A barbell assembly includes a plurality of magnetic weights selectively positioned on opposite end portions of an axially elongated bar. A single weight or group of weights on each end of the bar is retained between an inner collar mounted in fixed position on the bar and an outer collar releasably secured to the bar by a locking device. Each outer collar is magnetically coupled to an associated weight or group of weights and aids in positioning the weights so that no axial play occurs between the weights and the collars. Each inner collar may also be magnetically coupled to the weight or weights associated with it. Alternatively, both the inner and outer collars may be magnetically coupled to the weights and to each other and to the supporting bar.
BARBELL HAVING MAGNETIC WEIGHT RETAINING MEMBER

CROSS REFERENCE TO RELATED APPLICATION

[0001] This application relates to Provisional U.S. patent application Serial No. 60/306,237, filed Jul. 19, 2001, the filing date of which is hereby claimed and which application is hereby adopted by reference as part of the present disclosure.

FIELD OF THE INVENTION

[0002] This invention relates in general to exercise devices and deals more particularly with improvements in barbell assemblies.

BACKGROUND OF THE INVENTION

[0003] A barbell assembly of the type with which the present invention is concerned essentially comprises a plurality of weights or plates for selective positioning on opposite end portions of an elongated lifting bar. The removable plates are releasably retained on the opposite end portions of the bar by fixed inner and removable outer weight retention members or collars. The outer collars are slidably received on the bar and releasably secured in fixed position thereon by suitable locking devices, such as a set screws.

[0004] It is essential that the removable weights be releasably secured in fixed position relative to the bar so that the opportunity for axial play between the weights and the bar is substantially eliminated. Any substantial tilting of the user manipulated bar from its normally horizontal exercising position causes the weight or weights at the lower end of the tilted bar to exert an axial and axially outwardly directed force on the associated outer weight retaining collar and toward a free end of the bar. Such tilting motion in the presence of axial play between the weight or weights and the bar may cause the weights at the lower end of the bar to impact upon the associated outer retaining collar, whereby loosening, if not dislodging the outer weight retaining collar from the bar. A sudden loss of weight at one end of the bar can result in serious injury to the user. The present invention is concerned with this problem.

[0005] Accordingly, it is the general aim of the present invention to provide and improved weight retention collar to reduce risk of occurrence of axial play in a barbell assembly.

SUMMARY OF THE INVENTION

[0006] In accordance with the present invention, a barbell assembly includes at least one ferromagnetic weight slidably received on an outer end portion of an axially elongated lifting bar and positioned in an adjacent engagement with an inner weight positioning and retaining collar mounted on the bar axially inward of the weight. The barbell assembly further includes an outer weight retaining collar slidably received on the bar and magnetically coupled to the at least one weight, and a securing device carried by the outer weight retaining collar and grippingly engaged with the bar to releasably retain the outer weight retaining collar in fixed position adjacent an outer surface of the at least one weight.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] FIG. 1 is a fragmentary perspective view of a barbell assembly embodying the present invention.

[0008] FIG. 2 is an end elevational view of the barbell assembly of FIG. 1.

[0009] FIG. 3 is a somewhat enlarged fragmentary sectional view of an end portion of the barbell assembly of FIG. 1 taken along the line 3-3 of FIG. 2.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

[0010] In the drawings and in the description which follows, the present invention is illustrated and described with reference to a typical barbell assembly embodying the present invention and indicated generally by the reference numeral 10. The illustrated barbell assembly 10 is particularly adapted for use in performing body building exercises and essential comprises an axially elongated lifting bar 12 and has one or more weights selected from a group of weights and positioned on opposite ends of the bar 12. In the illustrated embodiment of the invention, three such weights are mounted on each end portion of the bar 12. The weights or plates indicated by the reference numeral 14, 16 and 18 are substantially flat circular disk-shape members or plates which differ in size and weight. The plates 14, 16 and 18 are centrally apertured to be selectively slidably positioned on the bar in a manner well known in the weight lifting art.

[0011] Each group of one or more plates is positioned on the bar 12 between an inner positioning member 20 and an outer retaining member 22. In accordance with presently preferred construction, each inner member 20 comprises a generally cylindrical tubular collar mounted in fixed position on the bar 12 in axially inwardly spaced relation to an associated free end of the bar 12 and in axially spaced relation to the other of the inner collars 20 which is mounted on the other end portion of the bar. The inner collars may be welded or otherwise secured in fixed position on the bar 12 by any suitable attaching means. Each plate positioning member or collar 20 has a generally radial disposed surface 24 which faces outwardly or toward an outer or free end of the bar 12 for engaging an associated portion of an inner face of a weight or plate, such as the illustrated plate 18, shown in FIG. 1.

[0012] Each plate retaining member or outer collar 22 is adapted to positively releasably retain one or more plates on an associated end portion of the bar 12 and comprises a generally cylindrical tubular collar sized to be slidably received on the cylindrical bar 12 outboard of the weights or plates positioned on the bar. Each outer weight retaining collar 22 has a locking device, as, for example, a set screw 26 for gripping engagement with the bar to releasably positively secure the one or more selected plates on the bar to form an assembly and to facilitate manual manipulation of the assembly without change of position of the weights or plates relative to the lifting bar.

