Oct. 11, 1966 O. K. PANKRATZ 3,277,878

BASEBALL THROWING MACHINE

Filed April 27, 1964 2 Sheets-Sheet 1

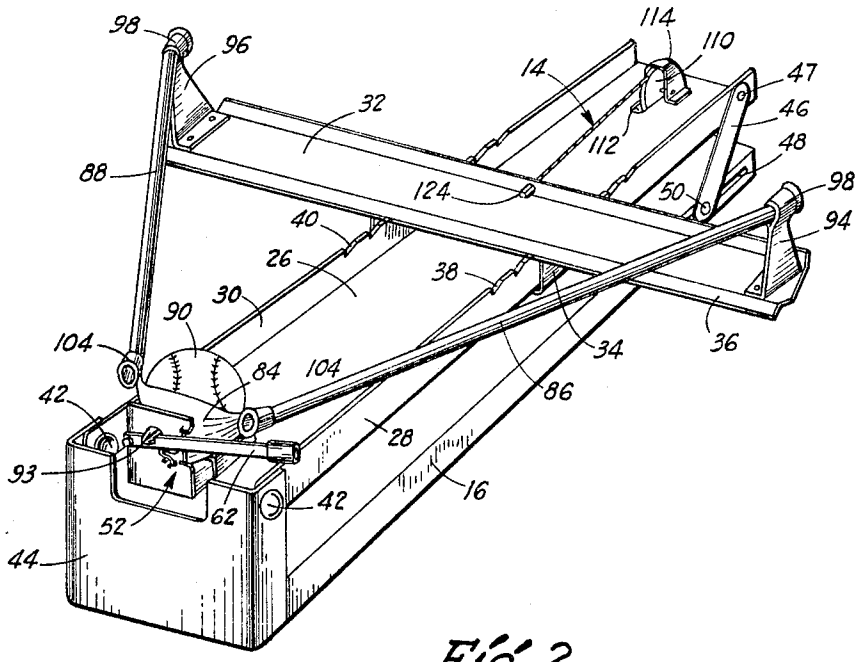


Fig. 2

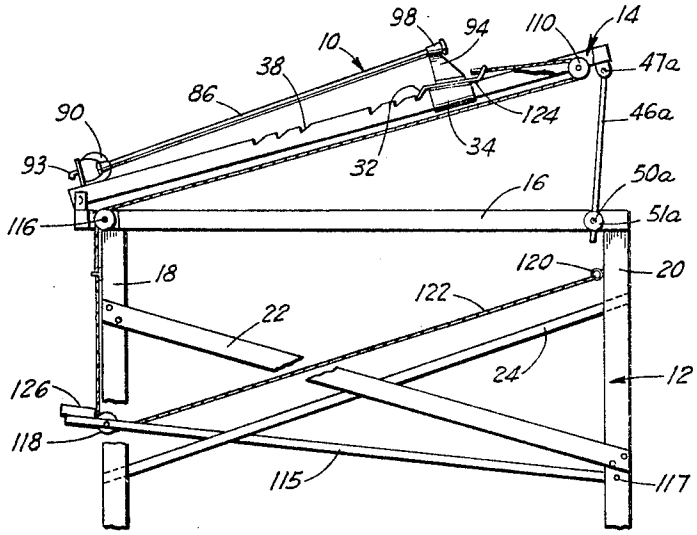


Fig. 1

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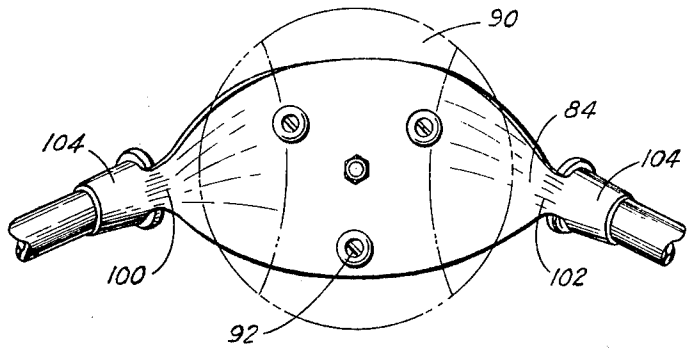


