United States Patent [19]

Tucker et al.

[11] **3,822,062**

[45] **July 2, 1974**

[54] **MESH WEBBING FOR A LACROSSE STICK**

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[73] Assignee: **Wm. F. Burnett & Co., Incorporated,** Baltimore, Md.

[22] Filed: **Dec. 3, 1973**

[21] Appl. No.: **421,357**

[52] **U.S. Cl.** ..... **273/96 D,** 273/73 D

[51] **Int. Cl.** **A63b 71/00**

[58] **Field of Search** ..... 273/96 D, 73 D, 1.5 R

[56] **References Cited**

UNITED STATES PATENTS

2,847,790	8/1958	Tjernagel	173/73 D
3,507,495	4/1970	Tucker	273/96 D

Primary Examiner—Richard C. Pinkham
Assistant Examiner—Marvin Siskind
Attorney, Agent, or Firm—Baldwin, Wight & Brown

[57] **ABSTRACT**

This disclosure relates to an improvement in the webbing of the head of a lacrosse stick and the method of forming such webbing. Expandible knitted mesh of a desired width is provided and the mesh is rearranged so that one end portion of the mesh is substantially free of expansion and the opposite end portion of the mesh is widely expanded in accordance with the maximum width of the lacrosse stick head. This mesh is then secured in place in the lacrosse stick head by means of suitable lacing with the mesh being only limitedly expanded adjacent the throat of the head and being readily deformable to define a ball pocket adjacent the stop.

