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C. W. LEGUILLON

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PACKAGE AND METHOD OF MAKING THE SAME

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Fig-1

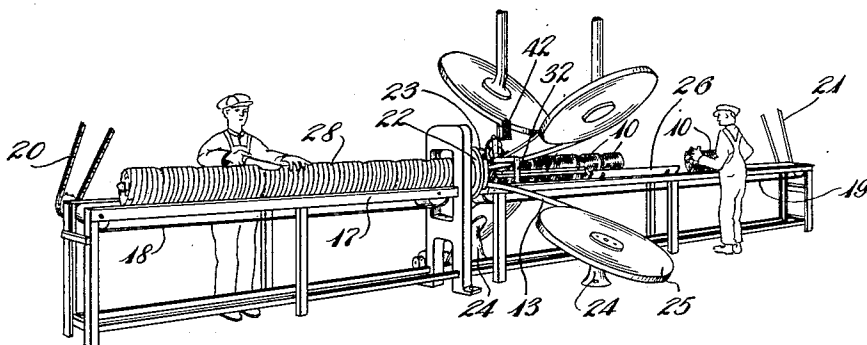


Fig-2

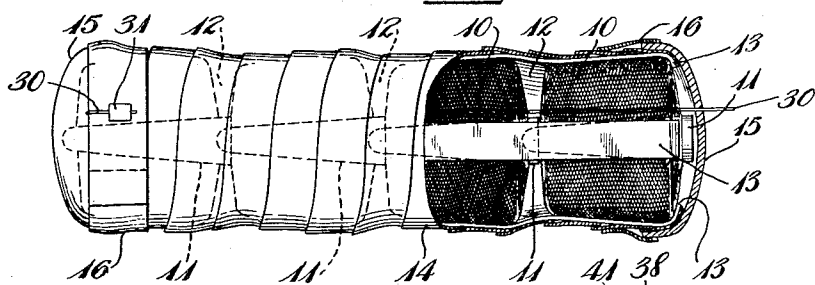


Fig-3

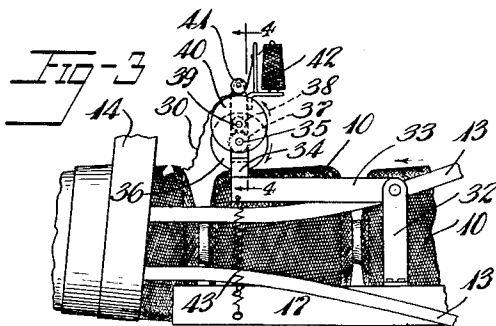
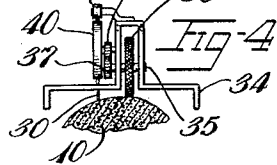


Fig-4



INVENTOR
Charles W. Leguillon

By Esplan & Avery
Attys.

UNITED STATES PATENT OFFICE

CHARLES W. LEGUILLON, OF AKRON, OHIO, ASSIGNOR TO THE B. F. GOODRICH COMPANY,
OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

PACKAGE AND METHOD OF MAKING THE SAME

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This invention relates to packages and to methods of making the same, and more especially it relates to packages of frusto-conical articles such as cones of creel cord or the like, and to improved procedure for packaging the same.

The chief objects of the invention are to provide an improved package of handy size and shape; to provide a package which will hold the articles securely against relative movement with relation to their covering and to each other; to provide a package which will have sufficient rigidity to resist bending and buckling; to provide a package which may be economically produced; to provide an improved method for producing a package having the foregoing characteristics; and to provide an improved method for mounting a rip-cord in such a package.

Of the accompanying drawing:

Fig. 1 is a perspective view of apparatus for performing the major part of my improved method, and the work therein.

Fig. 2 is a side elevation of my improved package, a part thereof being sectioned and broken away.

Fig. 3 is a detail elevation of a portion of the apparatus shown in Fig. 1.

Fig. 4 is a fragmentary elevation of the mechanism shown in Fig. 3 as viewed from the right thereof.

