United States Patent [19]

Blythe, Jr.

[11] **3,905,321**

[45] **Sept. 16, 1975**

[54] **SAIL BATTEN**

[76] Inventor: **Joseph A. Blythe, Jr.**, 804 Euclid Ave., Jackson, Miss. 39202

[22] Filed: **Mar. 22, 1974**

[21] Appl. No.: **453,985**

[52] **U.S. Cl.** **114/103**

[51] **Int. Cl.**[2] **B63H 9/04**

[58] **Field of Search** 114/102, 103

[56] **References Cited**

UNITED STATES PATENTS

2,608,172	8/1952	Biuw	114/103
3,581,698	6/1971	Bete	114/103

Primary Examiner—Trygve M. Blix
Assistant Examiner—Sherman D. Basinger
Attorney, Agent, or Firm—Clarence A. O'Brien; Harvey B. Jacobson

[57] **ABSTRACT**

A flattened tubular body of stiff shape, retentive and somewhat flexible and resilient material is provided. The interior width of the tubular body is several times the interior height thereof and an elongated stiffening rod or member of a greater transverse thickness than the internal height of the body is telescoped into the body midway between the opposite side edges thereof in a manner spreading the central portions of the greater width sides of the tubular body apart. End caps complemental to and telescoped over the ends of the tubular body are provided. The caps may be cemented to the corresponding ends of the body. In a first form of the invention the tubular body and stiffening rod taper toward one end of the body and in a second form of the body uniform thickness is maintained throughout and the elongated stiffening member comprises two or more parallel spaced apart and relatively braced stiffening rods telescoped into the tubular body centrally intermediate its opposite side edges.

