MASS DISTRIBUTIVE BAT FOR SPORTS

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ABSTRACT
The present invention relates generally to wooden bats that are used to play baseball, softball, or other games that require a player to strike a pitched ball. The invention relates more specifically to a mass distributive wooden bat wherein the mass of the barrel is evenly distributed between the distal end and proximal end, creating a larger sweet spot that is more forgiving of miss hits. The mass distributive design baseball bat generally includes taking the general shape of a traditional baseball bat that typically is of a tapered design where the thickest portion is near the distal portion of the bat with varying degrees of taper toward the handle and redistributing the mass such that there is a thicker area more toward the handle while leaving the diameter of the effective hitting zone and distal portion of the bat approximately the same as that of a traditional baseball bat.
MASS DISTRIBUTIVE BAT FOR SPORTS

REFERENCE TO RELATED APPLICATIONS

[0001] This patent application claims the benefit of U.S. Provisional Application No. 61/312,480 filed on Mar. 10, 2010, the disclosure of which is incorporated herein by reference in its entirety.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention
[0003] The present invention relates generally to wooden bats that are used to play baseball, softball, or other games that require a player to strike a pitched ball with a round wooden stick. The invention relates more specifically to mass distributive wooden bat wherein the mass of the bat barrel is evenly distributed between the distal end and proximal end of the bat barrel, creating a larger effective hitting zone and sweet spot that is more forgiving of miss hits.

[0004] 2. Description of Related Art
[0005] A traditional baseball bat is a smooth, round stick continuously tapered along its longitudinal axis. The barrel is the thick part of the bat, where the bat is meant to hit the ball. The barrel narrows, and becomes the handle. The handle is the area where the bat is held by the player’s hands and used to swing the bat and terminates in a knob that helps prevent the bat from slipping through the player’s hands. The part of the barrel best for hitting the ball is often called the sweet spot. From a player’s viewpoint, the sweet spot is the place on the bat barrel where the contact between bat and ball results in the best hit—the ball leaves the bat with the greatest speed and the player’s hands feel very little vibration from the impact.

[0006] A baseball batter will have the best probability of hitting a pitched baseball if they can swing a bat of a maximum diameter permitted by league regulations, quickly enough to hit the incoming high-velocity pitched baseball. However, a bat of maximum diameter usually means a slower swing speed due to weighty heaviness of a wide diameter bat. Typically, the sweet spot of a traditional baseball bat is rather small and miss hits do not rebound off the bat sharply. Therefore, there has been a need to come up with a baseball bat that provides high swing speed and larger sweet spot.

[0007] Efforts have been made to provide baseball bats that satisfy the aforementioned needs, for example, a baseball bat design with ball hitting portions of non-circular cross section as is shown in the expired U.S. Pat. No. 400,354 to Morris; a baseball bat having hitting portion with a square transverse cross section as is disclosed in U.S. Pat. No. 3,104,876 to Salsinger; a hollow bat having a ball hitting portion with three striking surfaces as is disclosed in U.S. Pat. No. 3,880,423 to Kreag; and a baseball bat having a transverse cross section periphery that is divided into two dissimilar half segments as is shown in U.S. Pat. No. 4,331,330 to Worst. Other efforts were made to optimize the power zones by weighting the bats between the impact (hitting zones) and the knob end as is disclosed in U.S. Pat. No. 4,834,370 to Noble et al. U.S. PreGrant Pub. No. 20090011877 discloses a bat for baseball or softball that includes a core member having a depression at a portion to be a ball-hitting portion, and an elastic body attached to the depression and forming the ball-hitting portion. According to major league baseball bat rule 1.10(a), the baseball bat should be a smooth, round stick not more than 2.75 inches in diameter at the thickest part and not more than 42 inches in length. The bat shall be one piece of solid wood.

Therefore, the aforementioned patents and publication are not compliant with the regulation. U.S. PreGrant Pub. No. US 2002/0016230 to Okuyama et al. discloses a baseball bat including an impact portion which has a smaller diameter at a sweet spot than at the other portions of the impact portion, and which has a recessed external shape in the longitudinal direction. Because the diameter of the impact portion starts to decrease from the distal end of the bat until reaching the sweet spot and then starts to increase until it returns to the original size at the end of the impact portion, the sloping surface around the sweet spot makes it difficult to control the striking direction.

[0008] Therefore, there is still a need to have a baseball bat that can provide batters higher probability of hitting the ball on the sweet spot while maintaining high swing speed and meeting the major league baseball bat requirement.

SUMMARY OF THE INVENTION

[0009] The need to have a baseball bat that can provide batters higher probability of hitting the ball on the sweet spot while maintaining high swing speed is achieved according to the principle of the present invention solely by redistributing the mass of the bat along the bat barrel without artificial or outside weighting. The mass distributive baseball bat of the present invention meets the major league baseball bat requirement.