12 Claims, 8 Drawing Figures

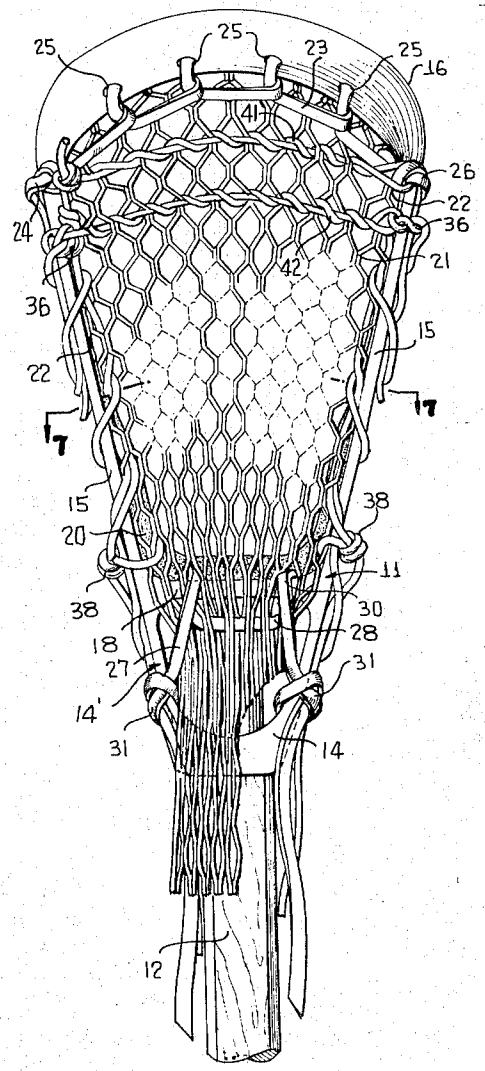


FIG.1

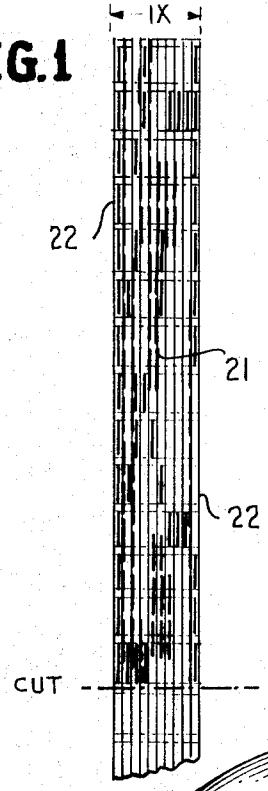


FIG.2

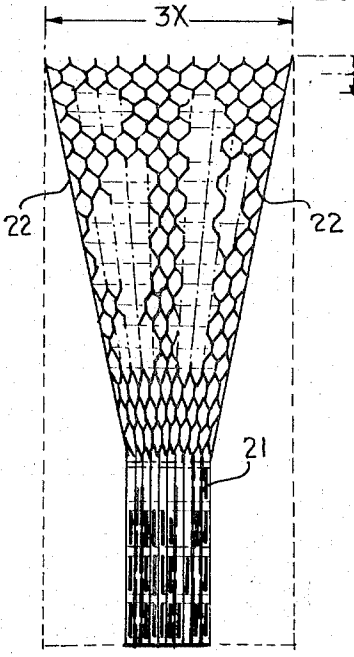


FIG.3

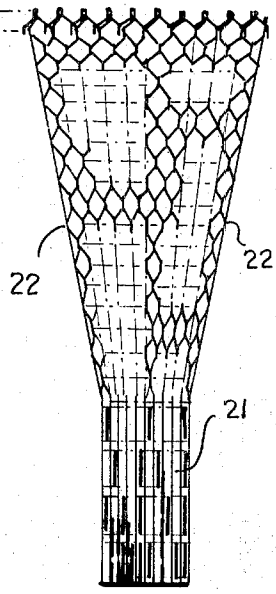


FIG.4

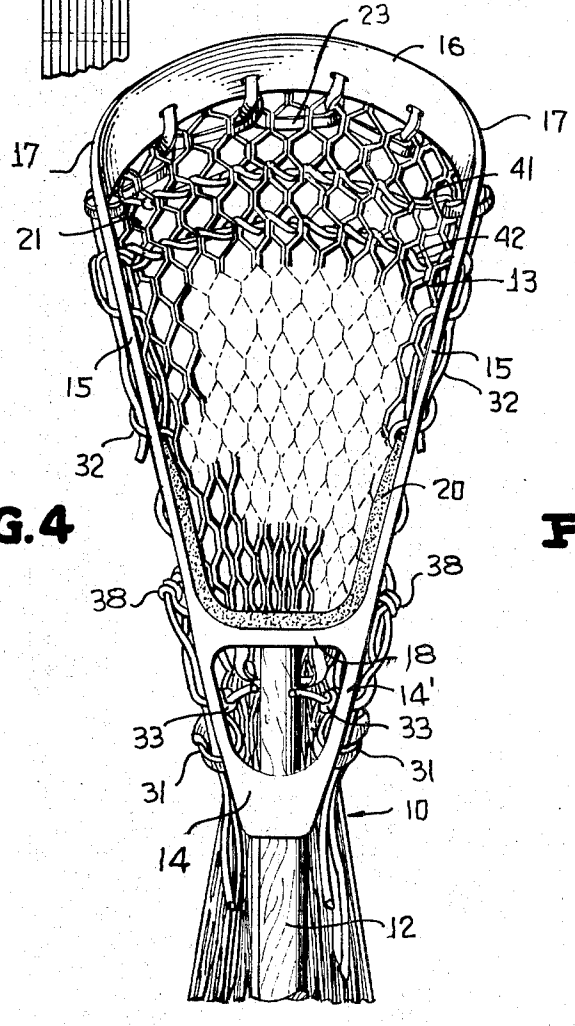
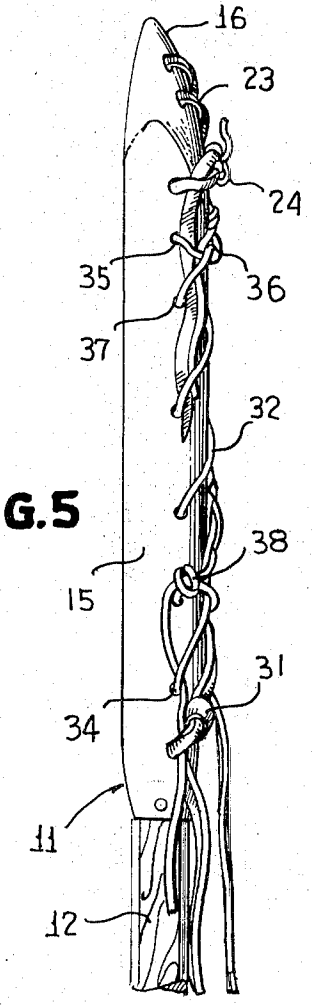


