

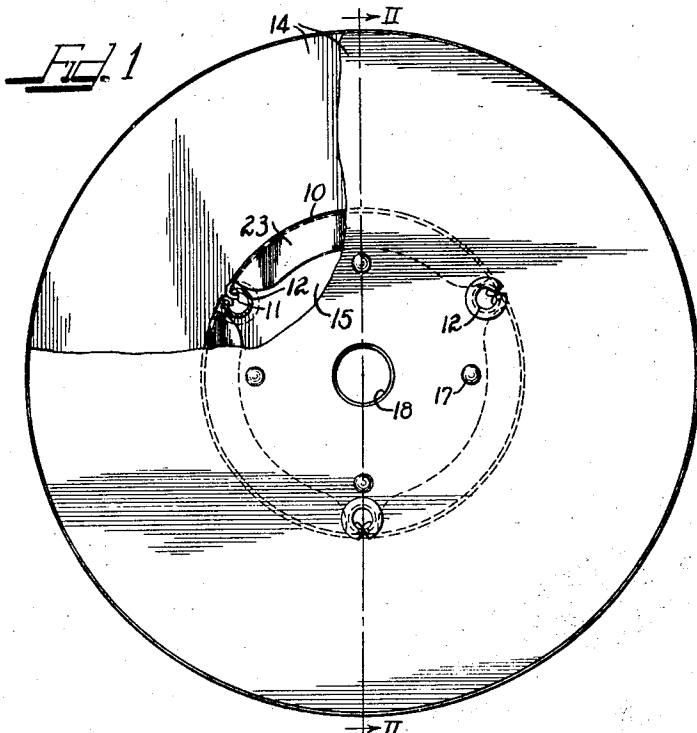
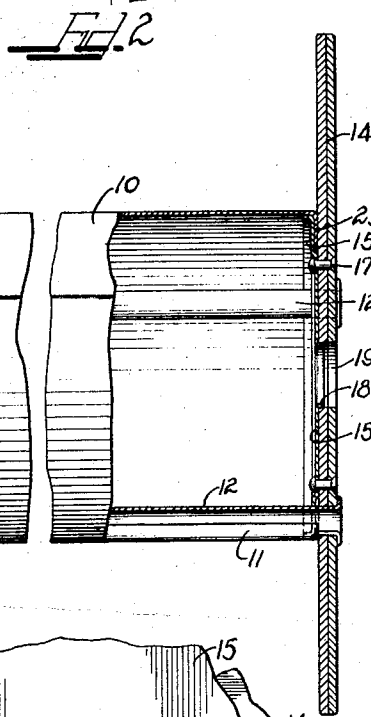
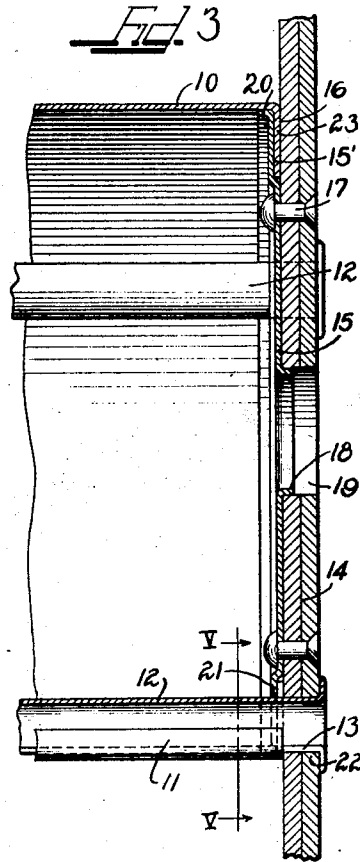
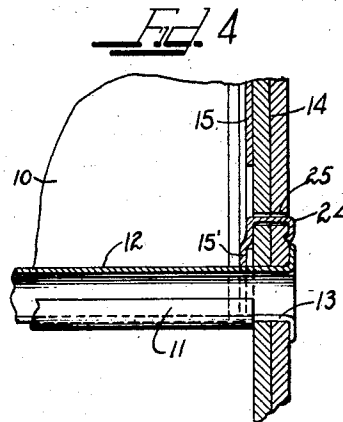
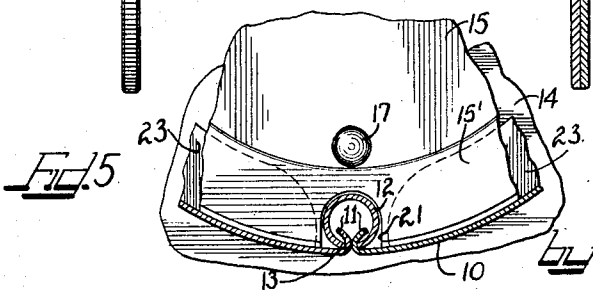
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SPOOL STRUCTURE