[0010] An object is to provide a mass distributive design baseball bat that distributes the mass of the bat between the distal end of barrel and the proximal end of barrel thus enlarging the sweet spot.

[0011] Another object is to provide a mass distributive design baseball bat that expands the sweet spot making a pitched ball more likely to be sharply struck thus increasing the chances of a base hit.

[0012] Another object is to provide a mass distributive design baseball bat that distributes the mass in such a way that even if a pitched ball does not strike on the sweet spot, it will still be struck more sharply than a traditional baseball bat design, thus increasing the likelihood of a base hit.

[0013] Another object is to provide a mass distributive design baseball bat that shall meet the major league baseball bat requirement; the baseball bat of the present invention should be a smooth, one piece of solid wood, round stick not more than 2.75 inches in diameter at the thickest part and not more than 42 inches in length.

[0014] The invention generally relates to a wooden baseball bat which includes taking the general shape of a traditional baseball bat that typically is of a tapering design where the thickest portion is near the distal portion of the bat with varying degrees of taper toward the handle and redistributing the mass such that there is a thicker area more toward the handle while leaving the diameter of the effective hitting zone and distal portion of the bat approximately the same as that of a traditional baseball bat.

[0015] A traditional wooden baseball bat is of round design with a near continuous taper from the thickest portion of the barrel to the handle. Because of its design, the effective hitting zone, i.e. the area of the bat where a pitched ball will be sharply struck, is relatively small, measuring just an inch or two distally or proximally from the sweet spot. The mass distributive design baseball bat comprises a distal end that is no more than 2.75 inches in diameter followed by a more proximal effective hitting zone of a narrower diameter, followed more proximally by a thicker section no more than 2.75
inches in diameter, followed more proximately by a tapered barrel end, followed more proximately by a traditional baseball bat handle. The overall mass of the bat remains approximately the same as a traditional continuously tapered baseball bat and the diameter of the sweet spot remains approximately the same as a traditional baseball bat but the mass is more evenly distributed proximally to distally along the barrel of the bat making a larger effective hitting zone. In the preferred embodiment, the effective hitting zone is about 6 inches in length and about 2.13-2.25 inches in diameter.

[0016] The design goals are achieved solely by redistributing the mass of the bat without artificial or outside weighting. The bat may further comprise an indentation in the distal end of the bat up to one inch in depth and may be no wider than two inches and no less than one inch in diameter. The indentation should be curved with no foreign substance added.

[0017] The manufacturing process to produce the mass distributive design bat is of traditional construction techniques utilizing a lathe and/or cutting heads to produce a wooden bat designed to be used to strike a pitched ball. It may be made of ash, maple, and/or other wood material known in the art.

[0018] The exact dimensions of the mass distributive design bat can be varied to meet the preferences of individual players while maintaining the basic design concept of a thicker more massive distal barrel followed proximally by a thinner effective hitting zone, followed by a thicker more massive proximal barrel, followed proximally by a tapered barrel end, followed proximally by a thinner traditional handle terminating in a small thicker knob. The shape of the knob can be varied to meet individual batter preferences. The same design concepts apply to a wooden bat that would be used to play baseball, softball, or other games that requires a player to strike a pitched ball with a round wooden stick. The preferred embodiment mentioned in the present application relates to adult baseball bats, the dimension (i.e. length and diameter) and mass distribution of the bat shall be adjusted for youth baseball bat or softball bat.

[0019] The best use of the mass distributive design baseball bat is to strike a pitched ball. Its design is such that the mass is distributed more evenly across the effective hitting zone allowing a larger effective hitting area than a traditional baseball bat. The effective hitting area of a traditional baseball bat is rather small and miss hits do not rebound off the bat sharply. The mass distributive design creates a larger sweet spot, thus increasing the rebound of a miss hit baseball. This is accomplished by having a larger diameter at the distal barrel followed by a smaller diameter effective hitting zone followed by a larger diameter proximal barrel mass creating a larger sweet spot for allowing miss hits to be more sharply struck while maintaining the overall weight and feel of a traditional baseball bat. The bat is used the same as a traditional baseball bat with the batter grasping the bat handle with his hands and attempts to hit a pitched ball. Like a traditional bat there is a knob at the end that helps prevent the bat from slipping out of the batters hands.

[0020] Other objects and advantages of the present invention will become obvious to the reader and it is intended that these objects and advantages are within the scope of the present invention. To the accomplishment of the above and related objects, this invention may be embodied in the form illustrated in the accompanying drawings, attention being called to the fact, however, that the drawings are illustrative only, and that changes may be made in the specific construction illustrated and described within the scope of this application.

