United States Patent [19]

Wilson

[11] **3,779,551**

[45] **Dec. 18, 1973**

[54] **INDICATOR ELEMENT FOR BALL BAT**

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[73] Assignee: **Aluminum Company of America,** Pittsburgh, Pa.

[22] Filed: **Dec. 10, 1971**

[21] Appl. No.: **205,994**

[52] **U.S. Cl.** ..... **273/72 A,** 40/22, 273/81 R, 273/73 J

[51] **Int. Cl.** **A63b 59/06**

[58] **Field of Search** ..... 273/32 A, 68, 70, 273/73 J, 75, 81 R, 162 D; 40/22; 74/551.8, 551.9; 145/61 R

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Primary Examiner—Richard C. Pinkham
Assistant Examiner—Richard J. Apley
Attorney—Arnold B. Silverman

[57] **ABSTRACT**

A tubular bat body having an apertured end closure covering one end of the bat body. A cover element secured to the end closure. The cover element having a head disposed generally adjacent the outer surface of the end closure and a shank extending into the closure aperture and in contact with the aperture defining surface. An anchor section formed as an extension of the shank having shoulder means in locking engagement with the closure inner surface. The anchor section may have pilot means for facilitating insertion of the shank into the closure aperture.

The cover element or indicator has means providing information regarding one or more bat properties. The shank may have a generally web-like configuration with substantially parallel opposed marginal edges and stiffener fins may be provided. The anchor section may be substantially triangular with the base of the triangle serving to provide locking shoulders and the other sides providing the pilot surfaces.

7 Claims, 14 Drawing Figures

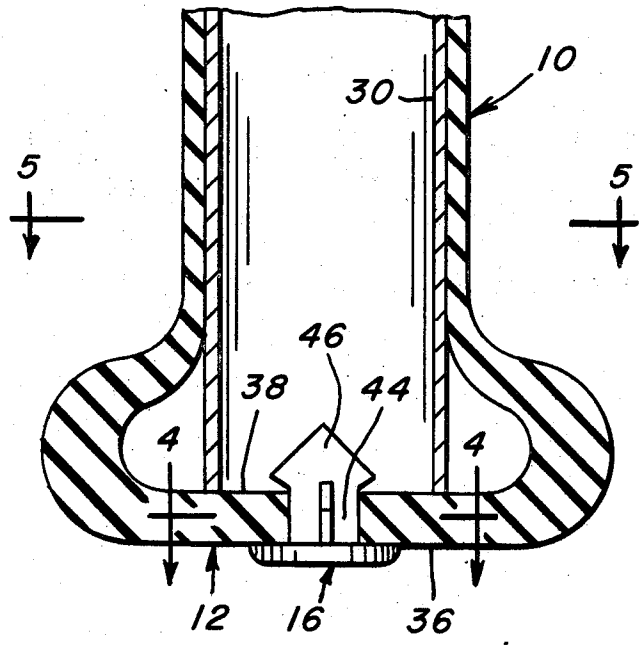


FIG. 1.

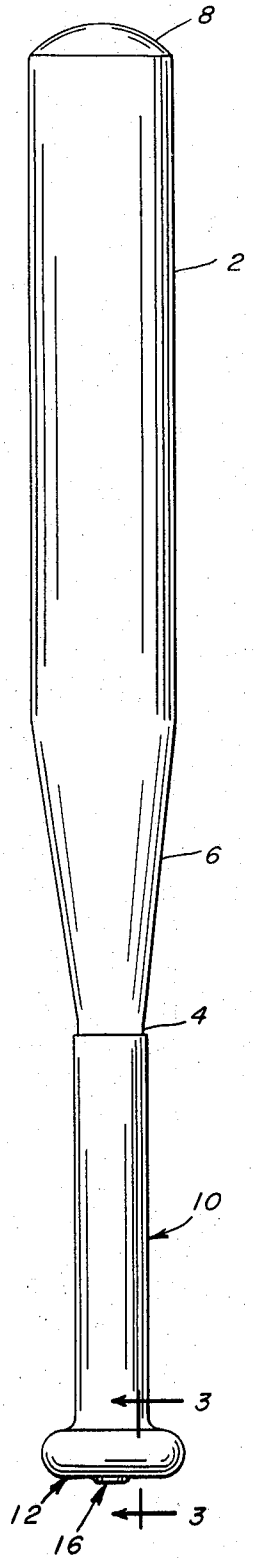


FIG. 2.

