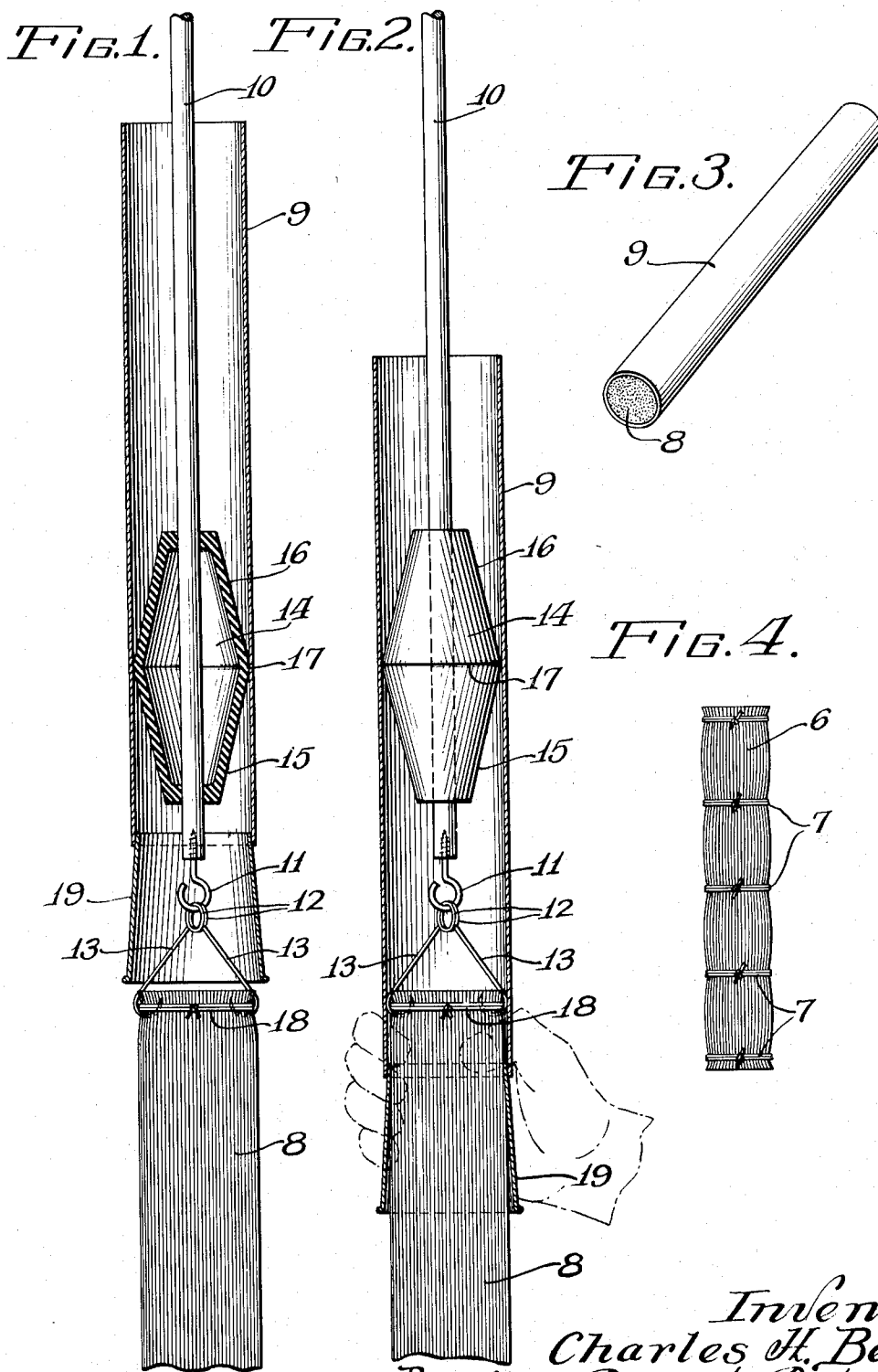


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PACKAGING APPARATUS
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PACKAGING APPARATUS

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Divided and this application August 12, 1953, Serial
No. 373,760

9 Claims. (Cl. 53—198)

This application is a division of my copending application Serial No. 265,487, filed January 8, 1952, abandoned.

This invention relates to the packaging of natural and artificial strands such as horse hair, nylon, rayon, etc., and contemplates the provision of an improved package, and improvements in method and apparatus for forming the package or bundle of horse hair, nylon and rayon strands, and the like, hereinafter referred to as horse hair or bunch of hair.

