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COLLAPSIBLE GOAL STRUCTURE WITH MESH NET

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FIG. 1

FIG. 2

FIG. 3

FIG. 4

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COLLAPSIBLE GOAL STRUCTURE WITH MESH NET

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ABSTRACT OF THE DISCLOSURE

A collapsible hockey goal having tubular members cooperating to form a goal frame, and a net. Much of the net periphery is defined by closed meshes threaded onto one of the tubular members, the net thus being telescoped onto such member. To assemble the goal, the tubular members are assembled to form the frame; the telescoped part of the net periphery is stretched over the frame as far as it will go, and the remainder of the net periphery is tied to the frame.

This invention relates to a collapsible goal structure, for use for example as a hockey goal. Collapsible structures that may be assembled into goals, such as hockey goals, have a number of advantages over fixed structures which cannot be disassembled, the primary advantages being easy portability and reduced storage space requirements. However, such collapsible goal structures, which generally include a number of tubular frame members cooperating to form a frame, have in the past included a net which, after the frame has been assembled, must be laced to the frame around the entire periphery of the frame. This lacing, which is a time consuming and laborious task, must be carried out every time the goal is assembled, and the lacing must be untied every time the goal is taken apart for transportation or storage. The time and labor requirements inherent in these tasks have to some extent discouraged use of collapsible goals in the past.

Accordingly, it is an object of the present invention to provide an improved collapsible goal in which the amount of lacing or tying required is greatly reduced. This is typically accomplished by providing a plurality of tubular members cooperating to form an assembled goal frame. A net is provided, a substantial portion of the periphery of the net having a plurality of closed peripheral meshes. One of the tubular members is threaded through these closed meshes so that the net is telescoped onto this one member. To assemble the goal, the tubular meshes are connected together to form the frame; the periphery of the net is then stretched out over the frame as far as it will go, and the remainder of the net periphery is tied or laced onto the frame.

In the drawings:

FIG. 1 shows the disassembled components of a hockey goal according to the present invention;
FIG. 2 is a perspective view showing the components of FIG. 1 partly assembled;
FIG. 3 is a perspective view showing the components of FIG. 1 completely assembled into a goal; and
FIG. 4 is a perspective view showing another completely assembled goal according to the present invention.

As shown in FIGS. 1 to 3, a typical goal constructed in accordance with the present invention and for use as a hockey goal includes a frame 1 comprising a tubular top member or top bar 2 having a pair of downwardly depending legs 4 and 6 one at each end thereof. The legs 4 and 6 telescope into upright L-shaped members 8 and 10.

The frame 1 of the goal is completed by a rear bottom member 12 which cooperates with and telescopes into the upright members 8 and 10 as shown in FIGS. 2 and 3.

Cooperating with the goal frame 1 just discussed is a net 14, preferably formed from strands of fusible material such as nylon, intersecting strands being fused together to form the mesh of the net. The mesh around the periphery of the net 14 is closed, and when the goal is disassembled, for sale, transportation or storage, a substantial portion of the periphery of the net is threaded onto a small portion of the top bar 2 and rolled therearound, as shown in FIG. 1. In other words, the top bar 2 is threaded through each individual mesh in this portion of the periphery of the net. The extent of the periphery of the net 14 typically so threaded onto the top bar 2 is indicated in FIG. 3 by dimension A. After the net 14 has been telescoped onto the top bar 2 and rolled therearound, a retaining member, such as a piece of tape 16, is applied over the bunched net and onto the top bar 2, to retain the net in its telescoped and rolled condition.

When the goal is to be assembled, the tubular members 2, 8, 10 and 12 are first assembled into a complete frame 1, before the retaining tape 16 is removed. After this assembly of the tubular members in to a frame has been completed, the retaining tape 16 is removed and the net is unrolled, as shown in FIG. 2. This unrolling exposes ends 14a and 14b of that portion of the periphery of the net threaded onto the top bar 2 and indicated by dimension A of FIG. 3. These ends 14a and 14b are then stretched out over the top bar 2, down legs 4 and 6, and along the upright L-shaped members 8 and 10. The portion A of the periphery of the net 14 threaded onto the top bar 2 is as shown made sufficiently long that the ends of 14a and 14b will reach substantially to the ends of the L-shaped uprights 8 and 10. Ties 18 are provided along the remainder of the periphery of the net (indicated by dimension B of FIG. 5), and these ties are used to tie portion B of the periphery of the net to the rear bar 12, assembly of the goal then being complete.

For disassembly of the goal, the ties 18 are undone to release the peripheral portion B of the net; the peripheral portion A of the net is telescoped back along the upright members 8 and 10 onto a small portion of the top bar 2, as shown in FIG. 2; the net is then rolled about the top bar 2, and a piece of the retaining tape 16 is re-applied to the telescoped and rolled net 14 and across the top bar 2, to hold the net in place. The tubular members 2, 8, 10 and 12 may then be disassembled.

It will be apparent that the present invention provides a goal structure that is much more easily assembled and disassembled than a structure where lacing is required around the entire periphery of the net, since the bulk of the lacing has been eliminated. At the same time, the net 14 is more evenly and more strongly connected to the upper tubular member 2 and to the side uprights 8 and 10 than in a goal where lacing is required, since each
strand of each mesh at the periphery of the net in these locations is looped around the frame. The possibility of lacing the net with uneven tension, so that the net is unevenly positioned on the frame, is largely eliminated, as is the possibility of an incomplete lacing job where only a few ties are connected to the goal frame.