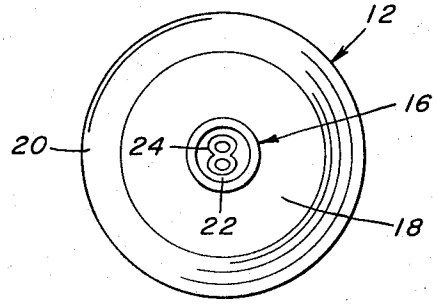


FIG. 3.

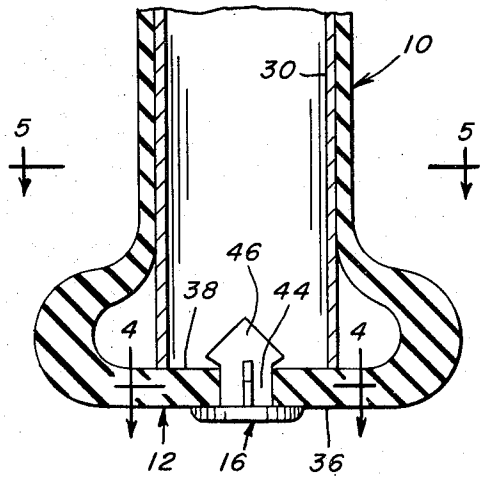


FIG. 4.

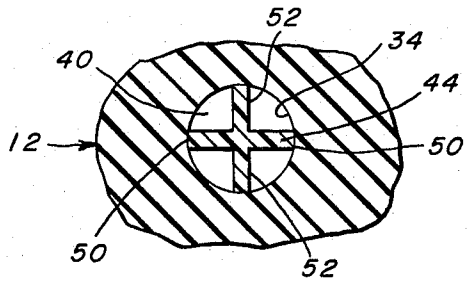
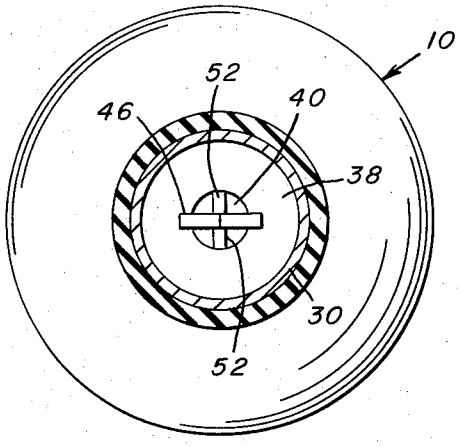


FIG. 5.



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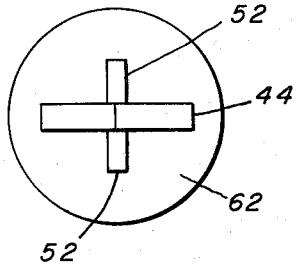


FIG. 6.

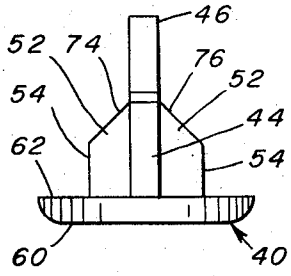


FIG. 9

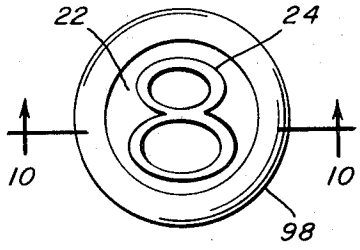
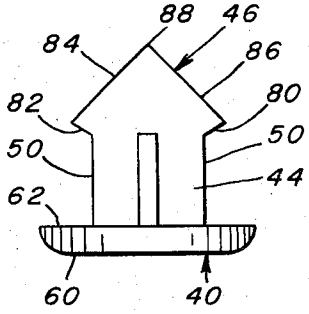


