FULLY FUNCTIONAL GRIPABLE APERTURED WEIGHTLIFTING DEVICE

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ABSTRACT

A polyurethane coated weighted core is provided which is adapted to receive and be lifted by a bar in the hand or hands of a user. The core which may be in configuration of a conventional weightlifting plate is provided with at least one aperture which when gripped by a user presents a gripable surface possessing sufficient friction to allow safe use.
FULLY FUNCTIONAL GRIPABLE APERTURED WEIGHTLIFTING DEVICE

I. FIELD OF THE INVENTION

[0001] This invention is directed to weightlifting systems and more particularly to a polyurethane coated weighted core having at least one gripable slot.

II. PRIOR ART

[0002] It is known to coat various weighted cores having holes at their center through which conventional weightlifting bars are passed through and fixed in a suitable manner on each end in order to provide a weightlifting apparatus for a user wishing to exercise. It is known to employ bare metal plates for such applications which have at least one slot on the outer periphery thereof so that the user may lift the plate in order to mount it on an appropriate weightlifting bar. Although this system has enjoyed great use in exercise gyms and elsewhere, even in the most controlled environments corrosion of the metallic plates is experienced as well as damage to the exercise environment and related equipment when the plates are dropped. This is especially true in the case of so-called bumper plates which are those weighted plates that are loaded on the barbell and often dropped to the floor after completing the lift. Rubber coatings have been applied to these plates in order to protect against corrosion and diminish the impact when these plates are dropped.

[0003] Polyurethane coated plates, although they have certain advantages over rubber coatings, including the quality and range of colors that are possible to employ, and the resulting lower cost of tooling and the ease of obtaining the desired weight accuracy also have disadvantages including their expense and their propensity to develop flat spots when left on the floor, in addition to developing splits when these plates are dropped among other disadvantages. Therefore, initially the industry chose to develop and employ rubber coated plates which were then considered capable of enduring more punishment at a reasonable cost. Although the use of rubber coated plates provided the necessary advantage of non-corrosion and less damage upon impact, continuing efforts were undertaken to develop a polyurethane coated plate to provide the aesthetics of these plates in the workout environment with regard to the quality and range of colors in addition to the lower cost of tooling and the facility with which weight accuracy can be obtained with these plates.

[0004] Some of the first urethane coated Olympic bumper plates, for example, were developed in 1985 and provided esthetically pleasing plates but also suffered the concomitant urethane coating splitting problem experienced when the plates were dropped. Further efforts, for example, were employed to provide urethane coated Olympic bumper plates in 1991 with apparent success of eliminating the splitting problem by improved manufacturing techniques and instructing the users not to overload the bar with these plates. As polyurethane coated plates grew in popularity, certain assessments were made in order to provide successful adaptations of these plates including the selection of U.S. produced polyurethanes, striking a balance between maintaining engraving quality and protecting equipment finishes in the lifting environment; the deflection from the aesthetics of using polyurethane due to its ease of scratching; the thicker coatings of urethane versus rubber applied to specific plates to obtain the identical weight and the safety factor of the aesthetically pleasing coating which also possesses a low coefficient friction causing gripping problems and safety concerns.

[0005] All of these deficiencies have in some manner been overcome or accommodated save safety concerns due to the slippery nature of gripping these plates. Without a sure grip on the plate, it can slip out of the user’s hands causing injury to the user and damage to the surrounding area. Employing slots on the outer periphery to provide an aperture which the user can use to lift the plate is an improvement; however, the polyurethane coating in the aperture provides a surface having a low coefficient of friction which causes slipping so that users are cautioned to clean their hands before handling the plates in order to carefully secure a good grip.

[0006] Thus, it can be seen that there is a continued demonstrated need to provide a fully functional polyurethane coated plate which provides a safe grip for the user.

