

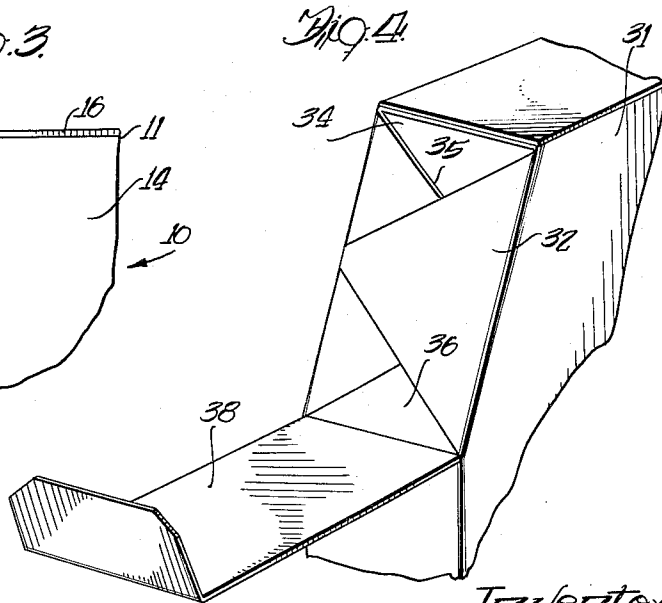
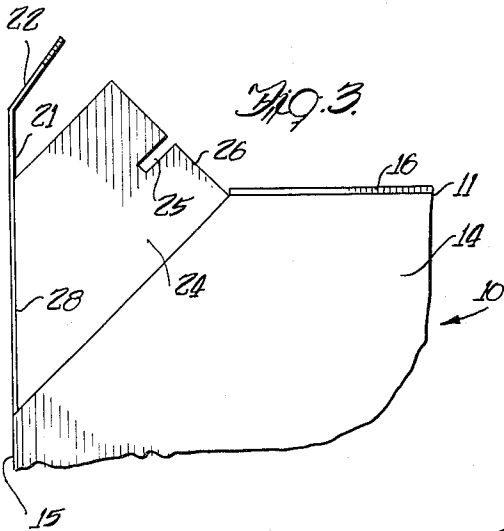
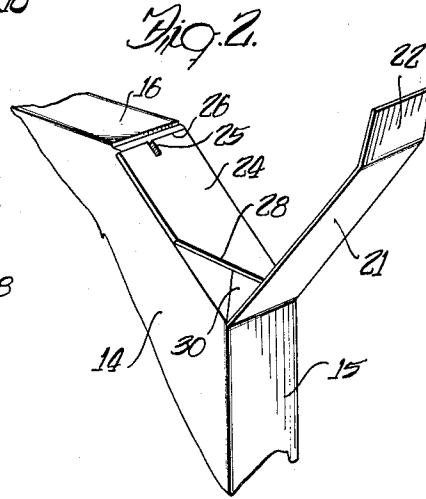
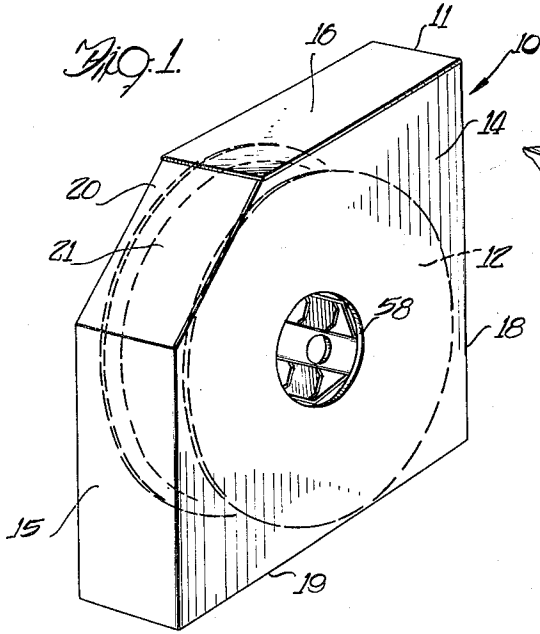
July 11, 1961

