ABSTRACT

Game apparatus providing fun and exercise for two players, apparatus having weighted body secured to flexible tension link having two ends, each player holding an end. By swinging hands and moving rapidly, weighted body can be thrown between players, players attempting to avoid being hit by weighted body. Link length and elasticity determine dynamic characteristics of apparatus. Elasticity easily varied by changing link material and for fine adjustment of link characteristics a composite link can be made in which link has elastic and inelastic materials arranged in parallel or series relationship. Dynamic characteristics of apparatus effect physical demands on players, and by selection of particular dynamic characteristics physical demands on players can be controlled.

2 Claims, 10 Drawing Figures
PROJECTILE TETHERED TO LINKED RESILIENT FLEXIBLE LINE

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates to an apparatus intended to be used primarily as a game for two players providing fun and exercise whilst developing skill and dexterity.

2. Prior Art

Many games that provide exercise for players require large play areas, expensive equipment, and protective clothing to protect the players against bodily injury. Many active games require excessive physical effort; thus these particular games are not suitable for players with limited physical capabilities.

SUMMARY OF THE INVENTION

The invention reduces some difficulties of the game apparatus known to the inventor by providing an apparatus for use by two players, the apparatus providing a game intended primarily to improve mobility of the players and, by careful selection of materials used in construction of the apparatus, physical demands on the players can be increased or decreased at will. Also games using the apparatus of the invention require little space for playing, and involve little risk of bodily injury to the players.

Game apparatus according to the invention includes a flexible tension link having two opposite ends, each player holding an end in a hand, the players being spaced apart a distance less than length of the link. A weighted body is secured to the link, and by swinging the hand holding the end of the link and moving rapidly, the weighted body can be thrown towards the other player. Dynamic characteristics of the apparatus can be selected to provide a game requiring various degrees of skill and dexterity. The weighted body can be made to swing about the link as a pendulum, period of swing being variable. The link is made from relatively elastic or inelastic portions of material, elasticity characteristics of the link determining dynamic characteristics of the apparatus. Selected dynamic characteristics can be attained by having a composite link formed of both elastic and inelastic portions arranged in parallel or series relationship.

A detailed description following related to drawings gives exemplification of embodiment of the invention which, however, is capable of expression in structure other than that particularly described and illustrated.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a diagram of two players playing with a game apparatus according to the invention.

FIG. 2 is a simplified fragmentated side elevation of the apparatus.

FIG. 3 is a simplified longitudinal section on a handle of the apparatus, some portions not shown in section.

FIG. 4 is a fragmented perspective of a player's hand holding an alternative handle, some portions of the handle being removed to show internal detail,

FIG. 5 is a side elevation of a further alternative handle,

FIG. 6 is a diagram of apparatus having a single element-link,

FIG. 7 is a diagram of apparatus having a composite link, multiple elements of which are in series arrangement and are shown separated,

FIG. 8 is a diagram of apparatus having a composite link, multiple elements of which are in an alternative series arrangement and are shown separated,

FIG. 9 is a diagram of apparatus having a composite link, multiple elements of which are in parallel arrangement and are shown separated,

FIG. 10 is a diagram of apparatus having a hand-capped link.

DETAILED DISCLOSURE

A game apparatus 10 according to the invention is shown in use by two players 11 and 12, playing on ground 19. The apparatus includes a flexible tension link 13, for example a cord, having two portions 16 and 17 meeting in attachment point 18. The link 13 has two ends, handles 14 and 15 being provided at each end, the handles having elongated body portions to be gripped in hands of the players 11 and 12 respectively. A weighted body 20 is secured to the attachment point 18 by a connecting link 22.

FIG. 2

The handles 14 and 15 have wrist loops 25 and 26 respectively, the loops adapted to pass around wrists of the player as described with reference to FIG. 4. The portions 16 and 17 have lengths 28 and 29 respectively, each length being between about 4 feet and 6 feet, total length of the cord 13 between the handles when the cord is taut but not stretched thus being between 8 feet and 12 feet. The connecting link 22 securing the weighted body 20 to the attachment point 18 has a length 31 of between 3 inches and 6 inches.

