COMPACT DISPENSING PACKAGE

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Filed: July 11, 1973

Appl. No.: 378,303

U.S. Cl. 221/50; 221/63
Int. Cl. B65H 1/04
Field of Search 221/45–63

References Cited

UNITED STATES PATENTS
2,656,916 10/1953 Henderson 221/50
3,265,241 8/1966 McColgan 221/47
3,369,700 2/1968 Nelson 221/63
3,624,791 11/1971 Taub 221/59
3,679,094 7/1972 Nissen 221/50

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ABSTRACT

A compact dispensing package for sheet materials such as facial tissues. The package comprises a top-dispensing carton, an inverted Y-shape support member within the carton, and a bundle of substantially uniform sheets. The bundle is folded upon itself into a U-shape and draped over the inverted Y-shape support member. The length of the bundle is substantially equal to the distance up and over the inverted Y-shape support member, the middle of the bundle is supported subjacent the top wall of the carton, and the top sheet is folded to provide a grasping portion immediately subjacent a dispensing opening or aperture through the top wall of the carton. By configuring the carton, the support member, the sheets, and the bundle so that the portions of the lower interior corners of the carton disposed above the distal ends of the arms of the Y-shape support member are filled by outwardly flared distal portions of the U-shape bundle and so that the bundle substantially fills the bundle accommodating space above the Y-shape support member without substantially compressing or restraining the bundle, the bundle is substantially precluded from shifting during shipping and other handling. Further, by virtue of having the middle of the bundle supported subjacent the top wall of the carton, even the lowermost sheet in the bundle is accessible for being grasped, in turn, between one's thumb and forefinger even through a narrow dispensing aperture or opening. The compact dispensing package may further include a transparent panel having a dispensing opening in it which panel is secured within the carton immediately subjacent the top wall of the carton. Also, the package may include a transparent overlap covering at least the outer surface of the top wall of the carton and, the sheets of the bundle may be interleaved to provide pop-up dispensing.

2 Claims, 7 Drawing Figures
COMPACT DISPENSING PACKAGE
FIELD OF THE INVENTION

This invention relates generally to providing a compact dispensing package for sheet materials such as virtually limp facial tissues.

BACKGROUND OF THE INVENTION

Sheet material such as facial tissues are commonly packaged in parallelopipedal shape cartons having a bundle of tissues disposed substantially flat therein as illustrated, for instance, by U.S. Pat. No. 3,239,097, issued to John B. Bates et al. on March 8, 1966, or a bundle of tissues may be draped over a support such as an inverted V-shape support as illustrated, for instance, by U.S. Pat. No. 3,265,241, issued to Arnold J. McGolgan, Aug. 9, 1966.

Some effort has been directed towards providing compact dispensing packages for sheet materials. For instance, U.S. Pat. No. 2,195,622 issued to Charles A. Fourness, Apr. 2, 1940, illustrates a tissue packet having an unsupported, U-folded bundle of tissues disposed therein. U.S. Pat. No. 2,761,584, issued to Oscar W. Johnson et al., Sept. 4, 1956, illustrates another dispenser for sheet material wherein the bundle is folded into a U-shape and supported by a vertically disposed support member within the carton. However, in both U.S. Pat. Nos. 2,761,584 and 2,195,622, such U-folded bundles result in void triangular-shape spaces within the carton adjacent the distal ends of the U-shape bundle. Such voids contribute to bundle instability and shifting during shipping and other handling which instability and shifting adversely affects dispensing and product appearance.

U.S. Pat. No. 3,369,700, issued to Howard N. Nelson, Feb. 20, 1968, discloses a sheet material dispensing package comprising a U-folded unsupported bundle disposed within a restraining wrapper so that the distal ends of the bundle are flared outwardly in such a manner that there are no voids adjacent the distal ends of the U-folded bundle so that the bundle, before use, is said to be stable within the wrapper; that is, not subject to substantial shifting during shipping or other handling. However, initial dispensing from such an unsupported bundle of tissues is difficult due to the bundle of tissues being in a restraining wrapper. Further, by virtue of not being draped over a bundle support, access to limp sheets disposed in the lower portion of the bundle is difficult because such sheets tend to slump to the bottom of the package.

