June 21, 1938. H. C. HOWSAM 2,121,234

SPOOL

Filed June 27, 1936

Fig. 1.

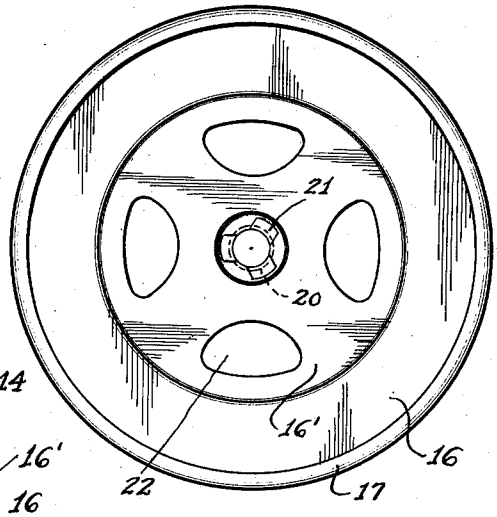


Fig. 2.

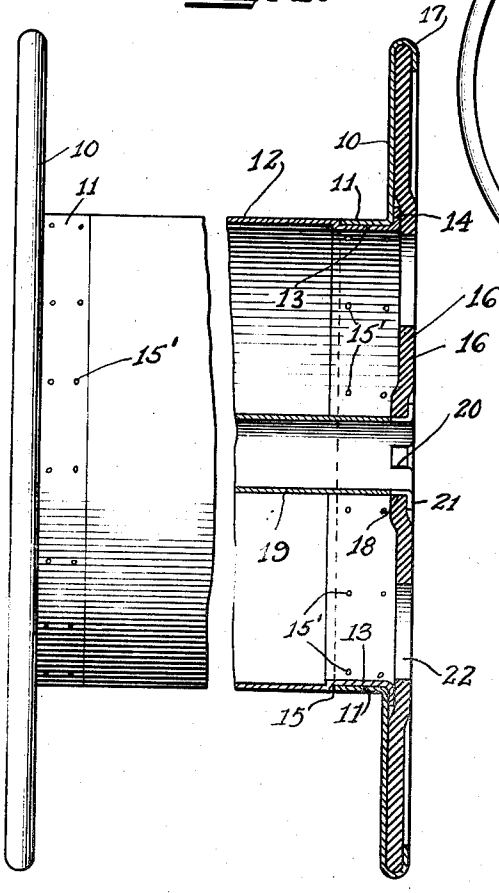
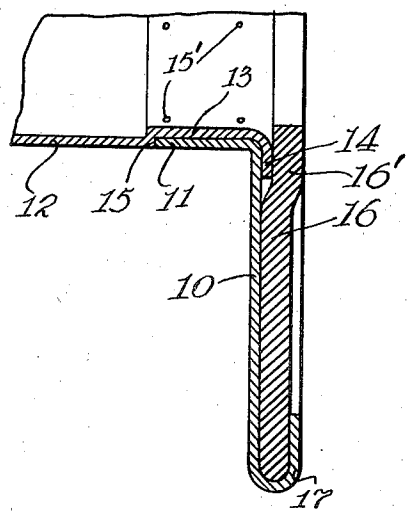


Fig. 3.



Inventor

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by Charles Hill Attys.

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UNITED STATES PATENT OFFICE

2,121,234

SPOOL

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Application June 27, 1936, Serial No. 87,612

2 Claims. (Cl. 242—123)

My invention relates to spools adapted for the general purpose of supporting yarn, thread, or the like, but which are designed particularly for supporting wire, the spool being therefore made entirely of metallic parts so that after the wire has been wound thereon it may be subjected to heat for annealing or other treatments.

An important object is to construct the entire spool of comparatively light sheet metal parts, properly strengthened and secured together to produce a rigid, strong and durable structure.

Another object is to provide an improved arrangement which will eliminate corner crevices between the barrel structure and the heads and to provide solid or unbroken corners so that there will be no chance for wire being caught in crevices during the winding or unwinding operation.

A structure embodying the various features of my invention is shown on the drawing, in which drawing:

Figure 1 is an end view of a spool;

Figure 2 is an enlarged side elevation partly in diametral section; and

Figure 3 is an enlarged diametral section to more clearly show the arrangement.