FIG.5



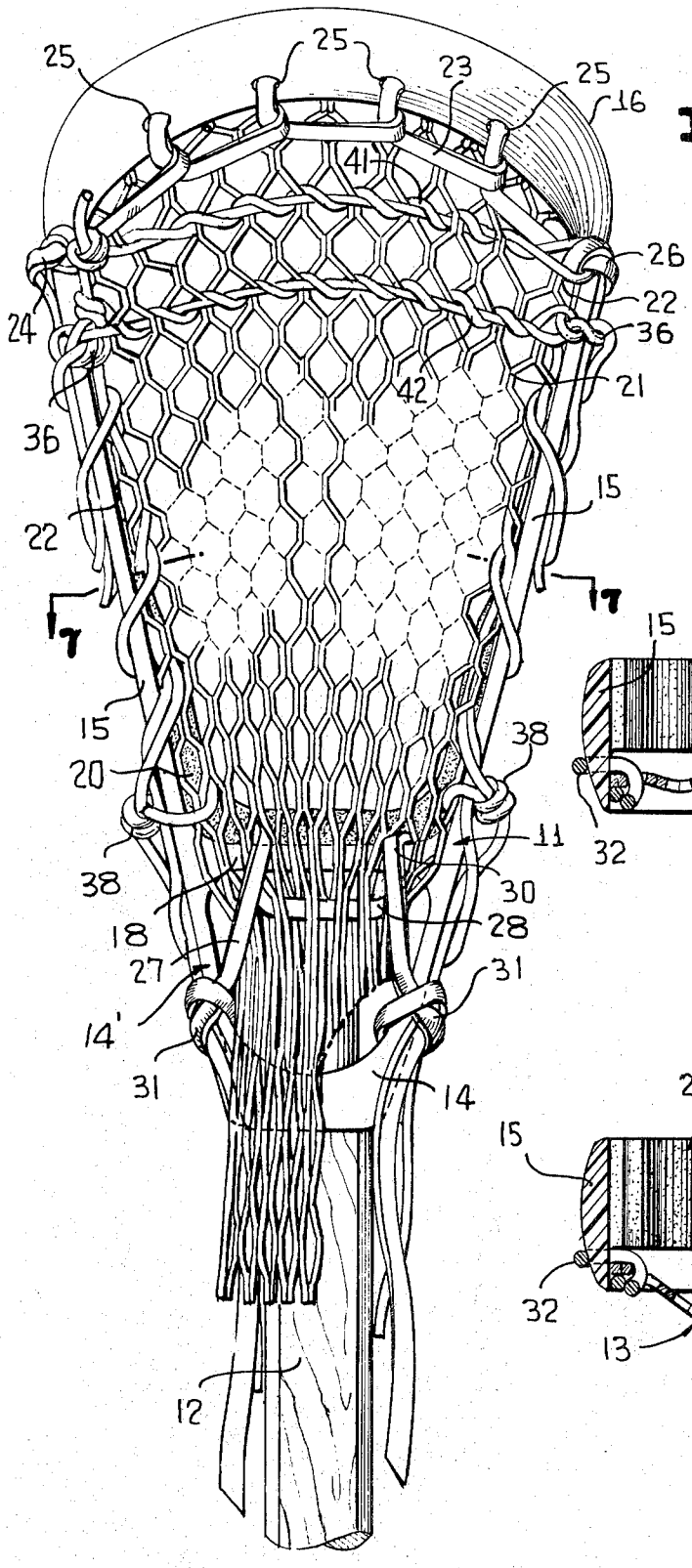


FIG.6

FIG.7

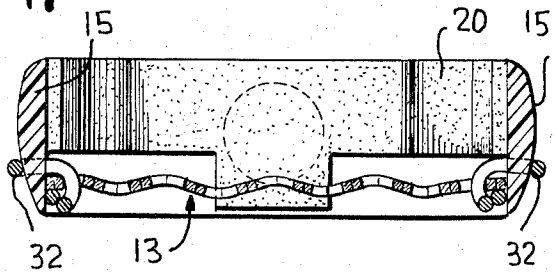
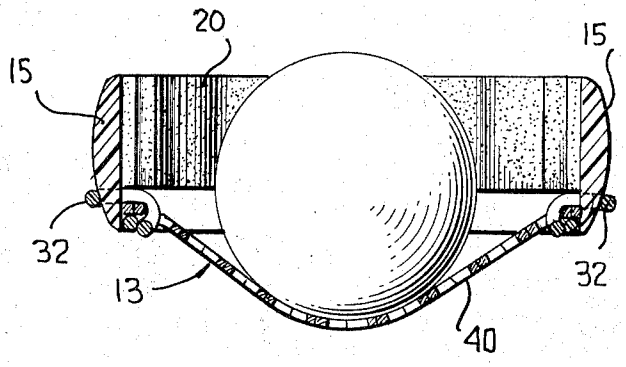


FIG.8



MESH WEBBING FOR A LACROSSE STICK

This invention relates in general to new and useful improvements in lacrosse sticks, and more particularly to the formation of the web of the head of a lacrosse stick.

BACKGROUND OF THE INVENTION

The webbing of a lacrosse stick is normally formed by interweaving within the frame thereof both longitudinally and transversely through suitable strips or lacing. Such a web construction is time consuming to install, and thus expensive.

Further, it is to be understood that the prior lacing has been such that should a lace become cut, instead of only one small portion of the webbing being affected, the webbing is affected over a large area.

SUMMARY OF THE INVENTION

It is proposed to overcome the deficiencies of the prior used lacing type webbing by substituting therefor a knitted mesh. The knitted mesh may be readily opened in accordance with the spacing between the side walls of the head of a lacrosse stick so that an elongated strip of the knitted mesh, which would normally have a rectangular outline, may be readily adapted to the generally V-outline of a lacrosse stick head.

It has also been found that while the knitted mesh is relatively widely expanded adjacent the end wall of the head frame so as to provide the desired stretched webbing, the knitted mesh is relatively closed adjacent the throat of the head. As a result, the knitted mesh provides for excellent ball handling. The mesh is firm adjacent the end wall of the head while being readily deformable away from the plane of the head adjacent the throat to define a ball pocket. It has also been found that the mesh, because of the woven construction thereof, should any woven strand thereof become severed, only a limited area of the webbing is affected.