In processing horse hair for sale to brush manufacturers and the like, it is necessary to clean and comb the horse hair prior to forming same into bundles. In forming the bundles of horse hair, it has heretofore been the practice to arrange the strands in parallelism and to tie the bundle of strands at spaced intervals throughout its length by means of cord or twine, as illustrated in Fig. 4 in the accompanying drawing. After receiving a bundle of horse hair tied in the manner thus described, it was necessary for a brush manufacturer to untie the cords from the bundle, then dry the strands of horse hair within suitable ovens to remove the moisture therefrom, and then to comb the hair. These operations were necessary to remove the waves from the hair caused by the old method of tying the bunches of hair at spaced intervals by means of cord or twine. It will also be appreciated that a considerable amount of time and expense was involved in tying the bundles of horse hair for shipment to brush manufacturers.

It is an object of the present invention to provide a packaged bunch of natural or artificial strands such as horse hair in which the strands are arranged and maintained in straight parallel relation, free of objectionable waves, to thus effect a material saving to brush manufacturers, and the like, by eliminating subsequent processing operations, such as drying and combing which have heretofore been employed to remove the waves from the horse hair.

It is a further object of this invention to reduce the cost of packaging a bunch of hair by providing a flexible sleeve wrapper for the bunch of hair in place of the cord binding heretofore employed.

It is a further object of this invention to provide a sleeve wrapper formed of paper, thermoplastic tubing, or other suitable material to snugly enclose a cylindrical bunch of hair, the sleeve being preferably coextensive in length with the bunch of hair.

This invention further contemplates the provision of a novel apparatus for applying a flexible sleeve over a bunch of hair to enclose and protect same for storage or shipment to the point of use. Briefly, the apparatus comprises a rod depending from a ceiling or other structure and having a hook on its lower end for detachable engagement with a depending bunch of hair, the rod being provided with a sleeve opening structure to engage the inner wall of a paper tubing which is adapted to be guided downwardly over the bunch of hair by means of a guide sleeve.

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This invention further contemplates the provision of a novel method for packaging a bunch of horse hair.

This invention embodies other novel features, details of construction and arrangement of parts which are hereinafter set forth in the specification and claims, and illustrated in the accompanying drawing, wherein:

Fig. 1 is a side elevational view, partly in cross-section, illustrating a packaging apparatus embodying features of the present invention, the tubular paper wrapper and guide sleeve being shown in position above the bunch of hair at the beginning of the packaging operation.

Fig. 2 is a side elevational view, partly in cross-section, illustrating the manner in which the tubular paper wrapper is sleeved over the bunch of hair.

Fig. 3 is a detail perspective view illustrating a bunch of hair enclosed within the tubular wrapper.

Fig. 4 is a plan view illustrating a bunch of hair tied at spaced intervals by means of cord or twine.

Referring now to the drawing, Fig. 4 illustrates the manner in which a bunch of hair 6 has heretofore been tied at spaced intervals by means of twine or cord 7 for storage or shipment to the point of use, such as the plant of a brush manufacturer. It will be noted that the cords 7 act to impart waves to the strands of hair and that it has heretofore been necessary for brush manufacturers to remove these waves from the hair by means of drying and combing operations prior to insertion of the hair into brush backs.

The present invention contemplates the provision of a package of horse hair, as illustrated in Fig. 3, comprising a cylindrical bunch of hair 8 in which the strands are coextensive in length and arranged in parallelism within a tubular wrapper 9 having a length equal to the length of the bunch of hair. It is apparent that the wrapper 9 may be formed from any suitable material, such as paper, thermoplastic tubing, or the like, whereby the package of horse hair may be cut into parts of predetermined length at the point of use. For example, the package of horse hair may have an over-all length of from 5 to 40 inches, and the package may be cut transversely into desired lengths by brush manufacturers for use in making brushes.

The apparatus for applying the tubular wrapper 9 to a bunch of hair 8 is shown as comprising a rod 10 secured to, and depending from, a ceiling of a room or other supporting structure. An eyelet screw 11 is threaded into or otherwise secured to the lower end of the rod to engage the loop portions 12 of a pair of hooks 13—13. A wrapper opening structure 14 is mounted in fixed position upon the lower end of the rod 10, the lower end of the member being formed with an upwardly diverging frusto-conical surface 15 and the upper end of the member being formed with a downwardly diverging frusto-conical surface 16. The member 14 may be formed from any suitable material, but is preferably formed from rubber or cardboard and having a medial circumference at 17 substantially corresponding to the inner circumference of the wrapper 9. As the wrappers may vary slightly in circumference, it is desirable to form the member 14 of material, such as resilient rubber to accommodate the slight differences in circumference of the wrappers.

