July 4, 1967 L. MAYER 3,329,259

COMBINATION REEL AND SHIPPING CONTAINER

Filed Oct. 13, 1965 2 Sheets-Sheet 1

FIG. 2

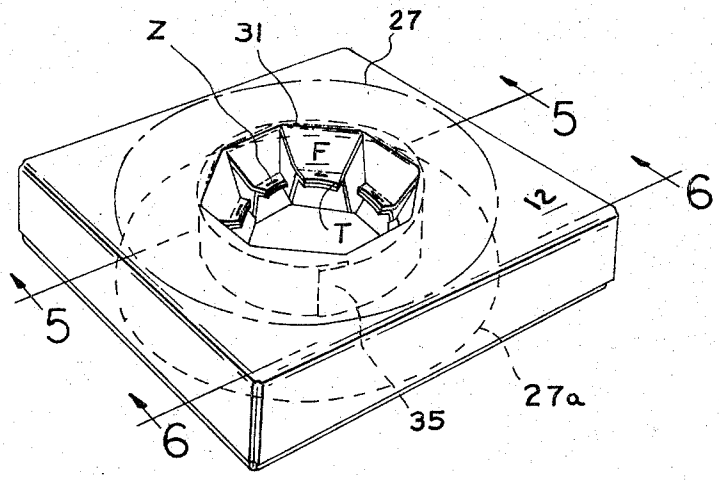
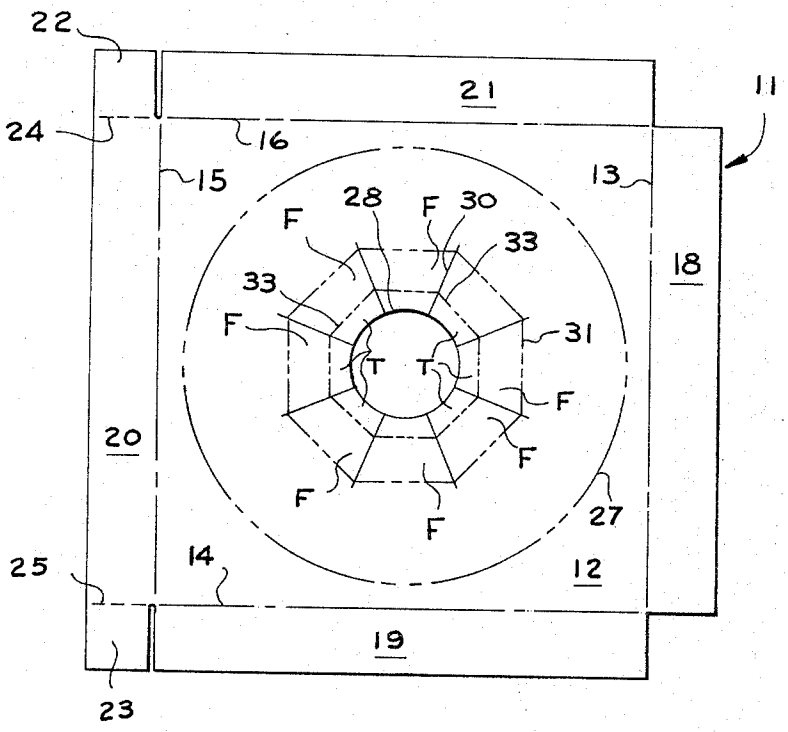


FIG. 1



INVENTOR.
LOUIS MAYER

BY W. A. Schaich &
Thomas A. Meehan
ATTORNEY

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Filed Oct. 13, 1965 2 Sheets-Sheet 2