Fig. 3

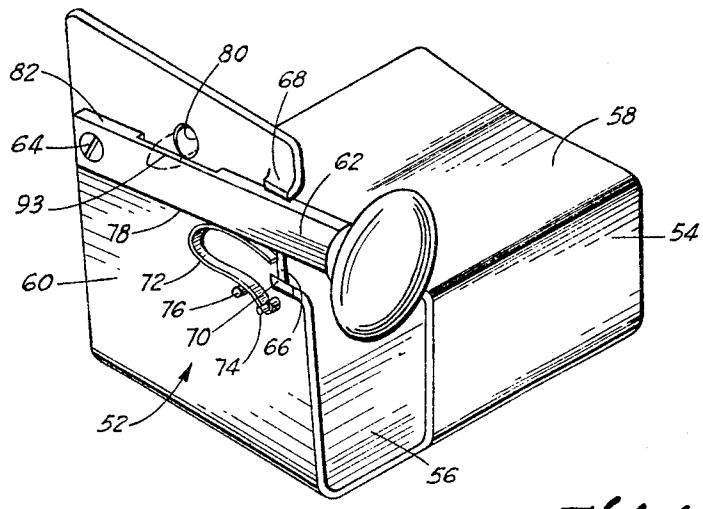


Fig. 4

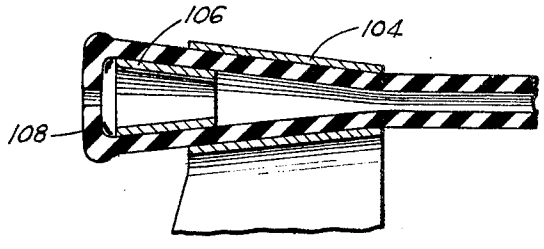


Fig. 5

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BASEBALL THROWING MACHINE

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9 Claims. (Cl. 124—20)

This invention relates to ball throwing devices and more particularly but not by way of limitation, to a ball throwing machine for propelling a baseball, or the like, in a manner whereby the speed of the ball as well as the throwing angle thereof may be varied as desired.

With the increasing interest in baseball throughout this country, there has been great demand for ball pitching machines to facilitate the practice of both hitting the ball and fielding the ball. As a result there have been many devices developed particularly for pitching the ball to a batter to provide batting practice for the ball players. The ball pitching machines available today, however, have certain disadvantages and are usually of a complex and expensive construction. As a result, the smaller ball teams, such as those teams wherein children are the players, or local teams of relatively small communities, find it very difficult to purchase such a machine.

The present invention contemplates a novel ball throwing machine particularly designed and constructed in a manner for greatly reducing the overall cost thereof. In addition, the operation of the device is extremely simple, thus increasing the universal nature of the utilization thereof. The novel machine comprises an angularly adjustable bed or deck having a cross arm member slidably secured thereto. A ball holding device is secured to the cross arm by means of an elastic member and cooperates with the cross arm in much the manner of a slingshot for propelling the ball outwardly from the machine. The ball holding device may be locked or latched to the bed portion and the cross arm may be moved along the bed portion to the desired position with respect thereto in accordance with the required speed of the ball for the particular throwing operation thus cocking the machine for the throwing of the ball. Subsequent to the cocking of the machine, the ball holding device may be readily released from the latched engagement with the bed member whereby the elastic members will snap the ball in a forward direction and propel it from the machine. With the bed or deck disposed in a substantially horizontal position, the machine may be utilized for pitching of the ball to a batter for facilitating batting practice. With the bed portion disposed at variable angles with respect to the horizontal, the ball throwing machine may be utilized for facilitating fielding practice, or the like. Of course it is to be understood that whereas a baseball is particularly depicted herein, the machine may be used for throwing substantially any type of ball such as a tennis ball, or the like, for facilitating practice of many sporting activities.

