

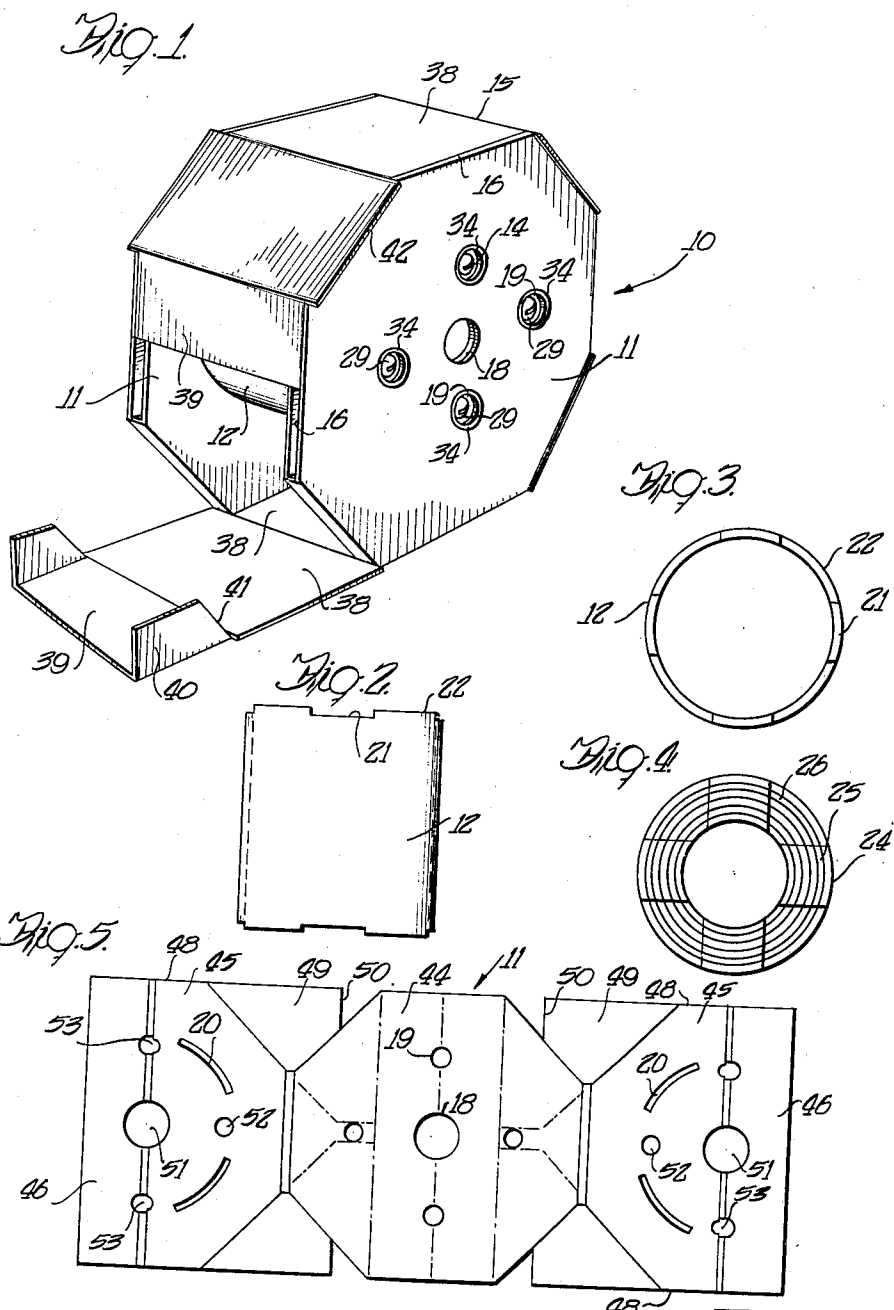
Oct. 23, 1962

S. L. EIFRID
REEL ASSEMBLY

3,059,765

Filed May 9, 1958

3 Sheets-Sheet 1



Inventor
Stephen L. Eifrid
Valbert W. Sheple
Attorney

Oct. 23, 1962

S. L. EIFRID
REEL ASSEMBLY

3,059,765

Filed May 9, 1958

3 Sheets-Sheet 2

Fig. 6.

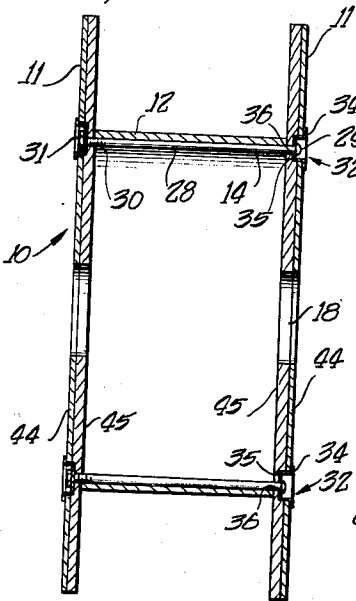


Fig. 7.

