June 14, 1955 L. F. PROSSEN 2,710,689

YARN PACKAGE

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FIG.1.

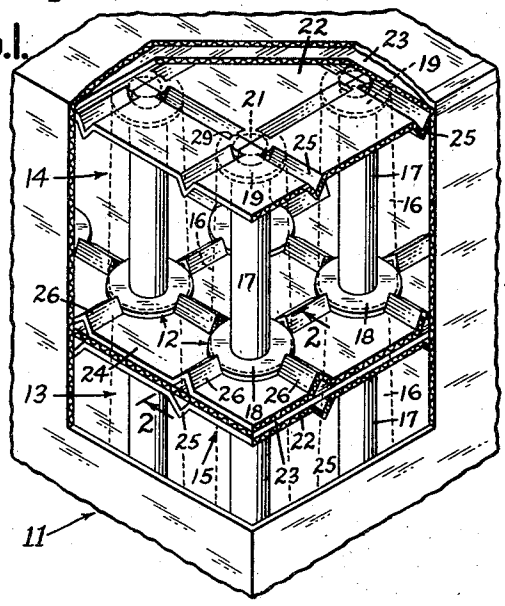


FIG.2.

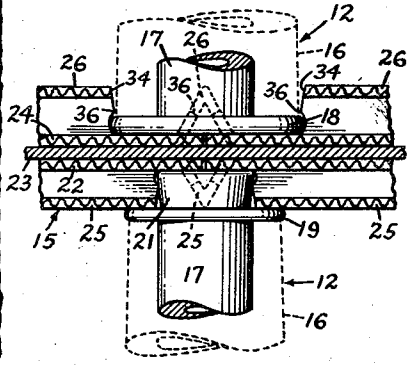


FIG.3.

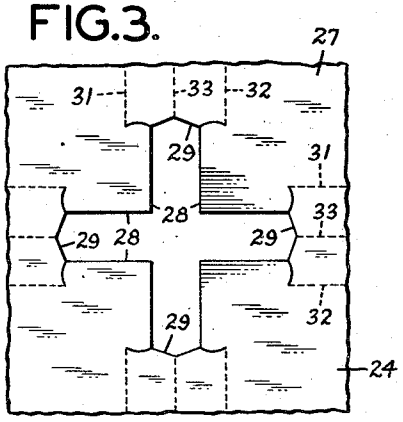


FIG.4.

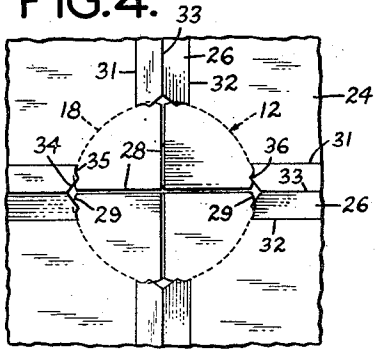


FIG.5.

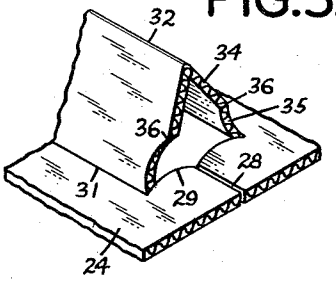
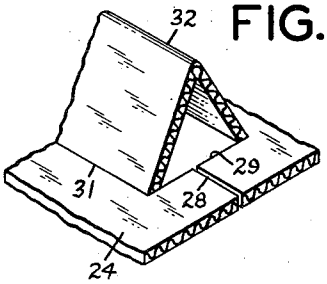


FIG.6.