[0007] In U.S. Pat. No. 5,853,355 there is disclosed a highly manipulatable weight plate for use in human exercise including a disk body having a mass sufficient to generate a human movement resistance force when employed in human exercise and containing at least one internally located bore having a central axis for receiving a disk body mounting apparatus such as a barbell or dumbbell. The disk body includes two generally opposed sides that are oriented generally radially with respect to the central axis and terminate in circumferential edges. An outer periphery surface extends between the circumferential edges of the two sides. At least one recess is contained in the disk body and opens into the outer periphery surface to allow radial insertion of at least one human finger therein so that the finger can apply an axial force against the disk body to displace the disk body away from an adjacent surface that is contacting one of the sides of the disk body. Examples of such an adjacent surface include a floor and a similarly sized weight plate.

[0008] There are numerous and various designs of barbell weights and plates including Design 354,322, Design 355,007 directed to an ornamental design for a weight lifting plate, Design 374,047 directed to a hand-held exercise weight design, Design 394,685 directed to a design for an exercise weight, Design 406,183 directed to a design for a weight lifting plate, Design 409,695 directed to a design for a weight lifting plate, Design 421,076 directed to a design for a barbell plate, and numerous others directed to designs for various configurations of plates including Designs 424, 140, 424,639, 428,947, 431,059, 432,062, 433,469, 435,770, 437,721, 433,090, 434,813, 439,290, 441,412, 441,812, 442,239, 442,240, 442,694, 445,153, 445,154, 445,854, 446,265, 446,559, 448,055, 450,361, 451,159, 451,160, 454,167 and 463,001, among others.

III. OBJECTS OF THE INVENTION

[0009] Thus it is an object of this invention to provide a polyurethane coated slotted plate devoid of the above noted deficiencies.

[0010] A further object of this invention is to provide a rounded metallic core disposed to receive a bar which is corrosion resistant.

[0011] A further object of this invention is to provide a corrosion resistant plate that is aesthetically pleasing to the eye.
A further object of this invention is to provide a polyurethane coated plate having a slotted aperture which provides a sure grip for the user.

Yet another object of the invention is to provide a slotted polyurethane coated plate which provides sufficient friction in contact with the user's hand to result in safe lifting and use of the plate.

IV. SUMMARY OF THE INVENTION

These and other objects of the instant invention are accomplished generally speaking by providing a polyurethane coated weighted core adapted to receive a bar for lifting having at least one slotted aperture on the periphery of the core thus formed which provides a sure safe grip for the user. More specifically, the polyurethane coated aperture surface which comes in contact with the user's hand is fashioned to provide sufficient friction to provide a sure grip for the user.

V. BRIEF DESCRIPTION OF THE DRAWINGS

The general premise of the coated plate of the instant invention having been disclosed, the specifics of this plate will be more clearly understood with reference to the drawings, of which:

FIG. 1 is a diagrammatic sketch of one embodiment of the coated plate employing the inventive concept of the instant invention.

FIG. 2 is another embodiment of the coated plate of the instant invention which depicts two or more slots.

FIGS. 3a-d there is depicted various surfaces which are applied to the gripping surface of the plate to provide friction.

In FIG. 1 there is seen a rounded metallic weighted core (10) having a polyurethane coating (20) applied thereover. The rounded core has a concentrically located aperture (30) disposed to accept a weightlifting bar and on the outer periphery an aperture (40) adapted to receive a user's hand having sufficient friction on the contact surface with the user's hand to provide a sure safe grip.

In FIG. 2 there is seen the metallic core (10) with coating (20), a concentrically located aperture (30) and user grip aperture (40). 40a is an additional user grip having the same characteristics as (40) and further counterposition aperture grips may be employed such as depicted by (50).

In FIGS. 3a-d there is seen various patterns which are applied to the gripping surface of the fully functional plate to provide requisite friction. In FIG. 3a there is seen a diagonal pattern that is applied to the gripping surface; in FIG. 3b there is seen a diamond-like pattern that is applied to the gripping surface; in FIG. 3c there is seen a parallel line pattern or lands and grooves that is applied to the surface perpendicular to the grip of the user's hand; and in FIG. 3d there is seen a square pattern to provide the requisite friction for the user's hand. As indicated in FIG. 3, these patterns may be applied as appropriate to surfaces 40, 40a and 50.

