different from fabric strips made on a loom wherein there is only one layer of wefts. It will be seen that the elongated loops 11 are of substantially triangular form with the apex facing downwardly and away

from the lower edge of the braid. The triangular loops have their base end portions spaced considerably wide apart and this facilitates the maintenance of the loops in open and untwisted position at least at the base portions of the loops. This wide spacing of the base end portions of the elongated loops is made possible by the plurality of weft layers.

The mechanism herein disclosed diagrammatically has been designed specially for carrying out the steps of the method hereinafter claimed for producing ball fringed braid from a fabric strip having elongated loops extending in spaced relation in a single line from one edge of the braid. The ball-fringe machine actually used for carrying out the above method contains mechanical equivalents of the mechanism shown herewith and forms the subject matter of a copending patent application.

We claim:

1. A ball fringed braid comprising elongated loops formed from wefts and depending from an edge thereof, a zig-zag thread depending from said edge and positioned intermediate said loops, an individual chain-stitched thread spaced from said edge a distance sufficient to permit connection with the lower ends of said zig-zag thread and with both sides of said loops, whereby said loops are reinforced against twisting and caused to lie open in the plane of said braid, and a ball carried by each of said loops.

2. A ball fringed braid comprising elongated loops formed from wefts and depending from an edge thereof, a zig-zag thread depending from said edge and forming loops positioned intermediate said elongated loops, an individual chain-stitched thread spaced from said edge a distance sufficient to permit connection with the lower ends of said zig-zag thread loops and with both sides of said elongated loops, whereby said elongated loops are reinforced against twisting and caused to lie open in the plane of said braid, and a ball carried by each of said elongated loops.

3. In a ball fringed braid of the class described, comprising elongated loops formed from wefts and depending from an edge thereof, a zig-zag thread depending from said edge and forming loops positioned intermediate said elongated loops, an individual chain-stitched thread spaced from said edge a distance sufficient to permit connection with the lower ends of said zig-zag thread loops and with both sides of said elongated loops, whereby said elongated loops are reinforced against twisting and caused to lie open in the plane of said braid, said braid having apertures in spaced relation in proportion to the spacing of said elongated loops and a ball carried by each of said elongated loops.

4. A fabric strip of the class described, comprising elongated loops in spaced relation along one edge thereof and pendants secured to each of said loops, said elongated loops being of triangular form, the portion of the triangle at the lower edge of the fabric strip constituting the base thereof, the apex of the triangle pointing away from said fabric strip, the threads of said elongated loops adjoining the fabric strip being separated by other threads so as to cause them to be widely spaced apart, the said widely spaced threads of said elongated loops causing at least the base portions of said loops to lie open in the plane of said braid, said strip having apertures in spaced relation in proportion to the spacing of said pendants, the spacing of said pendants being pre-determined by said apertures.

5. A ball fringed braid comprising elongated loops formed from wefts and depending from an edge thereof, the base end portions of said elongated loops being widely spaced apart, a thread depending from said edge and forming loops or fringe positioned intermediate said elongated loops, the said widely spaced base ends of said elongated loops causing at least the base portions of said loops to lie open in the plane of said braid, said braid having apertures in spaced relation in proportion to the spacing of said elongated loops, and a pendant carried by each of said elongated loops.

6. A ball fringed braid comprising elongated loops formed from wefts and depending from an edge thereof, the base end portions of said elongated loops being widely spaced apart, said elongated loops being of substantially inverted triangular form, said spaced apart base portion being positioned at the lower edge of said braid, a thread depending from said edge and forming loops or fringe positioned intermediate said elongated loops, the said widely spaced base ends of said elongated loops causing said loops to lie open in the plane of said braid, said braid having laterally extending means in alinement with said elongated loops, and a pendant carried by each of said elongated loops.

7. A fabric strip comprising elongated loops formed from wefts and depending from the lower edge thereof, said elongated loops being of triangular form, the portion of the triangle at the lower edge of the fabric strip constituting the base thereof, the apex of the triangle pointing away from said fabric strip, the threads of said elongated loops adjoining said fabric strip being separated by other threads so as to cause them to be widely spaced apart, the said widely spaced threads of said elongated loops causing at least the base portion of said loops to lie open in the plane of said fabric strip, pendants carried by said elongated loops, and laterally extending means spaced lengthwise of the fabric at predetermined points.

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