The spool shown comprises heads 10 in the form of sheet metal discs having open centers with the surrounding metal portion deflected inwardly to form cylindrical flanges 11 which form the end portions of the spool barrel, the main portion of which is formed by the tube 12 of sheet metal whose gauge is the same as that of the heads 10. For securing the heads to the barrel structure with the edges of the flanges 11 abutting the adjacent edges of the barrel tube 12, I offset the end portion 13 of the tube 12 radially inwardly a distance equal to the thickness of the flanges 11 so that the deflected portions will fit snugly in the flanges, and the ends 14 of the offset portions are deflected and drawn outwardly around the outsides of the corners between the heads 10 and their flanges 11, such deflection and drawing causing the exertion of tension against the outer sides of the heads 10 to hold the edges of the flanges 11 and the offset shoulders 15 intimately together while the flanges and offset end portions are rigidly secured together as by means of spot welding, as indicated at 15'.

Each of the heads 10 has a strengthening disc or plate 16 of heavier gauge sheet metal around the outer edge of which the peripheral portions of the heads 10 are deflected and rolled, as indicated at 17, the plates being thus securely clamped against the outer faces of the heads and held rigidly in alignment therewith.

The intermediate portions 16' of the reinforcing plates are deflected outwardly a distance preferably equal to the thickness of the head metal to provide clearance space for the deflected over ends 14 of the offset portions 13, so that the outer faces of the deflected portions 16' of the reinforcing plates will be flush with the outer faces of the rolled over ends 17 of the heads in order that the spool will present uniplanar seating surfaces at its ends for firmer seating of the spools on supports or for stacking thereof.

The reinforcing plates 16 have each an axial passageway 18, each passageway receiving an end of the sheet metal arbor receiving tube 19 extending through the spool. The ends of the arbor tube are deflected laterally against the outer faces of the inner portions of the plates 16 for holding the plates in rigid and properly spaced position. Preferably the plate edges surrounding the passageways 18 have notches 20 for receiving tongues 21 formed in the ends of the arbor tube, the tongues after extending through the notches being deflected against the outer faces of the plates 16, the arbor tube, with this tongue and groove connection, resisting relative rotational or torsional displacement of the spool and portions. If desired, the heads 10 and the reinforcing plates 16 may be welded together at suitable spots to prevent relative displacement and to strengthen the structure. To lighten the structure and also to provide ventilation for the interior thereof, openings 22 may be cut in the reinforcing plates 16.

The barrel portions 13 are preferably abruptly or sharply offset so that the ends of the flanges 11 will abut with the shoulders 15 to maintain closed joints and to eliminate any crevices in which wire or thread may be caught. Any burrs or projections which might occur at the joints may readily be removed by grinding so that the spool will present a smooth, even winding surface in which there are no corner crevises or any irregularities which might disturb the proper uniform winding of the wire on the spool. As the spool is entirely of metal, it may, after being wound with wire, be subjected to heat for annealing or other treatment of the wire, and then, after such heating process, the openings 22 in the reinforcing plates will permit ventilation for cooling of the wire.

I have shown a practical and efficient embodiment of the various features of my invention, but I do not desire to be limited to the exact construction, arrangement and operation shown and described, as changes and modifications may

be made without departing from the scope of the invention.

I claim as my invention:

1. In a spool for supporting thread, wire or the like, a sheet metal head having a portion deflected inwardly to form a comparatively short flange forming the outer portion of the spool barrel, a tube forming the major portion of the barrel, the outer portion of said tube being sharply offset radially inwardly a distance corresponding to the thickness of said flange to form a seat for the flange and to provide a shoulder against which the flange end abuts to form a completely closed joint, the end of said offset portion being deflected around the corner between the flange and head and against the outer face of the head for holding the head with the flange end intimately against said shoulder to maintain the closed joint.

2. In a spool of the class described, sheet metal heads each having a portion deflected inwardly to form a comparatively short flange and said flanges forming the outer portions of the spool barrel, a tube forming the major portion of the barrel and whose outer diameter is the same as that of the flanges, the outer portions of the tube being sharply offset radially inwardly a distance corresponding to the thickness of said flanges to provide seats for the flanges and square shoulders against which the flange ends abut to form completely closed joints, the ends of the offset portions being deflected around the corners between the flanges and the heads and against the outer faces of the heads for holding the heads with the flange ends intimately against said shoulders to maintain said closed joints, reinforcing plates concentric with said heads and engaging the outer surfaces thereof, said plates having central openings, and an arbor receiving tube extending through said openings and having its ends interlocked with said plates whereby to exert tension on said plates for holding said plates intimately against the outer faces of the heads and against the deflected ends of said offset portions to hold said portions intimately against the outer faces of said heads.

HILYARD C. HOWSAM.