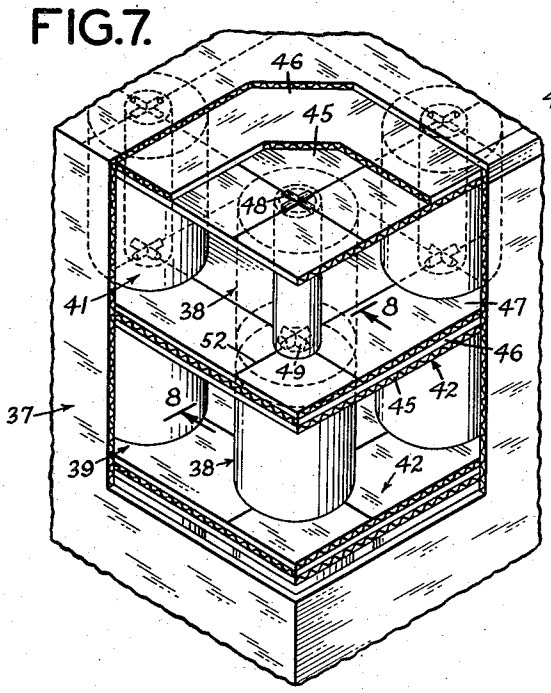
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YARN PACKAGE

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FIG.7.



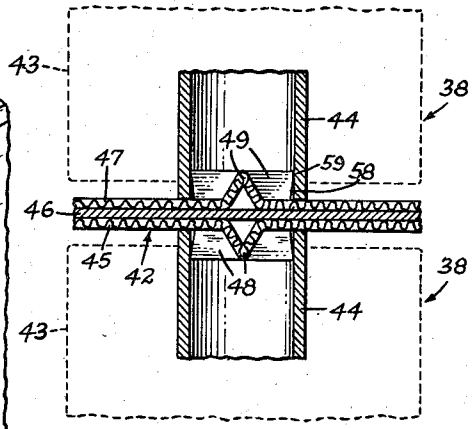


FIG.8.

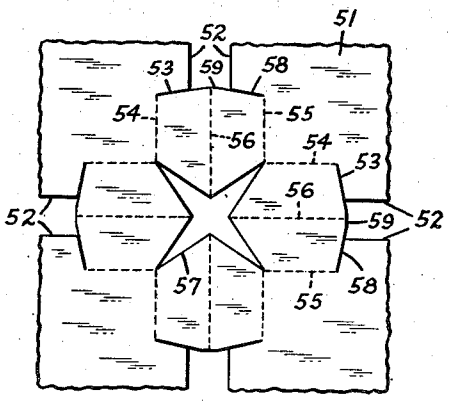


FIG.9.

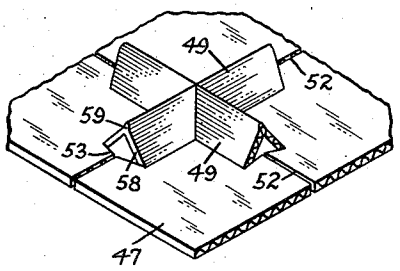


FIG.10.

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YARN PACKAGE

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Application August 18, 1950, Serial No. 180,115

12 Claims. (Cl. 206—65)

This invention relates to cartons and relates more particularly to cartons for the storing and shipping of packages of yarn.

The bulk of the yarn produced in the textile industry is wound into packages such as bobbins, cones, cheeses, pirns and the like. During the storing and shipping of these packages of yarn they must be supported so as to prevent them from rubbing against each other or against the walls or inserts of the cartons in which they are contained, since such rubbing would damage at least the outer layers of yarn on said packages.

It is an important object of this invention to provide a carton for the storing and shipping of packages of yarn which will fulfill the foregoing requirements and which will be especially simple and inexpensive in construction and highly efficient in use.

A further object of this invention is the provision of a carton for the storing and shipping of packages of yarn which will engage said packages so as to avoid relative movement thereof and damage to the yarn wound thereon.

Other objects of this invention, together with certain details of construction and combinations of parts, will be apparent from the following detailed description and claims.

According to the present invention, there is provided a carton for the storing and shipping of packages of yarn arranged in one or more superposed layers, which will engage said packages of yarn so as to prevent them from rubbing against each other or against the walls or inserts of the cartons in which they are contained. The carton of this invention includes novel inserts for supporting the layers of packages of yarn, which inserts are characterized by having discontinuous ridges projecting from the faces thereof and located at positions spaced along intersecting lines. The ridges are adapted to extend normally toward and engage the packages of yarn securely, and the ends of said ridges which are to be in contact with the packages of yarn may be shaped to assist in the packing operation and also to hold the packages of yarn in place once they have been positioned in the carton.