Referring to Fig. 2 of the drawing, 10, 10 are cones of creel cord and 11, 11 are hollow tapered cops on which the cones are wound, the latter being assembled in axial alignment and the cops which project from the ends of the cones, being telescoped as shown, to reduce the length of the assembly and as dowel means, to add rigidity thereto. The peripheral face of each cone is slightly tapered as shown and its end faces are somewhat rounded by reason of which, and also, because one of the ends of each cop projects beyond the cone, there is a space 12 between adjacent cones.

The cone assembly is provided with longitudinal reinforcement comprising a plurality of strips of stiff cardboard 13, 13 herein shown as four, uniformly spaced circumferentially of the cone assembly and extending

from end to end thereof, to bridge the spaces between adjacent cones, the end portions of said strips being folded onto the end faces of the assembly. Enclosing the cone assembly, with the exception of the ends thereof, is a cover comprising overlapped helical convolutions of strip material 14 such as paper, the convolutions being adhered to each other in their overlapping portions. The ends of the package are provided with end-caps, 15, 15 of stiff cardboard or the like, said caps being concave and formed with marginal flanges which fit over the cover 14 adjacent the ends of the package. Binders 16, 16 comprising gummed tape are adhered to the marginal portions of the respective caps 15 and adjacent cover 14 to retain said caps in place thereon.

The package is provided with a rip-cord 30 for quick and easy opening, said rip-cord being positioned between the cone assembly and the cover, preferably adjacent a reinforcing strip 13. The respective end portions of the rip-cord are disposed upon the outer surface of the package and affixed thereto by gummed labels or stickers such as the sticker 31, Fig. 2.

Suitable apparatus for performing the mechanical operations of my improved method of making packages is shown somewhat diagrammatically in Fig. 1, wherein 17 is an elongate framework in which are mounted a pair of work-supporting endless conveyor belts 18, 19 which are disposed in longitudinal alignment, said belts being mounted at their ends upon the usual pulleys and driven, in the same direction and at the same speed, by respective drive-belts 20, 21 located at their remote ends.

At the middle of the apparatus, in the space between the adjacent ends of the conveyor belts 18, 19, is a rotary shuttle 22 which carries a roll 23 of the strip material 14, the latter having a gummed margin, and the shuttle being provided with suitable moistening means (not shown) for wetting the gummed margin. Adjacent the rotary shuttle 22, at the work receiving side thereof, are suitable supports 24, 24 on which are journaled respective rolls 25, 25 of the stiff

reinforcement strips 13, 13. Suitable lateral guides 26, 27 are positioned beside the conveyor belt 19 for guiding the work thereon in alignment toward the rotary shuttle, so that the latter and the work are in axial alignment.

Rising from the framework 17, adjacent the wrapping position, are a pair of supports such as the support 32, Fig. 3, to the upper ends of which are pivoted generally horizontal arms 33, and the latter carry a device for continuously feeding rip-cord material onto the work as the latter is fed longitudinally of the apparatus. Mounted upon the free ends of the pivoted arms 33 is a yoke or bracket 34 in which is journaled a short shaft 35 in the middle of which is mounted a disc 36, the end of the shaft 35 carrying a gear 37 which is meshed with a pinion 38 mounted upon a stub-shaft 39, journaled in the bracket 34, the end of the shaft 39 carrying a feed-roller 40. Journaled on a suitable bracket at the upper end of the yoke 34 is an idler roller 41 associated with the feed-roller 40 and peripherally driven thereby, said idler roller preferably having a soft surface so as frictionally to engage said feed roller 40 and a continuous rip-cord 30 between said rollers to feed said rip-cord. The rip-cord 30 is drawn from a creel 42 thereof suitably mounted upon the yoke 34, and is fed by the feed roller 40 onto the work as the latter passes beneath. Tension springs 43 connect the free ends of the arms 33 with the framework 17 for urging said arms downwardly to hold the disc 36 in engagement with the work and thereby to drive said disc. The arrangement of the gearing is such that the feed roller 40 rotates faster than the disc 36, thereby feeding the rip-cord 30 faster than the work so that it lies loosely upon the work.