FIG. 3

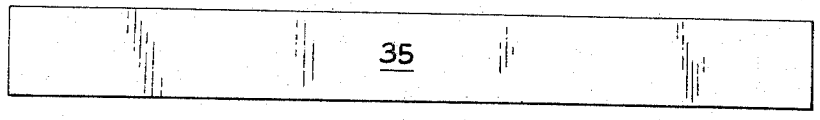


FIG. 4

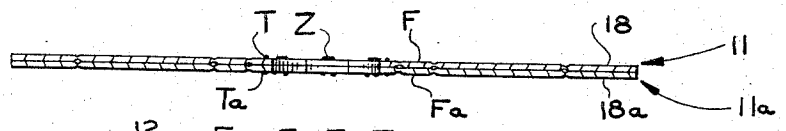


FIG. 5

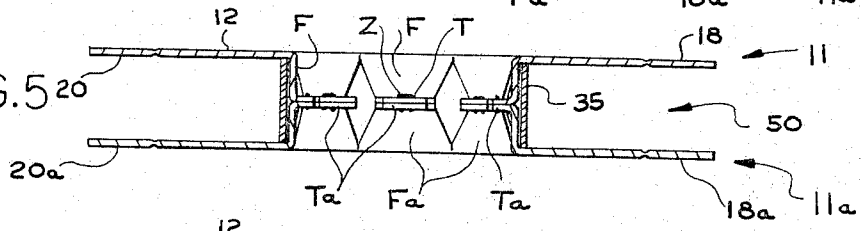


FIG. 6

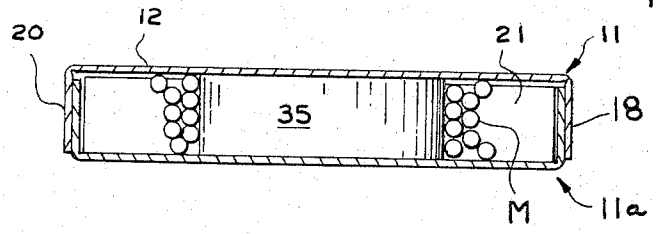
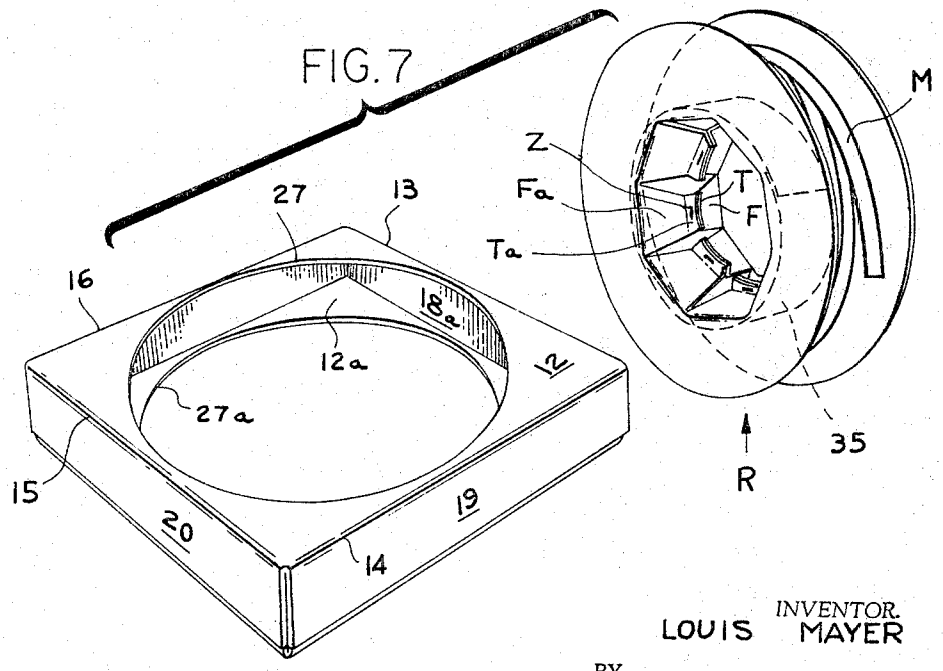


FIG. 7



INVENTOR.
LOUIS MAYER

BY
W. A. Schaich &
Thomas A. Meehan
ATTORNEYS

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COMBINATION REEL AND SHIPPING CONTAINER

Louis Mayer, Elmhurst, N.Y., assignor to Owens-Illinois, Inc., a corporation of Ohio

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3 Claims. (Cl. 206—52)

The present invention relates to a novel package construction.

More particularly, the present invention relates to a package which embodies two functions; namely, a shipping package and, as well, a reel dispenser. Reel packages and dispensers for continuous lengths of coilable material are well-known in the art. One such package is disclosed in U.S. Patent 2,974,850. Additional packages of this general type are disclosed in U.S. Patents 1,907,922, 2,330,117 and 2,092,626. These reel packages are desirably fabricated or paperboard, e.g., cardboard, chipboard or corrugated board. The latter is composed of two outer liner plies having adhesively sandwiched therebetween a convoluted corrugating medium. This material is commonly used in the packaging field by reason of its relatively low cost, its relative stiffness and ease of fabrication. It can also be rendered foldable by impressing scorelines and perforations thereon. Corrugated board is also desirably used in the container and carton fields because it is lightweight, thereby holding shipping charges of the user to a minimum.