S. L. EIFRID  
REEL PACKAGE

2,991,958

Filed July 31, 1958

3 Sheets-Sheet 1



Inventor  
Stephen L. Eifrid  
by Dalbert V. Shupe  
Attorney

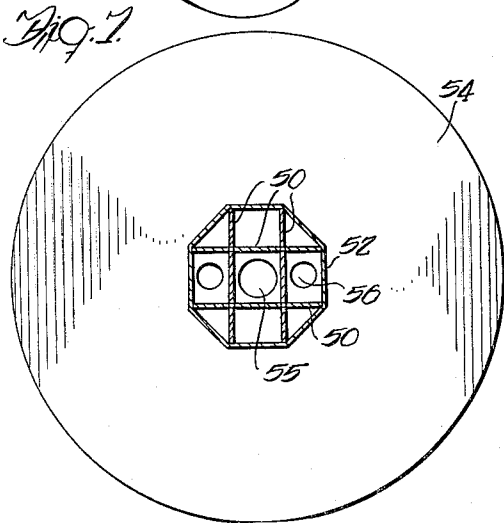
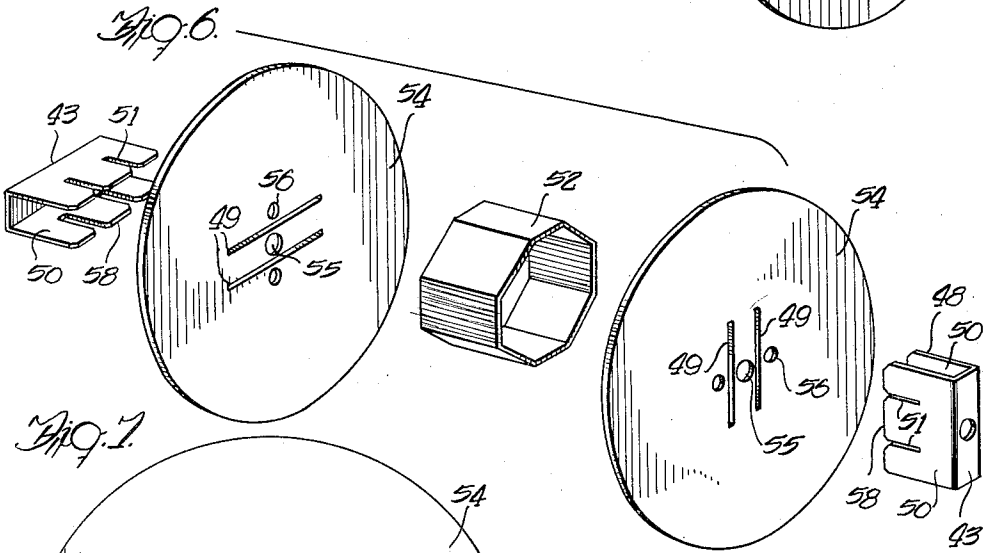
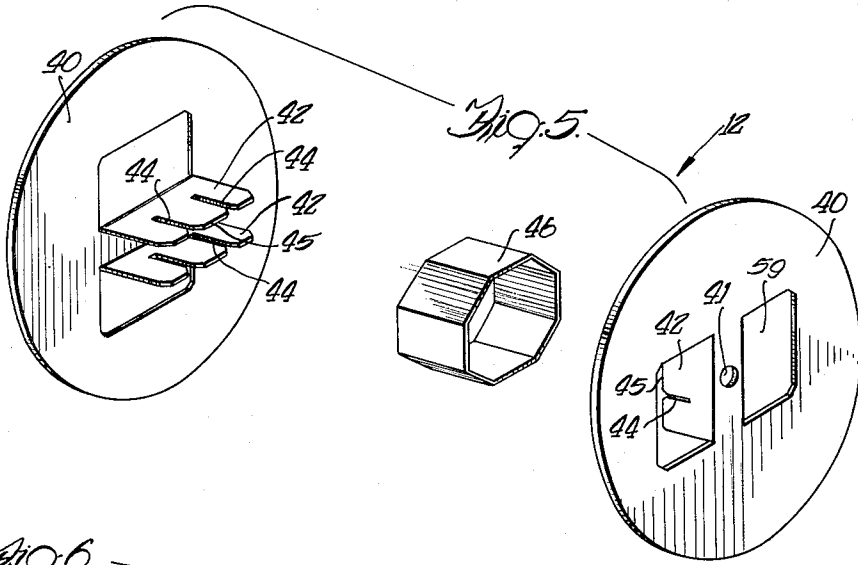
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S. L. EIFRID  
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3 Sheets-Sheet 2



