United States Patent [19]

Motsenbocker

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[54] **STRAPPING**

[76] Inventor: **Donald M. Motsenbocker,** Rt. 2, Box 35, Wylie, Tex. 75098

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[52] **U.S. Cl.** **112/441;** 2/338

[51] **Int. Cl.** **B32b 7/08**

[58] **Field of Search** 112/441, 440, 405, 407, 112/418; 2/338; 161/102

[56] **References Cited**

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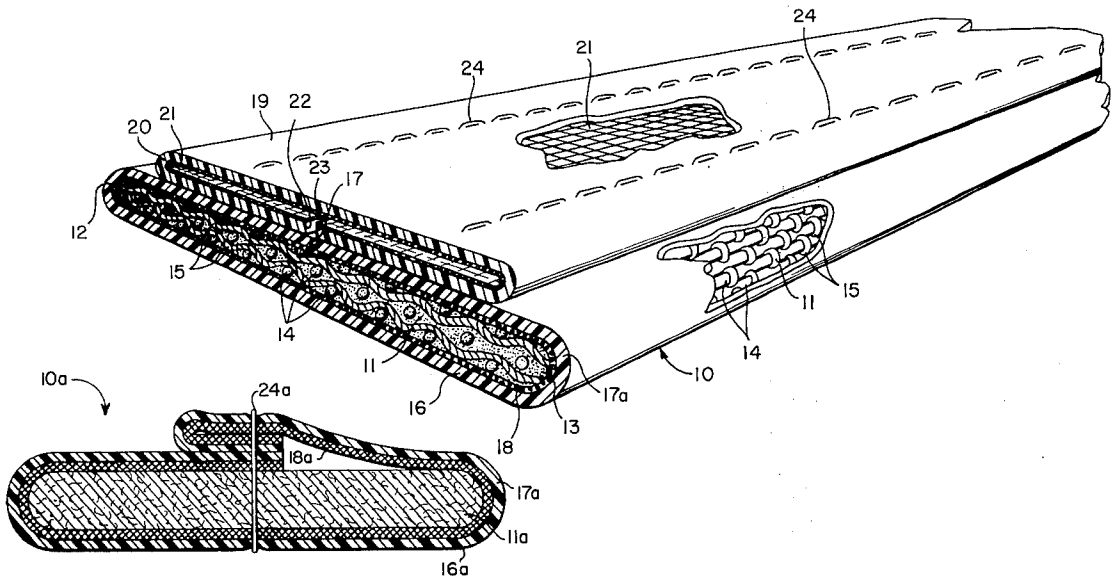
Primary Examiner—Alfred R. Guest

Attorney, Agent, or Firm—Giles C. Clegg, Jr.

[57] **ABSTRACT**

Disclosed is a covered textile fabric strap having the outward appearance and performance properties of leather. The strap in its preferred form includes a flat woven textile strip, wrapped in a protective cover having an outer plastic wear layer and an inner fabric reinforcing layer. The edges of the protective cover are protected from wear by a second fabric reinforced plastic sheet which is placed over them, with its own edges turned under, and the fabric strip and protective covers are united by rows of stitching.