For the operating of the apparatus preferably two operators are provided, one at its delivery end and one at its receiving end. The operator at the receiving end of the apparatus, at the right as viewed in Fig. 1, places cord cones 10 upon the conveyor belt 19 and positions them so that the cop of one cone is telescoped with the cop of the preceding cone, as shown in Fig. 2, the conveyor 19 thus feeding the cones toward the rotary shuttle 22 in a continuous succession. As the procession of cones passes the rotary shuttle the latter applies the strip 14 thereto in overlapping helical convolutions which are adhered to each other, and binds upon the cones the continuous rip-cord 30 and the continuous reinforcement strips 13 which are drawn onto the cones by the axial movement thereof. The strip material 13 bridges the gap between the conveyors 18, 19 where the cones are otherwise unsupported, and also bridges the gaps between the cones for reception of the winding. The work in passing onto the conveyor 18 presents a unitary

wrapped structure 28 as shown at the left in Fig. 1.

The operator at the delivery end of the apparatus severs the structure 28 into units containing four, or any other desired number, of cord cones, which operation is simplified by the provision of the spaces 12 between adjacent cones, the operator being required only to sever the wrapper 14 and reinforcing strips 13, which permits the telescoped portions of the adjacent cone cops to be separated. The individual packages are removed from the apparatus as they are severed, after which the severed ends of the wrapper are folded onto the end faces of the cones, the end caps 15 mounted thereon, and the binding tapes 16 applied to retain the caps in place. During the latter operation the rip-cord 30 is pulled taut and preferably slid laterally to a position beside one of the reinforcement strips 13, the loose condition of the rip-cord providing sufficient length, when the cord is drawn taut, to permit the end portions of the cord to be laid upon the outside of the cover to which they are affixed by stickers or labels 31.

The wrapping of the packages is continuous, and effects economy of manufacture. The package is of a size and shape for convenient handling and possesses the other advantages set forth in the foregoing statement of objects.

The invention is susceptible of modification within the scope of the appended claims, as I do not limit my claims wholly to the specific construction or exact procedure shown and described.

I claim:

1. In combination with a plurality of frusto-conical articles assembled in end-to-end relation, a package therefor comprising a reinforcing strip lying upon the surfaces of the articles and extending from one to another thereof, a helical wrapping upon said articles and reinforcing strip, and means for securing the wrapping against unwinding.

2. In combination with a plurality of frusto-conical articles assembled in end-to-end relation, a package therefor comprising a reinforcing strip lying upon the surfaces of the articles and extending from one to another thereof, a helical wrapping upon said articles and reinforcing strip, and end closures securing the wrapping against unwinding.

3. In combination with a plurality of frusto-conical articles assembled in end-to-end relation, a package therefor comprising a reinforcing strip lying upon the surfaces of the articles and extending from one to another thereof, and turns of helical wrapping overlapping and adhered together upon said articles and reinforcing strip.

4. In combination with a plurality of frus-

to-conical articles and means holding them spaced apart in end-to-end relation, a package therefor comprising a plurality of reinforcing strips disposed longitudinally of the assembly and folded onto the end faces thereof, a wrapper comprising a plurality of overlapping helical convolutions of strip material upon said articles and reinforcing strips, and means binding down the said strip material and the end portions of the reinforcing strips.

5. In combination with a plurality of frusto-conical articles and means holding them spaced apart in end-to-end relation, a package therefor comprising a plurality of reinforcing strips disposed longitudinally of the assembly and folded onto the end faces thereof, a wrapper comprising a plurality of overlapping, adhesively united, helical convolutions of strip material upon said articles and reinforcing strips, end closures confining the end portions of the strip material and the reinforcing strips, and binder tapes adhesively securing the end closures to the wrapper.

6. The method of packaging articles which comprises assembling a plurality of the articles in substantial alignment, applying a wrapper to the assembly, separating the wrapped structure into units of shorter length, each comprising a plurality of the articles and securing the wrapper against unwinding.

7. The method of packaging articles which comprises assembling a succession of the articles, applying a longitudinal reinforcement to the assembly, applying an outer wrapper to the reinforced assembly, and then separating the wrapped structure into units of shorter length.

8. The method of packaging articles which comprises assembling a succession of the articles, applying a longitudinal reinforcement to the assembly, applying an outer wrapper to the reinforced assembly, separating the wrapped structure into units of shorter length, and then closing the ends of the shorter units.