Inventor  
Stephen L. Eifrid  
by Dalbert U. Skefte  
Attorney

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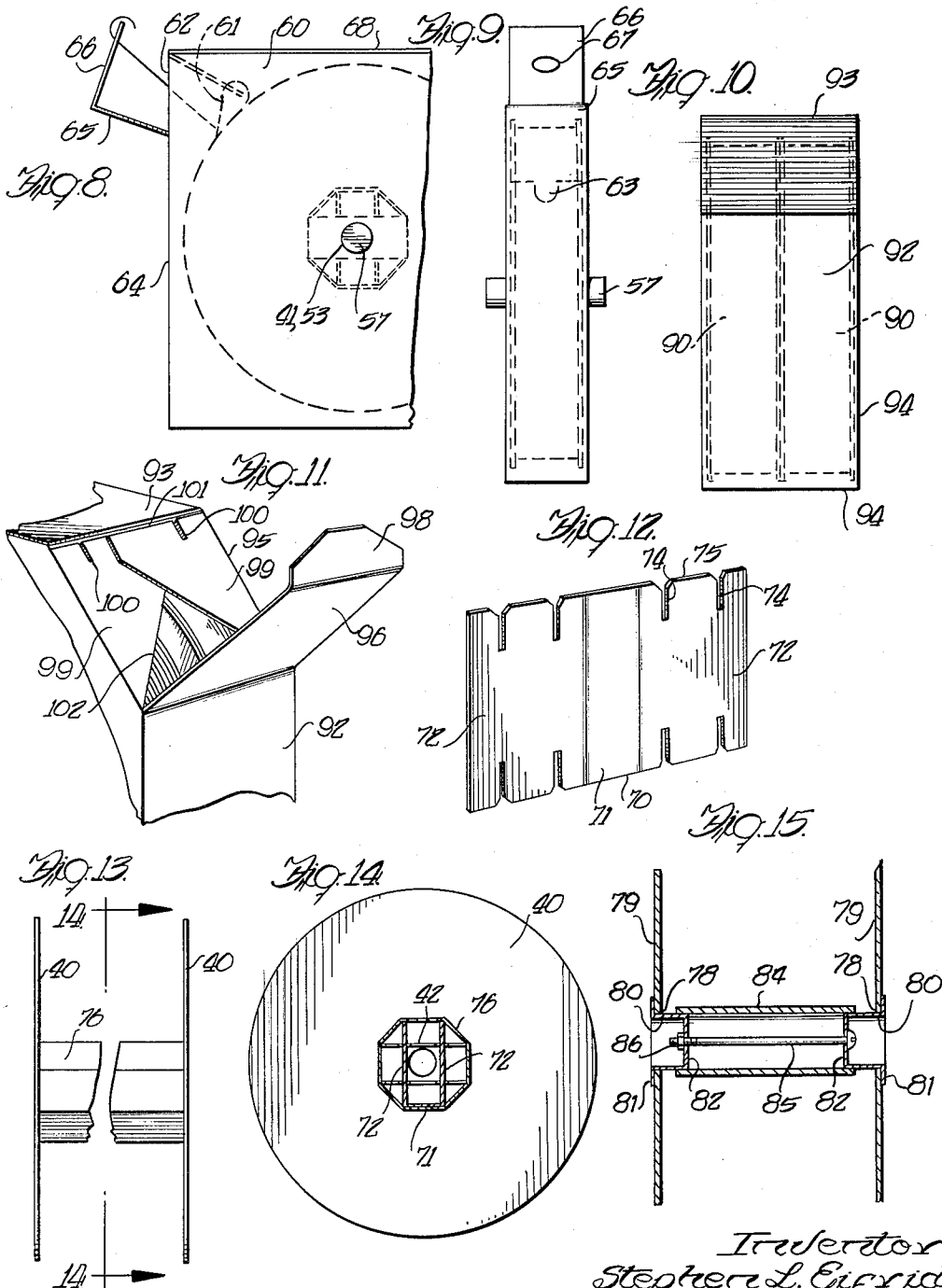
S. L. EIFRID