One end of a bunch of hair 8 is tightly embraced by a loop member 18 which is preferably formed of string or cord, the loop member being engaged at diametrically opposed portions by means of the hooks 13—13 to support the bunch of hair in substantially coaxial alignment with the rod 10. A tubular frusto-conical guide member 19 is employed to guide the tubular wrapper over the bunch of hair 8, the guide member being preferably formed of semi-rigid material, such as cardboard, rubber or thermoplastic.

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In applying a tubular wrapper 9 to a bunch of hair 8, the wrapper is first sleeved upwardly over the lower end of the rod 10 and is adapted to be frictionally engaged by the opening member 14. The opener 14 thus holds the wrapper in fixed position while the operator sleeves the guide 19 over the lower end of the rod and engages the hooks 13 with the band 18, as illustrated in Fig. 1. The operator then inserts the small diameter end of the guide into the lower end of the wrapper 9 and then manually moves the guide 19 and wrapper 9 downwardly over the bunch of hair 8, as illustrated in Fig. 2. It will thus be noted that the guide 19 serves to guide the lower marginal edge of the wrapper over the adjacent edge of the bunch of hair and thereafter acts to compress the bunch of hair during movement of the wrapper over same. When the ends of the wrapper are disposed adjacent the ends of the bunch of hair, the packaged bunch of hair is disconnected from the hooks 13—13 by severing the band 18 by means of a knife. After the bunch of hair 8 has been packaged within the tubular wrapper 9 for shipment or storage, it will be noted that the strands of hair are maintained in parallelism and are free from objectionable wavy formations. The wrappers 9 are substantially coextensive in length with the bunch of hair 8 enclosed therein to thus protect the hair from contact or contamination with foreign matter during shipment or storage. By means of the apparatus and method employed in packaging a bunch of hair 8, it will be noted that the bunch of hair is compressed within a wrapper 9 which must have sufficient tensile strength to resist bursting during shipment or storage of the package.

While this invention has been shown in but one form, it is obvious to those skilled in the art that it is not so limited, but is susceptible of various changes and modifications without departing from the spirit and scope of the claimed invention.

Preferably, the flexible tubular wrapper 9 is moisture and vapor resistant to retard or prevent the infiltration of moisture into the body of horse hair enclosed in the wrapper.

Another advantage of the invention resides in the fact that the user cutting the package into parts or sections of predetermined length merely cuts through the wrapper package, thus retaining the cut unit within the wrapper. This severed unit may be handled with ease and the wrapper may be removed therefrom subsequently in the manufacturing operation.

I claim as my invention:

1. In a packaging device adapted for use in snugly enclosing a cylindrical bunch of hair within a flexible tubular wrapper coextensive in length with the bunch of hair, a depending rod having means intermediate the ends thereof to telescopically receive and frictionally engage a tubular wrapper, means on the lower end of the rod for detachable engagement with one end of a bunch of hair in cylindrical form, and a frusto-conical tubular guide member having a small diameter end for snug insertion into the lower adjacent end of the wrapper and having a relatively large diameter end to receive the adjacent upper end of the bunch of hair, whereby the wrapper and guide member may be manually sleeved over the bunch of hair.

2. In a packaging device adapted for use in snugly enclosing a cylindrical bunch of hair within a flexible tubular wrapper coextensive in length with the bunch of hair, a depending rod to telescopically receive a tubular wrapper, means on the lower end of the rod for detachable engagement with one end of a bunch of hair in cylindrical form, wrapper engaging means coaxially mounted on the rod adjacent the lower end thereof to engage and maintain the wrapper in cylindrical form, and a frusto-conical tubular guide member having a small diameter end for snug insertion into the lower adjacent end of the wrapper and having a relatively large diameter end to receive the adjacent upper end of the bunch of hair, whereby the

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wrapper and guide member may be manually sleeved over the bunch of hair.

3. In a packaging device adapted for use in snugly enclosing a cylindrical bunch of hair within a flexible tubular wrapper coextensive in length with the bunch of hair, a depending rod to telescopically receive a tubular wrapper, means on the lower end of the rod for detachable engagement with one end of a bunch of hair in cylindrical form, wrapper engaging means coaxially mounted on the rod adjacent the lower end thereof to engage and maintain the wrapper in cylindrical form, and a frusto-conical tubular guide member having a small diameter end for snug insertion into the lower adjacent end of the wrapper and having a relatively large diameter end to receive the adjacent upper end of the bunch of hair, whereby the wrapper and guide member may be manually sleeved over the bunch of hair, said wrapper engaging means having a downwardly facing frusto-conical surface.