With respect to folding the top sheet of a bundle to provide a grasping portion with which dispensing can be initiated, the prior art includes the following U.S. Pats: No. 1,797,380 issued Mar. 24, 1931 to Oscar T. Thompson; No. 1,952,382 issued Mar. 27, 1934 to Charles A. MacGregor; No. 2,080,729 issued May 18, 1937 to Palmer B. McConnell; No. 3,207,361 issued Sept. 21, 1965 to Nicholas Marcalus; No. 3,679,094 issued July 25, 1972 to Walter D. Nissen et al.; and No. 3,679,095 issued July 25, 1972 to Walter D. Nissen et al.

In view of the referenced prior art patents, it is believed that they neither teach nor disclose a compact dispensing package which provides good initial dispensing, good stability against bundle shifting during shipping and other handling, and access through the top of the dispensing package to all of the sheets, in turn, packaged therewithin as provided by the present invention.

SUMMARY OF THE INVENTION

The nature and substance of the present invention will be more readily appreciated after giving consideration to its major aims and purposes. The principal objects of the invention are recited in the ensuing paragraphs in order to provide a better appreciation of its important aspects prior to describing the details of a preferred embodiment in later portions of this description.

A major object of the present invention is providing a compact dispensing package for sheet materials which substantially precludes shifting of the sheet material within the package during shipping and other handling, and which permits access through a dispensing opening in the top of the package so that each of the sheets within the package can be grasped and withdrawn by extending a thumb and forefinger through the opening.

Another major object of the present invention is providing a compact dispensing package for sheet material as described in the preceding paragraph wherein the sheet material is virtually limp.

Still another major object of the present invention is providing a compact dispensing package as described in the two preceding paragraphs which package comprises a substantially cubical-shape carton, a bundle of substantially square sheets of material which sheets are U-folded and interleaved to form the bundle of tissues, an inverted Y-shape support member within the carton for supporting the bundle of tissues and for dividing the carton into a triangular cross-section tubular void disposed below the arms of the Y-shape support member and a bundle accommodating space disposed thereabove, the bundle being U-folded on itself and draped substantially symmetrically on the support member, the components of the package being configured so that the bundle substantially fills the bundle accommodating space.

These and other objects are achieved by providing a compact dispensing package for sheet material comprising a top-dispensing form-sustaining carton, a Y-shape support member, and a bundle of sheets of flexible material. The support member is inverted in the carton and the bundle of sheets is U-folded and draped over the inverted Y-shape support member. The carton, support member, sheets, and bundle are so configured that the distal ends of the U-shape bundle are flared outwardly by virtue of resting on upwardly facing surfaces of the arms of the inverted Y-shape support member, and the bundle substantially fills the space within the carton above the inverted Y-shape support member whereby the bundle is substantially precluded from shifting during shipping or other handling.

BRIEF DESCRIPTION OF THE DRAWINGS

While the specification concludes with claims particularly pointing out and distinctly claiming the subject matter regarded as forming the present invention, it is believed the invention will be better understood from the following description taken in connection with the accompanying drawings in which:

FIG. 1 is a perspective, partially cut-away view of a compact dispensing package embodying the present invention.
FIG. 2 is a plan view of a bundle of sheets prior to the bundle being U-folded and inserted into a carton to form the package shown in FIG. 1.

FIG. 3 is an enlarged view of the bundle of tissues shown in FIG. 2 taken along line 3—3 thereof.

FIG. 4 is a plan view of a bundle support member made of cartonboard prior to folding it into the inverted Y-shape shown in FIG. 1.

FIG. 5 is a plan view of an alternate configuration of a bundle of sheets having a different geometry of folds on the top of the bundle to provide a grasping portion of the top sheet which is accessible through the dispensing opening in the top of a carton as shown in FIG. 1.

FIG. 6 is an enlarged, transverse cross-sectional view of the bundle of tissues shown in FIG. 5 taken along line 6—6 thereof.

FIG. 7 is a reduced scale, transverse, cross-sectional view of still another alternate bundle configuration showing yet another geometry of folds on the top of the bundle.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, FIG. 1 is a perspective view of a preferred embodiment of the present invention which is a compact dispensing package 20 comprising carton 21, a panel 22 underlying the top wall of carton 21, an overwrap 23, an inverted Y-shape support member 24, and a U-folded bundle 25 of sheets 26 of sheet material such as substantially limp facial tissues.