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3 Sheets-Sheet 3



Inventor  
Stephen L. Eifrid  
by Dalbert Y. Shefte  
Attorney

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REEL PACKAGE

Stephen L. Eifrid, 641 61st Place, La Grange, Ill.

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4 Claims. (Cl. 242-137.1)

This invention relates to a reel package and more particularly to a package from which material mounted on the reel in the package can be dispensed while the reel remains in the package.

Packaging is presently one of the most important aspects of merchandising certain products. The most desirable package is one wherein the least amount of material is used and which will require the least amount of handling from the time the product is packaged to the time it is removed. In the case of wire, belting, webbing and other similar products, normally wound upon a reel, the product is often dispensed or sold in lengths less than the entire packaged quantity. Thus, a desired length of material is unwound and cut from the reel and the remaining material is repackaged for storing until a subsequent sale.

This type of dispensing requires an excessive amount of handling in removing the reel from the carton in order to remove the desired length and then returning it to the carton.

The present invention provides a simple and inexpensive package in which a reel of material is contained in a carton and remains in the carton during dispensing. The package is an upright construction with a flap at one corner openable to obtain access to the material on the reel within the package and constructed so as to guide the removal of material. The reel itself is simply and inexpensively constructed from a pair of opposed heads with interlocking core members extending from each head and interengaging to form a reel core. A core barrel surrounds the core to form a complete reel and to rigidify the construction.

The primary object of this invention is to provide a new and improved reel package from which material may be dispensed without removing the reel from the package.

Another object of the present invention is to provide a new and improved reel package wherein one corner of the package is formed with a dispensing flap which guides the withdrawal of the material from the package.

Still another object of the present invention is to provide a new and improved reel package in which the reel is formed with two heads having core members extending therefrom and interengaging to lock the heads in place and form a complete reel.

Other and further objects of the present invention will be apparent from the following description and drawings in which:

FIG. 1 is a perspective view of a reel package illustrating one embodiment of the present invention;

FIG. 2 is an enlarged perspective view of the corner flap construction of the embodiment of FIG. 1 shown partially open;

FIG. 3 is a side elevational view of the corner flap construction of FIG. 2 in the fully open position;

FIG. 4 is an enlarged perspective view of a modified corner flap construction which represents a modification of the construction of FIGS. 2 and 3;

FIG. 5 is an exploded perspective view of the reel construction contained in the package illustrated in FIG. 1;

FIG. 6 is an exploded perspective view of a reel construction which is a modification of the construction of FIG. 5;

FIG. 7 is a vertical sectional view of the reel construction of FIG. 6 taken along a line parallel to the heads;

FIG. 8 is a side elevational view of a reel package con-

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struction similar to FIG. 1 and illustrating a modified corner flap construction;

FIG. 9 is an end elevational view of the reel package of FIG. 8 with the flap in a vertical position;

FIG. 10 is an end elevational view of a reel package similar to the construction of FIG. 1 containing two reels;

FIG. 11 is an enlarged perspective view of the corner flap construction of the reel package of FIG. 10;

FIG. 12 is a perspective view of an unfolded blank which when folded forms a core extension providing additional core width;

FIG. 13 is an end elevational view of a core utilizing the core extension of FIG. 12;

FIG. 14 is a vertical sectional view taken along line 14-14 of FIG. 13; and

FIG. 15 is a vertical sectional view of another embodiment of the reel package of FIG. 1 and illustrating a modified core construction.