It is an important object of this invention to provide a novel ball throwing machine which is of a particularly simple and economical construction.

It is another object of this invention to provide a novel baseball throwing machine wherein the speed of the ball projected therefrom may be regulated in accordance with the desired ball throwing operation.

Another object of this invention is to provide a novel ball thowing machine which may be readily adjusted for propelling a ball therefrom at variable angles to facilitate the practice of a plurality of facets of sports which utilize balls.

Other and further objects and advantageous features of the present invention will hereinafter more fully appear in connection with a detailed description of the drawings in which:

FIGURE 1 is a side elevational view of a ball throwing machine embodying the invention.

FIGURE 2 is a prospective view of the ball propelling portion of a ball throwing machine and depicted in a cocked position.

FIGURE 3 is a front elevational view of the ball holding element of the invention with the ball depicted in broken lines.

FIGURE 4 is a prospective view of the ball releasing mechanism.

FIGURE 5 is an enlarged figure view of the fastening means for the elastic members of the ball throwing machine.

Referring to the drawings in detail, reference character **10** generally indicated a ball throwing machine having a support structure **12** and a ball throwing portion **14**. The support structure **12** may be of any suitable type and as depicted herein comprises a pair of spaced upper bar members **16** (only one of which is shown in FIGURE 1) supported at each end by suitable A-frame or X-shaped leg members **18** and **20**. Of course suitable cross members **22** and **24** may be provided for stabiilty of the framework structure **12**.

The ball throwing portion **14** comprises a bed or deck frame **26** having oppositely disposed upstanding side flanges **28** and **30** extending throughout the length thereof. A cross arm **32** is slidably disposed on the deck frame **26** and extends transversely thereacross as clearly shown in FIGURE 2. The cross arm **32** may be secured to the bed or deck frame **26** for longitudinal movement therealong in any suitable manner and as shown herein a substantially U-shaped bracket **34** is welded or otherwise secured to the lower surface of the cross arm **32** for spanning the width of the deck **26**. It is preferable to provide a plurality of spaced roller members (not shown) on the bracket **34** for engaging the undersurface of the deck **26** to facilitate movement of the cross bar **32** therealong. In addition, suitable anti-frictional buttons (not shown) or dimples (not shown) may be provided in the upstanding side portions of the bracket **34** for cooperating with the side walls **28** and **30** to substantially preclude binding of the bracket **34** during sliding movement with respect to the deck frame **26**.

The cross bar **32** may be of any suitable configuration and as depicted herein is provided with an angularly disposed leading edge portion **36** for engagement with aligned spaced notches or V-shaped grooves **38** and **40** provided on the upper edge of each side member **28** and **30** for a purpose as will be hereinafter set forth.

The deck frame **26** is pivotally secured at **42** to an upstanding support bracket **44** which in turn is suitably secured to one end of the spaced rail members **16** of the support structure **12**. The opposite end of the deck frame **26** is secured to the outer extremity of the rails **16** by means of a pair of spaced pivotal latch members **46** (only one of which is shown in FIGURE 2). Each latch member **46** has one end thereof pivotally secured to the respective side members **28** and **30** at **47** and the other end slidably secured to a lost motion slot **48** by means of a suitable bolt or stud **50**. Thus, the angular disposition of the deck frame **26** with respect to the rails **16** may be adjusted as desired manually by pivoting the deck frame **26** about the pivots **42** and permitting the stud **50** to move within the slot **48** accordingly. When the desired angular disposition has been selected, the stud **50** may be secured or locked in position within the slot **48** in any well known manner such as by a locking nut, wing nut, or the like (not shown). It will be apparent that a suitable cranking device (not shown) may be utilized in lieu of or in combination with the stud **50**

for moving the stud along or within the slot **48** in order to elevate or lower the frame **26** if desired.