The weighted body 20 has a length 33, about nine inches, and a maximum diameter 34 about 6 inches, being generally pear-shaped as shown. The body has an outer skin, suitably a lightweight woven fabric or flexible sheet plastic, and is filled with a lightweight, relatively inelastic filler material such as polyethylene foam chips or other foamed lightweight plastic material. As the body 20 does not, in general, contact the ground heavily, it does not require to be made of wear-resisting material.

FIG. 3

The handle 14 has an elongated body portion and, is necked at 38 as shown to improve grip and has a bore 40 extending axially through the handle, the bore being of such diameter as to accept freely the end of the portion 16. The handle has an outer end 42 extending beyond the hand, an inner end 43, and a length 44 being about 6 inches, the inner end having a counterbore 45 concentric with the bore 40. An end of the portion 16 has a knot 46 which prevents the link 13 from pulling through the handle in the direction of an arrow 47, yet permits the link to rotate within the handle, reducing a tendency of the link to accumulate twists from rotation of the weighted body about the link. Anchoring as above the portion 16 in the handle 14 acts as a swivel means to reduce accumulation of twists in the link.

The wrist loop 25 has a length sufficient to pass snugly around the wrist of the player and to be gripped against the handle, similarly to a loop as shown on an alternative handle in FIG. 4. The loop is secured by a screw 48 in a position adjacent the outer end of the handle as shown. The apparatus can be simplified by
A first alternative handle 49 is generally similar to the handle 14 (FIG. 3) having a wrist loop 50 similar to the loop 25. The player 11 has a hand 51 and a wrist 52, the hand shown gripping the handle 49. The wrist loop 50 passes around the wrist 52 and is gripped between the handle and the hand. Description of holding the handle 49 as above applies to all handles.

In contrast to the handle 14, the handle 49 has a flexible sleeve 53 surrounding the portion 16 and extending a distance 54 about 6 inches from the handle. An inner end 55 of the sleeve is a snug fit in a counterbore in an outer end of the handle and effectively cantilevers the sleeve and cord outwards from the handle. When an oblique load is applied to the handle (i.e. link tension is in a direction other than as shown by the arrow 47), the sleeve bends to a position 53.1 shown in broken outline. Stiffness of the sleeve provides an additional spring effect tending to catapult the weighted body back to the other player.

When in use, load on the portion 16 in a direction of the arrow 47 pulls the wrist loop tight about the wrist, inverse taper of the hand preventing loss of the handle even when grip of the hand on the handle is reduced. The flexible sleeve can be a resilient plastic, a steel coil spring, or other resilient tube-like element having a bore sufficient to permit rotation of the portion 16 within the sleeve.

FIG. 5 A second alternative handle 56 has an inner end 57, an outer end 58, and a length 59, the length being between 12 and 18 inches. The outer end has a swivel eye 62 secured to the portion 16, the eye acting as a swivel means and being free to rotate so as to reduce accumulation of twists in the link 13. A wrist loop 64 is secured with a screw 65 at a distance 66 from the end 57, the loop 64 serving the same purpose as the loop 25. As the length of the handle 56 is greater than the length 44 of the handle 14, degree of control of the weighted body is improved, however, the wrists experience increased moment arising from the greater length, thus greater wrist strength is required than when using the handle 14.

Dynamic Characteristics of Apparatus

As previously stated, dynamic characteristics of the invention are easily adjustable. A decrease in mobility of the players can be obtained by shortening the connecting cord 22 to a length approaching 3 inches — such shortening decreases free swingin or a pendulum effect of the body 20. Thus period of pendulum swing can be varied by changing connecting link length. For a relatively inactive game the connecting cord 22 can be eliminated and the weighted body 20 can be secured directly to the link 13 reducing free swinging of the body 20 to rotation about the link 13.