FIG. 7



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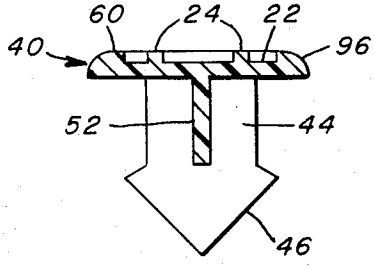

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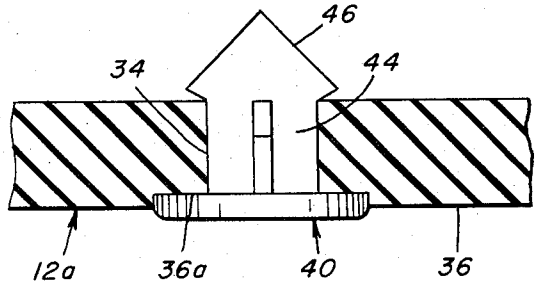

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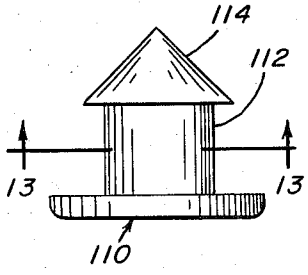

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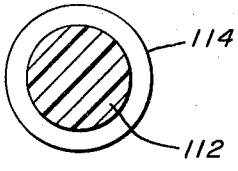

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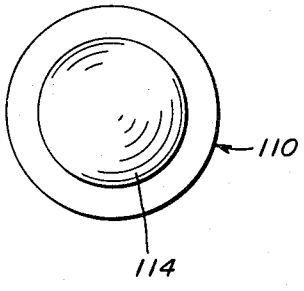

INDICATOR ELEMENT FOR BALL BAT

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to tubular ball bat constructions wherein independent indicator elements are employed to provide information regarding bat properties such as bat length or weight.

2. Description of the Prior Art

In one traditional form of ball bat the ball bat is made out of a suitable wood, such as hickory or ash, and is provided with an indentation at the end of the handle portion in order to indicate the length of the bat. As the wooden bat is of solid cross section, this provides a convenient means of communicating this important information. The base of the handle is not only a convenient location for imprinting such information as it will not interfere with the functioning of the bat, but also it is the portion of the bat which is most readily viewed when the bat is in a convention bat rack.

In recent years bats of hollow construction made from tubular materials, such as metal or plastic, have received growing acceptance. In the most common form of bat construction employing a tubular body, the tubular body is provided with end closures at both the barrel and handle portions. As a result of the nature of the materials employed in such bats, manufacturers have not been able to effectively engrave such information into the bat body. While it would be possible to mold the information into an end closure, this would necessitate the expense of providing a separate closure mold for each length and/or weight of the bat to be produced.

Some consideration has been given to the possibility of printing the desired indicia of bat length or weight on the bat surface. Such an approach has been deemed undesirable, however, as the exposed surfaces are subject to wear and eventually the legend would be lost. Another approach which has been considered is that of engraving the desired indicia on a closure which is generally made of rubber or plastic. Such an approach has been deemed undesirable as a result of the difficulty in obtaining a clear impression without effecting undesired melting of the closure. Also, in connection with rubber, it has been found that the treated portion tends to remain tacky and portions of the material, which is generally black, tends to rub off on the hands of the user.

There remains, therefore, a need for marking tubular ball bats with durably and clearly legible indicia regarding bat properties, while effecting the same within the economic limitations which a manufacturer must adhere to in order to produce a competitive product.

