Oct. 30, 1962 H. BUDDECKE 3,061,088

YARN PACK

Filed Aug. 24, 1956

Fig.1

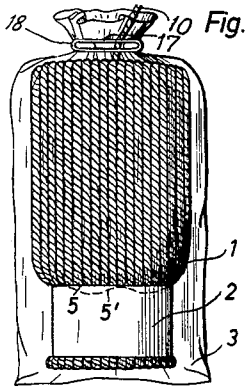


Fig. 2

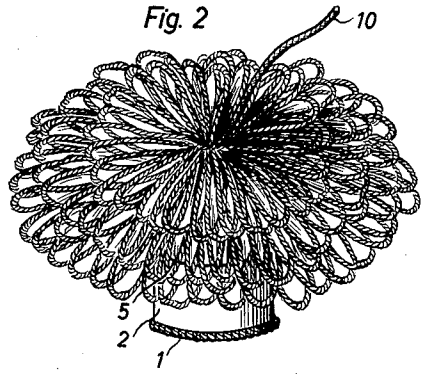


Fig.3

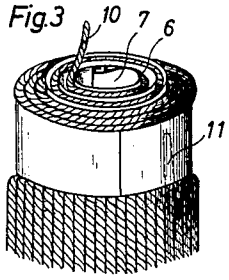


Fig. 4

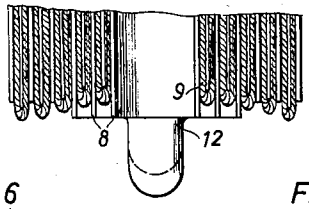


Fig.5

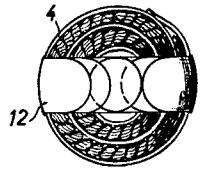
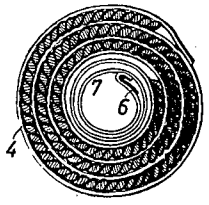


Fig.6



Fig.7



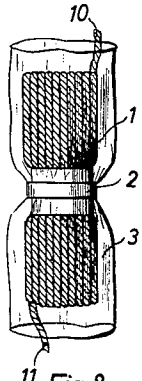


Fig.8

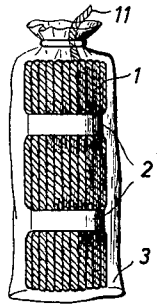


Fig.9

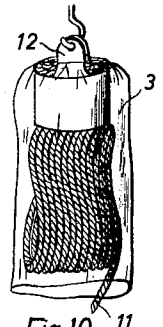


Fig.10

Fig.11

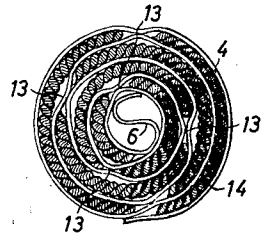
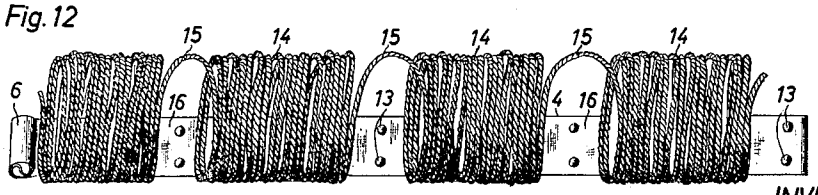


Fig.12



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YARN PACK

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4 Claims. (Cl. 206—64)

The invention relates to yarn packs consisting of a spirally coiled yarn strip of yarn windings scale-like overlapping each other, which has to take the place of the usual yarn skeins in order to save the buyer, previous to working up of the yarn, from unwinding the skeins to balls.

The yarn-strip-roll is on the outside embraced by the last spiral coil of a rolled up separating leaf strip or by a particular leaf of paper or the like for holding it together. Further on, the yarn-strip-roll is enclosed by a protecting jacket in the form of a card board box, a foil bag or the like as a protection against influences of all kinds from the end of which the yarn thread can be drawn off through a thread-opening.

As it is desirous that the yarn can be inspected thoroughly and without hindrance and can be handled like the usual yarn skeins, contrivances have been proposed for entirely or partly drawing the yarn strip roll out of the closeable opening of its jacket in order to lay open at least the front face of the yarn-strip-roll up to which hitherto the embracing was located.

The invention aims at a substantial improvement of the laying open of yarn portions.