If the flexible sleeve 53 is used with the first alternative handle 49, there is likely to be a faster return of the weighted body from one player to the other. A flexible sleeve similar to the sleeve 53 can be used with the second alternative handle 56, with suitable swivel means to reduce accumulation of twists in the cord. This further alternative is not illustrated.

The flexible tension link 13 can be made from a variety of materials, or a combination of various materials having different elasticity characteristics depending upon the physical capabilities of the players. A central concept of the invention is ease of selection of elasticity characteristics of the link 13 to control nature and speed of the game. The elasticity characteristics above, the length of the connecting links 13 and 22 and length of the handles control dynamic characteristics of the apparatus and correspondingly effects exercise benefit derived from the game.

Flexible Tension Link FIGS. 6 - 9

FIG. 6 If the game is to be particularly fast and provide much exercise for the players, the link 13 is made from a relatively inelastic material, such as cotton or linen or a relatively non-stretch synthetic fiber such as Dacron (registered trade mark), a polyester fiber. The connecting link 22 is likewise inelastic and has a length 31 approaching six inches. Inelastic links require rapid movements of the players to keep the body 20 moving and off the ground.

If the players wish the game to be less strenuous with decreased mobility, the link 13 can be made of an elastic material, such as a synthetic latex or rubber compound, having an elasticity which permits a length increase of two or three times the unstretched length before breaking. A link of a single element of either elastic or inelastic material is designated 70 and exemplifies upper and lower limits of the link elasticity characteristics, i.e. a change from one material to the other is a coarse adjustment of link elasticity characteristics. Finer adjustment of link characteristics can be attained by having a link of multiple elements, such as a combination of relatively elastic and relatively inelastic portions of material, the combinations having the portions of different characteristics arranged in series or in parallel relationships forming a composite link, as shown in FIGS. 7 through 9.

FIG. 7 In a multiple element or composite link 75, elastic portions 76 and 77 having unstretched lengths 78 and 79, are arranged in series relationship with an inelastic portion 81 having a length 82. One end of each elastic portion is joined to the inelastic portion, different dynamic characteristics being attained from each portion and being partially dependent on sequence of portions in the series arrangement. Ratio of length 82 of the inelastic portion to lengths 78 and 79 of the elastic portions and total length of the link determines elasticity characteristics of the composite link.

FIG. 8 An alternative composite link 83 has inelastic portions 85 and 86 arranged in series relationship with an elastic portion 87. Sequence of the elastic and inelastic portions in the link 83 is different from the sequence in the link 75 (FIG. 7) and thus dynamic characteristics of the link 83 are different from those of the link 75. Ratios of lengths of the portions and total length of the link partially determine characteristics of the link.

FIG. 9 A further alternative composite link 90 has elastic and inelastic portions arranged in parallel relationship one half 91 only of the link being described. An inelastic portion 93 having a length 94 extends alongside an elastic portion 96 having an unstretched length 97. The portions 93 and 96 are held loosely along their lengths by loops, severely 99, reducing a tendency of the portions to tangle. Opposite ends 101 and 102 of the portion 96 are joined to the portion 93 at the handle (not
shown) or to the attachment point 18. The length 97 of the elastic material portion 96 is shorter than the length 94 of the inelastic material portion 93. Thus during initial extension of the link 90 the elastic portion dominates the dynamic characteristics and when the inelastic portion becomes taut and the inelastic portion dominates the characteristics. The parallel arrangement as above has an added advantage of preventing over-tensioning of the elastic portion provided ratio of the lengths 94 to 97 is selected carefully, which ratio, together with total length of the link length, determines characteristics of the composite link.

In the series and parallel arrangements above, the ratios of lengths can be adjustable to attain desired characteristics. Such adjustment can be by knotting or using releasable hooks etc. Elastic portions are drawn diagrammatically.