SUMMARY OF THE INVENTION

The present invention has solved the above-described problems by providing a cover element or indicator element which is adapted for use with tubular bat bodies. In the structure of this invention an end closure having an aperture is employed to cover one end of a tubular bat body. A cover element is secured to the end closure and contains indicating means for communicationg certain properties of the ball bat, such as weight or length. The cover element has a head which is disposed generally adjacent the end closure outer surface and a shank extending into the end closure aperture and in contact with the aperture defining surface thereof. An anchor section is formed as an extension of the shank and has locking shoulder means in engagement with the closure inner surface in order to resist relative separating movement between the cover or indicator element and the end closure. The anchor section has pilot surface means for facilitating insertion of the shank into the end closure aperture.

The indicator element preferably has a generally disk-shaped head portion and web-like shank and anchor sections. The shank preferably has opposed substantially parallel marginal edges and stiffener fins oriented generally perpendicularly to the web-like shank may be provided. The anchor section may have a generally triangular configuration with the base portion serving to provide the locking shoulders and the other two sides providing pilot surfaces for ease of insertion of the indicator element into the end closure aperture.

It is an object of this invention to provide an indicator element adapted to be economically employed in presenting readily visible, durable indicia of certain ball bat properties, such as length and/or weight.

It is a further object of this invention to provide such a construction wherein the indicia bearing element may be fabricated separately from the bat body and bat end closure and may readily be inserted to establish an effective mechanical joint.

It is a further object of this invention to provide such a structure wherein the indicia bearing surface is disposed in non-interfering relationship with respect to the functional requirements encountered in ordinary ball bat usage.

It is yet another object of this invention to provide a cover element which is adapted to close the mold opening provided in certain molded end closures and ball bat grips in order to resist undesired entry of dirt and other foreign matter into the interior of the tubular ball bat body.

These and other objects of the invention will be more fully understood from the following description of the invention, on reference to the illustrations appended hereto.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an elevational view of one form of ball bat contemplated by this invention.

FIG. 2 is a bottom plan view of the bat of FIG. 1 showing an indicator element of this invention in combination with the bat end closure.

FIG. 3 is a fragmentary cross sectional illustration taken through 3—3 of FIG. 1.

FIG. 4 is a fragmentary cross sectional illustration taken through 4—4 of FIG. 3 showing the indicator element in position.

FIG. 5 is a cross sectional illustration taken through 5—5 of FIG. 3 showing the indicator element in position as viewed from the bat interior.

FIG. 6 is an elevational illustration of a form of indicator element of this invention.

FIG. 7 is an elevational view of the indicator element shown in FIG. 6 with the element rotated 90° with respect to the position shown in FIG. 6.

FIG. 8 is a bottom plan view of an indicator element of this invention.

FIG. 9 is a top plan view of an indicator element of this invention.

FIG. 10 is a cross sectional illustration of an indicator element of this invention taken through 10—10 of FIG. 9.

FIG. 11 is a cross-sectional illustration of an indicator element employed with a modified form of an end closure.

FIG. 12 is a front elevational view of a modified form of an indicator element of this invention.

FIG. 13 is a cross-sectional illustration of the modified form of an indicator element of FIG. 12 taken through 13—13.

FIG. 14 is a top plan view of the indicator element of FIG. 12.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now more specifically to FIG. 1, there is shown a ball bat which has a barrel portion 2, a handle portion 4 and a connecting tapered transition portion 6. The barrel end of the bat is provided with an end closure 8 and the handle portion of the bat is provided with a tubular grip 10 which has an integral end closure 12. An indicator element 16 is secured to the grip 10 at the end closure 12. While for purposes of simplicity of description the following discussion will center around the preferred form of the invention which involves insertion of the indicator element 16 into the end closure 12, it will be appreciated that, should it be desired, an indicator element may be provided in end closure 8 in lieu of or in addition to the indicator element 16 which is shown in end closure 12.