A modification of the pivotal latch member **46** is shown in FIGURE 1 wherein a pair of oppositely disposed rod members **46***a* (only one of which is shown) are pivotally secured to the deck frame **26** at **47***a* and extend downwardly therefrom in the direction toward the respective rail members **16**. An elongated slot (not shown) may be provided on the latch **46***a* for receiving a pin or stud **50***a* therethrough whereby the deck **26** may be pivoted about the pivot points **42** and retained in the desired position by locking the latch arm **46***a* in its relative position with the stud **50***a* by a suitable locking device **51***a* as is well known. Furthermore, it is to be noted that whereas the support bracket **44** is preferably constructed from a suitable spring stock material wherein the pivot connections **42** may comprise complementary detents provided in the side rails **28** and **30** and upstanding portions of the support bracket **44**, the bracket **44** may alternately be constructed of any suitable material and bolts or any other suitable fastening means (not shown) may be utilized for providing the pivotal connection between the bracket **44** and the deck frame **26**.

A latching device generally indicated at **52** is secured to the upper surface of the deck **26** in the proximity of the pivotal end thereof. The latching device **52** may be of any suitable construction and as depicted herein comprises a substantially box-shaped portion **54** having the lower surface **56** thereof disposed adjacent the upper surface of the deck **26**. The upper surface **58** of the box **54** is preferably provided with a slightly concave configuration as shown in FIGURE 4 for a purpose as will be hereinafter set forth. The bottom plate of the box **54** extends therebeyond and is provided with an upstanding end member **60** spaced from the box **54**. A releasing arm **62** is pivotally secured to the end member **50** at **64** in any suitable manner. The arm **62** extends transversely across the outer or exposed surface of the end member **60** and through an opening **66** provided in one side edge thereof. An upper stop **68** and lower stop **70** are provided for the opening **66** for limiting the pivotal movement of the arm **62** about the pivot connection **64**. A suitable spring member **72** is anchored at one end to a pin **74** and is of an arcuate configuration as clearly shown in FIGURE 4 for disposition between a stop pin **76** and the lower edge portion **78** of the arm **62** for urging the arm **62** upwardly to a normal position adjacent the upper stop **68** for a purpose as will be hereinafter set forth. The arm **62** may be moved against the force or pressure of the spring **72** by manually depressing the arm **62** whereby the arm **62** may be pivoted in a direction toward the lower stop **66** when it is desired to release the latching mechanism as will be hereinafter set forth. An aperture **80** is provided in the end portion **60** and is disposed slightly above the upper edge **82** of the arm **62** when the arm **62** is disposed in the normally upward position adjacent the upper stop **68**.

A ball receiving member **84** is secured to the cross bar **32** by means of oppositely disposed elastic members **86** and **88** in a manner as will be hereinafter set forth. The ball receiving member **84** is preferably of an arcuate configuration substantially conforming to a portion of the outer surface of the ball **90** to be utilized with the ball throwing machine **10**. A plurality of inwardly directed buttons **92** are provided on the inner surface of the ball receiving member **84** and as particularly shown in FIGURE 3 there are preferably three spaced buttons **92** for engaging the outer periphery of the ball **90**. The buttons **92** thus arranged determine a plane and engage the outer surface of the ball **90** in such a manner as to substantially preclude wobbling or teetering thereof when disposed in the ball receiving member **84**. In addition, the buttons **92** hold the outer surface of the ball **90** slightly spaced from the inner surface of the arcuate ball receiving member **84** to preclude any suction therebetween when the ball is being ejected from the machine **10** thus improving the throwing qualities of the apparatus. An angular finger **93** is provided on the ball receiving member **84** and extends outwardly therefrom in an opposite direction from the buttons **92** for insection through the aperture **80** for a purpose as will be hereinafter set forth.