Presently employed designs of reel packages and shippers fabricated of corrugated board are not satisfactory since the ultimate consumer-user must expend considerable effort in setting up the package from the die-cut blanks furnished him. Furthermore, in the setting up, considerable accuracy is necessary in order to insure registration and/or alignment of component parts of the corrugated construction. Additionally, in present designs, it is frequently necessary to employ a separate cylindrical core in combination with the corrugated board components necessitating shipment, by the manufacturer of the corrugated board, of a separate order of the space-consuming cores or requiring the user to order these components separately. Naturally, the latter also necessitates procedures for coordinating ordering of supplies of different components.

With the foregoing general introduction, it may be stated that it is a principal object of the present invention to provide a reel package/shipping container combination which is preassembled, is capable of being shipped essentially flat and can be assembled and erected into reel configuration with a minimum of effort and time expended.

It is also an object of the present invention to provide a combination reel and shipping container package which is fabricated of relatively stiff sheet-like material of low cost and easy manipulation by the user.

It is likewise an object of the present invention to provide a low-cost reel unit composed of inexpensive parts.

It is also an object of the present invention to provide a shipping container which includes, as an integral part of the shipping container component, a reel unit which is separable from the remainder of the container proper.

It is still another object of the present invention to provide a shipping container; parts of which also comprise parts of a separable reel.

By a reel, of course, we mean and envision a generally annular core or spool member having circular flanges at each end, thereby defining an annular reservoir for a continuous length of coilable material. Examples of the latter include, of course, wire, rope, twine, hose, insulation, pipe, tubing, and the like.

The foregoing, as well as other objects of the present invention, will become apparent to those skilled in the art from the following detailed description taken in conjunction with the annexed sheets of drawings on which there is presented, for purposes of illustration only, a single embodiment of the present invention.

In the drawings:

FIG. 1 is a knocked-down plan view of a single sheet of corrugated board which has been die-cut, scored and slotted in order to yield a blank representing a preferred embodiment of the present invention.

FIG. 2 is a perspective view of the erected reel package-shipping container fully assembled. (Contents have been deleted so as not to obscure the illustration of components.)

FIG. 3 is a plan view of a strip of corrugated board which can be incorporated into the reel package as an auxiliary support.

FIG. 4 is a side elevation view of two of the blanks shown in FIG. 1 located in face-to-face, registering relationship and with certain parts secured together by stapling.

FIG. 5 is a sectional view taken on the line **5—5** in FIG. 2 showing the principal panel parts of the two blanks located in parallel spaced relationship as assisted by the strip of corrugated board illustrated in FIG. 3.

FIG. 6 is a view similar to FIG. 5, but taken on the line **6—6** of FIG. 2 and showing the incorporated strip of FIG. 3 and illustrating coiled material in the package.

FIG. 7 is a perspective view of the reel portion of the package after severance from the remainder of the package as contemplated in a preferred form of the invention.

The present invention envisions, according to one embodiment, a reel formed of relatively stiff sheet-like material; said reel including a spool or core composed of an annular array of flaps formed generally centrally on a pair of spaced panel members; the flaps of one panel being connected to a corresponding flap on the other panel and together bridging the distance between the panels; said panels outwardly from said flaps defining spaced retaining flanges for coilable material wrapped about said spool.

In a related embodiment of the present invention, there is envisioned a shipping container comprising two principal parallel-spaced side walls having marginally attached closure flaps and flaps formed in the central portion of the side walls by a plurality of radial cuts; said flaps being arranged in annular array; said flaps on respective side walls being folded inwardly toward the flaps on the other side wall; said flaps each including an inner end tab which is foldable into flush face-to-face contact with a like tab on an opposed flap extending from the other panel; said tabs being secured together; said flaps in annular aggregate defining a core support about which a continuous length of sheet material is wrapped for storage and shipping.

In a still further preferred embodiment, an elongate strip is wrapped about the core flaps to lend further support thereto and also serving to hold the side walls apart in material receiving relationship. In this regard, the strip is cut to an appropriate width as to insure the proper spacing of the side walls.

Referring now more specifically to the drawings, there is disclosed in FIG. 1 a plan view of a one-piece blank **11**. The blank is formed of corrugated board composed of two liner sheets having adhesively secured therebetween a convoluted corrugating medium. The blank **11** is essentially a square in which the principal central panel **12** is outlined by marginal foldlines **13**, **14**, **15** and **16**; which foldlines separate the central panel respectively from marginal flaps **18**, **19**, **20** and **21**. The end flap **20**

has foldably attached minor end flaps **22** and **23** foldably secured thereto and separated by foldlines **24** and **25**. These end flaps are deleted in the other figures illustrating the invention in the interest of clarity and simplicity of illustration. In a commercial embodiment, however, they are included and reference will be had later on herein to their purpose and function.