Carton 21, FIG. 1, of the preferred embodiment, package 20, of the present invention is formed from a carton board blank into a form-sustaining somewhat cubical-shape having a front wall 30, a back wall 31, side walls (not shown in FIG. 1) 32, 33, top wall 34, bottom wall 35, and tab 36.

The top wall 34 of carton 21 is provided with elongate aperture 37 centrally disposed therein which has its major axis lying in an imaginary medial plane not shown in the figures which bisects the top back edge 38, the top front edge 39, the bottom front edge 40, and the bottom back edge 41 of carton 21. Although aperture 37 is shown in FIG. 1 to be elliptical, it is believed that the elliptical shape is not critical to the present invention.

Tab 36, FIG. 1, is integrally hinged to top wall 34 along the back edge of top wall 34. A portion of tab 36 is adhesively secured to the inwardly facing surface of back wall 31.

The side walls 32, 33 of carton 21 are not shown in FIG. 1 in order to promote a clear understanding of the essential elements of package 20. However, side walls 32, 33 are formed from flaps which are integrally hinged to the other walls of the carton blank so that they overlap when folded inwardly and can be adhesively secured together to complete package 20 after carton 21 is filled.

Bundle 25, FIGS. 2 and 3, of the preferred embodiment of package 20 comprises a multiplicity of sheets 26 of sheet material such as facial tissue. As shown in FIG. 3, each sheet is U-folded and interleaved with adjacent sheets 26 in bundle 25. However, portions of the top sheet and the next lower sheet are folded to provide a grasping portion 45 having an edge 46 extending adjacent the longitudinal center-line of the bundle 25. As shown in FIG. 3, the longitudinally extending closed edge of top sheet 47 is edge 46. When thus disposed, one quarter fold 45 of the top fold of top sheet 47 overlies an adjacent quarter fold, the quarter folds each being one quarter as wide as bundle 25. An alternative fold, not depicted in the figures, similar to the fold shown in FIG. 3, may be formed by folding the top fold (top half) of top sheet 47 to position its free edge 48 so that it extends along the longitudinal center line of bundle 25 and overlies the next adjacent quarter of the top fold of the top sheet. Whereas the alternate fold provides an adequate grasping portion having sufficient strength to not tear upon initiating dispensing from package 20, for some sheet materials, the fold shown in FIG. 3 provides a grasping portion having substantially more strength and bulk with which to initiate dispensing from package 20.

Bundle 25 is shown, FIG. 3, and described as comprising U-folded, interleaved sheets which promote pop-up dispensing. However, neither pop-up dispensing nor such interfolding are believed to be critical to the present invention.

Underlying panel 22 is formed from transparent material such as flexible, transparent polyethylene film and is secured within carton 21 juxtaposed the inwardly facing surface of top wall 34. Panel 22 is large enough to extend beyond the perimeter of aperture 37. Panel 22 is provided with an elongate opening such as an elliptoidal shape opening having its major axis disposed in the imaginary medial plane of carton 21 which was described hereinbefore.

In the preferred embodiment of the present invention, package 20 of FIG. 1, the dispensing opening 50 in the underlying panel 22 is substantially smaller than aperture 37 in top wall 34. Thus, panel 22 provides a transparent window in top wall 34 which covers a substantial portion of top wall 34 which substantially precludes dust and other foreign matter from entering the package. Although the dimensions of aperture 37 and dispensing opening 50 are not believed to be critical to the present invention, the major axis and the radii of the ends of dispensing opening 50 must be great enough to enable pop-up dispensing if sheets 26 are interleaved and the minor axis of dispensing opening 50 must be small enough to sufficiently retard withdrawal of sheets 26 therethrough in order to substantially preclude multiple dispensing of interleaved sheet material and to partially preclude dust and other foreign matter from entering the package through dispensing opening 50. For instance, in a representative package 20 containing about 125 two-ply tissues which are about 9 6/10 inches by about 8 25/100 inches which are U-folded and interleaved and which carton has height, width and depth dimensions of approximately 5½, 4½ inches, and 4½ inches respectively, the dispensing aperture 37 has a major axis of about 3½ inches and a minor axis of about 2½ inches, and the dispensing opening 50 has a major axis of about 3 inches, a minor axis of about 5 inches and end radii of about 3/16 inches. In the event that underlying panel 22 is not incorporated in the package, the aperture 37 would be sized and disposed in top wall 34 substantially identically to dispensing opening 50 described above and aperture 37 would indeed be a dispensing aperture or opening.