Preferred embodiments of this invention are shown in the accompanying drawings wherein

Fig. 1 is a fragmentary perspective view of a carton for the storing and shipping of bobbins of yarn, a portion of the walls being cut away to show the interior thereof,

Fig. 2 is a cross-sectional view taken on the line 2—2 in Fig. 1 in the direction of the arrows,

Fig. 3 is a plan view of a portion of the blank from which the inserts that engage the bobbins of yarn are formed,

Fig. 4 is a plan view of the blank shown in Fig. 3 assembled ready for use,

Fig. 5 is a perspective view of a portion of the ridge for engaging the bobbins of yarn,

Fig. 6 is a perspective view of a portion of a modified form of ridge for engaging the bobbins of yarn,

Fig. 7 is a fragmentary perspective view of a carton for the storing and shipping of cheeses of yarn, a portion of the walls being cut away to show the interior thereof,

Fig. 8 is a cross-sectional view taken on the line 8—8 in Fig. 7 in the direction of the arrows,

Fig. 9 is a plan view of a portion of the blank from which the inserts that engage the cheeses of yarn are formed, and

Fig. 10 is a perspective view of the blank shown in Fig. 9 assembled ready for use.

Referring now to the drawings and more particularly to Figs. 1 to 6 thereof, the reference numeral 11 designates generally the protective cover of a carton which may be formed from corrugated board, cardboard or other suitable material. The carton is shown containing a plurality of bobbins of yarn 12 arranged in superposed layers 13 and 14, each of which layers is supported on an insert, indicated generally by reference numeral 15. Each bobbin of yarn 12 comprises yarn windings 16 positioned on a barrel 17 between a lower flange 18 and an upper flange 19 to the latter of which is secured a lifting knob 21.

The inserts 15 comprise a lower member 22, a central member 23 and an upper member 24, which members may be formed from corrugated board, cardboard or other suitable material. The lower member 22 has integral therewith a plurality of discontinuous ridges 25 projecting downwardly from the lower face thereof, which ridges 25 are located at positions spaced along intersecting lines and are spaced one from the other, and are adapted to extend normally toward the lifting knobs 21 and engage the same at diametrically opposed points. Similarly, the upper member 24 has integral therewith a plurality of discontinuous ridges 26 projecting upwardly from the upper face thereof, which ridges 26 are located at positions spaced along intersecting lines and are spaced one from the other and are adapted to extend normally toward the lower flanges 18 and engage the same at diametrically opposed points. The central member 23, which may be omitted if desired, is flat and serves to strengthen and lend rigidity to the inserts 15.

The upper member 24 is formed from a flat blank 27 which is cut along pairs of intersecting parallel lines 28 and is also cut along lines 29 that extend generally transversely across the ends of the pairs of lines 28 and are, preferably, somewhat longer than the spacing between said pairs of lines 28. In addition, the blank 27 is provided with sets of three parallel fold lines 31, 32 and 33, that extend generally normally away from the lines 29, the fold lines 31 and 32 terminating at the opposite ends of the line 29 and the fold line 33 terminating at the line 29 intermediate the ends thereof. To form the upper member 24 from the blank 27, there are removed from said blank 27 the pieces of material defined by the pairs of lines 28 and the lines 29. The blank 27 is then folded along the lines 31, 32 and 33 until the edges defined by the pairs of lines 28 are brought substantially into abutment as shown in Fig. 4 of the drawings, with the ridges 26 projecting upwardly from said blank. The length of the pairs of lines 28 and the spacing between said pairs of lines is such that the ridges 26 will be spaced properly to engage the lower flanges 18 of the bobbins 12. The lower member 22 is formed in identical manner from a blank similar to the blank 27 in which the length of the pairs of parallel lines and the spacing between said pairs of lines is such that the ridges 25 will be spaced properly to engage the lifting knobs 21. The lower member 22 and the upper member 24 are then superposed, either with or without the central member 23, and are secured together in any desired manner.

