

May 20, 1952

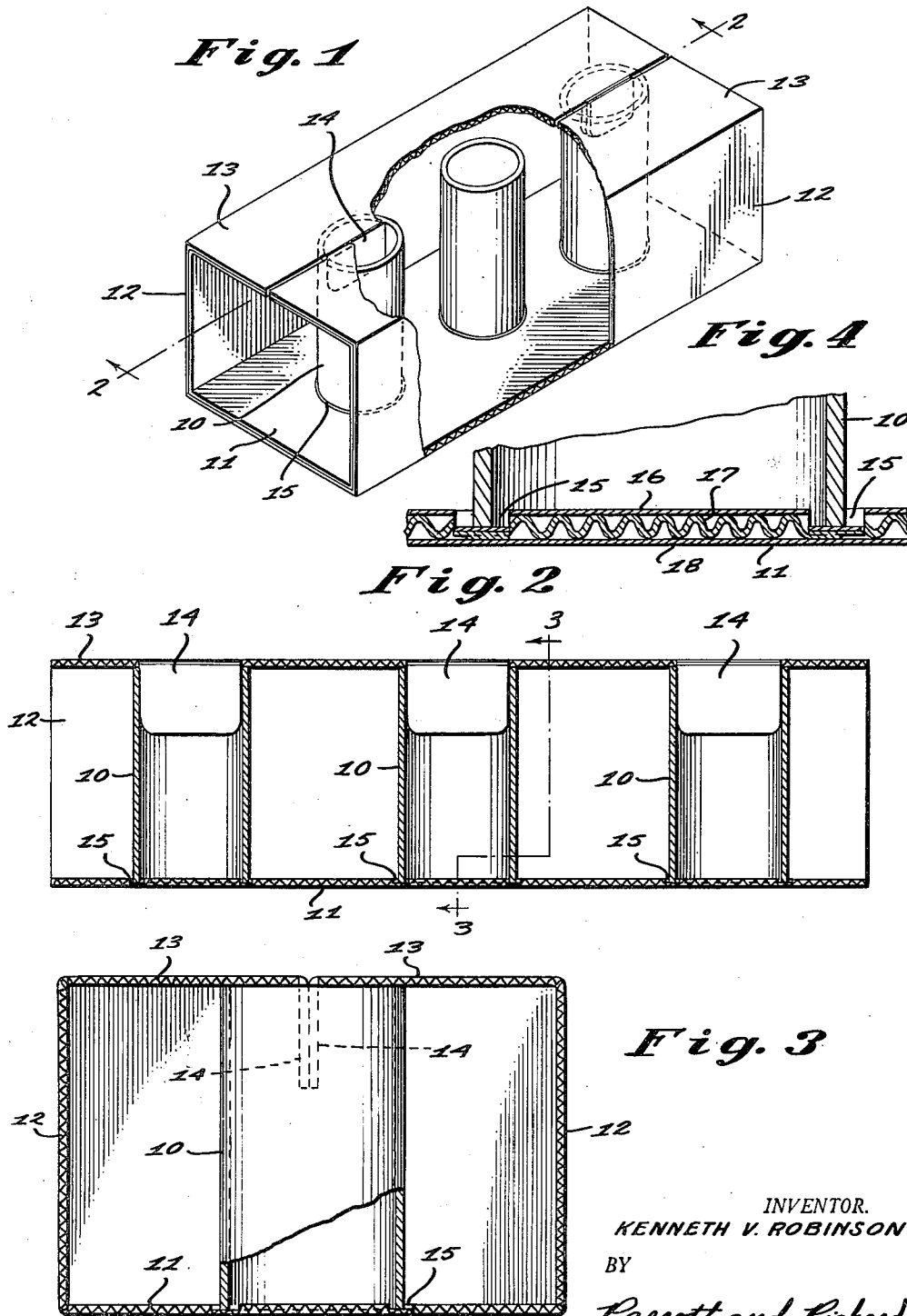
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PREPACKAGING UNIT FOR RAYON YARN AND THE LIKE