It has also been found that by forming the webbing so that it extends beyond the throat in generally overlapping relation to the adjacent end of the stick portion, in the event the webbing should become scuffed in the area thereof adjacent the end wall of the frame, it may be removed from the frame, inverted, reformed and re-installed so that approximately a double life may be obtained from the knitted mesh.

With the above and other objects in view that will hereinafter appear, the nature of the invention will be more clearly understood by reference to the following detailed description, the appended claims and the several views illustrated in the accompanying drawings:

IN THE DRAWINGS

FIG. **1** is a schematic view of the knitted mesh and shows the manner in which it may be provided in strip form.

FIG. **2** is a schematic view showing a cut length of the knitted mesh rearranged to match generally the head in which it is to be mounted.

FIG. **3** is a further schematic view showing the mesh with the extreme end portion of the mesh at the widely expanded end thereof reversely folded upon itself to define a reinforced end.

FIG. **4** is a fragmentary elevational view of a lacrosse stick incorporating the knitted mesh of FIG. **3** as the webbing for the head thereof.

FIG. **5** is a fragmentary side elevational view of the lacrosse stick of FIG. **4** and shows details of the securement of the knitted mesh within the lacross stick head.

FIG. **6** is an enlarged back elevational view of the lacrosse stick and shows further the specific details of the knitted mesh and the securement thereof to the head.

FIG. **7** is a transverse horizontal sectional view taken along the line **7—7** of FIG. **6** and shows the knitted mesh in its initially disposed arrangement.

FIG. **8** is a schematic transverse sectional view similar to FIG. **7** and shows the manner in which the knitted mesh may be formed adjacent the throat of the head to form a ball pocket.