Referring now to the drawings, the present invention will be described in detail. FIG. 1 shows a reel package 10 consisting of a carton 11 which contains a reel 12. The carton has square side walls 14 between which the reel 12 is located and the reel is enclosed within the carton by a front wall 15, a top wall 16, a rear wall 18 and a bottom wall 19. The top front corner 20 of the square carton 11 is diagonally cut and is covered by a covering flap 21. The opening serves to permit dispensing of material on the reel from the carton without having to remove the reel from the carton.

The diagonal corner construction 20 is more clearly shown in FIGS. 2 and 3 wherein it is seen that the covering flap 21 is formed as an extension of the front wall 15 and is foldable over the opening with a securing tab 22 which may be inserted under the top wall 16 to lock the covering flap 21 across the opening. Side flaps 24 are formed as extensions of the side walls 14 and are seen to be of a width equal to the distance between side walls so that when the side flaps 24 are folded over, they will extend between side walls. Each side flap is formed with a central slit 25 extending from its top edge 26. The slits 25 are aligned so that when the side flaps 24 are folded over, material such as wire, rope or the like may be dispensed through the slits. With this construction a desired length of material may be dispensed from the package by withdrawing it through the slits without removing the reel. After the desired length is cut, the covering flap 21 is again folded over and the locking tab 22 inserted to secure the covering flap in place.

As shown in FIGS. 2 and 3 the lower edge 28 of the side flaps 24 are diagonally cut so that prior to folding the side flaps, the bottom edges 28 are vertical extensions of the edges of the side walls. This permits the forming of the carton from a single blank of material.

It also provides an opening 30 at the bottom of the diagonal corner 20 when the side flaps are folded over. This opening 30 may be used to receive the end of the material so that the end of the material may be inserted through the opening 30 after the desired amount has been cut off. This prevents the accidental recoil of the end of the product back through the slits 25 which would require opening the carton to again dispense the material. The opening 30 is especially convenient when a somewhat stiff material such as welding rod is used wherein the tip can be bent downwardly and the end locked in place. When the covering flap 21 is closed, it also serves to hold the end of the material away from the slits 25.

FIG. 4 illustrates a modification of the diagonal corner construction of FIGS. 2 and 3. In this case the side walls 31 are formed with square corners, and the front top corner is scored diagonally so as to form a diagonal flap 32 of a width sufficient to extend to the opposite side wall. When these flaps 32 are folded across the corner opening

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34, they intersect to form a V-slot 35 through which the material on the reel may be dispensed through the slits 25 of the embodiment of FIGS. 2 and 3. These corner flaps 32 may be secured together by stapling or gluing or they may remain free and be held together only by the material which may be bent over and inserted through the bottom opening 36. Here again the bottom opening 36 may serve to receive the end of the product, and a closing flap 38 identical to the flap 21 of the embodiment of FIGS. 2 and 3 is foldable over the corner opening 34 to form the complete package.