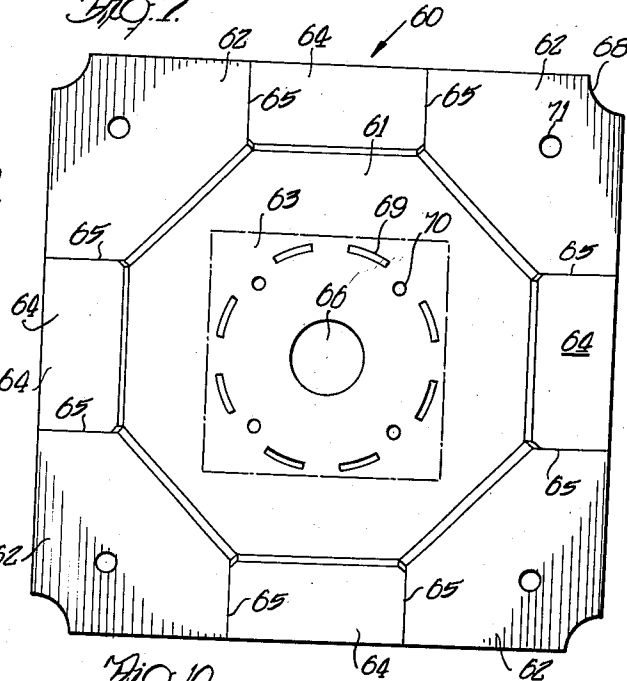


Fig. 8.

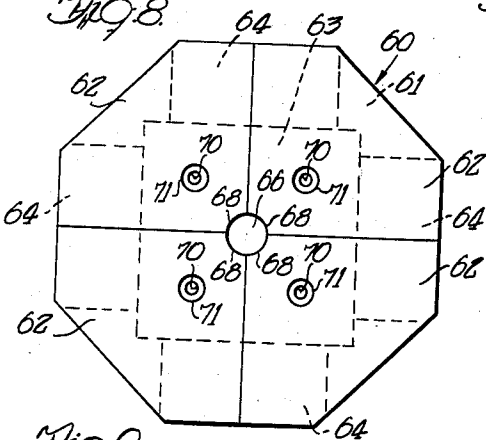


Fig. 10.

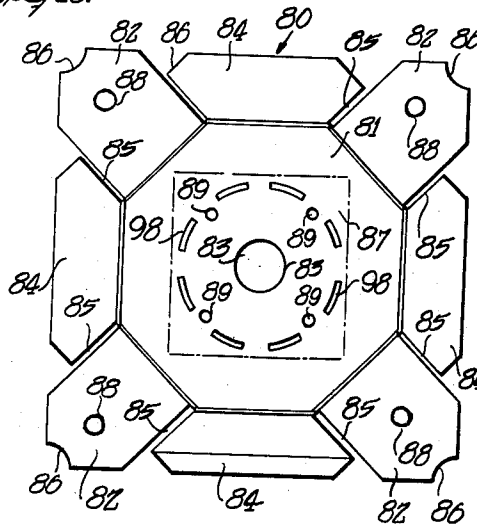
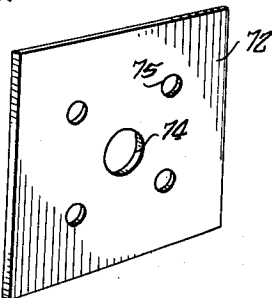


Fig. 9.