Any suitable weighted core may be employed in the weightlifting plate of the instant invention. Typical weighted metallic core materials include concrete, cast iron, steel, chrome plated cast iron, gold and silver plated metallic cores.

Any suitable configuration of slot may be employed on the outer periphery of said plate to provide a secure grip. Typical slot configurations include skewed parabolic shaped apertures such as seen in FIGS. 1 and 2, circular apertures, circularly indented grips conforming to the fingers of a human hand and the like.

Any suitable polyurethane coating may be employed in the coated plate of the instant invention. Typical polyurethane coatings include those conventionally available from Irvaco, Iron Grip, GP Industries, INTEC, Troy Barbell and others.

Any suitable method may be employed to apply the coating to the plate of the instant invention. Typical methods include compression molding, injection molding, open pour cast and other conventional methods to encase plates known to those skilled in the art.

Preferably the requisite friction to provide a safe grip may be incorporated in the molding process, e.g., by physical methods including sandblasting or chemical treatment.

Any suitable post molding method may be employed to provide friction to the gripping surface of the aperture of the plate of the instant invention. Typical methods to provide the requisite friction on the gripping surface of the aperture of these plates include providing at least one land groove contact surface; treating the contact surface of the groove to provide the requisite friction for safe gripping; and semiscircling the gripping surface of the groove to provide gripability and maintain corrosion resistance. In addition, softening the gripping surface to provide the requisite friction may be employed; e.g., by application of heat, radiation or chemical means.

While the present invention has been particularly described with respect to certain elements in its preferred embodiment, it will be understood that the invention is not limited to these particular systems described in the preferred embodiments, or the final structures depicted in the drawings.

On the contrary, it is intended to cover all alternatives, modifications, and equivalents as may be included within the spirit and scope of the invention defined by the appended claims. In particular, the scope of the invention is intended to include, for example, those devices employing additional slots which may be provided in non-counterpositioned positions up to and including positioning slots around the entire periphery of said plate while maintaining the structural integrity and accurate weight of these plates. In addition, other methods and/or devices may be employed in the system of the instant invention as claimed with similar results. In addition, decorative logos and weight indications may be applied to the polyurethane coatings which will further enhance the aesthetic appearance of this plate.

1. A polyurethane coated apertured weighted core comprising:

a core having a hole at its center disposed to receive a bar for lifting and supporting said core, at least one aperture located on the periphery of said core which is adapted
to conform to a user’s hand in order to allow lifting of the core, a polyurethane coating disposed over the entirety of said apertured core wherein the gripable interior surface of said polyurethane coated aperture is provided with a gripable surface which possesses sufficient friction to allow a user to safely lift the core.

2. The polyurethane coated apertured weighted core as defined in claim 1 wherein said core comprises a metal.

3. The polyurethane coated apertured weighted core as defined in claim 1 wherein said aperture comprises at least one slot.

4. The polyurethane coated apertured weighted core as defined in claim 1 wherein said apertured weighted core comprises a plate.

5. The polyurethane coated apertured weighted core as defined in claim 3 wherein said surface of said slot which comes into contact with a user’s hand comprises lands and grooves.

6. The plate as defined in claim 1 wherein the polyurethane coating is applied by employing injection molding.

7. The plate as defined in claim 1 wherein the polyurethane coating is applied by employing cast molding.

8. The plate as defined in claim 1 wherein the polyurethane coating is applied by employing open pour molding.

9. The plate as defined in claim 1 wherein the polyurethane coating is applied by employing compression molding.

10. The plate as defined in claim 4 wherein the aperture in the plate comprises a slot and wherein said plate further comprises a slot in opposition to said slot.

11. The plate as defined in claim 1 wherein the area that provides the gripable surface comprises grooves.