The present invention relates generally to a support or rack for a coiled elongated member and more particularly to a rack for heavy cable assemblies or the like.

In the manufacture of stressed concrete beams, for example, one or more heavy cable assemblies are placed in the mold for the beam and the cable is held under external tension while the concrete is poured and set. After the concrete sets and forms a unitary structure with the cable assembly, the external tension on the assembly is released, whereupon the assembly exerts a continuous stress on the concrete.

The cable assemblies used in the manufacture of stressed concrete are generally made by steel fabricators and shipped in a coiled form. The cable assemblies are commonly used at the job site. Thus, there often is a considerable amount of handling of the cable assemblies involved between fabrication thereof and the actual use at the job site.

Hitherto, the usual method of packing and shipping a cable assembly of the type under consideration has been to tie or strap a coiled cable assembly to a wood skid comprised essentially of a wood cross frame. These skids occupy considerable floor space and are quite cumbersome to ship and handle. It is also uneconomical to return the cumbersome skids to the steel fabricators for reuse.

It is therefore an object of the present invention to provide an improved support for a coiled member which is sturdy and durable, which occupies a minimum floor space, and which can be conveniently handled during shipping to and at the job site.

It is also a specific object of the present invention to provide an improved supporting structure for a cable assembly used in the fabrication of stressed concrete.

Other objects of the present invention will be apparent to those skilled in the art from the following detailed description and claims to follow when read in conjunction with the accompanying drawings wherein:

FIG. 1 is a perspective view of a support which incorporates one embodiment of the present invention with a cable assembly mounted thereon;

FIG. 2 is an exploded perspective view of the support of FIG. 1;

FIG. 3 is a top plan view of the support of FIG. 1;

FIG. 4 is a fragmentary vertical sectional view showing a combination of two superimposed supports; and

FIG. 5 is a fragmentary sectional view taken along the line 5—5 of FIG. 4.

Referring to FIGS. 1–3, the invention comprises a post assembly and a plurality of rack assemblies adapted to be stacked thereon. The post assembly has a center post 10, preferably of a hollow, tubular form and square in cross section, and a centrally located base 11 which is secured around the lower end of the post 10 so as to provide a flange for supporting the post 10 in a vertical position and also for retaining the stacked rack assemblies on the post. The base 11 can be of any desired size or configuration but in every instance should be sufficiently large to maintain the post 10 in a vertical position even when there is a certain amount of instability due to uneven circumferential distribution of weight about the post 10. The post 10 is also provided with a transverse aperture 12 spaced axially a short distance above the base 11 to permit insertion of a fastener member therethrough for the purpose hereinafter described.

The upper end of the post 10 is closed by a plate 14 which has an upstanding square stud member 13 secured thereto, as by welding, with the stud member 13 having an exterior dimension slightly smaller than the inner dimension of the post 10 to permit insertion of the stud member 13 of one post into the apertured base 11 and hollow lower end of another post, as will be described hereinafter. The stud member 13 is also provided with a transversely extending bore or passage 15 adapted to receive a fastening member, such as a bolt 16, and which together provide a securing means adjacent the upper end of the post 10. A lift means, such as a lift cap 17, is mountable on the end of the stud 13 and is held connected therewith by the fastener member 16 extending through passage 15. The lift cap 17 preferably has a square recessed body section of slightly larger dimensions than the stud member 13 over which it is mounted and can be readily fabricated by casting or, if desired, by out of seam welding for rectangular side plates 19 joined by welding a top plate 20 to the upper edges. The ends of an inverted u-member 23 are welded to the upper surface of the top plate 20. Two of the oppositely disposed side plates 19 are apertured, as at 24, to form a transverse passage therethrough which coincides with the bore 15 in the stud 13 to receive the bolt 16 when the lift cap 17 is seated on the stud member 13.