[0021] The more important features of the invention have thus been outlined in order that the more detailed description that follows may be better understood and in order that the present contribution to the art may better be appreciated. Additional features of the invention will be described hereinafter and will form the subject matter of the claims that follow.

[0022] Before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of the construction and the arrangements of the components set forth in the following description or illustrated in the drawings. The invention is capable of other embodiments and of being practiced and carried out in various ways. Also it is to be understood that the phraseology and terminology employed herein are for the purpose of description and should not be regarded as limiting.

[0023] As such, those skilled in the art will appreciate that the conception, upon which this disclosure is based, may readily be utilized as a basis for the designing of other structures, methods and systems for carrying out the several purposes of the present invention. It is important, therefore, that the claims be regarded as including such equivalent constructions insofar as they do not depart from the spirit and scope of the present invention.

[0024] The foregoing has outlined, rather broadly, the preferred feature of the present invention so that those skilled in the art may better understand the detailed description of the invention that follows. Additional features of the invention will be described hereinafter that form the subject of the claims of the invention. Those skilled in the art should appreciate that they can readily use the disclosed conception and specific embodiment as a basis for designing or modifying other structures for carrying out the same purposes of the present invention and that such other structures do not depart from the spirit and scope of the invention in its broadest form.

BRIEF DESCRIPTION OF THE DRAWINGS

[0025] Other aspects, features, and advantages of the present invention will become more fully apparent from the following detailed description, the appended claim, and the accompanying drawings in which similar elements are given similar reference numerals.

[0026] FIG. 1 is a side view of a traditional baseball bat.

[0027] FIG. 2 is a side view of a preferred embodiment of a mass distribution design baseball bat according to the present invention.

[0028] FIG. 3 is a cross-sectional view taken along the line A-A of the embodiment disclosed in FIG. 2.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[0029] A traditional baseball bat 1 is a smooth, round stick continuously tapered along its longitudinal axis as shown in FIG. 1. The barrel 10 is the thick part of the bat, where the bat is meant to hit the ball. The barrel narrows, and becomes the handle 15. The handle 15 is the area where the bat is held by the player's hands and used to swing the bat and terminates in a knob 16 that helps prevent the bat 1 from slipping through the player's hands. The part of the barrel 10 best for hitting the ball is often called the sweet spot 121.
Referring to FIG. 2, there is disclosed a preferred embodiment of a mass distributive design baseball bat 1 according to the present invention.

The mass distributive design bat is a round solid wood bat with a distal end mass 11 that is no more than 2.75 inches in diameter followed by a proximal effective hitting zone 12 of narrower diameter, followed more proximally by a thicker proximal barrel mass 13 of no more than 2.75 inches in diameter, followed more proximally by a tapered barrel end 14, followed more proximally by a traditional barrel bat handle 15, and finally followed by a knob 16 at the proximal end of the bat 1. The overall mass of the bat 1 remains approximately the same as a traditional continuously tapered bat and the diameter of the sweet spot 121 remains approximately the same as a traditional bat but the mass is more evenly distributed between the distal barrel mass 11 and proximal barrel mass 13 along the barrel 10 of the bat 1 making a larger sweet spot 121.

In the preferred embodiment, the distal barrel mass 11 comprises a most distal end 111 with an increasing diameter from about 2.13-2.25 inches to about 2.63-2.75 inches across its length of about 0.75 inch, a proximal section 112 that has a uniform diameter of about 2.63-2.75 inches through its entire length of about 1.5 inches, and a more proximal section 113 that has a diameter decreasing from about 2.63-2.75 inches to about 2.13-2.25 inches across its length of about 1 inch. The effective hitting zone 12 following the section 113 has a uniform diameter of about 2.13-2.25 inches through its entire length of about 6 inches. According to the present invention, the diameter of the sweet spot 121 is the same as traditional bat but mass is more evenly distributed between the distal barrel mass 11 and the proximal barrel mass 13 along the effective hitting zone 12, creating a larger sweet spot 121 that is more forgiving of miss hits. The proximal barrel mass 13 follows the proximal end of the effective hitting zone 12 comprises two sections. The first section 131 has a diameter increasing from about 2.13-2.25 inches to about 2.63-2.75 inches across its length of about 1 inch; the second section 132 has a uniform diameter of about 2.63-2.75 inches throughout the entire length of about 2.25 inches. The barrel end 14 following the proximal end of the proximal barrel mass 13 starts to taper until the diameter reaches about 0.94-1.0 inch where the handle 15 starts. The diameter of the handle 15 is then maintained uniformly (about 0.94-1.0 inch) throughout the entire length of no more than 18 inches. The handle 15 is the area where the bat is held by the player’s hands and used to swing the bat and terminates in a knob 16 that has a diameter of about 1.75 inch to help prevent the bat from slipping through the player’s hands.