FIG. 8 shows still another modification of the corner opening of the present invention. In this case the side walls 60 retain the square corner 61 at the top front, and the opening 62 is provided at the top of the front wall 64. This opening 62 is covered by a covering flap 65 folded from the front wall 64 and having a locking tab 66 insertable below the top wall 68 to close the opening 62. The covering flap 65 may be perforated along its sides and bottom so as to be detachable if it is desired to remove the flap completely. A bottom tab 63 is provided to assist in initially breaking the perforations for removal of the flap 65. The locking tab 66 may be provided with an aperture 67 so that the end of the product in the container may be attached to the tab by being bent through the aperture 67. With this construction, the initial dispensing of the material is easily accomplished without having to search for the end of the product. Thus, the flap 65 is either folded away from the carton or is detached therefrom, and the end of the product is immediately in position to be grasped for removal. FIG. 8 shows in dot-dash lines the tab 66 extending into the carton and in solid lines shows the tab in position after the flap 65 is folded away from the carton.

Referring now to FIG. 5, the reel 12 contained in the carton 11 will be described in detail. The reel 12 consists of a pair of parallel spaced heads 40 which have circular peripheries so as to be easily rotated within the carton 11. A center hole 41 is provided for mounting of the reel 12 on a jig which may be desirable when loading the reel. A pair of flanges 42 are struck from each head 40. These parallel flanges extend parallel to the axis of the reel and in the direction of the other head. Each flange 42 is provided with a pair of slots 44 extending from their outer edge 45. These slots 44 are spaced apart a distance equal to the distance between the flanges of the opposite head. The flanges of one head are interlocked with the flanges of the other head by positioning the flanges of one head perpendicular to the flanges of the other head and interlocking the slots to form a core between heads 40 with the ends 45 of the flanges 42 of one head 40 abutting the other head. A core barrel 46 is provided which surrounds the interlocked flanges 42 and extends between heads 40 to rigidify the reel and also to serve as a hub for the receipt of a windable product. The core barrel 46 may be octagonal in cross-section so as to mate with the corners of the flanges 42. However, this may be varied to be round in cross-section or any desirable shape. The construction of FIG. 5 requires a minimum of material since the flanges 42 which form a portion of the core are struck directly from the heads 40 without the need of additional material. This construction also permits compact shipment since the flanges can remain unfolded in the plane of the head during shipment and further provides simple and quick assembly since the flanges may be easily folded, aligned with the core barrel and inserted therein to form the completed reel.

A modification of the reel construction is illustrated in FIG. 6 in which case separate core members 48 are used instead of striking flanges from the heads. In this case the heads are provided with parallel slots 49 which receive the legs 50 of the U-shaped core members 48. These legs 50 serve the identical purpose of the flanges 42 of the construction of FIG. 5. Thus, they are paral-

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lel and each provided with slots 51 which are parallel and spaced a distance equal to the distance between legs of the opposite core member. A core barrel 52, identical to the core barrel 46 of the embodiment of FIG. 5, surrounds the flanges and extends between heads 54 to rigidify the reel with the ends 58 of the flanges 50 abutting the opposite head 54. A hole 47 is centrally located in the base 43 of the core members 48. These holes 47 are aligned with the central holes 55 in the heads 54 for mounting on a shaft as will be described below.

A sectional view of the assembled construction of FIG. 6 is illustrated in FIG. 7 wherein the criss-crossed core members 48 are clearly seen to interengage a rigid structure with the core barrel 52 surrounding and further rigidifying the core. The construction of FIGS. 6 and 7 has a central hole 55 in each head for mounting on a jig when loading the reel and is also provided with pairs of holes 56 in each head 54 engageable through the opening 58 in the carton 11 of FIG. 1 to permit rewinding of the reel when more than the desired amount of material has been dispensed from the package. No similar holes are shown in the embodiment of FIG. 5. However, the open area 59 resulting when the flanges 42 are struck from the heads 40 serves the same purpose of permitting the reel to be grasped and rotated through the opening 58 in the carton 11.