Filed March 20, 1948

3 Sheets-Sheet 1



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PREPACKAGING UNIT FOR RAYON YARN AND THE LIKE

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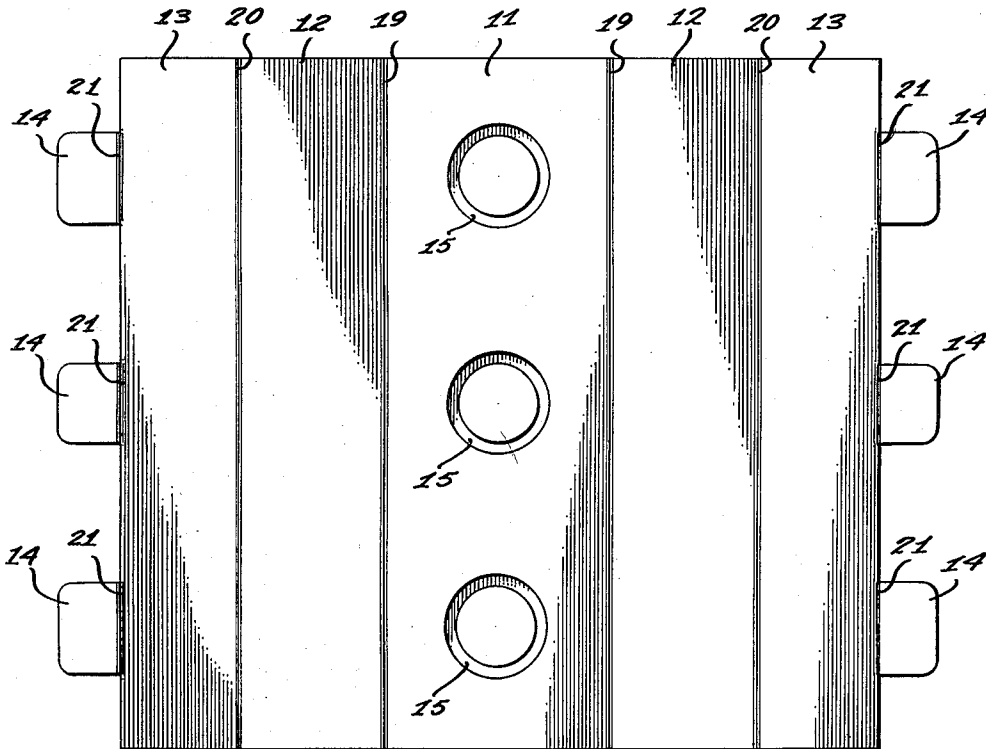


Fig. 5

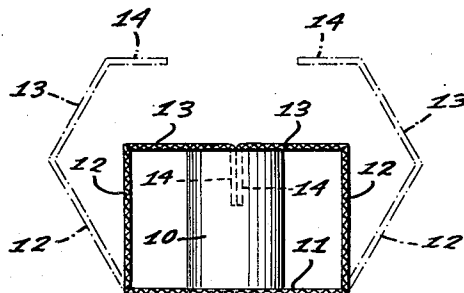


Fig. 6

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Fig. 7

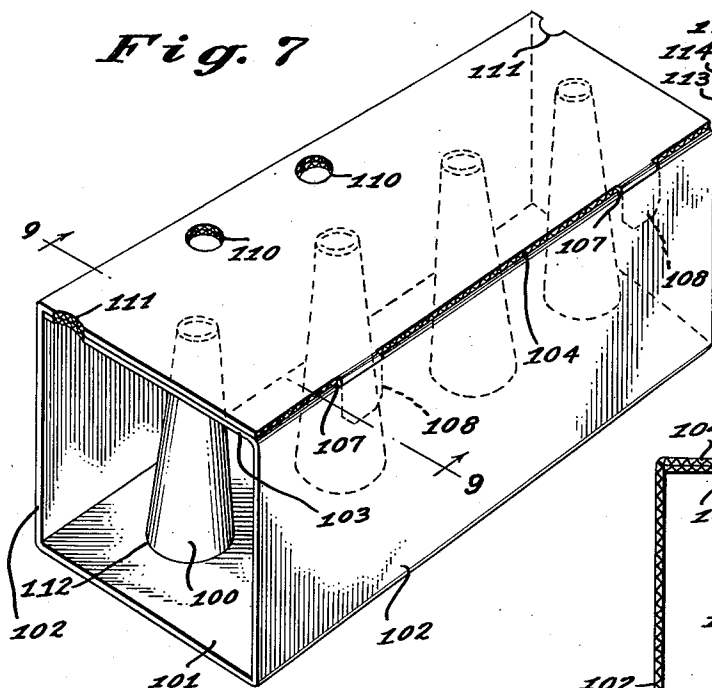
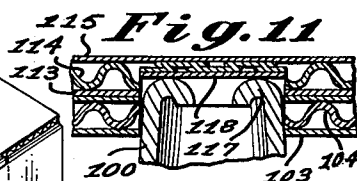