To assist in packing the carton of this invention and to aid in holding the bobbins 12 securely in place, the lines 29 in the upper member 24 are shaped so that the ends of the ridges 26 incline outwardly away from the intersection of the lines 28 at their upper portions 34 thereby to guide the bobbins 12 into place during the packing operation, and are curved at their lower portions 35 securely to engage the lower flanges 18. Advantageously, the points 36 where the upper portions 34 and

lower portions 35 intersect are spaced apart, on diametrically opposed ridges 26, a distance less than the diameter of the lower flanges 18, thereby ho hold the bobbins 12 against vertical movement, the natural resilience of the material from which the blank 27 is formed being sufficient to permit the bobbins 12 to be placed into position past the points 36. The lines 29 are shaped so that the ends of the ridges 25 will be identical in contour with the ends of the ridges 26, thereby to assist in packing the carton and to engage and hold the lifting knobs 21. Alternatively, the lines 29 in the lower member 22 and the upper member 24 may be straight in which case the ends of the ridges 25 and 26 will be straight and extend at right angles to the plane of said members as shown in Fig. 6 of the drawings. The topmost insert 15 may be formed from only two pieces, a member 23 and a lower member 22 as shown in Fig. 1 of the drawings; and the lowermost insert 15 may also be formed from only two pieces, a member 23 and an upper member 24.

Figs. 7 to 10 show another embodiment of this invention adapted for the storing and shipping of cheeses of yarn. Referring now to these figures of the drawings, the reference numeral 37 designates generally the protective cover of a carton which may be formed from corrugated board, cardboard or other suitable material and in which is contained a plurality of cheeses of yarn 38 arranged in superposed layers 39 and 41, each of which layers is supported on an insert, indicated generally by reference numeral 42. The cheeses of yarn 38 comprise yarn windings 43 positioned on tubular cores 44, the ends of which project slightly from said yarn windings.

The inserts 42 comprise a lower member 45, a central member 46 and an upper member 47, which members may be formed from corrugated board, cardboard or other suitable material. The lower member 45 has integral therewith a plurality of discontinuous ridges 48 projecting downwardly from the lower face thereof, which ridges 48 are located at positions spaced along intersecting lines and intersect one with the other in pairs, and are adapted to extend normally toward the walls of and enter into and engage the interior of the tubular cores 44. Since the interiors of the tubular cores 44 are of uniform cross-section, the ridges 48 and 49 are advantageously identical in size and layout. The central member 46, which may be omitted if desired, is flat and serves to strengthen and lend rigidity to the inserts 42.

The lower member 45 and the upper member 47 are formed from a flat blank 51 which is cut along pairs of parallel lines 52 and is also cut along lines 53 that extend generally transversely across the ends of the pairs of lines 52 and are, preferably, somewhat longer than the spacing between said pairs of lines 52. In addition, the blank 51 is provided with intersecting sets of three fold lines 54, 55 and 56 that extend generally normally away from the lines 53, the fold lines 54 and 55 terminating at the opposite ends of the lines 53 and the fold line 56 terminating at the line 53 intermediate the ends thereof. At the point where the sets of fold lines 54, 55 and 56 intersect one with the other, there is cut out from the blank 51 a four-pointed star-shaped piece of material 57. To form the upper member 47 from the blank 51, there is removed from said blank 51, the pieces of material defined by the pairs of lines 52 and the lines 53 and the four-pointed star-shaped piece of material 57. The blank 51 is then folded along the lines 54, 55 and 56 until the edges defined by the pairs of lines 52 are brought substantially into abutment as shown in Fig. 10 of the drawings, with the ridges 49 projecting upwardly from said blank. The length of the pairs of lines 52 and the spacing between said pairs of lines is such that the ridges 49 will be of the correct size to enter into and engage the tubular cores 44. The lower member 45 is formed in identical manner. The lower member 45 and the upper member 47 are then superposed, either with

or without the central member 45, and are secured together in any desired manner.