Referring now to FIG. 2, there is shown the undersurface of the ball bat with the end closure 12 having a centrally disposed, generally flat panel portion 18 and an annular curved transition portion 20. The indicator element 16 is provided with a central recess 22 within which an integrally formed number 24 is positioned. (In this instance, the number 8 has been shown for purposes of illustration.) This form of the indicator element 16 illustrates its use in providing information regarding the length of the bat. While, if one desired, the length could be set forth in full by placing the number 28 within indicator element 16 to indicate a bat length of 28 inches, it may be convenient to establish a code under which the number 8 would refer to a bat length of 28 inches.

Referring now to FIGS. 3 and 4, there is shown the lower segment of the tubular ball bat body 30 over which is secured tubular grip portion 10 which has its lower end closed by end closure 12. In this form of structure the end closure has a generally centrally disposed aperture established by aperture defining surface 34. The end closure has an outer surface 36 and an inner surface 38. With the aperture defining surface 34 extending from the outer surface 36 to the inner surface 38, the indicator element 16 is secured in mechanical engagement with respect to the end closure 12 in a manner which will be discussed more fully below.

Referring to FIGS. 1 through 7, it is seen that the indicator element 16 has a head portion 40 which, in the form shown, is of circular disk-like configuration. Extending rearwardly from the head portion is the shank 44. An anchor section 46 is formed integrally with the shank 44 and extends rearwardly therefrom. In the form shown the head portion 40 of indicator element 16 is in surface to surface engagement with the outer surface of end closure 12. The shank 44 is in engagement with aperture defining surface 34 of end closure 12. The anchor section 46 is in locking engagement with inner surface 38 of end closure 12. As a result, effective mechanical interengagement between the indicator element 16 and the end closure 12 is provided so that undesired relative separation of these components will be prevented even under the severe shock loads encountered during normal ball bat usage. In addition, any indicia of ball bat properties which are provided on the exposed surface of head portion 40 will be readily visible and yet the indicator element 16 does not present any physical obstruction to normal use of the ball bat. In this form, the head portion 40 projects outwardly beyond the closure outer surface 36 by a distance approximating the thickness of head portion 40. If desired, an annular portion of the outer surface 36 adjacent the closure aperture may be positioned rearwardly with respect to adjacent portions of the outer surface 36 in order to provide a counterbore in the closure aperture for receipt of the head portion 40. Such a structure is shown in FIG. 11 wherein end closure 12*a* has been provided with such a counterbore. The outwardly open recess defined by the counterbore and an outer portion of the aperture defining surface 34 serves to receive all or part of head portion 40 and thereby reduces or eliminates the projection of the head portion 40 outwardly beyond the closure outer surface 36. Depending upon the depth of recess, the outer surface of head portion 40 may be positioned outwardly of, inwardly of or substantially coplanar with the remainder of outer surface 36. The use of the expression "adjacent the end closure outer surface" or words of similar import in reference to the head portion shall include structures having such a recess in the outer surface 36, as well as structures of the type shown in FIG. 3 and other forms of adjacent positioning of the head portion 40.

Referring now to FIGS. 3, 4 and 6, there is shown the shank portion 44, which is preferably substantially rigid, with its outer marginal edges 50 in engagement with aperture defining surface 34. In addition, stiffener elements in the form of fins 52 are disposed substantially perpendicular with respect to shank 44 and have their outer marginal edges 54 (FIG. 6) in engagement with aperture defining surface 34. In a preferred form of the invention the distance between opposed edges 50 and/or opposed edges 54 will be slightly greater than the aperture diameter in order to provide the positive resiliently maintained interengagement between the aperture defining surface 34 and shank portion 44. This contact between aperture defining surface 34 and edges 50, 52 not only serves to add some frictional resistance to axial removal of the indicator element 16, but also provides stability against lateral displacement of the indicator element 16 with respect to the aperture in end closure 12.