The elastic members **86** and **88** extend between the ball carrier member **84** and the pair of substantially identical oppositely disposed upstanding brackets **94** and **96** secured in any suitable manner to the outer extremity of the cross arm **32**. Since the brackets **94** and **96** are substantially identical, only the bracket **94** will be described herein. The bracket **94** is of substantially L-shaped configuration and the upper end thereof is suitably formed in a manner to provide a frusto-conical sleeve **98**. The ball carrier or receiver member **84** is provided with a pair of outwardly extending ear portions **100** and **102**, each of which terminates in a generally similar frusto-conical sleeve **104**. The elastic members **86** and **88** extend between the frusto-conical portions **104** of the ball receiving member **84** and the frusto-conical sleeve **98** of the respective brackets **94** and **96**. The elastic members **86** and **88** may be of any suitable construction and are preferably hollow at least throughout a portion of the length thereof whereby a frusto-conical plug **106** (FIGURE 5) is disposed in each open end of each elastic member **86** and **88**. The plugs **106** are of a complementary configuration to the sleeves **98** and **104** but of a slightly smaller diameter as clearly shown in FIGURE 5. The outer extremity of the opposite ends of each elastic member **86** and **88** may be crimped or otherwise formed as shown at **108** in FIGURE 5 for retaining the plug **106** in position therein. It will be apparent that the wedging action between the sleeves **104** and **106** and **98** and **106** securely retains the elastic member attached to the ball receiving member **84** and the brackets **94** and **96**. However, if it becomes necessary for any reason to remove the elastic member from engagement with the frusto-conical sleeves, the outer extremity of the respective elastic member may be manually grasped and pulled outwardly from the respective frusto-conical sleeve for releasing the wedging engagement of the plug **106** therewith. This permits removal of the plug **106**, if desired, whereby the elastic member may be removed from the respective frusto-conical sleeve.

A suitable sheave or pulley **110** is journalled in a slot **112** in the deck frame **26** in the proximity of the rear or open end thereof and a suitable guard **114** may be secured therearound as is well known. A second pulley **116** (FIGURE 1) is journalled between the spaced rails **16** in any suitable manner (not shown) and a third pulley **118** is spaced below the pulley **116** and suitably journalled to a foot lever **115** which in turn is pivotally secured at **117** to the leg structure **18**. A connecting member **120** is secured to the leg structure **20** for receiving one end of a cable or rope **122**. The cable **122** extends from the connecting member or eye **120** and under the pulley **118**, upwardly around the pulley **116**, around the pulley **110** and to connection at **124** with the cross bar **32**. The lever **115** is provided with a foot pedal member **126** on the outer end thereof for facilitating pivoting of the lever **115** about the point **117**. When it is desired to cock the machine **10**, the pedal **126** may be depressed whereby the cable **122** will cooperate with the pulleys **110**, **116** and **118** for pulling the cross arm **32** in a direction toward the pulley **110** and against the force of the elastic members **86** and **88**. Thus, when the finger **93** is inserted through the aperture **80** and retained or locked in position therein by the arm **62**, as will be hereinafter set forth, the machine **10** may be cocked in preparation for ejection of the ball **90** therefrom.

Operation

When it is desired to throw or toss a ball, such as the baseball **90**, for batting practice the deck frame **26** may

be disposed in a substantially horizontal position as shown in FIGURE 2. The ball carrier member 84 may be secured to the latching device 52 by inserting the angled finger 93 through the aperture 80 of the end plate 60. The spring 72 constantly urges the pivotal arm 62 in an upward direction as viewed in the drawings for engaging the angled finger 93 and retaining the ball receiving portion 84 in a latched position against the plate 60. The cross arm 32 may then be moved along the deck frame 26 to the desired position therefor whereby the angled flange member 36 is engaged with the desired aligned notches 38 and 40. In order to move the cross arm 32 along the frame 26, the pedal 126 may be depressed in order that the pulleys 110, 116 and 118 and the cable 122 will cooperate for pulling the cross arm 32 against the force of the elastic members 86 and 88. With the cross arm 32 engaged in the pre-selected notches, the ball 90 may be disposed on the slightly concave surface 58 and adjacent the ball receiving member 84. It is to be noted that the slightly concave configuration of the plate 58 facilitates retaining of the ball thereon and in addition it may be desirable that the plate 58 be slightly angularly disposed in a direction toward the plate 60 for assuring that the ball 90 will be disposed adjacent the ball receiving member 84.