Inventor
Stephen L. Eifrid
Albert H. Shiff
Attorney

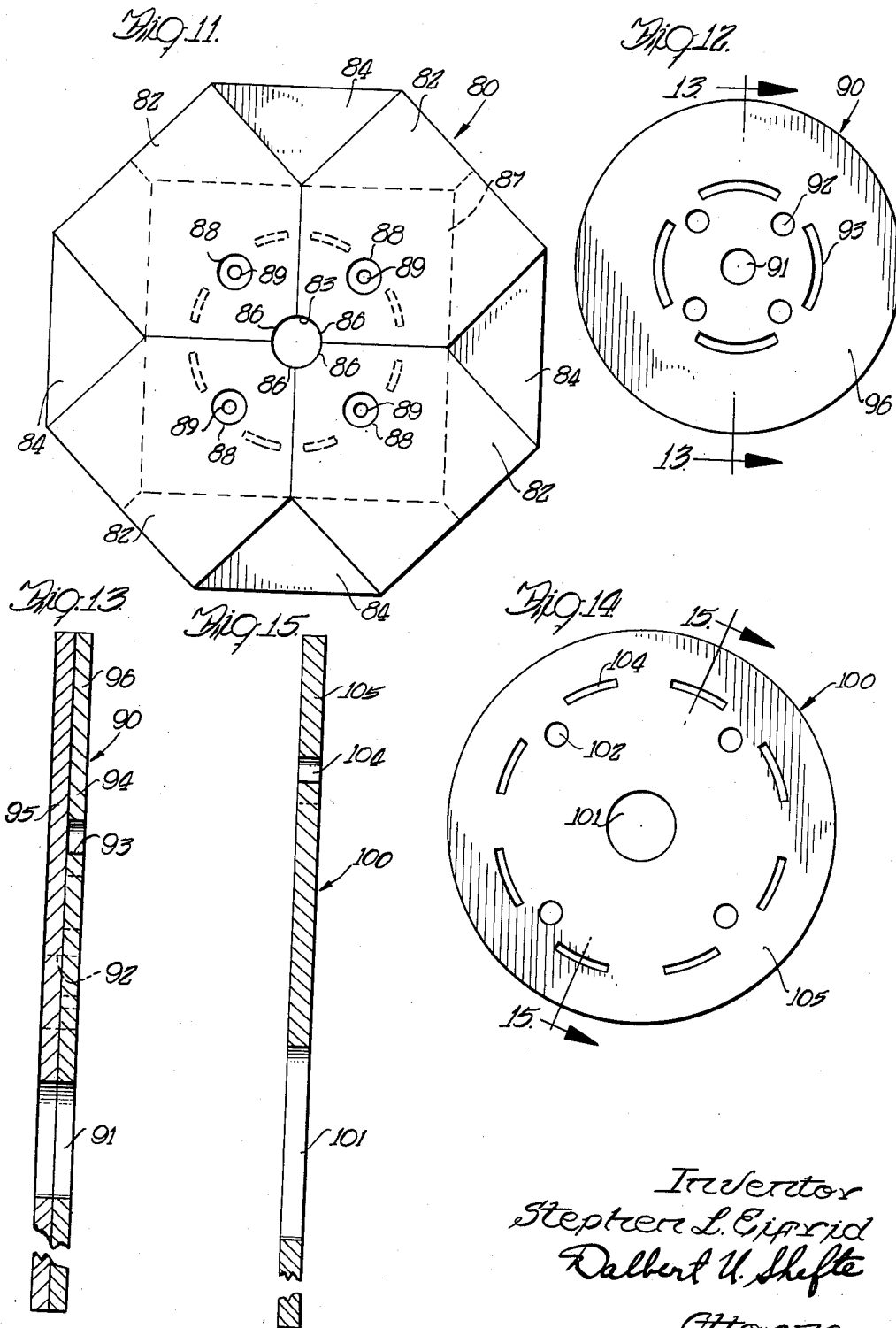
Oct. 23, 1962

S. L. EIFRID
REEL ASSEMBLY

3,059,765

Filed May 9, 1958

3 Sheets-Sheet 3



1

3,059,765

REEL ASSEMBLY

Stephen L. Efrid, Oak Lawn, Ill.
(641 6th Place, La Grange, Ill.)
Filed May 9, 1958, Ser. No. 734,261
12 Claims. (Cl. 206—59)

This invention relates to a reel assembly and more particularly to a reel assembly wherein a core barrel is mounted between two heads which are secured together by attaching means extending therebetween.

An important use for reels is to package windable products such as flexible hose, welding rod, magnet wire, piano wire, insulated wire, chain and many other similar products. These products are mounted on the reel and shipped to the purchaser who unwinds the product and returns the reel to the manufacturer or discards the reel. Of course, the most convenient method is to dispose of the reel as waste, but this is impractical unless the cost of the reel is negligible. The most desirable package is one that can be simply formed from an inexpensive material so that it can economically be used as a disposable package. Many materials are used for constructing reels including corrugated paper board, which is probably the most inexpensive material and simplest to cut and shape, thus providing the lowest cost reel. However, it has been difficult to form a satisfactory corrugated paper board reel because it is not as strong as other reel material such as wood or metal and requires a considerable amount of material and labor to build a satisfactorily strong reel.

The present invention provides a reel construction which is easily adapted to the use of corrugated paper board in a manner which utilizes the board to structural advantage to provide a strong reel with a minimum amount of material and labor. Basically, this invention consists of a core barrel mounted between two heads which are secured together by attaching means extending between the heads. The attaching means may consist of bolts or lengths of wire extending between heads and secured to the heads to hold the reel assembly together. A further feature embodied in the present invention provides notches on the ends of the core barrels which engage in corresponding slots in the heads so that the core barrel is securely fixed in place between the heads against both rotation and lateral slipping.

In order to provide additional strength, a modification of the present reel assembly includes a reinforcing plate mounted in each head. This permits the use of a material which is not adaptable as practical for use as a complete head because of its cost or workability, but which is stronger than corrugated board and combines with the board to form a strong reel. The construction of the present invention is inexpensively formed from a minimum of material and a minimum of labor, and further, it can be constructed to receive a peripheral cover, which, with the heads, form a complete shipping package without the need of an additional carton or container.