Fig. 10

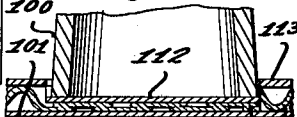


Fig. 9

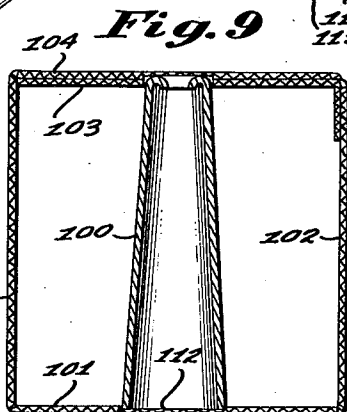
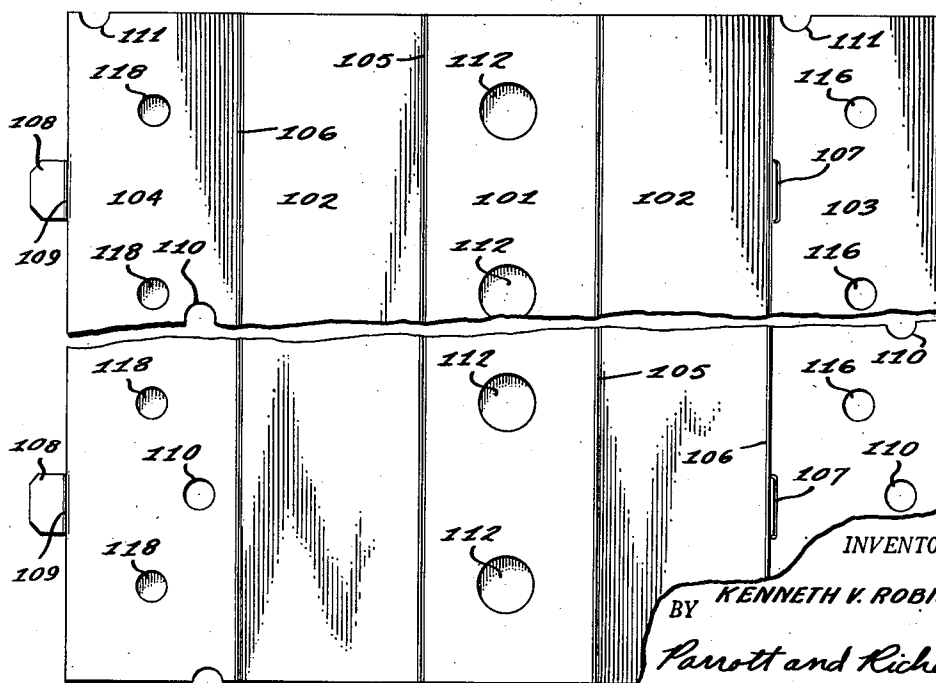


Fig. 8



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PREPACKAGING UNIT FOR RAYON YARN
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2 Claims. (Cl. 229—87)

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This invention relates to packaging means, and more particularly to a prepackaging unit adapted for use in shipping and storing wound packages of rayon yarn and the like.

In the process of manufacturing rayon yarn and the like, the finished yarn is commonly disposed as a wound package supported on a tubular core for shipment to converters or for storage. The tubular supporting cores used may be parallel tubes, or they may be cones, depending on the intended use of the yarn or other similar circumstances in a particular case.

These wound packages of yarn must be handled with considerable care because the yarn is easily damaged by any contact with containers or with other wound packages during shipment or storage. It is accordingly usual practice to fit shipping or storage containers with partitions or other prepackaging means arranged for positioning the tubular supporting cores so that the wound packages of yarn are held free of contact with the containers or with each other.

A number of arrangements for partitions or prepackaging means of this sort have heretofore been proposed. However, most of these prior arrangements have been found inadequate because they do not maintain the wound packages completely free of contact with the containers, particularly adjacent the ends of the tubular cores. A further common disadvantage in prior arrangements has been the lack of a unitary construction which has not only resulted in relatively high costs but has also rendered handling difficult.

According to the present invention I am able to form a prepackaging unit for wound yarn packages from a single blank of paper board which may be used for prepackaging a group of the wound yarn packages as a self-contained unit. The prepackaging unit of the present invention may be adapted for use with tubular supporting cores in the form of either parallel tubes or cones, and incorporates means for positioning the tubular supporting cores positively against movement so that the wound yarn packages are maintained completely free of contact with the container or with each other. Also, the positioning means employed according to the present invention avoids any disturbance of the transfer tail commonly arranged at one end of the tubular cores, and when cones are used, it further provides protection for the nose of the cone.