It will be apparent that the distance between the ball receiving member 84 and cross arm 32 will determine the tautness of the elastic members 86. The greater the distance therebetween the tighter the elastic member will be, which, of course, will affect the final results in the propelling of the ball 90. Furthermore, the angle of the elastic members 86 and 88 with respect to the horizontal will vary in accordance with the length or distance between the ball receiving member 84 and the cross arm 32, which will also affect the ultimate projection of the ball from the machine. However, the height of the brackets 94 and 96 is preferably selected in order to maintain the pitched ball in approximately the same target area regardless of how hard or fast the ball is ejected from the machine.

When the machine 10 is in the cocked position with the ball disposed in the ball receiving member 84, the arm 62 may be manually lowered or depressed against the action of the spring 72 for releasing the engagement of the finger 93. Substantially immediately upon this release of engagement between the arm 62 and finger 93, the elastic members will snap the ball receiving portion 84 and ball 90 carried thereby in a forward direction for propelling the ball from the machine 10 in much the same manner as a sling shot. The buttons 92 engaging the ball 90 assure a rapid and clean release of the ball and substantially eliminate any delay in releasing thereof which might, of course, form suction if the ball were resting directly against the arcuate surface of the ball receiving member 84. The ball 90 will thus be thrown to the batter in much the same manner as a straight ball pitched by a man or ball player.

When it is desired to utilize the machine 10 for fielding practice, or the like, the angle of the deck 26 with respect to the horizontal may be varied as desired to produce the required action for the ball. The deck 26 may be manually pivoted about the pivots 42 and securely locked in the selected angular position by means of the latch arm 46 and complementary stud 50. In this position the machine may be cocked in the manner as hereinbefore set forth and the ball released therefrom by actuation of the latching device 52

The particular wedging action provided between the frusto-conical sleeves 98 and 104 and the complementary frusto-conical plugs 106 securely retains the elastic members 86 and 88 in position and substantially eliminates any possibility of accidental disengagement of either end of the elastic members during operation of the machine 10. However, as hereinbefore set forth, either end of the elastic members may be readily removed from the respective frusto-conical sleeves by manually grasping the outer end of the elastic member and pulling it longitudinally away from the respective frusto-conical sleeve. The plug may then be removed from the elastic member which of course permits ready removal of the elastic member from the respective frusto-conical sleeve. In addition, in the event it is desired to shorten the elastic members for any reason, the end of the elastic member may be severed to the desired length and the plugs reinserted therein without removal of the elastic member from the respective frusto-conical sleeve.

From the foregoing it will be apparent that the present invention provides a novel ball throwing machine which is particularly designed and constructed for simplicity of operation and economy of construction. The ball throwing machine may be readily cocked to provide variable ejections of the ball in accordance with the desired operation of the machine. In addition, the angle of the projectile of the ball may be varied in accordance with the desired results of the ball throwing apparatus.

Changes may be made in the combination and arrangement of parts as heretofore set forth in the specification and shown in the drawings, it being understood that any modification in the precise embodiment of the invention may be made within the scope of the following claims, without departing from the spirit of the invention.

What is claimed is:

1. A ball throwing machine comprising a pivotal deck portion, cross arm means slidably secured to the deck portion and extending transversely thereacross, ball receiving means, elastic means provided for securing the ball receiving means to the cross arm means, latch means for releasably securing the ball receiving means to the deck means, means for moving the cross arm means along the deck portion for cocking of the machine, said latch means operable for releasing the ball receiving means whereby the elastic means cooperates therewith for ejecting a ball from the machine, and cooperating means provided between the cross arm means and the deck portion whereby the cross arm means may be disposed in a plurality of positions with respect to the deck portion in accordance with the desired speed for the ejected ball.