Other and further advantages and features of the present invention will be apparent from the following description and the figures in which:

FIG. 1 is a perspective view of a reel assembly illustrating one embodiment of the present invention with the cover partially unwound;

FIG. 2 is a top plan view of the core barrel construction of the reel assembly of FIG. 1;

FIG. 3 is an end view of the core barrel of FIG. 2;

FIG. 4 is an end view of an alternate core barrel construction;

FIG. 5 is a plan view of an unfolded head of the reel assembly of FIG. 1;

2

FIG. 6 is a vertical sectional view of the reel assembly of FIG. 1;

FIG. 7 is a plan view of an unfolded head of a second embodiment of the reel assembly of the present invention;

FIG. 8 is a plan view of the head of FIG. 7 shown in its folded position;

FIG. 9 is a perspective view of a reinforcing insert plate which is used in conjunction with the head of FIGS. 7 and 8;

FIG. 10 is a plan view of an unfolded head illustrating a variation of the embodiment of FIG. 7;

FIG. 11 is a plan view of the folded head of FIG. 10;

FIG. 12 is a plan view of a head illustrating a third embodiment of the reel assembly of the present invention;

FIG. 13 is a vertical sectional view taken along lines 13—13 of FIG. 12;

FIG. 14 is a plan view of a head illustrating a variation of the construction of FIG. 12; and

FIG. 15 is a vertical sectional view taken along line 15—15 of FIG. 14.

While this invention is susceptible of embodiments in many different forms, there is shown in the drawings and will herein be 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.

Referring now to the drawings, the present invention will be described in detail. The general construction is illustrated in FIG. 1 with a first embodiment illustrated in FIGS. 1 through 6, a second embodiment illustrated in FIGS. 7 through 11 and a third embodiment illustrated in FIGS. 12 through 15.

In the embodiment illustrated in FIGS. 1 through 6 the reel assembly 10 is seen to comprise a pair of heads 11 spaced apart with a core barrel 12 mounted therebetween. The heads are secured together by attaching means 14 and a cover 15 is wound around the periphery of the heads 11 and extends therebetween to form a complete package.

The heads 11 are octagonal in shape with cavities 16 formed along alternate edges for the attachment of the cover 15. The heads are provided with center holes 18 to permit mounting of the complete reel assembly 10 on a shaft or jig to facilitate winding and unwinding. A plurality of holes 19 are arranged equidistant from the center hole 18 adjacent the periphery of the core barrel 12 and inside of the periphery of the core barrel so that the attaching means 14 may be mounted in the holes 19. The attaching means 14 extend between the heads to secure the heads together against the core barrel and strengthen the assembly adjacent the core barrel. The inner surface of each head 11 is provided with arcuate slots 20 as seen in FIG. 5. These slots 20 are shaped as segments of the circumference of a circle of the same diameter as the core barrel and are of a thickness equivalent to the core barrel 12. These slots 20 accommodate the notched cores as will be described below so that the cores are seated in place against rotation or lateral slipping with respect to the heads.

The core barrel construction is illustrated in FIGS. 2 and 3. Basically it is a hollow cylindrical section formed of a suitably strong material such as fiberboard, wood, metal. Similarly the thickness of the core barrel may be varied depending upon the material used and the strength desired. The ends of the core barrel are at right angles to the cylindrical section and are notched by dadoing or milling, as at 21, to provide ears 22 which mate with the slots 20 in the heads 11.

FIG. 4 illustrates a modification of the core barrel construction in which the core barrel 24 is formed from a

roll of material such as a corrugated paper board log. In this case, the notches 25 are of greater width and also the ears 26 are of greater width. This construction requires a modification of the slots 20 of the head so as to receive these larger size ears. The advantage of the core barrel of FIG. 4 is that an inexpensive material such as corrugated paper board may be utilized to replace a more expensive but stronger material.

The attaching means 14 are best illustrated in FIG. 6 in which tie rods 23 are shown extending from one head to the other. These tie rods may be bolts or simple metal rods or wires. They are mounted in the holes 19 of the heads so as to be in contact with the core barrel 12, thereby rigidifying and adding strength to the core barrel. In the embodiment illustrated, the tie rods are bolts 28 having heads 29 and threaded ends 30 upon which nuts 31 are attached. The heads 29 and nuts 31 are each mounted in reinforcing disks 32 in the holes 19 in the heads 11. These reinforcing disks 32 have annular flanges 34 extending over the portions of the heads 11 adjacent the holes 19 to seat the reinforcing disks 32 in the holes and prevent their passage therethrough. The disks 32 have recessed portions 35 extending into the holes 19 and having central holes 36 to accommodate the tie rods 28 but of lesser diameter than the heads 29 and nuts 31. Thus the tie rods may be secured in the reinforcing disks 32 and the nuts 31 tightened to securely attach the heads of the reel to the core barrel 12. The depth of the recessed portions 35 is approximately equal to or greater than the thickness of the bolt heads 29 and the nuts 31 so that the heads and nuts will not extend into the plane of the outer surface of the reel heads 11. This permits the unobstructed stacking of the reel assemblies and also permits the mounting of a plurality of assemblies without obstruction of one reel by the bolt heads 29 or nuts 31 of an adjacent reel.