The central panel **12** bears a circular perforation line **27**; the theoretical center of which corresponds with the center of the panel **12**. The perforation serves as a separation line for the reel portion of the assembly in a manner to be described hereinafter. The panel **12** contains a central die-cut aperture **28** concentric with the perforation line **27**. A plurality of identical cuts **30** extend radially outward from the aperture **28** an equal distance. In the embodiment shown, the cuts are eight in number and they are disposed 45° apart. The extremities of the cuts **30** are connected by an impressed scoreline **31**, which defines an octagon concentric with the die-cut aperture. The cuts and scores define an annular array of eight flaps F, which are foldable about the foldline **31** separating same from the panel proper. Each of the flaps is provided with a scoreline **33**; each of which is parallel to the scoreline **31** separating the associated flap from the blank proper, thereby defining eight foldable tabs T at the end extremities of the eight flaps.

Two identical blanks **11**, die-cut and scored as shown in FIG. 1, are assembled or combined together in the manner shown in FIG. 4. Thus, the panels are located in superimposed relationship with the edges in registration. The lower panel bears the same reference numerals as in FIG. 4, but additionally the subscript "*a*." Since the blanks are identical in configuration, edge registration also provides registration of the flaps and tabs. The tabs T and T*a* in overlying relationship are then secured together by stitching or by stapling, as identified by reference legend Z. In this form, the secured-together two-blank assembly is well-adapted to be shipped flat to the consumer who can, in a manner about to be described, convert this two-blank assembly into a reel member adapted to receive an endless length of coilable material and thereafter converted by him into a shipping container of utility in conveying or transporting the product to his customer.

To convert the assembly of FIG. 4 into a reel, the panels **12** and **12***a* of blanks **11** and **11***a* are simply moved apart into spaced relationship much in the manner shown in FIG. 5. By reason of the scored foldlines **31** and **33** and the securement of the tabs, the flaps F move into normal relationship with the principal panel **12**, while the tabs remain in flush abutting relationship as shown in FIG. 2 and in FIG. 5. The flaps F in this position are normally disposed to the panel proper. The tabs T which are secured together, on the other hand, are generally in parallel relationship to the main blank surface and project radially inwardly. The normally disposed flaps F in the aggregate, therefore, define a core support about which an appropriate length of coilable material can be wound.

While the construction as just described can be successfully utilized, it is most desirable to employ a supporting member as shown in FIG. 3 in plan view. Support **35** is essentially a narrow rectangular strip which may be formed of any of the available relatively stiff sheet-like materials, such as cardboard or corrugated board, chipboard, and the like. As can be seen, it can be easily shipped flat by the producer of the package. The user can easily incorporate it into the structure, as shown in FIG. 5, and it is, in fact, shown in this figure in section wrapped about the array of flaps F. As shown, the ends of the strip **35** are secured together by stitching or stapling. The dimensions thereof, of course, are selected so that the length corresponds generally to the circumference of the core defined by the annuar array of flaps, while its width is selected to conform to the distance separating the panels **12** and **12***a* in their spaced condition, which is generally

equal to the sum of the length of the flaps F plus the sum of the thicknesses of the tabs T. The presence of the strip **35** provides insurance against any accidental collapse of the flaps about the scorelines **31** or **33**. The marginal flaps **18–21** and **18***a*–**21***a* extend radially outwardly in order that the material to be wrapped around the core may be conveniently introduced into the peripheral cavity **50** defined between the major portions of the panels **12** and **12***a* which define circular flanges, as it were. It will be appreciated that the reel package, as illustrated in FIG. 5, may be conveniently mounted on a suitable jig and it, in turn, rotated for feeding the coilable material into the reel through the passageway **50** defined by the open marginal flaps. Thereafter, the marginal closure flaps **18–21** and **18***a*–**21***a* are conveniently overlapped and closed by suitable stitching, stapling, adhesive tape, or the like. The coiled material M will thus be safely housed within a package which may be shipped conveniently to the ultimate consumer.