In the embodiment illustrated in FIG. 5 the width of the core barrel is limited by the size of the head 40 since the flanges 42 are struck from the head. Thus, the width of the core barrel must be considerably less than the radius of the head 40. However, in some cases it may be desirable to use a reel having a wider core, in which case an extension member may be utilized as illustrated in FIGS. 12, 13 and 14. In this case an extension member 70 formed from a blank piece of material is folded in a U-shape having a base 71 and identical legs 72, each leg 72 being provided with a pair of slots 74 on each side 75 of the leg. The legs 72 are of the same height as the flanges 42 for alignment and interlocking engagement therewith. The extension member 70 is folded and mounted in a core barrel 76 which is a length to extend between the heads 40. The heads are then positioned with their flanges 42 perpendicular to the legs 72 of the extension member 70 and the slots 74 of the extension member interlock in the slots 44 of the flanges with the sides 75 of the extension member abutting the heads 40 to form a rigid reel construction. This extension member 70 permits the construction of a reel of any desired width not limited to the size of the head. The use of an extension member is also adaptable for use with the modified reel of FIGS. 6 and 7 for, although the flanges 50 can be made of any length, it is difficult to force relatively long flanges through the core barrel 52 and into full engagement with the opposite flanges 50. Thus, the construction of FIGS. 12, 13 and 14 facilitates the assembly of the reel.

FIG. 15 illustrates still another modification of the reel construction. In this case the core is formed by cutting central holes 78 in the side walls 79 of the carton and mounting recessed disks 80 in the holes. These disks have annular flanges 81 which seat on the side walls 79 adjacent the holes 78 and have cup-shaped portions 82 extending inwardly so as to form a hub for the core barrel 84. Thus, the reel rotates on the disks and is elevated above the bottom of the carton. A bolt 85 extends through the cup-shaped portions 82 of the disks 80 and is secured in place by the use of a nut 86 or similar locking device. The reel illustrated consists solely of a core barrel 84; no heads are provided. The use of heads in this and the other embodiments is a matter of choice depending upon the product. When a wide product such as webbing, belting or screening is used, the heads may be considered unnecessary.

The core constructions described and illustrated in FIGS. 5 through 8 and 15 include some of the basic concepts set out in my co-pending patent application entitled, "Reel Assembly and Method of Constructing Same," filed

March 17, 1958, and having Serial Number 722,097, that application being a continuation in part of an application filed October 25, 1956, and having the Serial Number 618,356.

When a heavy material is being used in the reel package of the present invention or when a large quantity of material is on the reel, the weight may interfere slightly with the rotation of the reel in which case it is contemplated that the reel be mounted on a shaft as illustrated in FIGS. 8 and 9. In this case the side walls 60 of the carton are provided with small holes 53 which are centrally located. A shaft 57 of metal tubing or other suitable material is mounted in the holes 53 and extends through the carton. The reel within the carton is mounted on the shaft 57 and rotates thereon. When so done, the reel is elevated from the bottom of the carton. Thus, the reel is supported by the carton at the holes 53 with much less friction than when the reel is rotated in contact with the bottom of the carton as in the constructions previously described.

In the packaging of some materials it might be desirable to dispense from more than one reel. Such may be the case when electrical wiring of different color is desirable to comply with a particular code. In such case it is possible to modify the present invention so as to package more than one reel in a single carton. FIGS. 10 and 11 illustrate the packaging of two reels 90 within a single carton 91. The carton is similar to the carton of FIG. 1 except for the increased width of the front wall 92, top wall 93, rear wall and bottom wall 94. In FIG. 11 the flap construction of the diagonal corner 95 is illustrated. A closing flap 96 extending from the front wall 92 is shaped similar to the closing flap 21 of FIG. 2 and has a similar locking tab 98. Also, side flaps 99 similar to side flaps 24 of FIG. 2 are provided, but they do not extend fully across the carton. These side flaps 99 are each provided with a slit 100 extending from their upper edge 101. The slits 100 are aligned with the reel 90 adjacent the common side wall. These side flaps 99 may be secured together as by gluing or stapling and are formed with diagonal bottom edges 102 similar to the edges 28 of FIG. 2 which similarly provide an opening for the receipt of the end of the products being dispensed.