2. A ball throwing machine comprising a deck portion pivotally secured to a support member, cross arm means slidably secured to the deck portion and extending transversely thereacross, latch means provided on the deck portion, ball receiving means, elastic means provided for securing the ball receiving means to the cross arm means, means provided on the ball receiving means for releasable engagement with the latching means, means provided on the deck portion for cooperation with the cross arm means to provide a plurality of relative positions therebetween, means for moving the cross arm means along the deck portion, said latching means operable for releasing the ball receiving means whereby the elastic means cooperates therewith for ejecting a ball from the machine, and means for retaining the deck portion at variable angles with respect to the horizontal.

3. A ball throwing machine comprising a deck portion pivotally secured to a support member, cross arm means slidably secured to the deck portion and extending transversely thereacross, latch means provided on the deck portion, ball receiving means, elastic means provided for securing the ball receiving means to the cross arm means, means provided on the ball receiving means for releasable engagement with the latching means, means provided on the deck portion for cooperation with the cross arm means to provide a plurality of relative positions therebetween, means for moving the cross arm means along the deck portion, said latching means operable for releasing the ball receiving means whereby the elastic means cooperates therewith for ejecting a ball from the machine, said ball receiving means comprising an arcuate body portion, a plurality of inwardly directed buttons provided on the inner surface of the arcuate body for engaging the outer

periphery of the ball to facilitate release of the ball during ejection thereof.

4. A ball throwing machine comprising a support structure, a deck frame pivotally secured to the support structure, means cooperating between the support structure and deck frame to provide a plurality of angular positions for the deck frame with respect to the horizontal, a cross arm extending transversely across the deck frame, means carried by the cross arm for slidably securing the cross arm to the deck frame, ball receiving means, elastic means provided for securing the ball receiving means to the cross arm, latching means secured to the deck frame for releasably retaining the ball receiving means in one position thereof, pulley means connected between the cross arm and support structure and operable for moving the cross arm along the deck frame, means provided on the deck frame for cooperation with the cross arm to provide variable positions for the cross arm with respect to the deck frame, said latching means operable for releasing the ball receiving means to eject a ball from the machine.

5. A ball throwing machine as set forth in claim 4 wherein the ball receiving means comprises a substantially arcuate body portion complementary to the configuration of the outer periphery of the ball, and a plurality of inwardly directed buttons are provided on the inner periphery of the arcuate body engaging the ball to facilitate release of the ball from the machine during the ejection operation.

6. A ball throwing machine as set forth in claim 4 wherein a pair of spaced oppositely disposed upstanding brackets are provided on the cross arm, each of said brackets having a frusto-conical sleeve provided at the outer extremity thereof, a pair of oppositely disposed frusto-conical sleeves provided on the ball receiving means, said elastic means extending between the respective frusto-conical sleeves of the cross arm and ball receiving means, and frusto-conical plug means provided in the elastic means for cooperation with each frusto-conical sleeve to substantially preclude accidental disengagement of the elastic members.

7. A ball throwing machine as set forth in claim 4 wherein the latching mechanism includes a spring urged pivotal lever manually movable for releasing the engagement of the ball receiving means.

8. A ball throwing machine comprising a support structure, a deck frame pivotally secured to the support structure, pivotal latch means cooperating between the support structure and deck frame for securing the deck frame in variable angular positions with respect to the horizontal, a cross arm slidably secured to the deck frame and extending transversely thereacross, an upstanding bracket secured at each end of the cross arm, a ball receiving member, elastic members extending between each bracket and the ball receiving member, frusto-conical sleeve and plug means cooperating for securing the elastic members to the brackets and ball receiving member, a plurality of buttons provided on the ball receiving member for engaging the outer periphery of a ball, cable and pulley means secured between the support structure and the cross arm, means for actuating the pulley and cable means for moving the cross arm along the deck frame, said deck frame being provided with a plurality of spaced notches for cooperating with the cross arm to provide a plurality of relative positions between the cross arm and deck frame, and latch means for retaining the ball receiving means in one position and operable for releasing thereto to eject the ball from the machine.

9. A ball throwing machine as set forth in claim 8 wherein the latch means includes a spring urged manually pivotal arm for releasing the ball receiving member.

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