[0013] In accordance with the present invention, at least the plates 14, 16 and 18 and the plate retention members or outer collars 22, 22 are made from magnetic material and preferably ferromagnetic material, that is material possessing abnormally high magnetic permeability. Each outer collar 22 is magnetized so that it is magnetically attracted to
a single plate or plurality of plates positioned on an associated end portion of the bar. Further, and in accordance with the invention each inner collar 20 may also be made from a magnetic material (preferably ferromagnetic material) and magnetized to cooperate in magnetically coupled relation with an outer collar and one or more plates secured therewith. In FIG. 3 the letter symbols N and S appear on the retaining collar 22 and the plate 14, respectively, and signify north and south magnetic polarity to indicate the existence of a magnetically coupled condition between the parts 14 and 22.

[0014] Further, and in accordance with the invention, the bar is, or may be made from a magnetic material, that is a material which is magnetized or is capable of being magnetized. However, alternatively the bar 12 may be made from a diamagnetic material or a paramagnetic material. The term “diamagnetic”, as it is used in connection with the present invention refers to a material which has negative magnetic susceptibility being somewhat less magnetic than a vacuum. The term “paramagnetic”, as used in connection with the present invention refers to a magnetizable substance, having small but positive magnetic susceptibility and varying but little with magnetizing force. Thus, a bar made from a diamagnetic material or paramagnetic material will offer little or no substantial resistance to manual movement of an outer weight retaining collar as the collar is slidably moved along the bar to a position adjacent a plate or plates previously positioned on the bar.

[0015] Preparatory to the performance of a body building exercise, one or more of the ferromagnetic plates are positioned on each end portion of the bar 12. The inner most plate, that is the first plate to be positioned on each end portion of the bar 12, is brought into face-to-face engagement with an associated inner or positioning collar 20. If the inner collar 20 comprises a permanent magnet, in accordance with the invention, the innermost plate will be attracted to the inner collar so that there will be no substantial axial slack or spacing between the innermost plate and the inner collar 20. Thereafter, each successive plate will be positioned on the bar in face-to-face relation with a preceding plate.

[0016] When the bar is made from a diamagnetic or paramagnetic material, as herein before discussed, no substantial resistance will be encountered when each retention collar 22 is positioned on and moved along the bar to a position wherein it is in face-to-face engagement with an outermost plate on the bar. After the plates and the outer collars have been properly positioned on the bar to remove any axial slack or spacing therebetween each locking member or set screw 26 is manipulated to firmly engage and grip the bar 12 and thereby secure the barbell assembly 10 in a fully assembled condition. It will now be apparent that magnetic force is utilized to aid in proper positioning of the plates and the outer plate retention collar to substantially eliminate slack between the plates and both the inner and outer collars which comprise the assembly.

[0017] It should be understood that the mechanical locking or clamping device associated with each outer collar comprises an absolutely essential part of the barbell assembly 10 and must be secured in a conventional manner to assure the safety of the user. The magnetic feature of the present invention is intended to serve only as a plate positioning device to eliminate slack in the system and should be employed only for that purpose.

[0018] When the invention is practiced with a magnetic bar some resistance may be anticipated in positioning the outer collars on and removing them from the bar. However, once proper positioning is attained, the magnetic susceptibility of the bar may be utilized to contribute in maintaining the desired position of the collar and plates, so that the assembly may be locked in assembly without slack or play in the system.

I claim:

1. A barbell assembly comprising; an axially elongated lifting bar having axially opposite ends, a positioning member mounted in fixed position on said lifting bar and spaced axially inwardly from one of said ends, at least one plate made from magnetic material and having an aperture therethrough sized to receive said lifting bar therethrough, said at least one plate being received on said lifting bar axially outwardly of and in substantial engagement with said positioning member, a retention member received on said lifting bar axially outwardly of and in substantial engagement with said at least one plate, said retention member and said at least one plate being magnetically coupled to each other, and a locking device carried by said retention member for gripping engaging said lifting bar to releasably retain said retention member in a fixed position on said lifting bar.

2. A barbell assembly as set forth in claim 1 wherein at least one of the members which comprise said positioning member and said retention member is magnetized.

3. A barbell assembly as set forth in claim 2 wherein said retention member comprises said one of said members.

4. A barbell assembly as set forth in claim 2 wherein said positioning member comprises said one of said members.

5. A barbell assembly as set forth in claim 1 wherein said at least one plate and said retention member are made from ferromagnetic material.

6. A barbell assembly as set forth in claim 5 wherein said positioning member is made from ferromagnetic material and is magnetically coupled to said at least one plate.

7. A barbell assembly as set forth in claim 1 wherein said lifting bar is made from magnetic material.

8. A barbell assembly as set forth in claim 7 wherein said bar is magnetized.

9. A barbell assembly as set forth in claim 1 wherein said lifting bar is made from a diamagnetic material.

10. A barbell assembly as set forth in claim 1 wherein said lifting bar is made from a paramagnetic material.

11. A barbell assembly comprising; and axially elongated magnetic bar having axially opposite ends, a positioning member mounted in fixed position relative to said bar and spaced from one of said ends at least ferromagnetic weight having an aperture for slidably receiving said bar therethrough, said at least one weight being received on said bar and disposed in adjacent engagement with said positioning member, a magnetic retention member received on said bar and disposed in engagement with said at least one plate, said magnetic retention member being magnetically coupled to said one plate and to said bar, and a locking device disposed in positive locking engagement with said bar to releasably retain said retention member on said bar.