Referring now to the drawings in detail, it will be seen that there is illustrated in FIGS. **4, 5** and **6** a lacrosse stick which is generally identified by the numeral **10** and which includes a head, generally identified by the numeral **11** and a replaceable stick **12.** The head **11** is provided with a web or webbing, generally identified by the numeral **13,** formed in accordance with this invention.

At this time it is pointed out that the head **11** may be constructed in accordance with that of the lacrosse stick of our U.S. Pat. No. 3,507,495, granted Apr. 21, 1970. Accordingly, the details of the head **11** will only be broadly described hereinafter.

The head **11** is, in general, a closed frame like construction of somewhat V-shape, preferably substantially symmetrical. The bottom or lower end of the head is formed as a throat **14** from which two side walls **15,15** are inclined and diverge upwardly and outwardly. The upper ends of the side walls **15,15** are connected by a transverse top or end wall **16** which merges with the side walls **15,15** through intervening smoothly curved portions **17,17.** It is to be noted that the end wall **16** is of an upwardly arched construction and is twisted generally from the planes of the side walls **15,15** and is disposed in a plane slightly inclined with respect to the general plane of the head **11** so as to facilitate the fielding of ground balls.

A transverse stop **18** extends generally about the side walls **15,15** and which cooperates with the throat **14** and adjacent portions of the side walls **15,15** to facilitate the mounting of the head **11** on the stick **12,** this area generally constituting a throat area **14'** which may selectively have an open or closed center.

Positioned inside the stop **18** is a layer **20** of relatively soft resilient material. The layer **20** provides for markedly improved ball handling properties.

As set forth above, the lacrosse stick **10** differs from the lacrosse stick of our prior Patent No. 3,507,495 in the construction of the webbing **13.** Instead of the webbing being constructed in the form of a plurality of separate thongs and transverse lacing components, the webbing **13** is formed from a length of knitted mesh **21.**

As is best illustrated in FIG. **1,** the knitted mesh **21** may be knitted as a continuous strip of woven material having selvage edges **22,22.** The knitted mesh **21** is formed generally in accordance with that disclosed in U.S. Pat. No. 2,992,550 granted July 18, 1961, and U.S. Pat. No. 3,171,272, granted Mar. 2, 1965. As disclosed in these two patents, the knitted mesh **21** is preferably formed of a high strength synthetic material, particularly nylon. It has been found that a mesh knit-

ted generally in accordance with the two above-identified patents and formed of 840 denier, 140 filament Type 702 duPont yarn, performs satisfactorily.

The knitted mesh is woven in an open state, but may be readily closed by longitudinally tensioning the same. Accordingly, normally the knitted mesh will be provided in a nonexpanded form, as shown in FIG. **1.** Accordingly, the formation of the webbing **13** will be so described.

As is shown in FIG. **1,** the elongated length of the knitted mesh **21** will be cut to a predetermined length. The knitted mesh **21** defines a plurality of deformable interstices. Then, as shown in FIG. **2,** while the interstices of one end portion remain unexpanded, the interstices at the opposite end portion are widely expanded and the mesh is expanded to a width generally conforming to the width of the head **11** adjacent the end wall **16.** It is to be noted that the woven mesh tapers in width from the unexpanded portion to the expanded end and this taper is generally in accordance with the divergence of the side walls **15,15.**

Referring now to FIG. **3,** it will be seen that the end edge of the knitted yarn **21** at the expanded end thereof is reversely folded upon itself. The rearranged knitted mesh **21** is now ready for installation within the head **11.**

At this time it is pointed out that in the event the knitted web is provided in expanded form, then the web may be rearranged to have the configuration shown in FIG. **2** by longitudinally tensioning the mesh and forcing the strands thereof together adjacent one end of the severed section thereof. The net result in each instance will be the knitted mesh arrangement shown in FIG. **3.**