4 Claims, 2 Drawing Figures



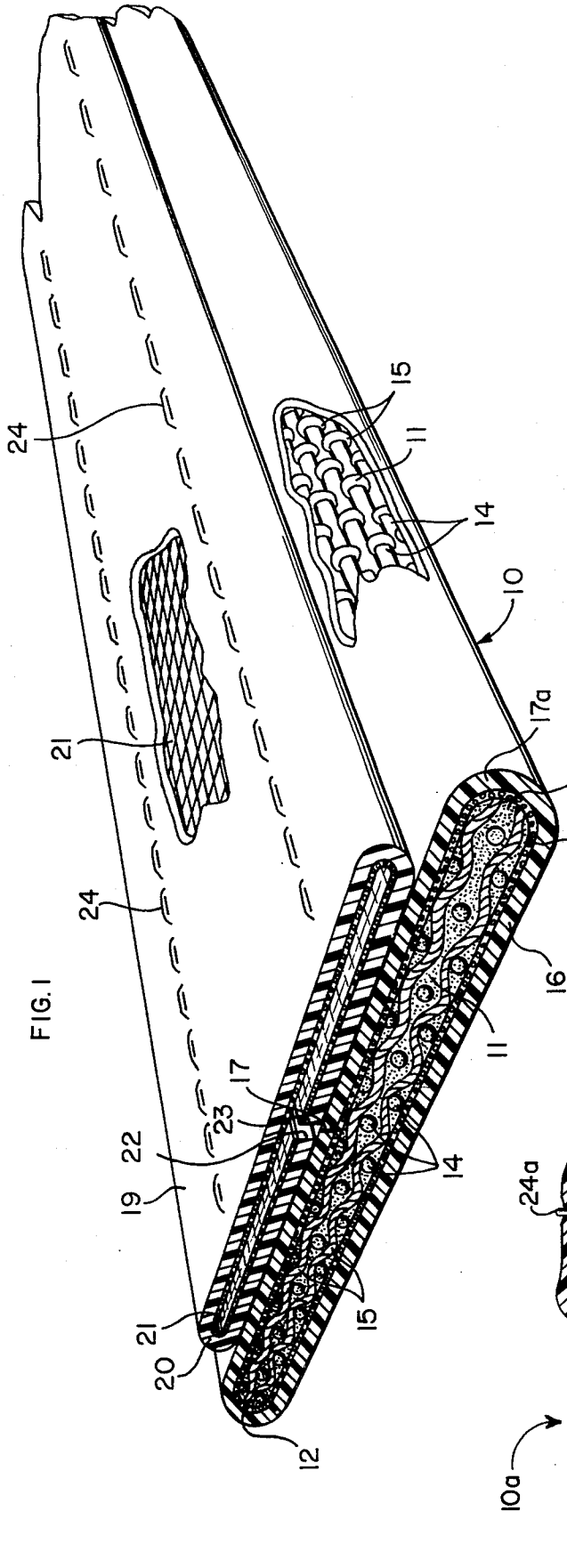

24
15
11
14
10
21
17a
13
18
24
16
11
17
23
22
14
19
15
21
20
12

FIG. 1

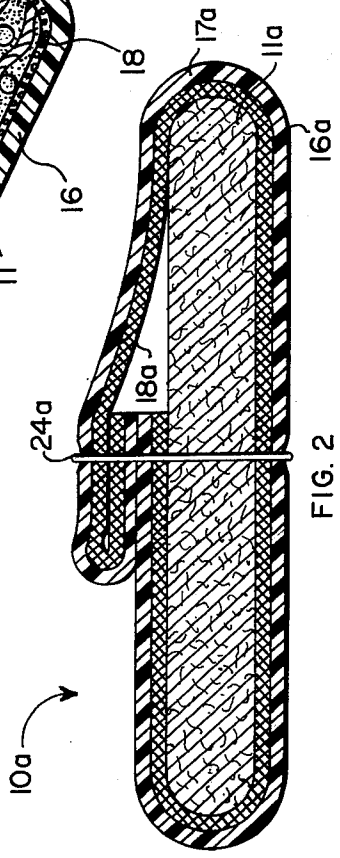

17a
11a
16a
18a
24a
10a

FIG. 2

STRAPPING

BACKGROUND OF THE INVENTION

Leather strapping has many long standing uses which exploit its strength, wear and abrasion resistance, flexibility, and pleasing appearance. Such uses include bridles, reins, luggage handles, luggage binding straps, and the like. For many of these applications the use of leather is so traditional that the strapping is expected to look like leather, regardless of its material of construction. Shortages of hides have increased the cost of leather strapping, and have led to a search for substitutes.

Woven textile fabric strips, particularly those woven from strong and rot-resistant synthetic fibers such as nylon and polyester have some of the desirable characteristics of leather, such as strength and flexibility, but of course look nothing at all like leather. Moreover, textile straps are not as wear resistant as is desirable for some leather replacement applications. These drawbacks have heretofore limited the use of woven textile fabric strips as substitutes for leather straps.

SUMMARY OF THE INVENTION

In accordance with the present invention, a strapping material is provided which substantially matches the properties of leather that are important for many applications, those of strength, wear resistance, flexibility, and appearance. The strap of the invention has a core of woven textile fabric, which provides the required strength and flexibility. The material of the core is preferably nylon or another high strength synthetic fiber.

Around the core is wrapped a protective cover which is a two-layered sheet material. One layer is a strong, tough, abrasion-resistant polymeric material, such as vinyl plastic. The other, inner layer is a reinforcing fabric which is bonded to the plastic layer. Material of this kind is known, one particularly suitable available form being styled "automotive vinyl" from its use as an upholstery and seat cover material in the automotive industry. The plastic layer is desirably colored to resemble leather, and its outer surface may be calendared to provide a leather-like texture.

Another piece of the plastic-and-fabric sheet is employed, in accordance with the invention, as an edge protecting cover. The main protective cover is wrapped around the fabric web core so that its edges meet at approximately the middle of one face of the web. The second piece of fiber reinforced material is placed over the joint formed by the edges of the main cover. The edges of the second piece are turned under a relatively great distance, so that they, too, are covered by the middle portion of the second piece, or edge protecting cover.

The web and the two covers are unified into a single structure by rows of stitching positioned outwardly of the concealed edges of both covers. The protective covers provide wear and abrasion resistance as well as the pleasing appearance of leather.

If desired, in accordance with the invention, the second protective cover may be omitted and the edge protecting function assumed by a portion of the main protective cover. Specifically, one edge of the main cover can be overlapped by the other, and the other edge turned under and held in turned under position by stitching in the same manner as the edges of the second cover, as discussed above.

It is an object of the present invention to provide a novel strapping material having many of the desirable properties of leather, but composed of fabric webbing with fiber reinforced plastic protective covers.

It is a further object of the invention to provide a fabric web based strapping material whose web is protected against wear and abrasion by fabric reinforced plastic covers whose edges are themselves protected against wear by being concealed.

The foregoing objects, together with other objects and purposes can best be understood by a consideration of the detailed description which follows, together with the accompanying drawing.