The present invention is described more in detail below in connection with the accompanying drawing, in which:

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Fig. 1 is a perspective view, partly cut away, showing a prepackaging unit constructed in accordance with the present invention and adapted for use with tubular supporting cores in the form of parallel tubes;

Fig. 2 is a vertical section taken substantially on the line 2—2 in Fig. 1;

Fig. 3 is a vertical section taken substantially on the line 3—3 in Fig. 2;

Fig. 4 is an enlarged sectional detail showing the arrangement of the positioning means in the bottom wall portion;

Fig. 5 is a plan view of the blank used in forming the prepackaging unit shown in Fig. 1;

Fig. 6 is a transverse sectional detail illustrating the manner in which the blank shown in Fig. 5 is erected;

Fig. 7 is a perspective view showing a further embodiment of the prepackaging unit of the present invention in a form adapted for use with cones;

Fig. 8 is a plan view of the blank used in forming the prepackaging unit shown in Fig. 7;

Fig. 9 is a vertical section taken substantially on the line 9—9 in Fig. 7; and,

Figs. 10 and 11 are enlarged sectional details of the positioning means arranged in the bottom wall portion and the top closure, respectively, of the prepackaging unit shown in Fig. 7.

Generally described, the prepackaging unit of the present invention comprises a paper board structure formed with a bottom wall, opposed side walls, and a top closure, means being provided on the top closure and the bottom wall for positioning the tubular cores carrying the wound packages of yarn as mentioned above.

An embodiment of this prepackaging unit adapted for use when the wound yarn packages are carried on parallel tubes 10 is illustrated in Fig. 1 of the drawing. The bottom wall of the prepackaging unit is indicated in Fig. 1 by the numeral 11, and the opposed side walls by the numeral 12. The top closure in this case is formed by top half-laps 13.

The means provided on the top closure for positioning the parallel tubes 10 comprises positioning tabs 14 hinged in opposed relation on the top-half laps 13 for insertion in one end of the tubes 10, as illustrated more in detail in Figs. 2 and 3 of the drawing.

As also shown in Figs. 2 and 3, the further positioning means on the bottom wall 11 comprises circular depressions 15 spaced in alignment with the positioning tabs 14 for receiving and positioning the other end of the parallel

tubes 10. These circular depressions 15 are formed according to the present invention in the structural body of the paper board forming the bottom wall 11. For this purpose, the prepackaging unit of the present invention is preferably formed of corrugated paper board, so that the circular depressions 15 may be formed by crushing the inner liner 16 and corrugated filler 17 of the paper board forming the bottom wall 11 at intervals in a circular (or annular, if desired) pattern against the outer liner 18, as illustrated best in Fig. 4 of the drawing. As the liners are secured to the filler by adhesive in the manufacture of corrugated paper board, the inner liner 16 and filler 17 may be crushed in this manner to form the circular depressions 15 without destroying the integrity of the paper board. Also, the nature of the corrugated filler 17 lends itself readily to crushing in the manner described above to form the circular depressions 15.

The formation of the circular depressions 15 in the structural body of the corrugated paper board forming the bottom wall 11 allows the prepackaging unit of the present invention to be erected as a unitary structure from a single blank. The form of blank used for a prepackaging unit of the type illustrated in Fig. 1, is shown in Fig. 5 of the drawing. As shown, the bottom wall 11 is located at the central portion of this blank, and is defined by parallel bending scores 19. The side walls 12 are hinged on either side of the bottom wall portion 11 at the bending scores 19 and extend to further bending scores 20. The top half-laps 13 are in turn hinged on the side walls 12 at the bending scores 20, and the positioning tabs 14 are hinged on the extending edges of the top half-laps 13 in opposed relation, as previously mentioned, these positioning tabs 14 being defined by bending scores 21. The circular depressions 15 are formed in the bottom wall portion 11 with the blank in the flat as shown in Fig. 5, so that the blank is complete and ready for erection to prepackage parallel tubes 10 carrying wound yarn packages.

The manner of erecting the blank shown in Fig. 5 to form a prepackaging unit is illustrated in Fig. 6. With the blank laid flat and the parallel tubes 10 located in the circular depressions 15 formed in the bottom wall 11 to receive and position the tubes 10, the side walls 12 are folded upward, and the top half-laps 13 inward so that their extending edges meet to form a top closure. As this is done, the positioning tabs 14 are folded downward and inserted in the top ends of the parallel tubes 10. These positioning tabs 14 may be made in a width such that they will grip the inside walls of the tubes 10 so that they are retained in place and thus hold the prepackaging unit in erect position.