To assist in holding the cheeses of yarn 38 securely in place, the lines 53 in the upper member 47 are shaped so that the ends of the ridges 49 incline outwardly away from the intersection of said ridges at their lower portions 58 and rise vertically at their upper portions 59. The outward inclination of the lower portions 58 is sufficient to bring the upper portions 59 into contact with the interior of the tubular members 44 so as to provide an extended area of contact therewith. The ridges 48 of the lower member 45 are shaped in identical manner. The topmost insert 42 may be formed from only two pieces, a member 46 and a lower member 45 as shown in Fig. 7 of the drawings; and the lowermost insert 42 may also be formed from only two pieces, a member 46 and an upper member 47.

It is to be understood that the foregoing detailed description is given merely by way of illustration and that many variations may be made therein without departing from the spirit of my invention.

Having described my invention, what I desire to secure by Letters Patent is:

1. In a carton for the storing and shipping of bobbins of yarn comprising barrels having yarn windings positioned thereon between lower flanges and upper flanges to which lifting knobs are secured, and arranged in superposed layers, inserts for supporting said layers of bobbins of yarn, and discontinuous ridges located at positions spaced along intersecting lines projecting from the upper and lower surfaces of said inserts and spaced one from the other and adapted to extend normally toward the bobbins of yarn with the ends of said ridges engaging the lower flanges and the lifting knobs thereof and preventing relative movement of the bobbins of yarn, said inserts comprising at least one folded blank of sheet material cut along pairs of spaced parallel intersecting lines and along lines extending generally transversely across the ends of said pairs of spaced parallel lines, and having sets of three parallel fold lines extending generally normally away from and terminating at said transverse lines, said blank being folded along said fold lines to form said ridges, whereby said transverse lines constitute said ends of said ridges.

2. In a carton for the storing and shipping of bobbins of yarn comprising barrels having yarn windings positioned thereon between lower flanges and upper flanges to which lifting knobs are secured, and arranged in superposed layers, inserts for supporting said layers of bobbins of yarn, and discontinuous ridges located at positions spaced along intersecting lines projecting from the upper and lower surfaces of said inserts and spaced one from the other and adapted to extend normally toward the bobbins of yarn with the ends of said ridges engaging the lower flanges and the lifting knobs thereof and preventing relative movement of the bobbins of yarn, said inserts comprising a central flat member and upper and lower sheets cut along pairs of spaced parallel intersecting lines and along lines extending generally transversely across the ends of said pairs of spaced parallel lines and longer than the spacing between said pairs of spaced parallel lines, and having sets of three fold lines extending generally normally away from said transverse lines, two of said fold lines terminating at the ends of said transverse lines and the third of said fold lines terminating intermediate the ends of said transverse lines said sheets being folded along said fold lines to form said ridges, whereby said transverse lines constitute said ends of said ridges, said transverse lines being shaped so that the ends of the ridges are inclined outwardly away from the intersection of the pairs of parallel lines at their upper portions and are curved at their lower portions to engage the lower flanges.

3. A packed carton comprising a plurality of yarn packages arranged in superposed layers, and inserts com-

prising sheet material supporting said layers, said sheet material being folded, along sets of parallel folds on lines running in intersecting directions, forming discontinuous ridges located at positions spaced along said intersecting lines and projecting from the surfaces of said inserts, said sheet material being cut along lines intersecting said fold lines to provide ends of said ridges, said ends engaging only the end portions of said yarn packages at spaced points for preventing relative movement thereof, each yarn package being engaged by a plurality of the ends of the ridges of an insert.

4. A packed carton as set forth in claim 3 in which said ridges extend normally toward the surfaces of yarn packages.

5. A packed carton as set forth in claim 3 in which said yarn packages are cheeses of yarn comprised of tubular supports having yarn windings positioned thereon and said discontinuous ridges intersect one another in pairs and extend normally toward the interior walls of the tubular supports, the ends of said ridges engaging said interior walls.