It is to be understood that although a nut and bolt arrangement is illustrated in the preferred embodiment, the present invention is not intended to be so limited. A simple rod could be used which is threaded at both ends for the receipt of a nut at each end. Another possibility is to use a common nail with a wedging nut such as the commercially available "Tinnerman Speed-Nut." An even simpler construction results from the use of a length of wire with a "Tinnerman Speed-Nut" attached at each end. Any of these constructions or similar constructions may be utilized depending on the strength required, the particular materials available, and the cost of material and labor for each construction.

The cover 15 illustrated in FIG. 1 provides a compact package without requiring additional material other than the length of material necessary to form the cover itself. Thus, the heads 11 serve the additional function of providing a part of the outer package, conserving material, labor and shipping weight. The particular cover construction illustrated in FIG. 1 is clearly described in the co-pending patent application, Serial Number 722,097, filed March 17, 1958, and entitled "Reel Assembly and Method of Constructing Same." The cover 15 has segments 38 of widths equal to the distance between heads 11 and lengths equal to the length of the edges of the heads 11. The two end segments 39 are each half as long as the other segments 38 so as to combine to extend across one side of the assembly 10. The end segments 39 and alternate intermediate segments 28 are provided with tabs 40 foldable to extend into the cavities 16 of the heads 11. These tabs have tapered edges 41 to facilitate insertion. The cover 15 is secured in place on the assembly 10 by simply taping or stitching the end segments 39 together. It is seen from FIG. 1 that the segments 38 of the cover which do not have the tabs 41 attached thereto extend slightly beyond the face of the heads 11. These extensions 42 facilitate the stacking of a plurality of reels by interlocking with the adjacent reels

to prevent sliding and thereby permitting the stacking of a number of reels in one vertical stack.

The heads 11 of the reel assembly 10 of the present invention may be formed in any one of a number of ways. A particular embodiment is illustrated in FIGS. 5 and 6 wherein the head is inexpensively and easily formed from a single length of foldable material such as corrugated paper board. The length is shaped with a central octagonal portion 44 which has a periphery identical to the periphery of the finished head 11. Extending from opposite edges of the center portion 44 are outer portions 45 double scored at their juncture with the center portion and shaped as half of the octagonal center portion so that when the outer portions 45 are folded back along the central portion, their edges will be aligned with the edges of the center portion. Each outer portion is provided with an end flap 46 double scored along the juncture so as to be foldable inwardly to lie along the outer portions. These end flaps 46 extend approximately a distance equal to one-half the length of an edge of the octagonal head 11 so that they will extend to the ends of the top and bottom edges 43 of the outer portions. Side tabs 49 are formed from the material between the diagonal edges of the center portion 44 and outer portions 45. These side tabs 49 are cut along the diagonal edge of the center portion 44 and are scored along the juncture with the edge of the outer portion 45 so as to be foldable therealong. The outer tips 50 of the side tabs 49 are cut away so as not to interfere with the attaching holes 19 in the head 11. The completely folded head 11 is illustrated in dot-dash lines in FIG. 5. This construction utilizes a maximum amount of the length of the material, which would normally be wasted when cutting the head from a single length. It is also apparent from FIG. 5 that the cavities 16 illustrated in FIG. 1 are provided along the diagonal sides of the head of FIG. 5. These cavities are between the folded side tabs 49 and the octagonal center portion 44. The slots 20 referred to and described above are formed in the outer portions 45 which combine to form the inner face of the reel head 11. The center hole 18 is formed in the center portion 44 and also similar holes 51 are formed in the center of the juncture of the outer portions 45 in the end flaps 46 so that when folded, the holes 51 will mate with the hole 18. Similarly, the attachment means receiving holes 19 are formed in the central portion 44 and mating holes 52 are formed in the outer portions 45, also holes 53 are formed at the juncture of the outer portions 45 and end flaps 46 to mate with the holes 19. The holes 19 in the central portion are of a larger diameter than the holes 52 in the outer portions so that the recessed reinforcing disks 32 will extend through the holes 19 but not the holes 52. The holes 53 at the juncture of the outer portion and the end flaps are formed with two segments of different diameters. The segment in the outer portion 45 is of lesser diameter than the segment in the end flaps 46 so that when the end flaps are folded over the reinforcing disks 32 will extend through the segments in the end flaps but not through the segments in the outer portions. Thus, the recessed portions 35 of the disks 32 seat against the outer portions 45 and the attaching means 14 are supported thereby.

In the embodiment illustrated, the outer portions 45 form the inner face of the head 11. If desired, the head can be reversed so that the outer portions 45 become the outer face of the head. In this case, the slots 20 would be formed in the center portion 44 and the holes 52 and 53 in the outer portions 45 would be of a larger diameter than the holes 19 in the center portion 44.