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SPOOL STRUCTURE

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8 Claims. (Cl. 242-123)

My invention relates to spools such as spools for supporting wire, the general object being to produce a spool constructed in greater part of comparatively light sheet metal parts which may be economically manufactured and assembled to form a rigid and strong structure.

More in detail, an important object of the invention is to provide a sheet metal barrel structure comprising a number of segments having their longitudinal edge portions deflected to form hook flanges to be locked together by tie bars which may be slid through the flange hooks so that the segments will be held together to form a cylindrical barrel structure.

A further object is to provide heads for the barrel structure through which the ends of the segment tie bars may extend to serve as rivets for clamping the heads to the barrel.

Another important object is to provide circular plates on the insides of the heads offset therefrom along their peripheral portions to receive radially extending flanges at the ends of the barrel segments for alignment of the segments preparatory to the sliding of the tie bars for engagement with the segment hook flanges.

The above enumerated and other features of the invention are incorporated in the structure shown on the drawing, in which drawing:

Figure 1 is an end view of a spool with the body of one of the heads broken away;

Figure 2 is a side elevation partly in section on line II—II of Figure 1;

Figure 3 is an enlarged view of the sectional part of Figure 2;

Figure 4 is a section view like Figure 3 but showing a modified arrangement; and

Figure 5 is a section on plane V—V of Figure 3.

As shown, the barrel structure comprises a number of sheet metal segments 10, three such segments being shown. The longitudinal edge portions of the segments are deflected inwardly to form hook flanges 11 engageable by tie bars 12. These tie bars may be of suitable form, those shown being cylindrical tubes having the longitudinal slits of gaps 13. These tie bars are applied with the edges adjacent their gaps engaging the segment flange hooks so that the segments are secured together to form a cylindrical barrel.

The heads 14 for the spool may each be a single disk of metal or non-metallic material, or as shown these heads may comprise a number of disks or laminations. Each head has secured to its inner side, concentric therewith, a circular plate 15 whose peripheral portion 15' is offset inwardly a distance equal to the thickness of the

metal of the barrel segments in order to provide the annular space or pocket 16 between the deflected portion and the head 14. The plates 15 are secured to the heads 14 as by means of rivets 17, and the plates have central openings the metal around which is deflected outwardly to form bushing flanges 18 for extending into the openings 19 in the heads 14, these bushing flanges serving to receive arbors on which the spool is mounted during winding or unwinding thereof. The plates 15 may also be strengthened or stiffened by inwardly extending peripheral flanges 20.

The offset portion 15' of the plate 15 is cut away to leave passageways 21 therethrough for the ends of the tie bars 12, and the heads 14 have the passageways 22 therethrough for receiving the tie bars.

At their ends, and between their hook flanges, the barrel segments 10 are deflected radially inwardly to form flanges or tongues 23. When the spool is to be assembled, the segments are applied to the head structures by slipping the flanges or tongues 23 into the pockets or spaces 16 provided by the deflected plate portions 15', the segment bodies then resting against the peripheral flanges 20 of the plates 15 and with their adjacent hook flanges in abutting engagement. This assembly is made so that the flange hooks 11 will be in alignment with the passageways 21 and 22 of the plates and heads respectively so that the tie bars 12 may be inserted through these passageways at one end of the spool. These tie bars will then lock together the adjacent hook flanges of the barrel segments, the bars being of sufficient length to extend a short distance beyond the heads at each end of the spool. These projecting ends are then deflected radially outwardly against the outer faces of the heads so that the tie bars may serve also as rivets for intimately and securely clamping the heads to the barrel structure, the flanges 23 at the ends of the barrel segments providing adequate seating surface for the heads.