A very desirable feature of the present invention is illustrated in FIGS. 2 and 7. FIG. 2 is like FIG. 6; that is, illustrating a completed carton in perspective; however, the coiled material is deleted in FIG. 2 in the interest of clarity. FIG. 2 does, however, show a score separation line **27** in the upper panel **12**, while another separation line **27***a* is indicated in dotted outline in the lower panel **12***a*. The subscript "*a*" is again utilized to identify components of the lower blank **11***a* (see FIG. 4). These separation lines are perforations imparted to the blank **11** as it is produced and as described in connection with the description in FIG. 1. The ultimate user of the material within the package finds this reel-container assembly very convenient since he needs simply to break tthe package apart on the circular separation lines **27** and **27***a* and thence lift out the reel portion containing the coiled material thereon, as shown in FIG. 7. The remainder of the carton shown on the left in FIG. 7 can then be discarded. The reel identified by the reference letter R in FIG. 7 can then, if desired, be mounted on any rotatable cylindrical form to permit the material to be withdrawn. Of course, it can be laid flat on any of the side panels **12** or **12***a* and the material removed conveniently.

Referring once again to FIG. 1, it may be noted that in a commercial embodiment corner flaps **22** and **23** are usually employed. In such case, the superimposition of two blanks as in FIG. 4 is done in such fashion that corner flaps **22** and **23** are located at each corner, whereupon ultimate assembly and closure will find a corner end flap, e.g., **22**, available for insertion between its foldably associated flap, e.g., flap **20**, and the next adjacent flap, e.g., flap **21**, separated by the slot. The corner flap serves to provide reinforcement in the corner areas in a manner well-known in the art and, additionally, prevents entry of foreign materials through the corners of the assembled package, precluding the necessity of taping the corners to prevent entry of foreign material.

The number of flaps is usually fixed at eight since this closely approximates a circle. A greater number, of course, may be used since it will be appreciated that the greater number will even more closely approximate a circle. This has a disadvantage, however, of increasing the manufacturing costs since more staples and additional stapling or stitching operations must be employed. A lesser number of flaps than eight may be employed but, as one reduces the number of flaps, one, of course, departs from a circular core. For example, four flaps result in the formation of a core which is essentially square. As a consequence, if a strip such as **35** is employed, it will be subject to collapse since it will be supported at only four points, as routine experimentation will illustrate.

Modifications may be resorted to without departing from the spirit and scope of the invention disclosed hereinabove and claimed hereinafter.

I claim:

1. A generally square planar sheet, an aperture in said

sheet generally centrally of said sheet, a plurality of flap members surrounding said aperture, said flap members being separated by radial cuts through said sheet-like material, said flap members including scorelines joining the outer extent of said cuts and being foldable about said scorelines, a tab member formed on each flap at the inner segment thereof, said tabs being separated from the associated flap by a foldline generally concentric with respect to the foldline connecting said cuts, said sheet including marginally attached closure flaps at the edges, and said sheet including a closed perforated separation line surrounding said flap members and spaced therefrom to thereby define, in combination with a like blank, in which the registering tab members thereof are secured together and when the flaps and tabs are in normal relationship, an annular reservoir for a continuous length of coilable material.

2. A reel carton comprising a pair of parallel-spaced panels formed of relatively stiff sheet-like material, marginal flaps foldably attached to said panels serving to form peripheral overlapping closure means, said panels each having a central aperture, a plurality of foldable flap members formed about said aperture by cuts extending radially outward from said aperture, a foldable end tab formed on the inner extremity of each flap member, said flaps being folded inwardly into normal relationship with their associated panel, said tabs being folded inwardly toward each other into flush face-to-face contact with the tabs of the opposite panel, means for securing said tabs together and a strip of said material wrapped peripherally about said flaps, said strip and abutting flaps defining a spool for continuous material coiled thereon, said strip having a width generally equal to the spacing of said panels, said panels each including a circular line

of perforations spaced concentrically outwardly from said flaps.

3. A preassembled, knocked-down combination reel and shipping container, said combination being formed of stiff paper material and including a pair of substantially identical flat, generally rectangular blanks, each having a central circular aperture, a plurality of radial slits extending outwardly from said aperture to define an annular array of flaps, scorelines connecting the outer ends of said slits to provide foldability to said flaps, scorelines on each of said flaps parallel with the first-mentioned scores to define foldable tab portions on the inner extremities of said flaps, said pair of blanks being in face-to-face registering relationship, opposed tabs of each of said pair of blanks being secured together, said blanks each including a circular line of perforations spaced generally concentrically outwardly of said flaps and said blanks including relatively foldable closure flaps marginally connected thereto, said blanks being movable into spaced, parallel relationship when folded on said scorelines in each flap whereby said flaps define a spool and thereabout an annular reservoir for coilable product.

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THERON E. CONDON, *Primary Examiner.*

WILLIAM T. DIXSON, JR., *Examiner.*