To this end, according to the invention, the yarn-strip-roll is held together in its spiral form only along a small part of its width by embracing means with the unembraced part of the yarn strip together with its yarn returns being completely free so that they can be spread out like a rosette.

On spreading out the single yarn windings the yarn-strip-roll assumes a mushroom-like form with a surface which is by a multiple larger than the section of the roll itself so that the possibility for the buyer to inspect the yarn will be considerably increased. The yarn thread can be drawn out of this rosette without the danger of entanglement as the embraced part of each winding retains its position unchangeable in the whole roll. Preferably, the width of the embracing will be chosen narrower than the half of the width of the yarn strip in order to get, on the one hand, the yarn rosette as large as possible and to obtain, on the other hand, a friction resistance of the thread produced by the embracing means as small as possible.

This arrangement obtains particular importance when the yarn strip roll is provided with a protecting jacket, for instance in the form of a bag consisting of transparent plastic foil. In this case the roll can be optionally drawn out and spread out. By shifting it back into the protecting jacket it will be restored into its compact form. The embracing can be situated, instead at an end, also at the middle zone of the yarn-strip-roll or can be formed by two middle embracing strips spaced from each other. In the latter case, after taking out the yarn-strip-roll, two rosettes may be formed.

With the known yarn packs of the mentioned kind the thread is usually drawn out with its inner thread end, while the outer end is fixed. Frequently it is desired to simultaneously work up two threads. For this case it will be provided for that the inner end as well as the outer end can be drawn out at the same time. When the wound up thread is composed by half of two different kinds of yarn, two different yarn threads can be worked up at the same time. In the above mentioned arrangement of forming a yarn rosette at each end of the yarn-strip-roll the

two threads can be drawn out, each from one of the ends of the yarn-strip-roll.

With known yarn packs the thread returns and the edges of separating leaf strip or the like each are arranged in a plane. By an arrangement deviating from a plane the forming of the yarn-rosette can be considerably improved.

Further, with the known yarn packs maintaining the correct mutual position of the single yarn windings until the drawing off of the last yarn is attained in that the spirally rolled with separating leaf strip extends with one of its edges beyond the yarn winding strip, its spiral coils here being sticked with each other, thus that a separating leaf skeleton is formed which prevents the yarn-strip-roll from collapsing after a greater quantity of yarn has been drawn out.

In order to maintain the rest of the yarn-strip-roll in its correct form in the described form of embodiment (in which a separating leaf skeleton of this kind is not provided for and a separating leaf strip, after all, can be wanting) special tightening means are used which keep the spiral-roll under tension either from inside to outside or from outside to inside, so that the embraced rest of the roll always retains its proscribed position.

A particularly usable embodiment of the yarn pack consists in that the yarn winding strip is divided into groups of yarn windings connected with each other, each being enclosed by the separating leaf strip and can be drawn out one after the other.

Further features of the invention result from the following description of an example of embodiment of the invention.

In the accompanying drawing:

FIG. 1 is a yarn-strip-roll enclosed in a protecting bag.

FIG. 2 is a yarn-strip-roll in the form of a rosette taken out of its protecting jacket.

FIG. 3 is a perspective view of the end of a yarn-strip-roll embraced by a tightening means and with a guiding strip.

FIG. 4 is a part of a middle section of a yarn-strip-roll.

FIG. 5 is a front-view of a yarn-strip-roll with shutting-up-tongues.

FIG. 6 is a front-view of the yarn-strip-roll with a tightening means in its tensioned state.

FIG. 7 is a corresponding view in the de-tensioned state of the tightening means.

FIG. 8 is a yarn pack with a middle embracing, with which the yarn thread can be drawn off from both of the ends.

FIG. 9 is a yarn pack with two middle embracing strips.

FIG. 10 is a yarn pack with a suspending device.

FIG. 11 is a yarn pack having adjacent coils of the separating leaf strip glued with each other from space to space.

FIG. 12 is an unrolled yarn winding strip together with an unrolled separating leaf strip.

In the example of embodiment according to FIGS. 1 and 2 the yarn winding strip 1, spirally wound up with or without a separating leaf strip, is held together at one of its ends by a broad embracing strip 2 which can be represented too by the last coil of the separating leaf strip. The part of the yarn windings not being in the reach of the embracing strip 2 lies quite free and, after taking the yarn strip roll out of the protecting bag 3, is enabled to be spread out like a rosette according to the manner represented in FIG. 2, so that the greater part of the wound up yarn is offered for viewing and handling to the buyer.