Referring now to FIG. 5, there is shown the locking engagement as viewed from the interior of the metal bat body. It is seen that the anchor section 46 is in overlying contacting relationship with respect to end closure 12 and thereby provides mechanical resistance to relative axial separation of the indicator element 16 from the end closure 12. It is also noted that the stiffener fins 52 provide stability against lateral displacement in a direction perpendicular to that of the anchor section 46 and underlying shank 44.

Referring now to FIGS. 6 through 8, the detailed structural configuration of a preferred form of the invention will be considered. As is shown in these figures, the head portion 40 preferably has a generally circular disk-like configuration which is provided with an outer surface 60 and an inner surface 62. Projecting rearwardly from the inner surface 62 of head portion 40 is the shank 44. The anchor section 46 is preferably formed integrally with the shank 44 as an extension thereof and projects rearwardly therefrom.

Referring now to FIG. 7, it is seen that the shank 44, in the form shown, has a generally web-like configuration with opposed marginal edges 50 oriented substantially parallel to each other. The fins 52, which in the form shown are thinner than shank portion 44, are disposed substantially perpendicular to the shank 44 and have substantially parallel opposed marginal edges 54. In the preferred form of the invention the distance between opposed marginal edges 54 of fins 52 is substantially equal to the width of shank 44 as determined by the distance between opposed marginal edges 50.

Referring once again to FIGS. 6 through 8, it is noted that, in the form shown, the fins 52 originate at the inner surface 62 of head portion 40 and extend rearwardly a distance at least one-half the rearward projection of said shank 44. Preferably the fins 52 extend rearwardly of a position closely adjacent the anchor section 46. The fins 52 are connected to both the inner surface 62 and the shank 44. It is preferred that the free extremity of the fins 52 be provided with pilot surfaces 74, 76 which are inclined angularly rearwardly and transversely inwardly. These surfaces 74, 76 facilitate insertion of the shank portion into the aperture in end closure 12. As used herein, the reference to "pilot surfaces" and words of similar import shall be deemed to include not only surfaces which function as guides in a mechanical sense, but also include edges which function in the same fashion. It will be noted that in the preferred form of the invention the pilot surfaces are in fact edges as these provide sufficient guidance while reducing the frictional resistance to mechanical insertion of the indicator element 16 into the end closure 12.

Referring now to FIG. 7, the anchor section 46 will be considered in greater detail. It is noted that the anchor secion 46, in the form shown, has a substantially triangular configuration. The base portion of the triangle serves to define locking shoulders 80, 82 which, as is shown in FIG. 3, establish interlocking engagement with end closure 12. The other two surfaces of the triangular anchor section 46 provide pilot surfaces 84, 86, which facilitate introduction of the anchor section 46 into the aperture in end closure 12. The pilot surfaces 84, 86 preferably extend continuously from the locking shoulders 80, 82 to the free end 88 of the anchor section 46.

In effecting insertion of the indicator element 16 into the end closure 12 to establish the structure shown in FIG. 3, the indicator element 16 is positioned with the free end 88 adjacent the aperture in closure 12. Relative closing movement is establsihed in order to cause pilot surfaces 84, 86 to engage outer surface 36 and aperture defining surface 34. Contact between pilot surfaces 84, 86 and surfaces 34, 36 creates a centering action which with continued closing movement causes the indicator element 16 to be inserted into the end closure with the shank 44 in lateral restraining contact with the aperture defining surface 34 and the locking shoulders 80, 82 in locking engagement with inner surface 38 to resist relative separating movement between the end closure 12 and the indicator element 16.