Removably mounted over the post 10 is a specially designed support rack or cross-frame assembly 25 which is adapted to support a coiled member, such as a coiled length of heavy cable 29 having its ends secured by straps 26. The rack 25 is formed of superposed, lower and upper cross-frame members 30 and 31, respectively, in interlocking engagement with each other and slidably mounted on said post member while being restrained against relative rotary movement. The lower cross-frame member 30 is preferably formed of two angle irons 32 which are held apart in spaced parallel relationship a distance slightly greater than the width of the post 10 by a plurality of longitudinally spaced bars 33 which are welded or otherwise secured to the angle irons 32. Two of the bars 33 are centrally disposed with respect to the angle irons 32 and are spaced a short distance apart to provide a gudgeon 34a slightly wider than the width of the post 10 so that the cross-frame member 30 can be readily slidably mounted over the post 10 and lowered until the lower surfaces thereof engages the base 11 or the upper surface of an underlying rack 28 which has been previously mounted on post 10. Secured to the upper surface of the cross-frame member 30 are a pair of upwardly and laterally spaced arms 34 spaced inwardly from the ends of the cross-frame member 30 and equidistant from the longitudinal axis of the post 10. The arms 34 are preferably curved inwardly toward the said post 10 and can be readily made from one-half of a section of circular steel tubing.

The upper cross-frame member 31 comprises a pair of elongated members each formed of two oppositely extending angle iron sections 35 and 36 of equal length having the inner ends 35' and 36', respectively, spaced a distance slightly greater than the width of the lower frame member 30. The angle iron sections 35 and 36 are joined by two transversely spaced longitudinally extending bridging sections 39 welded to the upper surfaces of sections 35 and 36 adjacent the ends 35' and 36' and extending upwardly a distance at least equal to the height of the arms 34. The pair of angle irons 35 and the pair of angle irons 36 are held in spaced parallel relationship by means of spacer bars 40 and 41 which are welded or otherwise joined to the oppositely disposed angle irons. The spacer bars 41 extend upwardly above the angle irons 35 and 36 and are also welded or otherwise secured to...
the bridging sections 39. The bridging sections 39 are further joined by spaced guide members 42 which are centrally disposed with respect to the cross-frame member 31 and are spaced apart a distance slightly greater than the width of the post 10. The upper cross-frame member 31 also has secured to the upper surface thereof a second pair of upright symmetrically disposed cable-engaging arms 43 spaced a short distance inwardly from the ends thereof and the same distance from the post 10 as the arms 34.

As seen in FIG. 1, when the cross-frame members 30 and 31 are slidably placed over the post 10 with member 31 on the post end 35' and member 30 on the end 35 of member 31 embrace the outer lateral edges of the angle irons 32 of member 30 so as to retain the frame members in interlocking engagement and the lower edges of the bridging sections 39 will be supported on the frame member 30 so that the upper surfaces of frame member 30 and 31 are aligned. The lower frame member 30 is supported by the flange or base 11 which is also large enough to span the gap in the frame member 31 so as to support the spaced ends 35', 36' of the angle irons forming the frame member 31. The cable-engaging arms 34 and 43, which are spaced circumferentially about 90 degrees, and the cross-frame projecting ends of frame members 30 and 31 provide a rigid support for the coiled cable assembly 29 which is lowered into position on the rack and is retained in centered relation by the arms 34 and 43.

Referring to FIGS. 4 and 5, when a second cross-frame assembly is placed over the post 10 superposed on the first cross-frame assembly, the bridging sections 39 of the lower assembly, together with the arms 34 and 43 thereof, serve as vertical spacers which support the lower edges of the superposed upper assembly. In the form shown in the drawings, it is possible to stack or arrange as many as four cross-frame assemblies on the post 10. The length of the post 10 will, of course, determine the number of cross-frame assemblies which can be supported on the post 10.

As also shown in FIGS. 4 and 5, the lower apertured end of a second post 10a can be telescoped over the stud 13 at the upper end of the first post 10 to form a multiple unit assembly, where it is desirable to arrange, for example, more than four cable cross-frame assemblies over a given floor space. When the lower post 10 is fully loaded with racks 28, the base 11a of post 10a rests on the upper edges of the bridging sections 39 of the underlying cross frame 31. The posts 10 and 10a are secured together by a fastener such as a bolt 44 which passes through an aperture 12a in the post 10a after the aperture 12a is aligned with the bore 15 in the stud 13 of post 10. After the post 10a has the desired number of cross-frame assemblies mounted thereon, the lift cap 17 is mounted on the upper end of the post 10a by means of the bolt 16 as heretofore described, so that the assembly can be conveniently lifted as a unit for convenience of moving or uncoiling the cable assemblies mounted thereon.