13 Claims, 5 Drawing Figures

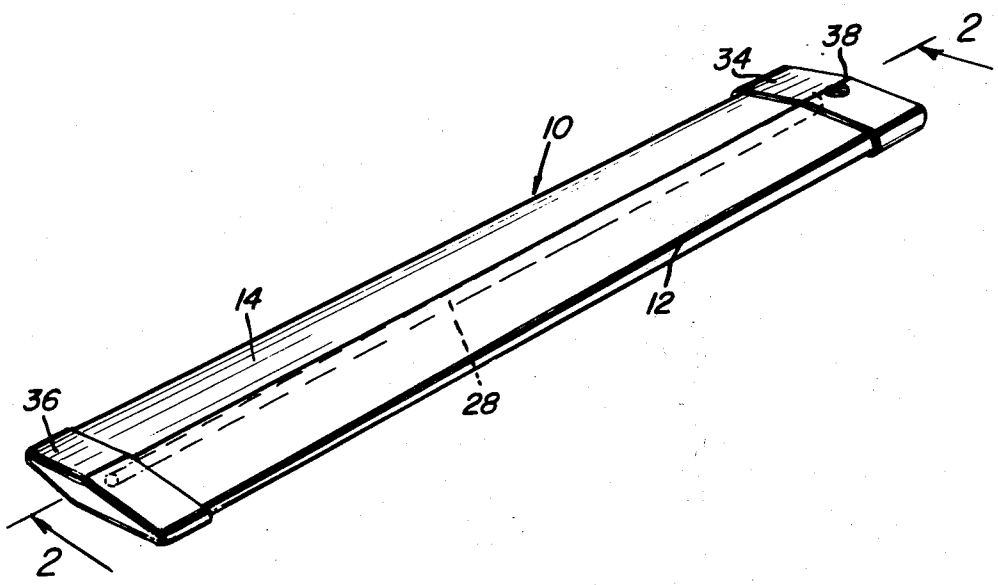


Fig. 1

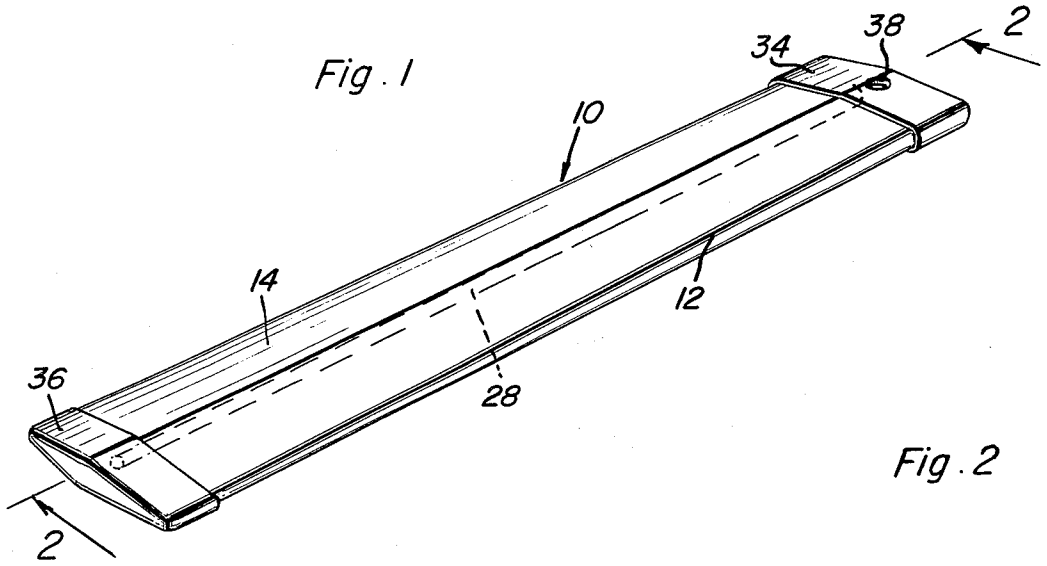


Fig. 2

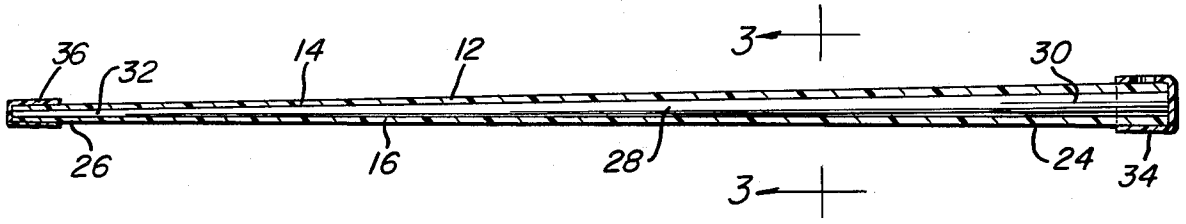


Fig. 3

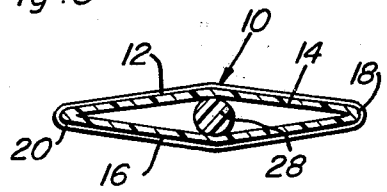


Fig. 4

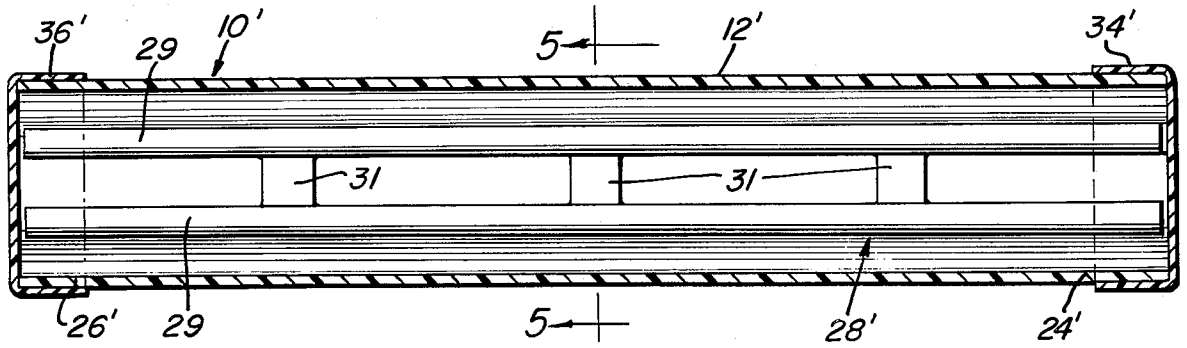
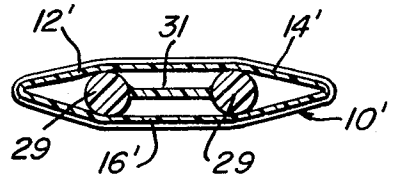


Fig. 5



SAIL BATTEN

BACKGROUND OF THE INVENTION

Many different types of sail battens have been heretofore designed such as those disclosed in U.S. Pat. Nos. 2,608,172, to C. O. E. Biuw, dated Aug. 26, 1952, 3,168,068, to G. A. Lasko et al., dated Feb. 2, 1965, 3,433,199, to G. A. Lasko, dated Mar. 18, 1969 and 3,581,698, to J. U. Bete, dated June 1, 1971.

Conventional sail battens are typically constructed of ash wood and may be quite readily cracked or broken as a result of rough handling. Also, wooden battens are heavy and are not readily constructed to vary in resiliency along their length.