It is apparent from the above that the present invention provides a reel package formed from a minimum of material and requiring a minimum of skill and effort to assemble for use. The parts may all be shipped in a knocked-down or flat condition, thereby greatly reducing the space and cost of shipment and storage. To assemble, the manufacturer simply folds in the flanges from the head (FIG. 5) or inserts them through the slots (FIG. 6) and interlocks them within the core barrel. The product is then wound on the reel and the reel is inserted in the carton. The end of the product is positioned to extend through the slots in the corner openings and the closing flap is secured in place. The package is then ready for shipment or storage.

Material is easily dispensed from the package simply by opening the closing flap and withdrawing a desired amount of material. As the material is withdrawn, the reel within the carton rotates; and if an excess of material is unwound, the reel can be rewound by grasping the flanges (FIG. 5) or engaging in the holes (FIG. 6). The end of the material is allowed to remain extending through the slits in the corner opening, and the closing flap is secured in place to await further dispensing. Thus, material is easily dispensed without having a complicated packaging problem, and the unused material remains in the package until it is dispensed at a later time.

While this invention is susceptible of embodiments in many different forms, there is shown in the drawings and is herein described in detail several embodiments with the

understanding that the present disclosure is to be considered as an exemplification of the principles of the invention, and is not intended to limit the invention to the embodiments illustrated. The scope of the invention will be pointed out in the appended claims.

I claim as my invention:

1. A reel having, in combination, a pair of spaced heads, a pair of parallel flanges cut from the central portion of each head and each secured thereto along one edge paralleling the corresponding edge of the other flange, the flanges extending from each head in the direction of the other head and having open-ended slits aligned with the slits of the flanges on the other head and having laterally spaced edges generally normal to the heads and receiving and frictionally gripping the flanges on the other head so that the flanges are in interlocking engagement with each other to form a reel core and prevent separation of the heads, and a core barrel enclosing said flanges and extending between said heads to rigidify the reel.

2. A reel having, in combination, a pair of spaced heads each with a pair of parallel flanges cut from the central portion of the head and secured thereto along the one edge paralleling the corresponding edge of the other flange, the flanges extending from each head in the direction of the other head and each having open-ended slits aligned with the slits of the flanges on the other head and defined by laterally spaced edges extending generally normal to the heads and receiving and frictionally gripping the flanges on the other head so that the flanges are in interlocking engagement with each other to form a reel core and prevent separation of the heads.

3. A reel having, in combination, a first flat-reel head having two flat integral flanges connected to the head along parallel lines at the central portion of the head and bent laterally therefrom into parallelism, each of said flanges having two parallel sided slots extending inwardly from its outer end portion perpendicular to the corresponding one of said lines of connection, and a second head of the same construction having its flanges fitting into the slots of the first head and frictionally gripping the flanges of the first head to cooperate therewith to form a reel core and hold the heads assembled.

4. A reel having, in combination, a first flat head having a flat core member connected integrally with and formed from a part of the central portion of the head and extending laterally therefrom, said member having at least one slot opening inwardly from its outer end portion and defined by parallel edges, and a second similar head with a similar core member formed integral with and extending laterally from the central portion of the head and having a similar slot aligned with the slot of the core member of said first head, each of said core members extending into the slot of the other core member and frictionally gripping the member to form a core for the reel and hold the heads against movement away from each other.

#### References Cited in the file of this patent

##### UNITED STATES PATENTS

60	Re. 24,560	Moulden	Nov. 11, 1958
	613,742	Vernon	Nov. 8, 1898
	2,048,307	Weber	July 21, 1936
	2,237,920	Armitt	Apr. 8, 1941
	2,366,226	Williamson	Jan. 2, 1945
65	2,373,092	Avery	Apr. 10, 1945
	2,706,592	Schaller	Apr. 19, 1955
	2,730,290	Lynes	Jan. 10, 1956
	2,822,084	Eilertsen	Feb. 4, 1958

##### FOREIGN PATENTS

70	1,096,469	France	Feb. 2, 1955
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