A second embodiment of the present invention is illustrated in FIGS. 7 through 11. This embodiment is similar to the embodiment of FIGS. 1 through 6 except that the construction of the head is modified. FIGS. 7 and 8 illustrate a head 60 formed from a square blank of material

such as corrugated paper board. The central portion 61 of this blank is scored to form an octagonal periphery having dimensions identical to the periphery of the finished head. Extending from the diagonal sides of the octagonal base portion 61 are corner flaps 62 and extending from the horizontal and vertical sides are rectangular side flaps 64 of a width substantially one-half of the corresponding width of the base portion 61. The junctures of the corner flaps and side flaps with the base portion 61 are double scored to permit the flaps to be folded over along the base portion. The side flaps 64 mate when folded over to form a square open area 63 (shown in dot-dash lines in FIG. 7) for the mounting of an insert plate as will be described. The corner flaps 62 are each the shape of one-quarter of the base portion and are folded over on top of the side flaps 64 to mate with each other and completely cover the area of the head. This is illustrated in FIG. 8.

It will be apparent that, like the head of FIGS. 1 to 5, the head 60 of FIGS. 7 and 8 provides peripheral openings to receive the cover flaps 40 when the parts are folded to complete the head as shown in FIG. 8. Thus, the alternating corner flaps 62 overlie the intervening flaps 64 and cooperate therewith to define recesses or slots opening radially and outwardly to receive the cover flaps the same as the recesses 16 of FIG. 1.

The octagonal base portion 61 is provided with a central hole 66 identical to the hole 18 of the embodiment of FIGS. 1 through 6 and the outer tip 68 of each corner flap 62 is cut away to form a quarter of a circle of the same diameter as the hole 66 so that when the corner flaps are folded over, the tips 68 will mate with the hole 66. The octagonal base 61 is also provided with slots 69 for receipt of the notched core barrel as described above and also is provided with attaching means holes 70 similar to those described above. Also the corner flaps are provided with disk receiving holes 71 which are aligned with the holes 70 in the octagonal base 61. However, the holes 71 in the corner flaps are of a larger diameter than the holes 70 in the octagonal base so that the disks described above will extend through the holes 71 and will seat against the base portion 61. The completely folded head 60 is illustrated in FIG. 8.

The open area 63 formed between the folded side flaps 64 is provided for the mounting of a reinforcing plate 72 such as that illustrated in FIG. 9. This plate is square and of a thickness approximately the same as the thickness of the flaps 64 so as to permit neat folding of the head. This plate is provided to increase the strength of the head and therefore is of a material of greater strength than the remainder of the head such as heavier test corrugated board, wood, metal or a hardboard such as commercial Tecwood, Masonite or Ply-Veneer. The plate 72 has a central hole 74 aligned with the central hole 66 of the head and has attaching means receiving holes 75 overlying the holes 70 of the octagonal base 61 of the head. These holes 75 are of approximately the same diameter as the holes 70.

A modification of the embodiment of FIGS. 7 and 8 is illustrated in FIGS. 10 and 11 which is constructed to receive a reinforcing plate 72 identical to that shown in FIG. 9. This head construction 80 has a central octagonal base portion 81 formed identical to the base portion 61 of the embodiment of FIG. 7 with a central hole 83, attaching means receiving holes 89 and slots 98. The head 80 is similarly provided with corner flaps 82 and side flaps 84. However, the construction of these flaps differs from that of the embodiment of FIG. 7 in that the cut lines 85 between the flaps are not horizontal and vertical but are rather perpendicular to the diagonal edges of the octagonal base 81. The tips 86 of the side flaps 84 are cut away so that the side flaps will mate when they are folded over. These side flaps are of the same width as the side flaps 64 of the reel 60 of FIG. 7 and similarly form a square open area 87 (shown in dot-dash

lines in FIG. 10) for the receipt of the reinforcing plate 9. The corner flaps 82 are formed with cutaway tips 86 and attaching means holes 88 identical to and to serve the same function as the tips 68 and holes 71 of the embodiment of FIG. 7. The completely folded head 80 of the embodiment of FIG. 10 is illustrated in FIG. 11.

As in the heads 11 and 60 of FIGS. 1 and 7, the cover flaps 82 fold over the flaps 84 and cooperate therewith to define recesses or cavities opening radially and outwardly from the head to receive the cover flaps 40.

The assembly of the reels of FIGS. 1 through 11 is easily accomplished by folding the head, stapling the head portions together if desired, placing the heads on the ends of the core barrel and securing the attaching means in place.