More recently synthetic materials have been utilized in the construction of battens with the result that some effectively vary in resiliency from one end to the other, but these synthetic battens are also heavier than is desirable.

BRIEF DESCRIPTION OF THE INVENTION

The batten of the instant invention, except for a relatively small diameter center reinforcing structure, comprises a flattened tubular body of cellulose acetate butyrate or similar material which is stiff and shape retentive, but flexible and resilient. The tubular body enjoys a wall thickness of between 10 and 20 mils and is therefore quite light. Further, the ends of the tubular body are closed by complemental end caps which may be readily constructed of vinyl plastisol and the completed batten displaces considerably more volume than the volume of an equal weight amount of water, thus rendering the batten buoyant.

The plastic materials of which the tubular body and end caps are constructed are durable, weather resistant and are not subject to warp or mildew.

The main object of this invention is to provide a sail batten which is durable, flexible and lightweight.

It is another object of this invention to provide a sail batten which is not abrasive.

A still further object of this invention is to provide a sail batten which is buoyant.

Another important object of this invention is to provide materials by which a purchaser of the materials may readily construct sail battens of substantially any length.

A further object of this invention is to provide a sail batten that may be produced and marketed at considerably lower cost than a typical ash wood batten.

Yet another object of this invention is to provide a batten that is not subject to warp, rot or mildew.

A final object of this invention to be specifically enumerated herein is to provide a sail batten which will conform to conventional forms of manufacture, be of simple construction and easy to use so as to provide a device that will be economically feasible, long lasting and relatively trouble free in operation.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a first form of sail batten constructed in accordance with the present invention;

FIG. 2 is an enlarged longitudinal vertical sectional view taken substantially upon a plane passing through the longitudinal center line of the batten;

FIG. 3 is a fragmentary enlarged transverse vertical sectional view taken substantially upon the plane indicated by the section line 3—3 of FIG. 2;

FIG. 4 is a horizontal sectional view taken substantially upon a plane passing through the horizontal center of a second modified form of batten constructed in accordance with the present invention; and

FIG. 5 is an enlarged transverse vertical sectional view taken substantially upon the plane indicated by the section line 5—5 of FIG. 4.

Referring now more specifically to the drawings the numeral 10 generally designates a first form of sail batten. The batten 10 includes a flattened tubular body 12 constructed of cellulose acetate butyrate or other similar material rendering the body 12 stiff and shape retentive, but flexible and resilient. The body 12 includes upper and lower sides 14 and 16 joined along corresponding marginal edge portions by integral reversely bent edge portions 18 and 20.

From FIG. 2 of the drawings it may be seen that the body 12 tapers from one end 24 toward the other end 26. The thickness of the wall portions of the body 12 ranges from between 10 to 20 mils.

An elongated rod-like reinforcing member 28 is provided. The reinforcing member 28 tapers in thickness from one end 30 thereof toward the other end 32 thereof and the rod-like reinforcing member 28 is telescoped into the body 12 in a manner spreading the central portions of the upper and lower sides 14 and 16, see FIG. 3. Before the reinforcing rod 28 is inserted into the body 12 the sides 14 and 16 are substantially planar. However, when the rod 28 is telescoped into the body 12 the central areas of the sides 14 and 16 are spread apart.

A pair of end caps 34 and 36 are complementary to and telescope over the ends 24 and 26 of the body 12. The end caps 34 and 36 may be secured in position on the corresponding ends of the body 12 by means of any suitable adhesive or chemical fusion techniques. Also, the end cap 34 may be provided with an aperture 38 for display purposes whereby the batten 10 may be hung from a peg and also as a means to define the leech end of the batten 10.

With attention now invited more specifically to FIGS. 4 and 5 of the drawings there will be seen a modified form of batten referred to in general by the reference numeral 10′ and which is basically similar to the batten 10 and therefore has parts thereof equivalent to the various parts of the batten 10 referred to by corresponding prime numerals.

The tubular body 12′ of the batten 10′ is also constructed of cellulose acetate butyrate, but the body 12′ does not taper from the one end 24′ thereof to the other end 26′. However, the body 12′ may be constructed with a taper, if desired. Furthermore, the wall thickness of the body 12′ is substantially constant throughout its length. In addition, rather than including only a single center reinforcing member such as the reinforcing member 28, the batten 10′ includes a central reinforcing structure referred to in general by the reference numeral 28′ and which includes a pair of parallel spaced apart constant diameter reinforcing rods 29 in-

terconnected by means of longitudinally spaced bracing members **31** secured between the rods **29** at corresponding points spaced longitudinally therealong. More than two interconnected parallel rods **29** may be used, if desired. As may best be seen from FIG. **5** the reinforcing assembly **28'** is telescoped within the body **12'** in a manner which also spreads apart the central portions of the upper and lower sides **14'** and **16'** of the tubular body **12'**. Further, the batten **10'** includes end caps **34'** and **36'** corresponding to the end caps **34** and **36**.