The said goal frame is in accordance with the present invention, the portion A of the periphery of the net constituted approximately 75% to 80% of the entire periphery of the net or goal, and the portion B requiring lacing constituted approximately 20–25% of the goal periphery. In other words, in the typical goal mentioned, it is not necessary to lace around the entire periphery of the net, as was the case in the past, but instead only one fifth to one quarter of the periphery need be laced, the remainder of the periphery being threaded over the tubular member constituting the goal frame.

The goal shown in FIGS. 1 to 3 may be modified as shown in FIG. 4, an upper rear bar 20, shaped generally in the form of a numeral "3," is provided. Opposite ends of the upper rear bar 20 are detachably connected to opposite upper ends of the top bar 2' by any suitable means, such as bolts 22 and 24. Detachable center bar 26 extends from the center of the top bar 2' rearwardly over the center of the upper rear bar 20 and then down to the center of the lower rear bar 12'. Suitable means, such as bolts 28 and 30, are provided to connect the center bar 26 to the bars 2' and 12'.

The goal of FIG. 4 is assembled in a manner similar to that of FIGS. 1 to 3, except that the upper rear bar 20, with its attendant center bar 26, is not connected to the remainder of the frame until after the stage of assembly shown in FIG. 3 (except for fastening of the ties 18' to the rear bar 12') has been completed. In other words, the members 2', 8', 10', and 12' are assembled together, and the ends 14'a and 14'b of the net 14 are then stretched out along the upper member 2' and down along the L-shaped uprights 8' and 10'. After this has been completed, the bar 20 is inserted from the front of the goal and rearwardly and upwardly into position, stretching the net with it, until it is in a position in which the bolts 22 and 24 may be inserted. The center bar 26 is inserted in the same way, either before or after insertion of the upper rear bar 20. Preferably, the center bar 26 is first connected to the bar 20 and the two are moved together into position.

After the entire frame has been assembled in this way, the portion B of the periphery of the net is stretched down and the ties 18' are tied to connect the rear portion of the periphery of the net to the rear lower bar 12'. Assembly of the goal is then complete. No difficulty will normally be encountered in positioning the net 14' correctly on the goal, since it is prepositioned on the bar 2' and, as mentioned, all that need be done is to pull the ends 14'a and 14'b out and down over the uprights 8' and 10' and then to tie the rear ties 18'.

It will be appreciated that although the net 14 has been shown as stored on the upper bar 2 or 2' when the goal is disassembled, the net could instead be stored on one of the other tubular members, for example one of the upright L-shaped members 8 or 10. However, storage on the center of the top bar is much preferred, since this is a point of symmetry, and since the net when constrained will remain in position on the top bar of the assembled goal without falling, in a position in which it may easily be unrolled.

In addition, although the net has been shown in FIG. 1 as rolled tightly around the bar 2, it will often be convenient to roll it more loosely around the bar 2 or leave it totally extended, so that an end hangs down, much as shown in FIG. 2. The retaining tape 16 will still of course be applied during periods of disassembly, to prevent expansion of the net.

It will be realized that the ties 18 forming a part of the net may be omitted if desired, and separate ties or lacing provided. In this event, the mesh around the entire periphery of the net will typically be closed, but of course only a portion of the periphery will be threaded onto the goal frame. The remaining portion, typically that portion indicated by dimension B in FIG. 3 or B' in FIG. 4, will be left free, to permit the net to be stretched out over the goal frame, and will be laced to the frame by separate ties or laces (not shown).

Although the goal frame has been illustrated as being made up of tubular members, other types of connectible members can be used, so long as the joints between them are sufficiently smooth to permit stretching of the net periphery back and forth over these joints without appreciable catching on the joints.

What I claim as my invention is:

1. A collapsible goal structure comprising: a plurality of elongated tubular members, the ends of said elongated members being telescopically engageable to form a frame for said goal, a net having a central area formed by a plurality of substantially identical flexible closed meshes, said meshes extending to and defining a substantial portion of the periphery of said net, and one of said elongated members being threadable through said closed meshes of said portion of said periphery of said net to connect said net to said one elongated member.

2. The invention according to claim 1 wherein the remainder of the periphery of said net includes a plurality of ties for tying said remainder of said periphery to said goal frame.

3. The invention according to claim 2 wherein said closed meshes of said portion of said periphery of said net are located on a short length of said one elongated member, said net being wound up around said one elongated member with the ends of said one elongated member projecting beyond said net, and removable retaining means engaging said net and said ends of said one elongated member and holding said net in its wound-up condition on said one elongated member.

4. A collapsible goal structure comprising: a plurality of substantially identical flexible closed meshes extending from one elongated member to an opposite elongated member, a substantial portion of the periphery of said net being defined by said closed meshes, said elongated members being threadable through said closed meshes of said portion of said periphery of said net with said portion of said periphery of said net extending over a substantial portion of said frame, and means for connecting the remainder of said periphery of said net to the remainder of said frame.

5. The invention according to claim 4 wherein said means for connecting the remainder of said periphery of said net to the remainder of said frame comprises a plurality of ties.

6. The invention according to claim 4 wherein said elongated members include:

(a) an upper substantially horizontal member,
(b) a pair of vertical side members one connected to each side of said upper horizontal member,
(c) two rearwardly extending horizontal bottom members extending from each of said vertical side members,
(d) and a rear horizontal member connecting said rearwardly extending members (c),

said one elongated member being constituted by said member (a), said substantial portion of the periphery of said net extending over said members (a), (b), and (c).

7. The invention according to claim 6 wherein said means for connecting the remainder of said periphery of said net to the remainder of said frame comprises a plu-
rality of ties connecting said remainder of the periphery of said net to said member (d).

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