6. A packed carton comprising a plurality of yarn packages arranged in superposed layers, inserts supporting said layers and ridges projecting from the surfaces of said inserts and extending normally toward the surfaces of the yarn packages, said ridges having ends engaging the yarn packages and preventing relative movement thereof, said inserts comprising at least one folded blank of sheet material cut along pairs of spaced parallel lines and along lines extending generally transversely across the ends of said pairs of said parallel lines, and having sets of three parallel fold lines extending generally normally away from and terminating at said transverse lines, said blank being folded along said fold lines to provide said ridges, with said transverse lines constituting the ends of said ridges.

7. A packed carton comprising a plurality of yarn packages arranged in superposed layers, inserts supporting said layers and ridges projecting from the surfaces of said inserts and extending normally toward the surfaces of the yarn packages, said ridges having ends engaging the yarn packages and preventing relative movement thereof, said inserts comprising at least one folded blank of sheet material cut along pairs of spaced parallel lines and along lines extending generally transversely across the ends of said pairs of said parallel lines and longer than the spacing between said pairs of spaced parallel lines, and having sets of three fold lines extending generally normally away from said transverse lines, two of said fold lines terminating at the ends of said transverse lines and the third of said fold lines terminating intermediate the ends of said transverse lines, said blank being folded along said fold lines to provide said ridges with said transverse lines constituting the ends of said ridges.

8. A packed carton comprising a plurality of yarn packages arranged in superposed layers, inserts supporting said layers and ridges projecting from the surfaces of said inserts and extending normally toward the surfaces of the yarn packages, said ridges having ends engaging the yarn packages and preventing relative movement thereof, said inserts comprising a central flat member and upper and lower sheets cut along pairs of spaced parallel lines and along lines extending generally transversely across the ends of said pairs of said parallel lines, and having sets of three parallel fold lines extending generally normally away from and terminating at said transverse lines, said sheets being folded along said fold lines to provide said ridges, with said transverse lines constituting the ends of said ridges.

9. A packed carton as set forth in claim 8, in which said yarn packages are cheeses of yarn comprising tubular supports having yarn windings positioned thereon and in which said sheets are cut out along four-pointed star-shapes at alternate intersections of said fold lines, said sheet being folded to bring adjacent ridges together at said alternate intersections, said ridges extending from said alternate intersections to the interior walls of said tubular supports.

10. A blank for an insert for use in a carton for the storing and shipping of yarn packages, comprising a sheet cut along pairs of spaced parallel lines and along lines extending generally transversely across the ends of said pairs of spaced parallel lines and longer than the spacing of said spaced parallel lines and having sets of three fold lines extending generally normally away from said transverse lines, two of said fold lines terminating at the ends of said transverse lines and the third of said fold lines terminating intermediate the ends of said transverse lines, said blank being constructed and arranged so that when it is folded along said fold lines there are formed discontinuous ridges with said transverse lines constituting the ends of said ridges, the ends of said ridges being adapted to engage yarn packages.

11. A blank for an insert for use in a carton for the storing and shipping of yarn packages, comprising a flat sheet having a plurality of cut out portions with each cut out portion bounded by spaced parallel edges and by edges transverse thereto, sets of three fold lines extending from said transverse edges and parallel to said parallel edges, said sets comprising two outer fold lines and an intermediate fold line, the distance between the outer fold lines of each set being greater than the distances between said parallel edges, the dimensions of said cut out portions and the arrangement of said fold lines being such that when said sheet is folded along said fold lines sufficiently to bring said parallel edges into contact a plurality of spaced discontinuous triangular ridges are formed.

12. A packed carton comprising a plurality of cheeses of yarn consisting of tubular supports having yarn windings positioned thereon, said cheeses being arranged in superposed layers, inserts supporting said layers and ridges projecting from surfaces of said inserts and extending normally toward the interior walls of the tubular supports, said ridges having ends engaging said walls and preventing relative movement of said cheeses, said inserts comprising at least one folded blank of sheet material cut along pairs of spaced parallel lines and along lines extending generally transversely across the ends of said pairs of said parallel lines and having sets of three parallel fold lines extending generally normally away from and terminating at said transverse lines, said blank being folded along said fold lines to provide said ridges, with said transverse lines constituting the ends of said ridges.

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