Overwrap 23, FIG. 1, is a transparent material such as polyethylene or polypropylene plastic film which
covers top wall 34 and front wall 30 of the preferred embodiment package 20 and may be imprinted with advertising, opening instructions, and the like. As shown in FIG. 1, the overwrap extends under the front portion of the bottom wall 35 of carton 21 and extends between tab 36 and back wall 31 near the top back edge 38 of carton 21 and is secured to the carton at those locations. Panel 23 is further provided with lines of weakening such as spaced perforations which, when overwrap 23 is secured to carton 21, extend along edges 38 and 40 whereby the removal of the overwrap can be effected by tearing the overwrap along these lines of weakening. An overwrap of this type is disclosed in U.S. Pat. No. 3,424,367 issued to John D. Desmond on Jan. 28, 1969. Such an overwrap substantially precludes the entry of dust and other foreign material into the package prior to the removal of overwrap 23 while still enabling, in conjunction with transparent panel 22, a customer to view a substantial portion of the contents of package 20 prior to opening it. Whereas overwrap 23 of the preferred embodiment package 20 may be overprinted with advertising copy and the like, the carton is finished with more aesthetically pleasing designs. In this manner, the customer may receive the benefit of the advertising copy and/or opening instructions printed on the overwrap while, once the overwrap has been removed, the opened package has a more aesthetically pleasing appearance unincumbered by advertising copy, instructions, and the like.

Support member 24, is shown in FIG. 1 within carton 21 to have an inverted Y-shape configuration which divides carton 21 into a triangular cross-section tubular void 42 disposed below the support member and a bundle accommodating space disposed above the support member. FIG. 4 is a plan view of a rectangular carton-blank 44 from which support member 24 may be formed. Blank 44 is provided with at least one medial fold line 60, and two intermediate fold lines 61, 62. The fold lines divide blank 44 into four rectangular areas which are hereby designated arms 63, 64 and stem portions 65, 66. When the blank is folded to form support member 24 having the inverted Y-shape configuration shown in FIG. 1, it is folded in such a manner that it has substantially no residual resilience so that it will not pinch the bundle 25 of sheets 26 between the uppermost edge (the horizontally extending edge formed by folding on fold line 60) of support member 24 and top wall 34 of carton 21. Otherwise, if the support member 24 had substantial resilience acting upwardly on bundle 25, dispensing, particularly initial dispensing, would be difficult and perhaps result in tearing one or more sheets 26. Furthermore, if a plurality of closely spaced medial fold lines are provided, the positioning of each blank with respect to folding devices becomes less critical.

The included angle 43, FIG. 1, between arms 63, 64 of support member 24 is a function of the length L', FIG. 4, of arms 63, 64 with respect to the front-to-back dimension D of bottom wall 35 of carton 21. Although a precise included angle 43 has not been determined to be critical to the present invention, the optimum range is believed to be from about 90° to about 120°. For smaller included angles, the tubular void 42 in the carton becomes undesirably large with respect to the total volume of carton 21 and, for larger included angles, a support member 22 having only nominal strength tends to bend and/or collapse which permits bundle 25 to shift somewhat during shipping or handling and causes the dispensing of the lower sheets in bundle 25 to be abnormally difficult.

It has been found convenient to form the combination of the bundle 25 of sheets 26 and support 24 into the U-folded configuration shown in FIG. 1 by pressing the combination into a U-shape trough. Then, the U-folded combination is inserted into carton 21 through a horn or a funnel extending into a side of carton 21 so that the longitudinal centerline of bundle 25 lies in the imaginary central plane of bundle 25 described hereinbefore and fold lines 60, 61, 62 of support member 24 are substantially perpendicular to the median plane. However, it is not believed that this particular method of forming the bundle and support member into the U-shape configuration of FIG. 1 or of inserting the combination into carton 21 is critical to the present invention.