In order to perfect the form of the rosette and to give it a fully equable and pleasing form the yarn returns of the single windings can be arranged, under circumstances,

instead in a plane deviating from a plane according to a distinct pattern as represented in FIG. 4. The free lying yarn windings also can be differently formed, for instance waved. Further, the embracing strip 2 or the rolling up separating leaf strip 4 can be waved at the one edge 5 as at 5' (FIG. 1) in order to influence therewith the manner of spreading out the single yarn windings.

In the example of embodiment according to FIG. 8 the yarn-strip-roll is provided in the middle zone only with an embracing means 2. After taking out the yarn-strip-roll of the protecting bag 2 two yarn rosettes can be formed here.

In the example of embodiment according to FIG. 9 two strips 2 are used as embracing means which are arranged in the middle part of the yarn-strip-roll spaced from each other and leaving completely free three zones of yarn windings having about the same lengths. Here also, after the yarn-strip-roll is drawn out of the protecting bag, two yarn rosettes can be formed.

As a skeleton-like form of the separating leaf strip is not provided for, particular provisions have to be made in order to maintain the rest of the yarn strip roll in its prescribed form and to avoid entanglements, after a greater yarn quantity has been drawn out.

To this end particular tension means in form of elastic strips are provided which will be put into the hole formed by the innermost coil of the separating leaf strip or which can be arranged around the outer coil of the yarn strip, the object of these means is to press together the yarn-strip-roll from inside to outside or from outside to inside. Such tension strips 6 which are introduced into the inner hole 7 will be apparent from the FIGS. 3, 6 and 7. The tension strip may consist of any elastic material and has, in its tensioned state (FIG. 6), either S-like or spiral-like shape according to the maintaining power of a clock. FIG. 7 shows the tension strip 6 in its untensioned state.

In order to dispense with such tension means particular provisions have to be made against entanglement of the inner spiral coils of the yarn winding strip. This will be effected by the arrangement of particular guiding strips 8 (FIG. 4) which are enveloped in the yarn winding strip and which register with the yarn returns 8 of the inner spiral windings or project somewhat beyond them thus that the yarn returns can not entangle with each other. The outer spiral coils of the yarn strip then can project beyond the separating leaf strip 4. The guiding strip 8 may consist of one piece with the separating leaf strip in that the edges of the latter are accordingly stepped. The tension strip 6 can similarly be connected with the separating leaf strip 4, for instance glued, to it.

Whilst usually the inner end 10 (FIG. 3) of the wound up thread will be drawn out of the pack, the disposition can be made that at the same time the outer end 11, hitherto mostly being fixed, can be drawn out, so that two threads can be worked up simultaneously. In the embodiment according to FIG. 8 in which the protecting bag 3 comprises two closable ends, the embracing means 2 can be fixed to the protecting bag, for instance, by gluing. The two thread ends 10 and 11 then can be drawn off to the pack in different directions. When each half of the coiled up thread consists of a different kind of yarn, two threads of different kind of yarn can also simultaneously be drawn out from the same pack and worked up.

The separating leaf strip 4 (FIG. 5) or the guiding strip 8 can be provided with projecting tongues 12 at the end of the yarn-strip-roll opposite the drawing out end. The tongues can be bent together in a manner represented in FIG. 5 and can be pasted or otherwise connected with each other in order to maintain the coiled form.

The tongues 12 can serve in a folded together and perforated form, as is represented in FIG. 10, as hanging up means for hanging up the pack with the closable opening of the protecting pack downwardly directed.

A particular usable, easily feasible embodiment which fulfills the effect of a separating leaf skeleton is shown by the FIGS. 11 and 12. Here the yarn winding strip is divided into groups 14 of yarn windings connected with each other, each embraced by the separating leaf strip and can be drawn out one after the other. In the embodiment, represented in FIG. 11, adjacent coils of the separating leaf strip are glued with each other in spaces at the spots 13 between the single yarn strip groups 14. Between the yarn winding groups intermediate spaces are arranged which will be bridged by a bridging thread part 15. This bridging thread part is located on the side of the separating leaf strip 4 which is directed towards the drawing out end of the yarn strip roll.

The separating leaf strip may consist of a suitable plastics having wide meshes or being net-like perforated permitting a free passing of gaseous vapours and fluids so that the yarn-strip-roll after being prepared can be correspondingly heated, for instance impregnated.