Referring now to FIGS. 9 and 10, a preferred form of indicia of bat properties will be considered. A is shown in these drawings, the indicator element has an annular raised protective band 96 which defines a centrally disposed recess 22 in the outer surface 60 of the head portion 40. Within the recess 22 is disposed a molded upstanding numeral 24 (which in the form shown is the number 8). It will be appreciated that this provides a readily visible indication of the information sought to be communicated with respect to the bat characteristic in question, which in this instance is the bat length. The annular band 96 functions as a protective shield to resist the mechanical damage to the number 24. It will be appreciated that, if desired, other forms of upstanding indicia may be employed to communicate the desired information. Also, engraved numerals or other indicia may be employed in lieu of or in addition to the upstanding numeral 24. It will further be appreciated that a color code may be employed to communicate desired information by providing the desired color on the outer surface 60 of head portion 40. This may readily be accomplished by either manufacturing the indicator element out of material of the desired color or applying one or more colors to surface 60.

In another form of the invention, the shank may be provided with a substantially cylindrical configuration and the anchor section may be of substantially conical shape. As is shown in FIGS. 12 through 14, the indicator element has a head portion 110, a cylindrical shank portion 112 and a conical anchor portion 114. This embodiment is not as advantageous as the preferred embodiment, however, as the substitution of a pilot surface of substantial dimension in this embodiment necessitates application of a greater force in order to effect insertion of the indicator element into the end closure. Also, this embodiment requires the use of additional material. An embodiment intermediate this form and the illustrated preferred form may be provided by employing a shank which has a longitudinally segmented or fluted surface and an anchor section having a segmented conical configuration.

The cover or indicator element of this invention may be made from a wide range of materials such as plastic, rubber or metal. The indicator elements are preferably molded as a unit in order to provide for economic fabrication and a unitary strong element which will provide permanent mechanical retention characteristics and durable wearing characteristics for the exposed surface.

As it is frequently necessary in manufacturing grip members for ball bats and other end closures to provide an opening in the end closure in order to facilitate molding and removal of the rubber or plastic grip element, the indicator element of this invention provides another advantage. It may be employed as a cover element which closes the preformed opening in the grip portion and thereby resists entry of potentially corrosive soil, moisture and other undesired foreign materials into the hollow bat interior.

While the head portion 40 of indicator element 16 has been illustrated as having a disk-like configuration with a circular periphery and this is a preferred configuration, it will be appreciated that other configurations

may be employed. The head portion may be provided with an outwardly projecting hemispherical or cylindrical profile or a rectangular or diamond shaped periphery, for example. The form illustrated is the preferred form, however, as it presents an effective marking indicia surface disposed in noninterfering, but readily visible, position.

While for convenience of illustration the preferred form of the invention employing a web-like shank **44**, a web-like anchor section **46** and a pair of stiffener fins **52** has been shown, it will be appreciated that should it be desired other shank, anchor and stiffener configurations may be employed. Multiple shank and anchor sections, having substantially unitary or divided web-like bodies, may be employed, for example, and stiffeners in the form of individual or mulitple stiffening fins, ribs or other profiles may be employed, so long as the basic structural and functional requirements of the indicator element as set forth herein are met. Also, other shank and anchor section configurations which are not generally web-like may be employed. The form illustrated is the preferred form, however, in terms of simplicity of design and fabrication, economy of manufacture, ease of insertion and durability.

It will, therefore, be appreciated that the present invention provides an effective means for economically communicating significant distinguishing information with regard to bat properties such as length and weight in a readily visible position. All of this is accomplished by means of a uniquely configurated indicator element which is adapted to be inserted into an end closure of the ball bat and retained therein by effective mechanical interengagement. The marking indicia are readily exposed at one end of the bat and preferably at the handle end in order to facilitate reading of the indicia without removing the bat from a conventional bat rack. All of this is accomplished without requiring modification of ball bat fabricating techniques, with assembly being rapidly effected by mere mechanical insertion of the indicator element into the end closure. Finally, the individual indicator elements may be economically provided by molding the same as a unit from a wide range of materials.

Whereas particular embodiments of the invention have been described above for purposes of illustration, it will be evident to those skilled in the art that numerous variations of the details may be made without departing from the invention as defined in the appended claims.