The embodiments illustrated in FIGS. 1 through 11 provide reels which may be formed from an inexpensive foldable material such as corrugated paper board in a manner providing maximum strength so that these reels may replace existing wood and metal reels and more complicated and expensive corrugated board reels. Sufficient strength is provided by using only a minimum of material so that these reels are much less expensive to manufacture and therefore more adaptable to disposable use than even existing corrugated paper board reels. Further, if additional strength is required, the embodiments utilizing a reinforcing plate may be utilized with a resulting high strength without the use of additional materials except for the plate. The reels can be shipped in a disassembled condition to minimize shipping and storage space.

A third embodiment of the present invention is illustrated in FIGS. 12 through 15. This embodiment modifies only the head construction. The particular attaching means and the core barrel construction are identical to that illustrated in FIGS. 1 through 6.

In FIGS. 12 and 13 the head 90 is formed from a material such as double thickness corrugated paper board. As illustrated, this head 90 is formed with a circular periphery, but this may be varied as desired. The central hole 91 and attaching means receiving holes 92 are formed identical to the corresponding holes in the previous embodiments and the core barrel receiving slots 93 are formed with the same curvature, length and width as the above described slots but as seen in FIG. 13 these slots 93 are cut in only the first or inner thickness 94 of the reel 90 with the outer thickness 95 remaining intact. With this construction, the rigidity and strength of the peripheral portion 96 of the reel will not be greatly reduced by the cutting of the slots 93. It has been found by experiment that a double thickness corrugated paper board head can be inexpensively and easily constructed that will provide sufficient strength for most practical purposes.

The modification of FIGS. 14 and 15 provides a head 100 formed from a material such as wood, metal, hardboard or any other suitable material. It is formed with a central hole 101, attaching means holes 102 and core barrel receiving slots 104 similar to the holes and slots of the embodiment of FIG. 12. However, in this modification the slots 104 extend completely through the material. The strength and rigidity of the peripheral portions 105 of the heads is provided by the spaces between slots 104 and when one of the materials mentioned above is used, sufficient strength is provided for most practical purposes.

The head constructions of the embodiment of FIGS. 12 through 15, when utilized in conjunction with the previously described core barrels and attaching means, provide strong yet simple and inexpensive reel assemblies which are lightweight in comparison with existing reels and are especially adaptable for disposable use. They can be easily assembled without the need of special machinery or skilled labor at the particular job sight and similarly can be easily disassembled and disposed of by the ultimate user.

I claim as my invention:

1. In a reel assembly, the combination of a pair of spaced heads formed from lengths of foldable material and a core barrel mounted between the heads and secured to the heads, each of said heads comprising: an octagonal base portion; side flaps extending from spaced edges of said base portion and foldable over on the base portion and into a common plane, the width of each side flap being less than half the corresponding width of the base portion so as to form an open area in said plane and between said side flaps when the flaps are folded over on the base portion; a reinforcing plate mounted within said open area and lying in said plane; and corner flaps extending from the other alternate edges of said base portion and folded over on the reinforcing plate to hold said plate in the head.

2. In a reel assembly, the combination of a pair of spaced heads formed from lengths of foldable material and a core barrel mounted between the heads and secured to the heads, each of said heads comprising: an octagonal base portion; side flaps extending from alternate edges of said base portion and foldable over on the base portion and into a common plane, the outer edge of each side flap being parallel with the adjacent edge of the base portion and the width of each side flap being less than half the corresponding width of the base portion, the edges of the side flaps mating when folded over to form a square open area therebetween; a square reinforcing plate lying in said plane within said open area and filling the area; and corner flaps extending from the other alternate edges of said base portion and folded over on the reinforcing plate to hold said plate in the head.

3. In a reel assembly, the combination of a pair of spaced heads formed from a square blank of foldable material and a core barrel mounted between the heads and secured to the heads, each of said heads comprising: an octagonal base portion; rectangular side flaps extending from alternate edges of said base portion and foldable over on the base portion and into a common plane, the width of each side flap being substantially half the corresponding width of the base portion so that, when folded over, the side flaps will mate to form a square open area therebetween; a square reinforcing plate lying in said plane within said open area and filling the area; and corner flaps extending from the other alternate edges of the base portion, each corner flap being shaped as one quarter of the base portion so that the corner flaps mate when folded over on the base portion to completely cover the base portion and reinforcing plate.

4. A reel assembly having, in combination, an elongated core barrel having axial projections spaced angularly around each of its ends, a pair of spaced generally flat heads disposed in parallel relation at opposite ends of said core barrel and having cavities opening radially and outwardly at angularly spaced points around their peripheries, each of said heads having axially opening recesses formed in their opposed inwardly facing surfaces and spaced apart in an annular series to receive said projections on the barrel and thereby fix the angular positions of the heads relative to each other and the barrel to dispose and retain said peripheral cavities of the heads in a predetermined angular relation, an elongated cover extending around said peripheries of said heads and having tabs spaced along its length and fitting into said cavities when the latter are in said predetermined relation, and elongated fastening elements extending between said heads and through said core and having portions engaging the heads to hold the heads and core in assembled relation.