The webbing **13** is applied to the head **11** starting at the end wall **16** thereof. A binding member **23,** which is preferably in the form of a leather thong, is threaded through a suitable aperture in one of the side walls **15** adjacent its intersection with the end wall **16** and is knotted as at **24** (FIG. **6**). The binding member is interlocked at intervals with the end wall **16** by passing the same through apertures **25** therein and with the woven mesh **21** by passing the same through open meshes in the doubled over edge of the woven mesh adjacent the openings **25.** The opposite end portion of the binding **23** is then passed through an aperture in the other of the side walls **15** and knotted as at **26.**

It is to be noted that the knitted mesh **21** is of a length to extend beyond the area of the throat **14** into partial overlapping relation with respect to the stick **12.** An intermediate portion of the knitted mesh **21** is secured to the head **11** in the general area of the throat by a further binding **27,** preferaby in the form of a second leather thong. An intermediate portion **28** of the binding **27** is threaded transversely through the woven mesh adjacent the stop **18** and then is looped upon itself and through suitable apertures formed in the stop **18.**

The end portions of the binding **27** extend further down into the throat area and are passed through apertures generally formed in the throat portion and knotted as at **31.**

Each selvage edge **22** of the knitted mesh is secured to its respective side wall **15** by means of a further binding **32.** The binding **32** is preferably formed of extruded or woven cording.

As is best shown in FIGS. **4** and **6,** one end of each of the bindings **32** is knotted as at **33** and passed outwardly through an aperture **34** in its respective side wall **15** in the throat area. The binding **32** then passes into the interior of the head **11** along the respective side wall **15** and is interwoven longitudinally through the knitted mesh **21** immediately adjacent the associate selvage edge thereof until it reaches a point adjacent the end wall **16** where it is fed through an aperture **35** in the respective side wall **15** and knotted as at **36.** The binding **32** then is passed back down towards the throat area and at intervals is passed through apertures **37** in the respective side wall **15** and is looped through the woven mesh and about the portion of the binding **32** which is woven through the woven mesh. The binding **32** is further secured to the respective side wall **15** by means of a knot **38.**

The binding **32** at the opposite side of the head **11** is like formed.

It is to be understood that when the woven mesh **21** is properly bound within the head **11,** it is slightly longitudinally tensioned between the stop **18** and the end wall **16** and is generally transversely tensioned between the side walls **15,15** adjacent the end wall **16.** Thus, the knitted mesh **21** is relatively tight adjacent the end wall **16** so as to facilitate ball control. At the same time, the knitted mesh is upwardly arched at the upper edge thereof generally conforming to the arch of the end wall **16** with the arching of the knitted mesh **21** gradually decreasing towards a minimum adjacent the stop **18.**

It will be readily apparent that notwithstanding the initial rectangular outline of the knitted mesh **21** and the V-shaped outline of the head **11,** the knitted mesh completely fills the head **11** without wrinkling. On the other hand, because the knitted mesh **21** is relatively closed adjacent the throat area, it will be seen that when a force is applied against the knitted mesh **21** adjacent the stop **18,** such as by a ball entering the head **11,** the knitted mesh **21** in the area above the stop **18** is rearwardly deformed to define a ball pocket **40** as is best shown in FIG. **8.** It is to be understood that the ball pocket **40** is automatically formed and requires no special weaving of the knitted mesh nor any special securement of the knitted mesh **21** in the head **11.**

In order to reinforce and stiffen the knitted mesh **21** adjacent the end wall **16,** a pair of transverse lacings **41** and **42** are provided. The transverse lacing **41** has the opposite ends thereof secured within the knot **24** of the binding **23** and the central portion thereof secured in the knot **26** of the binding **23.** One part of the lacing **41** extends across the back of the knitted mesh **21** and the other portion thereof is interwound around the one portion and through the meshes of the knitted web.

The lacing **42** has the central portion thereof retained within the knot **36** of one of the bindings **32** and, like the lacing **41,** has one portion thereof extending across the back of the knitted mesh **21** and the other portion thereof interwoven through the knitted mesh and around the one portion. The lacing **42** then extends through the knot **36** of the other binding **32** and is knotted about the knot **24.**

It will be apparent that the construction of the knitted mesh **21** is one wherein maximum ball handling qualities are obtained. The automatic formation of the ball pocket assures a proper reception and retention of a ball and the tensioning of the knitted mesh **21** accompanied by the reinforcing thereof through the application of the lacings **41,42** provides for the desired ball

control both in picking up ground balls and in passing the ball.

