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H. JANSSEN

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YARN PACKAGE RACK

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2 Sheets-Sheet 2

FIG. 4.

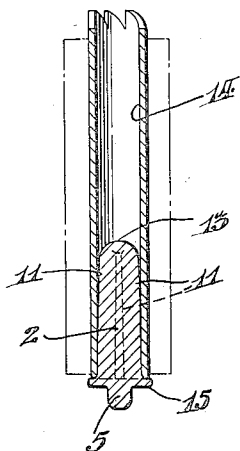


FIG. 6.

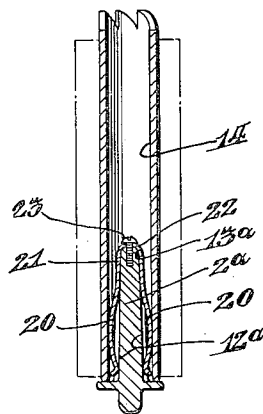


FIG. 5.

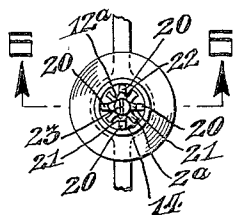
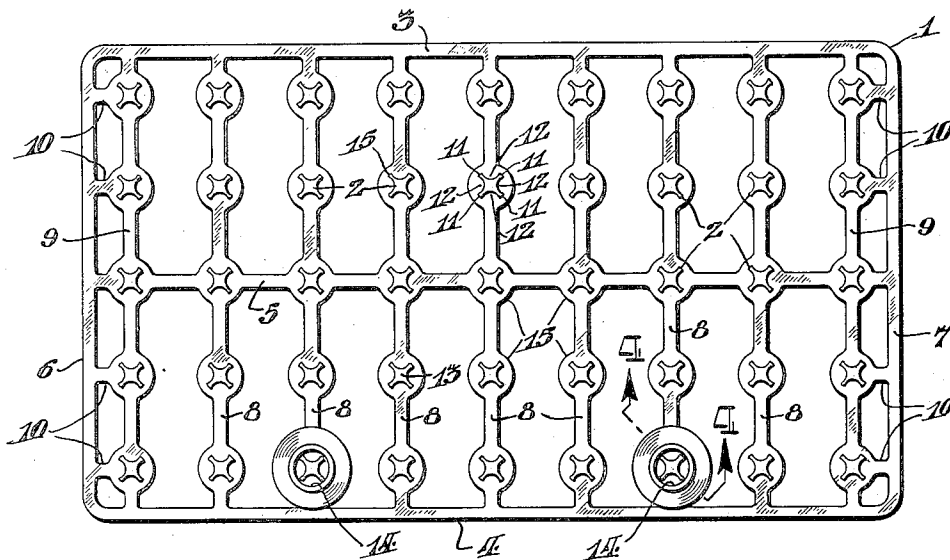


FIG. 3.



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YARN PACKAGE RACK

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15 Claims. (Cl. 242—131)

This invention relates to racks for supporting yarn packages such as bobbins or spools, with or without cones or other core members, and particularly to the type of rack which normally consists of a support provided with perpendicularly disposed pins or posts arranged in relatively spaced predetermined order affording clearance between the yarn packages respectively mounted on the posts.

Some of the objects of the present invention are, to provide a rack of rugged durable construction and light of weight having the posts permanently secured thereto; and to provide such a rack which is particularly adapted for use in connection with braiding machinery to facilitate the handling of yarn packages.

With these and other objects in view, which will become apparent from the following detailed description of the illustrative embodiments of the invention shown in the accompanying drawings, my invention resides in the rack having the novel elements, features of construction and arrangement of parts, as hereinafter more particularly pointed out in the claims.

In the accompanying drawings:

Fig. 1 is a perspective view of a rack constructed in accordance with the principles of the present invention;

Fig. 2 is a transverse sectional elevation taken on the line 2—2, Fig. 1;

Fig. 3 is a plan view;

Fig. 4 is a fragmentary sectional elevation taken substantially on the line 4—4, Fig. 3;

Fig. 5 is a fragmentary plan view of my novel rack and shows a modified form of spool supporting post and the manner in which the spool is held thereby; and

Fig. 6 is a transverse sectional elevation taken on the line 6—6, Fig. 5.

The rack primarily comprises a skeleton frame 1 having a plurality of relatively spaced posts 2, 2, cast or otherwise formed homogeneously integral and in one piece with the frame, the whole of the structure including the frame and the posts being composed throughout of light weight relatively tough material, such for example as aluminum, its derivatives or equivalents.