A further embodiment of the prepackaging unit of the present invention adapted for use when the wound yarn packages are carried on cones 100 is illustrated in Fig. 7 of the drawing. In this case, the prepackaging unit is formed with a bottom wall 101, opposed side walls 102, and inner and outer top full-laps 103 and 104. The arrangement of the blank for forming this prepackaging unit is shown in Fig. 8 of the drawing, in which the bottom wall 101 is shown at the central portion of the blank defined by the parallel bending scores 105, which also provide hinge points for the opposed side walls 102 on either side of the bottom wall 101. The side walls 102 extend from the bending scores 105 to further bending scores 106 at which the inner and outer top full-laps 103

and 104, respectively, are hinged. The inner top full-lap 103 is formed near its bending score 106 with spaced slots 107, and the outer top full-lap 104 carries tab portions 108 defined by bending scores 109 at its extending edge in alignment with the slots 107. The tab portions 108 are accordingly adapted for insertion in the slots 107 to secure the prepackaging unit in erected position as illustrated in Fig. 7. The inner and outer top full laps 103 and 104 are preferably further formed with registering finger holes 110 and end notches 111 for convenience in handling the prepackaging unit when in erected position.

The arrangement of the means for positioning the cones 100 in the prepackaging unit shown in Fig. 7 is illustrated in detail in Figs. 9, 10, and 11 of the drawing. As in the first embodiment previously described above, this arrangement comprises circular depressions 112 for receiving and positioning the bottom end of the cones 100 formed in the bottom wall 101 by crushing the inner liner 113 and the corrugated filler 114 of the paper board forming the bottom wall 101 in a circular pattern against the outer liner 115. (Compare Figs. 9 and 10.) The circular depressions 112 formed in this manner are spaced lengthwise in the bottom wall 101 as indicated in Figs. 7 and 8.

The positioning means for the top end of the cones 100 comprises apertures 116 in the inner top full-lap 103 which are aligned with the circular depressions 112, and which are proportioned to receive the tip of the cones 100, as shown in Figs. 9 and 11. The cones 100, however, are usually formed at their tip with a nose 117 which is rounded, and which often is polished or coated, to facilitate withdrawal of yarn from packages wound on the cones. Because of this rounded form of the nose 117, it will protrude to some extent through the apertures 116 in the inner top full-lap 103 no matter how closely the apertures 116 are proportioned to the size of the tip of the cones 100. Accordingly, to avoid marring or other damage to the nose 117 of the cones 100, the outer top full-lap 104 is also formed with circular depressions 118 registering with the apertures 116 to accommodate the protruding disposition of the nose 117. As will be seen from a comparison of Figs. 10 and 11, the circular depressions 118 in the outer top full lap 104 are formed in exactly the same manner, except for size, as the circular depressions 112 in the bottom wall 101.

A prepackaging unit constructed as described above in accordance with the present invention provides positioning means which are complete and do not depend on association with other prepackaging units for positioning the wound yarn packages. Moreover, because the positioning means provided is complete, the wound yarn packages are independently supported in each prepackaging unit free of contact with the walls of the unit or with each other. Also, as the prepackaging unit of the present invention is arranged as a unitary structure for erection from a single blank, it provides substantial reductions in material and handling costs.

It will be understood that the embodiments of the prepackaging unit of the present invention described above are only illustrative examples, and that the particular features of each embodiment may be used interchangeably and in various combinations within the scope of the present invention as defined by the appended claims.

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I claim:

1. A one-piece paperboard blank adapted for forming a unitary prepackaging unit for wound packages for rayon yarn and the like carried on cones and by which said packages may be completely contained in spaced relation and positioned at both ends against both longitudinal and lateral movement, said blank being formed of corrugated paperboard and having parallel bending scores defining a single bottom wall, opposed side walls hinged on said single bottom wall, and top full-laps hinged on said opposed side walls, the inner top full-lap being formed with spaced apertures for receiving the small end of said cones, and the inner liner and corrugated filler of the paperboard forming the outer top full-lap and said single bottom wall being crushed at aligned intervals in a circular pattern against the outer liners thereof, and thereby forming spaced circular depressions serving, respectively, for receiving and protecting the nose of said cones, and for receiving and positioning the large end of said cones.

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2. A one-piece paperboard blank adapted for forming a unitary prepackaging unit as defined in claim 1 and further characterized in that at least one hinged tab is carried at the free extending edge of said outer top full-lap, and an aligned slot is formed at the hinged edge of said inner top full-lap for receiving said hinged tab to secure said prepackaging unit in erect position.

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