I claim:

1. A ball bat comprising

a tubular bat body having a barrel portion, a handle portion and a connecting transition portion,

an apertured end closure covering one end of said tubular bat body,

said end closure being a portion of an enlarged generally knob-like end wall of a generally sleeve-like grip member which is disposed on the handle portion of said bat body,

said end closure having an outer surface, an inner surface and an aperture defining surface,

a cover element extending into said end closure aperture and secured to said end closure,

said cover element having a head disposed adjacent said end closure outer surface and a shank extending into said aperture and being in contact with said aperture defining surface,

a unitary anchor section formed as an extention of said shank having shoulder means in locking engagement with said end closure inner surface,

said anchor section having a portion provided with a greater transverse width than the transverse width of said shank,

said anchor section having a portion provided with a transverse width greater than the transverse width of said end closure aperture,

said anchor section having a lesser transverse width than the transverse width of said cover element head, and

said anchor section having generally continuous pilot surface means for facilitating insertion of said shank into said end closure aperture.

2. The ball bat of claim **1** including

said cover element head having means indicating the length or weight of said ball bat,

a portion of said end enclosure outer surface adjacent said aperture being disposed rearwardly with respect to adjacent portions of said outer surface and cooperating with a portion of said aperture defining surface to define an outwardly open recess, and

said cover element head disposed at least partially within said outwardly open recess.

3. The ball bat of claim **1** including

said cover element having a generally disk-shaped head portion,

said shank having a web-like portion with opposed marginal edges in contact with said aperture defining surface of said end closure,

said anchor section shoulder means having a pair of locking shoulders disposed closely adjacent said shank, and

said anchor section having a pair of pilot surfaces which extend angularly convergingly from said locking shoulders to the free end of said anchor section.

4. The ball bat of claim **1** including

said shank being substantially cylindrical,

said anchor section being substantially conical,

said shank having a diameter less than the diameter of the portion of said conical anchor section disposed closest to it, and

said anchor section having a substantially continuous annular locking shoulder.

5. A ball bat comprising

a tubular bat body having a barrel portion, a handle portion and a connecting transition portion,

an apertured end closure covering one end of said tubular bat body,

said end closure having an outer surface, an inner surface and an aperture defining surface,

a cover element extending into said end closure aperture and secured to said end closure,

said cover element having a head disposed adjacent said end closure outer surface and a shank extending into said aperture and in contact with said aperture defining surface,

said cover element head having means indicating the length or weight of said ball bat,

said cover element shank being web-like,

stiffener means disposed on opposite sides of said web-like shank,

said stiffener means connected to both said shank and said cover element head,

an anchor section formed as an extension of said shank having shoulder means in locking engagement with said end closure inner surface, and

said anchor section having pilot surface means for facilitating insertion of said shank into said enclosure aperture.

6. The ball bat of claim **5** including

said stiffener means include a stiffener fin disposed on each side of said web-like shank,

said stiffener fins originating at said cover element head and extending rearwardly at least to a position adjacent said anchor section, and

said fins terminating in pilot surfaces which extend angularly rearwardly and transversely inwardly into said shank.

7. The ball bat of claim **6** including

a numerical indicator formed within the exterior surface of said cover element head.

* * * * *

UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,779,551 Dated December 18, 1973

Inventor(s) Richard C. Wilson

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

Col. 1, line 20	Change "convention" to --conventional--
Col. 1, line 50	Change "durably" to --durable--
Col. 4, line 53	Change "52" to --54--
Col. 5, line 27	Change "of" to --to--
Col. 5, line 67	Add --aperture-- after "closure"
Col. 6, line 6	Change "A" to --As--
Col. 8, line 1	Change "extention" to --extension--
Col. 8, line 19	Change "enclosure" to --closure--
Col. 9, line 5	Change "enclosure" to --closure--

Col. 9, line 5 after "said" second occurrence insert -- end --

Signed and sealed this 4th day of June 1974.

(SEAL)
Attest:

EDWARD M.FLETCHER,JR.
Attesting Officer

C. MARSHALL DANN
Commissioner of Patents

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