9. The method of packaging frusto-conical articles which comprises assembling a plurality of the articles in end-to-end relation, applying a flexible strip of reinforcing material so that it extends from one to the other of the articles, and binding the flexible strip down to the articles.

10. The method of packaging articles which comprises assembling a plurality of the articles in substantial alignment, feeding the assembly longitudinally, applying reinforcement to the assembly as it is so fed, applying a wrapper to the reinforced assembly as it is so fed, and then severing the wrapped structure into units of shorter length.

11. The method of packaging articles which comprises feeding a continuous suc-

cession of articles in substantial alignment, progressively applying a wrapper to the succession of articles as it is so fed, and then separating a determinate length of wrapped structure comprising a plurality of the articles from the continuous structure.

12. The method of packaging frusto-conical articles which comprises assembling a continuous succession of articles in axial alignment, feeding the articles in an axial direction as they are so assembled, progressively reinforcing the assembly longitudinally as it is so fed, progressively applying a wrapper to the succession of articles, and then severing successive units from the wrapped structure.

13. A method as defined in claim 12 including closing the ends of the severed units.

14. The method of packaging articles which comprises assembling a plurality of the articles in longitudinal alignment, applying a wrapper to the assembly, severing the assembly into units of shorter length, mounting closures on the ends of the respective units, and then applying an adhesive binder to retain the closures in place thereon.

15. The method of packaging articles which comprises feeding a continuous succession of articles in substantial alignment, progressively feeding a continuous cord onto the articles as they are so fed, progressively applying a wrapper to the succession of articles as it is so fed, separating a determinate length of wrapped structure from the continuous structure, and affixing the end portions of the cord in the severed structure to the outer face of its wrapper.

16. A method as defined in claim 15 in which the cord is fed faster than the articles.

17. The method of packaging articles which comprises assembling a plurality of the articles in substantial alignment, feeding the assembly longitudinally, applying reinforcement to the assembly as it is so fed, applying a wrapper helically to the reinforced assembly as it is so fed, and then severing the wrapped structure into units of shorter length.

18. The method of packaging articles which comprises assembling a plurality of the articles in substantial alignment, feeding the assembly longitudinally, so winding a wrapping strip helically upon the assembly as it is so fed that each turn thereof is overlapped by the next succeeding turn, and then severing the wrapped structure into units of shorter length, each comprising a plurality of the articles.

19. The method of packaging articles which comprises assembling a plurality of the articles in substantial alignment, feeding the assembly longitudinally, so winding a wrapping strip helically upon the assembly as it is so fed that each turn thereof is overlapped by the next succeeding turn, adhering the

overlapped portions of the successive turns one to another as they are wound, and then severing the wrapped structure into units of shorter length, each comprising a plurality of the articles.

20. In combination with a plurality of articles substantially aligned, a package therefor comprising a relatively narrow reinforcing strip lying upon the surfaces of the articles and extending from one to another thereof, a helical wrapping upon the articles and reinforcing strip, and means for securing the wrapping against unwinding.

21. A combination as defined in claim 20 in which adjacent turns of the helical wrapping are overlapped and adhered one to another.

22. In combination with a plurality of articles assembled in substantial alignment, a package therefor comprising a wrapping of overlapped helical convolutions extending from article to article and terminating in annular edges lying in planes at right-angles to the axis of the helix.

23. In combination with a plurality of articles assembled in substantial alignment, a package therefor comprising a wrapping having helical convolutions adhered to one another and terminating in annular edges lying in planes at right-angles to the axis of the helix.

24. In combination with a plurality of articles assembled in substantial alignment, a package therefor comprising a wrapping having helical convolutions adhered to one another and terminating in annular edges lying in planes at right-angles to the axis of the helix and reinforcing strips disposed between the articles and the wrapping and extending from end to end of the assembly.

25. In combination with a plurality of articles assembled in substantial alignment, a package therefor comprising a plurality of reinforcing strips lying upon the articles and a helical wrapping of overlapped convolutions extending from article to article upon the reinforcing strips and articles.

In witness whereof I have hereunto set my hand this 17th day of December, 1929.

CHARLES W. LEGUILLON.