Instead of using separate rivets as shown in Figures 1, 2, and 3, tongues 24 may be deflected from the plates 15 to be extended through passageways 25 in the heads, Figure 4, and to be deflected over against the outer faces of the heads to thus function as rivets for securing the plates to the heads.

The various elements of the spool may be economically manufactured and readily assembled. The head structures are first assembled by securing the plates 15 to the head disks 14, and the segments 10 are applied to the heads by slipping

their flanges or tongues 23 into the recess between the plates 15 and the head disk, and then the tie bars are inserted and slipped over the hook flanges of the segments, and the ends of the tie bars are then deflected over under pressure so that the barrel and head structures are rigidly secured together to form a strong, durable, yet comparatively light spool.

I have shown a practical and efficient embodiment of the features of my invention but I do not desire to be limited to the exact construction and arrangement shown and described, as changes and modifications may be made without departing from the scope of the invention.

I claim as follows:

1. A spool comprising a cylindrical barrel composed of segments having inwardly extending hook flanges at their longitudinal edges, tie bars engaging the hook flanges of adjacent segments to secure the segments circumferentially together in abutting engagement to form the cylindrical barrel, and head structures secured to the barrel ends.

2. A spool comprising a barrel composed of longitudinally extending segmental plates having inwardly extending hook flanges at their longitudinal edges, tie bars engaging adjacent hook flanges to secure the segments together to form a cylindrical barrel, head structures for the spool having openings for receiving the ends of said tie bars, and means securing the tie bar ends to the head structures to secure the head structures against the barrel ends.

3. A spool comprising a number of longitudinally extending segmental plates forming a cylindrical barrel, inwardly extending tongues at the longitudinal edges of said plates, locking members slipped over said tongues for locking said plates together circumferentially into abutting engagement, heads for the spool and interengaging walls on said heads and the barrel ends for concentrically aligning said heads and barrel and securing them axially together.

4. A spool comprising a number of longitudinally extending segments forming a cylindrical barrel, the longitudinally extending edge portions of said segments being deflected inwardly to form hooks, tie bars of substantially C-shape in cross section engaging said hooks to tie the segments together circumferentially, heads for the spool having passageways for the ends of said tie bars, said tie bars at their outer ends

being deflected outwardly against the outer sides of the heads whereby said bars function as rivets to lock the heads and segments axially together.

5. A spool comprising a barrel structure and heads therefor, said heads having plates secured to their inner sides concentric therewith and with their peripheral portions offset from the heads to provide annular recesses, said barrel structure comprising a number of longitudinally extending segments having radial flanges at their ends for engaging in the annular recesses between the heads and the plates thereon, and common means circumferentially securing said barrel segments together and securing said heads and segments together axially.

6. A spool comprising a barrel structure and head structures, means on each head structure defining an annular narrow recess in a radial plane, said barrel structure comprising a number of segments abutting at their longitudinal edges to form a barrel of cylindrical form, said segments having radially extending annular flanges at their ends for engaging in the annular recesses of said head structures, and tie bars extending through said head structures and having interlocking engagement with said barrel segments to lock said segments together circumferentially, said tie bars being deflected at their outer ends against said heads for securing said heads and barrel structures together axially.

7. A spool comprising heads each having a plate on its inner side concentric therewith with its outer peripheral portion spaced inwardly therefrom to define an annular narrow recess, a plurality of segmental plates having radially inwardly extending flanges engaging in the recesses of said heads with their longitudinal edges abutting to form a cylindrical barrel secured to said heads concentric therewith, and means within said barrel holding said segments together circumferentially.

8. A spool comprising a number of longitudinally extending barrel forming segments, inwardly extending flanges along the abutting edges of said segments, hollow tie bars slitted to receive said flanges to thereby secure said segments together circumferentially to form a continuous barrel, spool heads, and means whereby said tie bars secure said heads to the barrel ends.

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