4. In a packaging device adapted for use in snugly enclosing a cylindrical bunch of hair within a flexible tubular wrapper coextensive in length with the bunch of hair, a depending rod to telescopically receive a tubular wrapper, means on the lower end of the rod for detachable engagement with one end of a bunch of hair in cylindrical form, wrapper engaging means coaxially mounted on the rod adjacent the lower end thereof to engage and maintain the wrapper in cylindrical form, and a frusto-conical tubular guide member having a small diameter end for snug insertion into the lower adjacent end of the wrapper and having a relatively large diameter end to receive the adjacent upper end of the bunch of hair, whereby the wrapper and guide member may be manually sleeved over the bunch of hair, said wrapper engaging means having a downwardly facing frusto-conical surface and an upwardly facing frusto-conical surface.

5. In a device for snugly enclosing a cylindrical-shaped bunch of hair within a flexible tubular wrapper of uniform diameter and coextensive in length with the bunch of hair, a depending rod having article engaging means on its lower end to engage one end of a bunch of hair, a wrapper engaging member on said rod above said article engaging means for inserting into a tubular wrapper, and a tubular frusto-conical guide having one end formed for insertion into one end of the wrapper and its other end formed to receive the adjacent end of the bunch of hair, whereby the wrapper and guide may be manually sleeved as a unit over the bunch of hair.

6. In a device for snugly enclosing a cylindrical-shaped bunch of hair within a flexible tubular wrapper of uniform diameter and coextensive in length with the bunch of hair, a depending rod having article engaging means on its lower end to engage one end of a bunch of hair, a wrapper engaging member on said rod for inserting into a tubular wrapper, and a tubular frusto-conical guide having one end formed for insertion into one end of the wrapper and its other end formed to receive the adjacent end of the bunch of hair, whereby the wrapper and guide may be manually sleeved as a unit over the bunch of hair, said article engaging means including a pair of hooks pivotally connected to the lower end of the rod.

7. In a device for snugly enclosing a cylindrical-shaped bunch of hair within a flexible tubular wrapper of uniform diameter and coextensive in length with the bunch of hair, a depending rod having article engaging means on its lower end to engage one end of a bunch of hair, a wrapper engaging member on said rod for inserting into a tubular wrapper, and a tubular frusto-conical guide having one end formed for insertion into one end of the wrapper and its other end formed to receive the adjacent end of the bunch of hair, whereby the wrapper and guide may be manually sleeved as a unit over the bunch of hair, said article engaging means including a pair of hooks pivotally connected to the lower end of the rod, said wrapper engaging member having an annular medial portion to snugly

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engage the inner surface of the wrapper to maintain the latter in cylindrical form.

8. In a device for snugly enclosing a cylindrical-shaped bunch of hair within a flexible tubular wrapper of uniform diameter and coextensive in length with the bunch of hair, a depending rod having article engaging means on its lower end to engage one end of a bunch of hair, a wrapper engaging member on said rod for inserting into a tubular wrapper, and a tubular frusto-conical guide having one end formed for insertion into one end of the wrapper and its other end formed to receive the adjacent end of the bunch of hair, whereby the wrapper and guide may be manually sleeved as a unit over the bunch of hair, said article engaging means including a pair of hooks pivotally connected to the lower end of the rod, said wrapper engaging member having an annular medial portion to snugly engage the inner surface of the wrapper to maintain the latter in cylindrical form, said member being of gradually decreasing diameter from its medial portion toward its ends.

9. In a device for snugly enclosing a cylindrical-shaped bunch of hair within a flexible tubular wrapper of uniform diameter and coextensive in length with the bunch of hair, a depending rod having article engaging means

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on its lower end to engage one end of a bunch of hair, a wrapper engaging member on said rod for inserting into a tubular wrapper, and a tubular frusto-conical guide having one end formed for insertion into one end of the wrapper and its other end formed to receive the adjacent end of the bunch of hair, whereby the wrapper and guide may be manually sleeved as a unit over the bunch of hair, said article engaging means including a pair of hooks pivotally connected to the lower end of the rod, said wrapper engaging member having an annular medial portion to snugly engage the inner surface of the wrapper to maintain the latter in cylindrical form, said member being of gradually decreasing diameter from its medial portion toward its ends, said member and guide being formed of flexible material.

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