The skeleton frame, in its preferred form, is of rectangular contour and comprises longitudinally extending side bars or members 3 and 4 respectively and a central longitudinally extending bar member 5, integrally connected by transversely extending end bar members 6 and 7 respectively and by a plurality of intermediate transversely extending bar members 8, 8 and 9, 9 respectively.

The transverse bar members 9, 9 are disposed adjacent and parallel to the end bar members 6 and 7 respectively and are connected thereto by short longitudinally extending bar members 10, 10.

The posts 2, 2, in the preferred form of the invention, are arranged in longitudinal and transverse rows with a post disposed at the intersections of each of the transverse members 8, 8 and 9, 9, with the center line of the central longitudinal member 5 and with parallel lines drawn through the centers of the intermediate longitudinal bar members 10, 10.

Each post 2, in the preferred form of the invention, is of cruciform cross section and comprises four substantially perpendicular ribs 11, 11 disposed at ninety degrees apart, circumferentially of the post, alternating with substantially semi-circular grooves 12, 12.

The outer edges or surfaces of the ribs 11, 11 taper inwardly from the base of the post to the top thereof where the oppositely disposed ribs 11, 11 are joined by and blend into a substantially semi-spherical top surface 13 into which the bases of the grooves 12 also blend.

Each post 2 is provided with a base 15, in the present instance of circular form, from the top surface of which the ribs 11, 11 and grooves 12, 12 of the posts 2, 2 extend.

The outer surfaces of the ribs 11 form bearing surfaces for engagement with the wall of the bore or central opening of the core member 14 of the bobbin or spool mounted on the post, with one end of the core member resting on the flat base 15 of the post.

In the present case the top surfaces of the post bases 15 are all disposed in a single plane which preferably is coincident with the planes of the top surfaces of the longitudinal and transverse bar members 3, 4, 5, 6, 7, 8 and 9, providing a smooth top on the frame.

The end and side bar members 3, 4, 6 and 7 are relatively deeper than the intermediate longitudinal and transverse members 5, 8, 9 and 10 but in each instance these members are of a substantially elliptical cross-section having substantially semi-circular top and bottom surfaces 16 and 17 respectively connected by straight or slightly curved side surfaces 18 and 19; and the outer edges of the circular post plate-like bases 15, which extend laterally beyond the side edges of the bars from which the posts project, are rounded as are the corners of the skeleton frame and the corners where the various intersecting members join with each other, all with a view of

eliminating any and all sharp edges and corners which could catch and injure the yarn or threads wound on the bobbins or spools supported on the rack.

5 Fig. 5 of the drawings illustrates a modification of the post construction wherein the post 2a is provided with one or more oppositely disposed pairs of grooves 12a, 12a for receiving bowed legs 20, 20 of an inverted U-shaped spring 21, the leg
10 connecting portion 22 of which rests on the top curved surface 13a of the post 2a and is secured thereto by a screw 23. This construction is adaptable for firmly supporting bobbins or spools on the rack wherein the bore of the bobbin or spool
15 by wear or by being in some manner slightly larger than the standard size, which snugly and firmly fits the posts 2, would not fit the posts 2 closely enough to prevent looseness therebetween.

20 The rack in either case with the homogeneously integral posts thereon may be cast in one piece, in the old well known manner in sand flasks but preferably is produced by die casting, whereby all the edges and surfaces will be smooth
25 without necessitating grinding or buffing to remove fins or roughness as produced by the sand mold process.

Of course, the rack device specifically shown and described can be changed and modified in
30 various ways without departing from the invention herein disclosed and hereinafter claimed.

I claim:

1. A yarn package rack comprising a substantially flat skeleton frame having perpendicular
35 package-supporting posts formed integral therewith and provided with a plurality of laterally spaced ribs.

2. A yarn package rack comprising a substantially flat skeleton frame having perpendicular
40 package-supporting posts formed integral therewith and provided with a plurality of laterally spaced ribs extending lengthwise of the posts.

3. A yarn package rack comprising a substantially flat skeleton frame having perpendicular
45 package-supporting posts formed integral therewith and provided with a plurality of laterally spaced ribs extending lengthwise of the posts and tapering inwardly toward the tops thereof.

4. A yarn package rack comprising a substantially flat skeleton frame having perpendicular
50 package-supporting posts formed integral therewith and provided with a plurality of laterally spaced ribs and blending into a curved surface forming the top of each post.

5. A yarn package rack comprising a substantially flat skeleton frame having longitudinally
55 grooved perpendicular package-supporting posts formed integral therewith, and a bowed spring in each longitudinal groove.