When package 20 is assembled with bundle 25 and support 24 disposed as indicated in FIG. 1, some bunching or compression of the distal portions of bundle 25 occurs in the portions of the lower interior corners of carton 21 disposed above arms 63, 64 of support member 24. Therefore, the package components are configured so that the bundle is not compressed between the stem of the support member and the top wall of the carton; or compressed between the stem and the front and back walls of the carton; and so that the end edges 70, 71 of top sheet 47 are disposed below bottom wall 35 a distance equal to or greater than the height of juncture 72 (between the arms 63, 64 of Y-shape support member 24) above bottom wall 35. In this manner, the end portions of top sheet 47 are substantially precluded from being pressed against the front wall 30 and the back wall 31 of carton 21 by the flared, distal portions of the U-shape bundle 25 and, in this manner, the top sheet 47 is prevented from being restrained within carton 21 so tightly that it would be difficult to withdraw without its being torn or otherwise damaged.

A representative example of the preferred embodiment of compact dispensing package 20 comprises a carton 21 having a height, width and depth of 5½ inches, 4½ inches, and 4 inches respectively, a bundle 25 comprising about 125 two-ply sheets of facial tissue which bundle has an uncompressed height of approximately 100% inches, the sheets each being approximately 9 6/10 inches long by about 8 25/100 inches wide which are U-folded about their longitudinal center line and which are interleaved with each other to promote pop-up dispensing. In this example, bundle support member 24 has an overall or composite length L, FIG. 4, of 9½ inches, a width of about 4½ inches, and is provided with fold lines 60, 61 and 62 to divide it into arms having lengths L' of about 2½ inches and stem portions 65, 66 having lengths L'' of about 2½ inches each. The example further includes a polyethylene panel 22, a polypropylene overwrap 23, and a dispensing opening 50 and an aperture 37 having the dimensions stated hereinbefore. In this representative example of the present invention, the carton, the support member, the sheets, and the bundle are so configured that the bundle substantially fills the bundle accommodating space in the carton above the Y-shape support member without binding the sheets of the bundle, and which bundle of sheets is supported so that each sheet can be grasped and withdrawn, in turn, by
extending a thumb and forefinger through a dispensing opening or aperture in the top wall of the carton in the event sheets 26 and not interfolded to provide pop-up dispensing.

An alternate fold configuration of top sheet 47 of bundle 25 is shown in FIGS. 5 and 6 to include a first quarter fold 80, a one-half fold 81 and a second quarter fold 82 intermediate folds 80, 81 wherein the first quarter fold underlies the second quarter fold and is contiguous therewith, and the second quarter fold underlies the one-half fold. The alternative fold configuration is further defined as having an edge of each of the first and second quarter folds and an edge of the one-half fold extending along one edge of bundle 25' so that the longitudinally extending closed edge 83 of top sheet 47 is disposed along the medial centerline of the bundle 25'. Such a fold tends to not unfold when unrestrained whereas, if sheets 26 have nominal resilience, other folds tend to unfold unless top sheet 47 is sharply creased or otherwise restrained from unfolding. Another version of the alternate fold (FIG. 6) of top sheet 47 is shown in FIG. 7 wherein identical elements or features are identically designated as in the other figures, and functionally similar articles or features are identified with primed identical designators. The fold depicted in FIG. 7 has the top half of top sheet 47 folded into the geometry shown so that its free edge 84 (rather than its closed edge 83) extends along the medial centerline of the bundle. Whereas the alternate fold configuration shown in FIG. 6 provides a six-ply grasping portion when sheets 26 are each two ply, the version of the alternate fold shown in FIG. 7 provides only a two-ply grasping portion.

To open package 20, FIG. 1, the overwrap 23 is torn along the hereinbefore described lines of weakening disposed adjacent corners 38 and 40 of carton 21. To initiate dispensing of the sheet material from within carton 21, the grasping portion 45 of top sheet 47 is grasped between one's thumb and forefinger after extending them through dispensing opening 50 and then pulling on the grasping portion. If the sheets 26 are interfolded to promote pop-up dispensing, withdrawal of each sheet 26 will draw a substantial portion of the next succeeding sheet through dispensing opening 50 so that it extends upwardly therefrom. In the event that subsequent pop-up dispensing does not occur, support member 24 maintains the remainder of bundle 25 subjacent top wall 34 so that one can reinitiate dispensing by again extending the thumb and forefinger through dispensing opening 50. Were support member 24 not present, reinitiation of pop-up dispensing would be substantially more difficult because the remainder of the bundle would slump towards the bottom of the carton. Also, if sheets 26 are not interleaved to provide pop-up dispensing, each sheet of the bundle is withdrawn by extending a thumb and forefinger through dispensing opening 50 and the presence of support member 24 insures that each sheet of the bundle is within such grasping distance through dispensing opening 50.