5. A reel assembly having, in combination, a core, a pair of spaced generally flat heads disposed in parallel relation at opposite ends of said core and secured to the core, each of said heads being from sheets of foldable material and having a base portion and a plurality of outer portions secured to and angularly spaced around

the base portion and folded back onto the base portion to strengthen the head and cooperate with other parts of the head underlying the outer portions to form cavities opening radially and outwardly at angularly spaced points around the periphery of the head, and a cover extending around the peripheries of said heads and having tabs fitting into said peripheral cavities of the heads.

6. A reel assembly having, in combination, an elongated core, a pair of spaced generally flat heads having similar regular polygonal peripheries and secured in parallel relation to opposite ends of said core corresponding straight edges of the peripheries lying in the same planes, and an elongated cover wrapped around said head peripheries and having a plurality of flat sections separating the heads and each lying in a different one of said planes and against the straight peripheral edges which lie in the same plane, alternate ones of said sections of said cover terminating adjacent said heads and the intervening sections projecting outwardly beyond both covers to form extensions to facilitate stacking of a plurality of reels side by side by interlocking with adjacent reels.

7. For use with an elongated cover adapted to extend around the periphery of a reel and having tabs projecting laterally from opposite sides of the cover and adapted to fit into peripheral cavities in the reel, the combination of an elongated core and a pair of spaced generally flat heads secured in parallel relation against opposite ends of said core and each formed from foldable material and having a base portion and a plurality of outer portions secured to and angularly spaced around the periphery of the base portion and folded back onto the base portion to strengthen the head and cooperate with other parts of the head underlying the outer portions to form cavities opening radially and outwardly at regularly spaced points around the periphery of the head to receive said tabs of said cover.

8. The combination of claim 7 in which each of said base portion is of regular polygonal shape, said outer portions extend from opposite sides of said base portion and are shaped as a half of the base portion with each outer portion double scored at its junction with the base portion so as to be foldable over upon the base portion, and side tabs disposed between said base and outer portions and adjacent the juncture edge of these portions in the folded positions of the parts and connected to one of such portions while being disconnected from the other portions, the side tabs separating the base and outer portions and cooperating with said other portions to form said cover tab receiving cavities.

9. The combination of claim 7 in which each of said base portions is of regular polygonal shape and said outer portions extend from opposite sides of said base portion and are shaped as a half of the base portion with each outer portion double scored at its junction with the base portion so as to be foldable over upon the base portion.

10. A reel having, in combination, a pair of spaced flat polygonal heads each having at least two layers of foldable material secured together at spaced points around the periphery of the head and adjacent alternating edges of the polygon while remaining disconnected at the intervening edges to form cavities opening radially and outwardly at the periphery, a core secured to and extending between said head pieces, and a peripheral polygonal cover having the same number of sides as said heads and formed from a strip of foldable material of a width equal approximately to the spacing between the heads and a length equal approximately to the circumference of said head peripheries, said cover encircling said heads and alternate sides of the cover having flaps projecting from their opposite edges and fitting into said cavities to hold the cover assembled to the heads and to cooperate with the heads and said core to form a rigid reel construction.

11. A reel having, in combination, a pair of flat heads

9

connected in spaced parallel relation by a core and each formed of at least two layers of foldable material defining cavities opening radially and outwardly at angularly spaced points around the periphery of the head, a cover formed of a strip of foldable material of a width equal approximately to the spacing between said heads and a length equal approximately to the circumference of said peripheries of the heads, said cover encircling said heads and having flaps projecting from spaced points along opposite edges of the cover and fitting into said cavities, and means on each of said heads securing said layers of foldable material together adjacent the periphery of the head and between each pair of said cavities whereby the heads are strengthened at their peripheries and cooperate with the flaps and cover to form a rigid structure.

12. A reel having, in combination, an elongated core terminating at opposite ends in radially and outwardly projecting flanges which extend around the circumference of the core, said flanges each being formed of a plurality of layers of flat sheet material defining cavities which open radially and outwardly at the periphery of the flange at angularly spaced points around the core, an elongated cover spanning said flanges and extending around said

10

peripheries thereof with flaps projecting from opposite side edges of the cover at spaced points and fitting into said cavities, and means on each of said flanges securing said layers together adjacent the outer periphery of the flange and between each pair of cavities therein so that the flanges are strengthened at their outer peripheries and cooperate with said flaps and cover to form a rigid structure.

References Cited in the file of this patent

UNITED STATES PATENTS

1,052,303	Aven	Feb. 4, 1913
2,115,481	Clemmons	Apr. 26, 1938
2,527,842	Mullaney	Oct. 31, 1950
2,582,597	McCaskie	Jan. 15, 1952
2,652,992	Tucker	Sept. 22, 1953
2,724,538	Schweich	Nov. 22, 1955
2,824,707	Kennedy	Feb. 25, 1958

FOREIGN PATENTS

322,643	Great Britain	Dec. 12, 1929
339,416	Great Britain	Dec. 11, 1930