In order to lead the thread end located in the protecting bag outwards through the thread open 17 (FIG. 1) in the thread guide member 18 of the closable end of the protecting bag, it is only necessary to suddenly and laterally depress the protecting bag. The current of air passing thereby through the thread opening taking with it the thread end outwardly. To this end, however, the thread opening 17 has to be sufficiently large and sufficient free air has to be in the bag containing the yarn-strip-roll.

What I claim is:

1. In a yarn pack comprising a yarn strip formed by helicoidal yarn windings of oblong pattern transversely arranged in the strip, adjacent windings overlapping each other in scale like manner, a single separating leaf strip, said yarn strip and said separating leaf strip together being rolled up forming a yarn strip roll, embracing means disposed around the periphery of the yarn strip roll holding together the spiral coils of the roll, the width of said separating leaf strip and said embracing means being less than a third of the whole height of the yarn strip roll and being placed at one end of the yarn roll, and special means for securing a tight contact of the separating leaf strip coils at both sides of the yarn windings along the whole width of the separating leaf strip maintaining the outer form of the yarn pack from which yarn is more or less drawn out, said separating leaf strip covering the yarn returns at the inner spiral coils of the yarn strip with one of its edges and projecting beyond same, and receding with respect to the thread returns in the range of the outer coils of the yarn winding strip.

2. In a yarn pack comprising a yarn strip formed by helicoidal yarn windings of oblong pattern transversely arranged in the strip, adjacent windings overlapping each other in scale like manner, a single separating leaf strip, said yarn strip and said separating leaf strip together being rolled up forming a yarn strip roll, embracing means disposed around the periphery of the yarn strip roll holding together the spiral coils of the roll, the width of said separating leaf strip and said embracing means being less than a third of the whole height of the yarn strip roll and being placed at one end of the yarn roll, and special means for securing a tight contact of the separating leaf strip coils at both sides of the yarn windings along the whole width of the separating leaf strip maintaining the outer form of the yarn pack from which yarn is more or less drawn out, said special means comprising an elastical tension strip secured to the inner end of the separating leaf strip located in a coiled form in the hole formed by the first coil of the yarn winding strip.

3. In a yarn pack comprising a yarn strip formed by helicoidal yarn windings of oblong pattern transversely arranged in the strip, adjacent windings overlapping each other in scale like manner, a single separating leaf strip,

said yarn strip and said separating leaf strip together being rolled up forming a yarn strip roll, embracing means disposed around the periphery of the yarn strip roll holding together the spiral coils of the roll, the width of said separating leaf strip and said embracing means being less than a third of the whole height of the yarn strip roll and being placed at one end of the yarn roll, and special means for securing a tight contact of the separating leaf strip coils at both sides of the yarn windings along the whole width of the separating leaf strip maintaining the outer form of the yarn pack from which yarn is more or less drawn out, said separating leaf strip being provided at one edge with projecting tongues, which are connected with each other to serve as suspending means and for stiffening the spiral coils of the separating leaf strip at the end of the yarn strip roll opposite the drawing out end.

4. In a yarn pack comprising a yarn strip formed by helicoidal yarn windings of oblong pattern transversely arranged in the strip, adjacent windings overlapping each other in scale like manner, a single separating leaf strip, said yarn strip and said separating leaf strip together being rolled up forming a yarn strip roll, embracing means disposed around the periphery of the yarn strip roll holding together the spiral coils of the roll, the width of said separating leaf strip and said embracing means being less

than a third of the whole height of the yarn strip roll and being placed at one end of the yarn roll, and special means for securing a tight contact of the separating leaf strip coils at both sides of the yarn windings along the whole width of the separating leaf strip maintaining the outer form of the yarn pack from which yarn is more or less drawn out, said special means being formed by dividing the yarn windings into groups, intermediate spaces between the single groups, bridging thread parts connecting neighbouring groups, adjacent coils of the separating leaf strip being connected with each other within said intermediate spaces so as to form separate tight pockets each receiving one yarn winding group, said bridging thread parts being located on the side of the separating leaf strip directed to the drawing out end of the yarn strip roll.

References Cited in the file of this patent

UNITED STATES PATENTS

164,284	Farmer	June 8, 1875
1,818,694	Corbett	Aug. 11, 1931
1,937,468	Talbot	Nov. 28, 1933

FOREIGN PATENTS

891,984	Germany	Oct. 1, 1953