The handle 15 may be wrapped with a rubber or cloth grip. The barrel 11 may further comprise a cup end 114 at the most distal end of the bat 1; the dimension of the cup end 114 may be varied as required for weight adjustment. The cup end 114 is no more than one inch in depth and no more than 2 inch wide and no less than one inch in diameter. The cup end 114 is curved with no foreign substance added. The preferred baseball bat 1 of the present invention is about 34 inches long; the target mass of the bat is about 31 ounces.

The exact dimensions of the mass distributive design bat 1 can be varied to meet the preferences of individual players while maintaining the basic design concept of a thicker more massive distal barrel mass 11, followed proximally by a thinner effective hitting zone 12, followed proximally by a thicker more massive proximal barrel mass 13, followed proximally by a tapered barrel end 14, followed proximally by a thinner more traditional handle 15 terminating in a smaller thicker knob 16. The shape of the knob 16 can be varied to meet individual batter preferences. The same design concepts apply to a wooden bat that would be used to play baseball, softball, or other games that requires a player to strike a pitched ball with a round wooden stick.

The manufacturing process to produce the mass distributive design bat 1 is of traditional construction techniques utilizing a lathe and/or cutting heads to produce a wooden bat designed to be used to strike a pitched ball.

FIG. 3 is a cross-sectional view taken along the line A-A of the embodiment disclosed in FIG. 2 showing that the mass distributive design baseball bat of the present invention is a round solid bat.

While there have been shown and described and pointed out the fundamental novel features of the invention as applied to the preferred embodiments, it will be understood that the foregoing is considered as illustrative only of the principles of the invention and not intended to be exhaustive or to limit the invention to the precise forms disclosed. Obvious modifications or variations are possible in light of the above teachings. The embodiments discussed were chosen and described to provide the best illustration of the principles of the invention and its practical application to enable one of ordinary skill in the art to utilize the invention in various embodiments and with various modifications as are suited to the particular use contemplated. All such modifications and variations are within the scope of the invention as determined by the appended claims when interpreted in accordance with the breadth to which they are entitled. Those skilled in the art will recognize that many variations are possible within the spirit and scope of the invention in which all terms are meant in their broadest, reasonable sense unless otherwise indicated.

What is claimed is:

1. A round solid wooden bat that is used to play baseball, softball, or other games that requires a player to strike a pitched ball with a wooden stick comprising: a distal barrel mass that is no more than 2.75 inches in diameter; an effective hitting zone of a diameter narrower than the diameter of the distal barrel mass; a proximal barrel mass that is no more than 2.75 inches in diameter; a tapered barrel end; a traditional baseball bat handle; and a knob at the proximal end of the bat; wherein the aforementioned components are arranged in an order from the distal end of the bat to the proximal end of the bat, the overall mass of the bat remains approximately the same as a traditional continuously tapered bat and the diameter of the sweet spot remains approximately the same as a traditional bat but the mass is more evenly distributed between the distal barrel mass and proximal barrel mass along the barrel of the bat making a larger sweet spot.

2. A round solid wooden bat that is used to play baseball, softball, or other games that requires a player to strike a pitched ball with a wooden stick comprising: a distal barrel mass that is no more than 2.75 inches in diameter;
an effective hitting zone of a diameter about 2.13-2.25 inches throughout a length of about 6 inches, creating a larger sweet spot;
a proximal barrel mass that is no more than 2.75 inches in diameter;
a tapered barrel end;
a traditional baseball bat handle of no more than 18 inches;
and
a knob at the proximal end of the bat; wherein
the aforementioned components are arranged in an order from the distal end of the bat to the proximal end of the bat, the overall mass of the bat remains approximately the same as a traditional continuously tapered bat and the diameter of the sweet spot remains approximately the same as a traditional bat but the mass is more evenly distributed between the distal barrel mass and proximal barrel mass along the barrel of the bat making a larger sweet spot, the bat is no more than 42 inches in length, the bat is preferably 34 inches in length and about 31 ounces in weight.

3. The round solid wooden bat of claim 1 may further comprise a cup end for weight adjustment.
4. The round solid wooden bat of claim 3, wherein the cup end is no more than one inch in depth, no wider than two inches and no less than one inch in diameter.
5. The round solid wooden bat of claim 1 is not more than 42 inches in length.
6. The round solid wooden bat of claim 1 is preferably about 34 inches in length and 31 ounces in weight.
7. The round solid wooden bat of claim 1, wherein the effective hitting zone is about 6 cm in length and about 2.13-2.25 inches in diameter.
8. The round solid wooden bat of claim 1 wherein the mass distribution can be varied to meet the preferences of individual players while maintaining the basic design concept of the present invention.
9. A manufacturing process to produce the mass distributive design bat of claim 1 is of traditional construction techniques utilizing a lathe and/or cutting heads to produce a wooden bat designed to be used to strike a pitched ball.

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