When a plurality of cross-frame assemblies arranged on one or a plurality of posts are suspended by means of a crane having a swivel hook engaging the lift cap 17, a cable assembly can be readily uncoiled from a cross-frame member simply by pulling one end of the cable to rotate the support while it remains suspended by the swivel hook. If desired each individual cross-frame assembly can also be removed from the post and placed on a special uncoiling table at the job site to remove the cable therefrom.

After the cable has been removed from a cross-frame assembly, the upper and lower cross-frame members 30 and 31 respectively are readily removed from the post 10, separated, and stacked in a side-by-side arrangement with the posts to form a compact bundle for shipping to the cable assembly fabricators for re-use.

Others may practice the invention in any of the numerous ways which are suggested to one skilled in the art, by this disclosure, and all such practice of invention are considered to be a part hereof which fall within the scope of the appended claims.

1. A support for coiled articles comprising an upright post, a plurality of cross-frames removably mountable on said post in stacked relation, means on each of said cross-frames for retaining a coiled article thereon, means at the lower end of said post for supporting a stack of cross-frames on the post, and means at the upper end of said post for lifting the support, said lower end of said post having an axial opening and said upper end of said post having a reduced portion whereby a pair of posts can be detachably connected together by interfitting the reduced upper end of one post with the axial opening of the other post.

2. A support for coiled articles comprising an upright post of non-circular cross-section having a flanged base at its lower end and means for lifting the support at its upper end, and a cross-frame assembly removably mounted on said post in engagement with said base for supporting coiled articles, said cross-frame assembly comprising a pair of elongated members having complementary non-circular central openings adapted to receive said post in non-rotatable relation, said members having interlocking portions adapted to interfit in superimposed interlocking relation when mounted on said post for retaining said members in predetermined arrangement, and means on said members for retaining a coiled article in centered relation on the cross-frame assembly.

3. The structure of claim 2 further characterized in that said means for lifting the support comprises a lift cap detachably connectible to the upper end of said post.

4. A support for coiled articles comprising an upright post having a flanged base at its lower end and means for lifting the support at its upper end, and a plurality of cross-frame assemblies removably mounted in stacked relation on said post with the lowermost assembly engaging said base, each of said cross-frame assemblies comprising a pair of upper and lower elongated frame members adapted to be interfit in superimposed interlocking relation, said members having aligned guide openings for centrally receiving the post in non-rotatable relation, said spaced frame members on each of said upper frame members for engaging the lower frame member of the overlying assembly, and upright retainers on said members spaced outwardly from said post and inwardly from the ends of said members for retaining a coiled article in centered relation on the assembly.

5. A support for coiled articles comprising an upright post having a flanged base at its lower end and means for lifting the support at its upper end, and a plurality of cross-frame assemblies removably mounted in stacked relation on said post with the lowermost assembly engaging said base, each of said cross-frame assemblies comprising a pair of superimposed upper and lower elongated frame members, said upper frame member comprising axially spaced frame sections rigidly interconnected by bridging means in offset relation with said sections whereby said upper frame member is adapted to be interfit in interlocking relation with said lower frame member, said frame members having aligned central guide openings for receiving said post in non-rotatable relation, said bridging means extending upwardly from said upper frame member and providing spacer means for engaging and supporting the lower frame member of the assembly, and a pair of upright retainers on each of said frame members disposed between said post and the respective ends of the frame members for retaining a coiled article in centered relation on the assembly.

6. A support for coiled articles comprising a plurality of upright posts each having a flanged base with an axial opening at its lower end and a portion of reduced size.
at its upper end such that the upper end of one post is
detachably receivable in the axial opening at the lower
end of another post, detachable connecting means for
interconnecting said posts, a plurality of cross-frames re-
movably mountable in stacked relation on each of said
posts with each stack being supported on the flanged base
of its respective post, means on each cross-frame for re-
taining a coiled article thereon, and means adapted to be
detachably connected to the upper reduced end of the
uppermost post for lifting the entire assembly.

5. A cable supporting structure comprising a post as-
sembly having first and second post members, the lower
end of said first post member being axially apertured to
receive therein the upper end of said second post member,
securing means for detachably connecting the interfitting
lower end of said first post member and the upper end of
said second post member, a plurality of cross-frame as-
semblies slidably mounted on each of said post members
with said cross-frame assemblies having a plurality of
spaced cable-engaging arms adapted to support thereon a
coiled length of cable, and lift means detachably con-
nectable to the upper end of said first post member for
lifting the entire structure.

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