As a second alternative, the batten **10** may be constructed so as not to include a taper from the end **24** thereof toward the end **26** and the reinforcing rod **28** may be of constant diameter. Furthermore, the aperture **38** may be omitted as in the case of the batten **10'** and in this manner the interior of the batten is sealed ensuring its buoyancy.

The reinforcing rods **28** and **29** may be constructed of any reasonably stiff but slightly flexible and resilient material such as fiber glass. Fiber glass is utilized due to its shape retentive and yet somewhat flexible and resilient properties and also become of its lightweight. However, other materials may be utilized in the construction of the reinforcing rods **28** and **29**.

Due to the battens **10** and **10'** as well as the second alternative form of batten being constructed primarily of plastic and fiber glass materials, the battens are not subject to warping, rot or mildew. Further, the external surface of the battens is smooth and the battens are therefore not abrasive on the portions of the associated sails with which they come in contact. Also, the battens are durable and if constructed so as to include sealed interiors they are highly buoyant.

That form of the invention illustrated in FIG. **1** tapers in length and is therefore constructed as a specific length batten. However, that form of the invention illustrated in FIGS. **4** and **5** may be readily formed, by a purchaser of a kit including multiple pairs of end caps and an extra length tubular body as well as an extra length reinforcing structure, to the exact length desired by merely cutting the extra length tubular body and reinforcing structure into a plurality of sections thereof of the desired length. Also, the described modification in FIG. **1** wherein the body and reinforcing rod are not tapered may also be sold in kit form to be completed by the purchaser.

Further in all forms of the invention the resiliency of the corresponding tubular bodies and the spreading of the central portions of the top and bottom sides thereof serves to maintain the reinforcing structures in at least generally centered positions between the side marginal edges of the tubular bodies.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

What is claimed as new is as follows:

1. A sail batten including a flattened tubular body of stiff, shape retentive and somewhat flexible and resilient material, the interior width of said body being several times the interior height of said body and an elongated stiffening structure of a thickness greater than the internal height of said body telescoped into and extending substantially the full length of said body and positioned mid-way between and spaced from the opposite side portions of said body with said stiffening structure spreading the central portions of the greater width sides of said tubular body apart.

2. The combination of claim **1** wherein said stiffening strcuture tapers toward one end thereof and said tubular body also tapers in height toward the corresponding end.

3. The combination of claim **2** wherein said stiffening structure includes at least two generally straight parallel members having spacing and bracing elements secured and extending between corresponding portions of said parallel members at points spaced therealong.

4. The combination of claim **1** wherein said tubular body and stiffening structure are substantially constant in cross-sectional dimension throughout their length.

5. The combination of claim **1** including end caps complemental to and supported from the opposite ends of said tubular body closing the opposite ends thereof.

6. The combination of claim **5** wherein said end caps define cup members opening toward each other and telescoped over the corresponding ends of said tubular body.

7. The combination of claim **1** wherein said stiffening structure includes two or more generally straight parallel members having spacing and bracing elements secured and extending between corresponding portions of said parallel members at points spaced therealong.

8. The combination of claim **7** wherein said tubular body and stiffening structure are substantially constant in cross-sectional dimension throughout their length.

9. The combination of claim **7** including end caps complemental to and supported from the opposite ends of said tubular body closing the opposite ends thereof.

10. The combination of claim **9** wherein said end caps define cup members opening toward each other and telescoped over the corresponding ends of said tubular body.

11. A sail batten including a flattened tubular body of stiff, shape retentive and somewhat flexible and resilient material, the interior width of said body being several times the interior height of said body, an elongated stiffening structure of a thickness greater than the internal height of said body telescoped into the latter mid-way between the opposite side edges thereof in a manner spreading the central portions of the greater width sides of said tubular body apart, and end caps complemental to and telescoped over the ends of said body.

12. The combination of claim **11** wherein the opposite ends of said stiffening member project into the opposite end portions of said tubular body over which said end caps are telescoped.

13. A sail batten including a flattened tubular body of stiff, shape retentive and somewhat flexible and resilient material, the interior width of said body being several time the interior height of said body, an elongated stiffening structure of a thickness greater than the internal height of said body telescoped into the latter mid-way between the opposite side edges thereof in a manner spreading the central portions of the greater width sides of said tubular body apart, said stiffening structure comprising a cylindrical rod.

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