6. A yarn package rack comprising a substantially flat skeleton frame having longitudinally
60 grooved perpendicular package-supporting posts, and a U-shaped spring inverted over the top of each post and having bowed legs respectively disposed in an oppositely disposed pair of said longitudinal grooves.
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7. A yarn package rack comprising a substantially flat skeleton frame having longitudinally
70 grooved perpendicular package-supporting posts, a U-shaped spring inverted over the top of each post and having bowed legs respectively disposed in an oppositely disposed pair of said longitudinal grooves, and means for securing the spring to the post.

75 8. A yarn package rack consisting of a one

piece homogeneously integral casting including a skeleton frame composed of edge bars and angularly disposed intermediate bars intersecting each other and connected to the edge bars with
80 package-supporting posts thereon and extending perpendicular to the frame and including plate like bases extending laterally beyond the side edges of the bars from which the posts project.

9. A yarn package rack consisting of a one-piece homogeneously integral casting including
85 a rectangular skeleton frame composed of longitudinal and transverse edge bars and intermediate bars paralleling and connected to the edge bars with package-supporting posts thereon and extending perpendicular to the frame and each
90 including a base extending laterally beyond the side edges of the bars from which the posts project and a plurality of ribs extending lengthwise of the posts and terminating in rounded tops formed on the posts.
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10. A yarn package rack consisting of a one piece homogeneously integral casting including a flat rectangular skeleton frame composed of longitudinal side bars, a central intermediate longitudinal bar, transverse end bars, intermediate
100 transverse bars, short longitudinal bars between the end bars and the adjacent transverse bars, and package-supporting posts at the intersections of the longitudinal and transverse intermediate bars and on the transverse intermediate
105 bars between the intersection of the central longitudinal intermediate bar and the longitudinal side bars.

11. A yarn-package rack comprising a homogeneously-integral casting unit including a rectangular outer-perimetral skeleton frame of
110 given depth and smooth outer contour having rounded top and bottom edges, cross bars of less depth spaced from, but relatively close to, the end bars of the frame substantially flush with the
115 top plane of the frame and having rounded top and bottom edges, other cross bars, of the depth and edge contour of said first cross bars, equally laterally spaced greater distances from each other and from said first cross bars than the latter
120 are spaced from said end bars, a central longitudinal bar of substantially the depth and edge contour of the cross bars extending between said end bars substantially flush with the top plane of the frame and joined to each of the cross bars
125 by a plate-like base of greater diameter than the width of the cross and central longitudinal bars but of less depth than the cross and longitudinal central bars, a plurality of short longitudinal bars of substantially the depth and edge contour
130 of the cross bars extending between said first cross bars and the adjacent end bars equally spaced from each other and from said central bar, plate-like bases similar to said first bases at the intersections of the short longitudinal and
135 adjacent cross bars, like bases on the remaining cross bars longitudinally opposite the short longitudinal bars, and package-supporting posts on corresponding sides of said bases, each perpendicular thereto, having longitudinal side channels forming at least three ribs therebetween,
140 which with the channels, terminate in a tapered top post end.

12. A yarn-package rack comprising a homogeneously-integral unit including a rectangular
145 outer-perimetral skeleton frame of given depth, cross bars of less depth spaced from, but relatively close to the end bars of the frame, other cross bars equally laterally spaced greater distances from each other and from said first cross
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bars than the latter are spaced from said end bars, a central longitudinal bar of a depth less than said given depth extending between said end bars and forming, at its intersection with
5 each cross bar, a plate-like base of less depth than the cross bars, a plurality of short longitudinal bars of less than said given depth extending between said end bars and the next adjacent cross bars equally spaced from each other and from
10 said central bar, bases like said first bases at the intersections of the short longitudinal and adjacent cross bars, bases like said bases on the other cross bars at positions in longitudinal alignment with the short longitudinal bars, and a
15 package-supporting post on each of said bases perpendicular thereto.

13. A yarn-package rack comprising a homogeneously-integral unit including an outer-perimetral skeleton frame, cross bars spaced
20 from, but relatively close to, end bars of the frame, other cross bars laterally spaced from each other and from said first cross bars, a longitudinal bar intermediate the side bars extending between said end bars and forming at its intersection with each cross bar a package-post base, a plurality of short longitudinal bars extending between said end bars and the next adjacent cross
80 bars spaced from each other and from said intermediate bar, bases like said first bases at the intersection of the short longitudinal and adjacent cross bars, bases like said first bases on the other cross bars at non-intersecting portions thereof, and a package-supporting post on each of said bases perpendicular thereto. 85

14. A yarn-package rack of open-work grid-like character reinforced between a perimetral section and an adjacent grid element at a greater number of positions than are provided between
90 said element and network elements inwardly of said element from said section.

15. A yarn-package support comprising a base, and a plurality of package-supporting posts each of substantially fluted cross section providing at
95 least three ribs about the post axis to centralize a package thereon and to reduce the friction area of the ribs along which the package slides.

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