While particular embodiments of the present invention have been illustrated and described, it will be obvious to those skilled in the art that various changes and modifications can be made without departing from the spirit and scope of the invention and it is intended to cover the appended claims all such changes and modifications that are within the scope of this invention.

What is claimed is:

1. A compact dispensing package for sheet material comprising a top-dispensing form-sustaining carton, a Y-shape support member comprising two arms and a stem joined together at a juncture, and a bundle of sheets of flexible material, said support member being inverted in the carton so that it divides said carton into a horizontally extending triangular cross-section tubular space bounded by the arms of said support member and the bottom wall of said carton, and a bundle accommodating space above the arms of said support member, said bundle of sheets being U-folded and draped substantially symmetrically over said inverted Y-shape support member, said carton, said support member, said sheets, and said bundle being so configured that the downwardly extending distal ends of the U-shape bundle flare outwardly by virtue of resting on upwardly facing surfaces of the arms of the inverted Y-shape support member so that the flared ends of the bundle substantially fill the portions of the lower interior corners of the carton disposed above the arms of said support member and said bundle substantially fills said bundle accommodating space without substantially compressing or restraining said bundle, and said carton, said stem, said sheets and said bundle being so configured with respect to each other that the ends of the uppermost sheet of said bundle are spaced from said bottom wall a distance at least equal to the elevation of said juncture above said bottom wall whereby the bundle is substantially precluded from shifting during shipping or other handling without substantially impairing the dispensability of said sheets, said sheets being longitudinally U-folded and interleaved to promote pop-up dispensing, said uppermost sheet comprising a top fold and a bottom fold, said top fold being longitudinally folded into a first quarter-fold, a one-half fold, and a second quarter-fold disposed intermediate said first quarter-fold and said one-half fold, said first quarter-fold underlying said second quarter-fold and being contiguous therewith, and said second quarter-fold underlying half of said one-half fold, said quarter-folds and said one-half fold each having an edge extending along an edge of said bundle whereby the distal edge of said one-half fold extends along the longitudinal centerline of said bundle.

2. A compact dispensing package for sheet material comprising a top-dispensing form-sustaining carton, a Y-shape support member comprising two arms joined to a stem at a juncture, and a bundle of sheets of flexible material, said form-substaining carton comprising two side walls, a front wall, a back wall, a top wall and a bottom wall, said top wall having an aperture therein, said side walls being spaced a distance W inches apart, said front wall being spaced a distance of D inches from said back wall, said top wall being spaced a distance H inches from said bottom wall, said carton further comprising a first lower interior corner formed at the juncture of said front wall with said bottom wall and a second lower interior corner formed at the juncture of said back wall with said bottom wall, said support member being disposed within said carton with the distal end of one of said two arms being disposed in said first interior corner and the distal end of the other of said two arms being disposed in said second interior corner, said stem extending substantially vertically so that is distal end is spaced about a distance T inches below said top wall, said support member dividing the interior of said car-
ton into a horizontally extending triangular cross-section tubular space bounded by the arms of said support member and the bottom wall of said carton, and a bundle accommodating space above the arms of said support member, said support members having a composite length up-and-over it of about L inches, said bundle of sheets having an uncompressed thickness of about T inches, T inches being about one-half D inches, each of said sheets having a length substantially equal to the composite length L of said support member and a width of about W inches, said U-shape folded bundle being draped substantially symmetrically over said support member so that the lowermost surface of the most interior sheet of said U-shape bundle is contiguous with the upwardly facing surfaces of said support member, and said carton, said support member and said sheets being so configured with respect to each other that the ends of the uppermost sheet of said bundle are spaced from said bottom wall a distance at least equal to the elevation of said juncture above said bottom wall, whereby said bundle substantially fills said bundle accommodating space without substantially compressing or restraining said bundle.

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