In addition, because the knitted mesh **21** is rather closely woven, further ball handling control can be obtained together with added strength of the webbing **13.** Additionally, because of the fact that the mesh **21** is knitted, in the event a strand thereof should rupture, the deficiency of the webbing is only minimal.

Finally, by forming the knitted mesh so as to be elongated beyond the extent actually required for the filling of the space between the side walls **15,15** and the end wall **16** and stop **18,** at a slightly additional cost, beneficial results are possible.

Primary scuffing of the webbing **13** occurs adjacent the end wall **16.** When this scuffing becomes excessive, instead of renewing the webbing, it is merely necessary to release the knitted mesh **21** from the frame **11** and to either move the knitted mesh **21** upwardly relative to the frame **11,** the scuffed end portion of the knitted mesh being cut off, or the knitted mesh way be inverted. If the knitted mesh **21** is inverted, the expanded portion thereof will have to be contracted by a longitudinal tensioning of the knitted mesh, after which the unexpanded portion thereof will have to be expanded to match the head **11.**

Although only a preferred embodiment of the webbing has been specifically illustrated and described herein, it is to be understood that the knitted mesh which is utilized as the webbing may be varied without departing from the spirit of the invention, and the scope of the appended claims.

We claim:

1. A head for a lacrosse stick comprising a generally V-shaped frame and a web closing said frame; said frame being defined by two side walls joined at a jointure and diverging therefrom, a transverse wall joining the opposite ends of said side walls, and a transverse stop joining said side walls spaced from said jointure; said web being in the form of an inherently expandible mesh defining a plurality of deformable interstices, means securing said mesh to said frame along said side walls and said end wall and generally at said stop, the interstices of said web being widely transversely expanded adjacent said end wall and visibly materially less transversely expanded adjacent said stop, and said mesh adjacent said stop being further transversely expandible to define a ball pocket.

2. The head of claim **1** wherein the means securing said mesh to said end wall and generally at said stop permit limited longitudinal elongation of said mesh to facilitate said further expansion of said mesh adjacent said stop.

3. The head of claim **1** wherein said mesh extends beyond said stop remote from said end wall, and at least a part of said mesh beyond said stop being substantially free of transverse expansion.

4. The head of claim **1** wherein said mesh is a knitted mesh.

5. The head of claim **1** wherein said mesh is a knitted mesh formed primarily of snythetic fibres including nylon.

6. The head of claim **1** wherein said mesh is of a configuration wherein said mesh would be rectangular in both an unexpanded form and a fully expanded form.

7. The head of claim **1** wherein said mesh is provided with a folded end portion adjacent said end wall.

8. The head of claim **1** wherein said mesh has a selvage edge on the two opposite sides thereof connected to said side walls.

9. The head of claim **1** wherein said mesh is reinforced by a transverse reinforcement extending between said side walls adjacent said end wall, said transverse reinforcement being interwoven through said mesh.

10. The head of claim **1** wherein said means securing said mesh to said frame includes binding means separate and apart from said web along said side and end walls and generally at said stop, said binding means being interlaced with said frame through apertures therein and with said mesh.

11. The head of claim **1** wherein said end wall is generally curved in arched relation with respect to said side walls and the adjacent end of said mesh is similarly arched.

12. The head of claim **11** wherein the arching of said mesh gradually decreases towards a minimum adjacent said stop.

* * * * *

UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,822,062 Dated July 2, 1974

Inventor(s) Richard B. C. Tucker and William C. Crawford

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

In the heading, change

"Assignee: Wm. F. Burnett & Co., Incorporated"

to

--Assignee: Wm. T. Burnett & Co., Incorporated--.

Signed and sealed this 17th day of September 1974.

(SEAL)
Attest:

McCOY M. GIBSON JR.
Attesting Officer

C. MARSHALL DANN
Commissioner of Patents

FORM PO-1050 (10-69)

USCOMM-DC 60376-P69
* U.S. GOVERNMENT PRINTING OFFICE : 1969 O--366-334.