Handicapping Arrangements FIG. 10

The above alternatives can be further varied by introducing a handicapping system. For a non-handicapped game, with reference to FIG. 2, the lengths 28 and 29 of the portions 16 and 17 are equal, the portions have equal elasticity characteristics, and are joined to similar handles. With reference to FIG. 10, an alternative link 105 is secured to body 20 at an attachment point 107, not at a midpoint of the link. Thus the link is divided into two portions 108 and 109 having unequal lengths 110 and 111. Unequal lengths can be employed for handicapping purposes, it being advantageous generally for a player having a longer portion between him and the body 20. Unequal elasticity characteristics of the link can also be used for handicapping, differences in characteristics being closely controlled by relatively small adjustments in composite link arrangements. Dis-similar handles can be used also as a handicapping variable.

OPERATION

One purpose of the game is to provide relaxing entertainment; a second purpose is to provide exercise, amount of exercise attained being generally controlled by dynamic characteristics of the apparatus, and movements of the players and their hands. As stated above, particular elasticity characteristics of the link 13 can be selected by combining materials to form a composite link necessary.

To start the game, each player holds one handle, threading his hand through the loop and gripping the handle as shown in FIG. 4. The players stand spaced apart a distance less than length of the link, facing each other as seen in FIG. 1, thus providing shack in the link. One player, for example player 11, suddenly runs forward a couple of steps, swinging his handle forward so as to tend to throw the weighted body towards the player 12. The player 12, in trying to evade the weighted body, side steps and swings his arms so as to throw the weighted body back to player 11 who may be still sufficiently close to be hit by the weighted body. If the player 11 is hit by the weighted body he, the player 11, looses a point; or if he evades the body 20 by side stepping and then swings his arm so that the weighted body swings back towards the player 12, he may score a point by having the body 20 hit the player 12. Various scoring systems can be used, but one method of playing is for each player to try to hit the other one with the body 20 and at the same time to avoid being hit himself.

To reduce wear of the weighted body, and to reduce dust disturbed by the weighted body, the players attempt to keep the weighted body from touching the ground. With an inelastic link 13 the players have to move about quickly to keep the weighted body off the ground and continually moving. With an elastic link 13, or a composite link, the players can utilize elastic energy stored in the link when stretched to effectively catapult the weighted body towards the other player. With increasing skill, the players can utilize the pendulum effect produced by the connecting link 22 permitting the weighted body to rotate about the link 13 similarly to a pendulum.

As can be seen, due to the lightness of the weighted body 20, there is little chance of bodily injury when a player is hit by the weighted body. Likewise, length of the link 13 is generally sufficient to keep the players apart, reducing chances of bodily contact.

We claim:

1. A game apparatus for use by two players, the apparatus including:
a. a flexible tension link having a portion of relatively inelastic material and a portion of relatively elastic material, in an unstretched condition the elastic material portion being shorter than the inelastic material portion, the portions being joined at each end in parallel relationship so as to form a composite link having selected dynamic characteristics, the link having two ends,
b. a handle secured to each end of the link, one handle to be held by one player, the other handle to be held by the other player, each handle including an elongated body portion to be gripped in the hand, the handle extending beyond the hand and having a wrist loop to pass around and snugly enclose the wrist and to be gripped against the body portion,
c. a weighted body secured to both portions at a position on the link remote from the ends of the link, so that as a result of rapid movements of the players and movements of hands of the players the weighted body can be thrown from one player to the other, dynamic characteristics of the apparatus thus providing a game for the players, the game providing fun and exercise while developing skill and dexterity.

2. A game apparatus as claimed in claim 1 in which:
i. the elongated body portion of the handle has a counterbore at an outer end,
ii. a flexible sleeve fits in and extends from the counterbore, the sleeve surrounding the link, so that the sleeve effectively cantilevers the link from the handle, the sleeve being adapted to bend under oblique loads to provide additional spring effect to the link.

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