DESCRIPTION OF THE DRAWINGS

FIG. **1** illustrates a portion of a strap constructed in accordance with the preferred form of the invention, the strap being shown in perspective on a scale much enlarged with respect to a strap of typical size, with parts broken away, and with some parts being drawn somewhat diagrammatically, and

FIG. **2** is a diagrammatic cross-sectional elevational view of an alternate embodiment of the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In the drawing, the strap of the invention is designated generally as **10.** Typically, it will be of the length required for the desired application, and about ½ inch to **2** inches wide, with a thickness on the order of one-fourth inch or less. Thus, dimensionally, it is about the same size as a leather strap for which it is a substitute.

Strap **10** has an inner core **11,** which is a woven textile fiber multilayer web having selvedges **12** and **13** on either side. Warp fibers of the web are indicated somewhat diagrammatically at **14,** while woof strands are indicated at **15.** It is preferred that fibers **14** and **15** be of nylon, for strength and resistance to rot, although other synthetic fibers, such as polyester or rayon may be used. For some applications, natural fibers may be satisfactory, and various blends of fibers may also be used.

A main protective cover **16** is wrapped closely about core web **11,** with its edges meeting or substantially meeting, at **17,** near or at the middle of a face of web **11.** The cover **16** is a two-layered sheet material, having an outer polymeric layer **17***a*, preferably of vinyl, and an inner layer **18** bonded to it of a reinforcing fabric compatible with the plastic.

A second, edge protective cover, **19,** is placed on the face of the strap **10** on which the joint **17** is located. Cover **19** is preferably formed of the same material as cover **16.** Thus, it has an outer polymeric layer **20,** and an inner fabric reinforcing layer **21.** The edges **22, 23** of cover **19** are folded under the midportion of cover **19,** so they are not exposed to wear and fraying. Edge protective cover **19** cover overlies the edges of main cover **16,** which meet at joint **17.** Thus, the web **11** and all edges of the protective covers **16** and **19** are concealed and protected from abrasion.

Stitches **24** are arranged in rows aligned outwardly of joint **17** and edges **22** and **23.** The stitches **24** unify the several parts of the structure. The thread of stitches **24** may be of any suitable strong abrasive resistant material, such as nylon.

FIG. **2** illustrates an alternate embodiment of the invention in which the second protective cover is omitted and the edge protecting function is assumed by a por-

tion of the main protective cover. In FIG. **2**, the strap is designated generally as **10***a*, and the textile core as **11***a*. Protective cover **16***a* has an outer polymeric layer **17***a*, and woven textile inner layer **18***a*. One edge of the cover is overlapped by the other, and the other edge is turned under and held in turned-under position by stitching **24***a*.

From the foregoing it can be seen that there is provided, in accordance with the invention, a strapping material with the appearance, strength, flexibility, and wear resistance properties of leather.

What is claimed is:

1. A strap for simulating strips of stitched and folded leather and having substantially the equivalent appearance and strength thereof, comprising:

an elongated core of flat woven textile fiber multilayer web centrally positioned within said strap for providing a relatively high strength flexible nucleus therefor;

a protective multilayered cover folded around said core, circumferentially enclosing it, said cover comprising an outer wear layer of relatively abrasion resistant polymeric material uniformly bonded to a relatively thin inner layer of reinforcing fabric, the longitudinal edges of said protective cover facing each other along a longitudinal face of said strap forming a continuous joint extending therealong;

an edge protecting multilayered cover comprising a wear layer of said relatively abrasion resistant polymeric material uniformly bonded to a relatively thin layer of reinforcing fabric, with the longitudinal edges of said cover folded under to face each other along a longitudinal face thereof, said edge protecting cover being longitudinally positioned over said continuous joint of said protective cover with said folded edges of said edge protecting cover adjacent thereto, whereby the facing edges of both multilayered covers are disposed therebetween and adjacent said elongated core;

and rows of stitching uniting said elongated core and said multilayered covers into a relatively high strength strap, said stitching being positioned outwardly of and extending through the layers and edges of said pair of multilayered covers and said elongated core.

2. A strap simulating stitched and folded leather and having substantially the equivalent appearance and strength thereof, comprising:

an elongated core of flat woven textile fiber multilayered webb centrally positioned within said strap for providing a relatively high strength flexible nucleus therefor;

at least one protective multilayered cover comprising an outer wear layer of relatively abrasion resistant polymeric material uniformly bonded to a relatively thin inner layer of reinforcing fabric;

said protective multilayered cover folded around said core, circumferentially enclosing it, and being united thereto by stitching; the edges of said multilayered cover being concealed, with a first edge of said cover being folded under a second edge of said cover along a longitudinal face of said core, and said second edge of said multilayered cover being turned inwardly for concealing said edges beneath said cover;

said stitching uniting said elongated core and said covers into a relatively high strength strap, said stitching being positioned centrally of and extending through the layers and inturned edges of said multilayered cover and said elongated core.

3. A strap in accordance with claim **1** in which said textile strip is formed of nylon.

4. A strap in accordance with claim **1** in which said polymeric material is vinyl plastic.

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