

[54] **MECHANICAL BALL THROWING DEVICE**

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 [51] Int. Cl.F41b 3/02
 [58] Field of Search.....124/7, 8, 6, 4, 5, 36, 41; 273/26 D, 29 A, 96 R

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[57] **ABSTRACT**

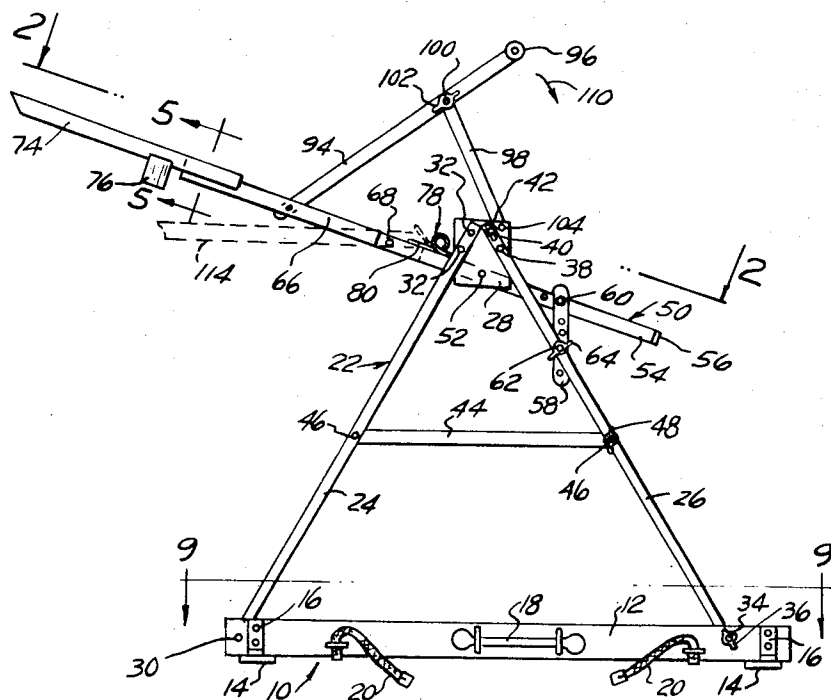
A mechanical throwing ball device having a base supporting thereon a pair of spaced frame members. An elongated head, adjustably supported between the frame members, has thereon a pivoted pitching arm. A resilient member is pivotally connected between the rear end of the pitching arm and the elongated head. A cocking arm pivotally attached at one end to the pitching arm, is supported by a link pivotally connected between the pitching arm and the frame. The device is fully collapsible so that it can be compacted to facilitate storage and transportation.

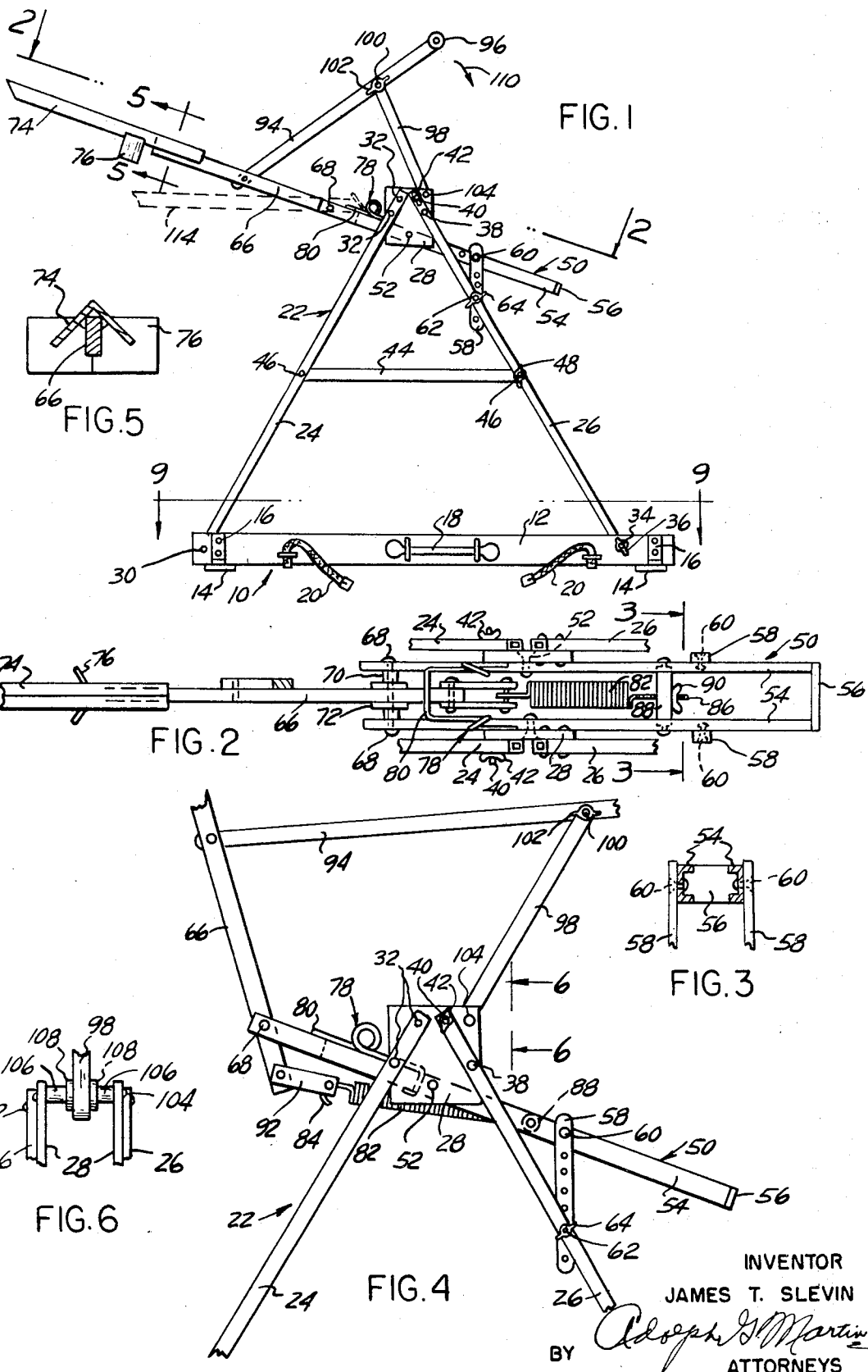
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4 Claims, 11 Drawing Figures





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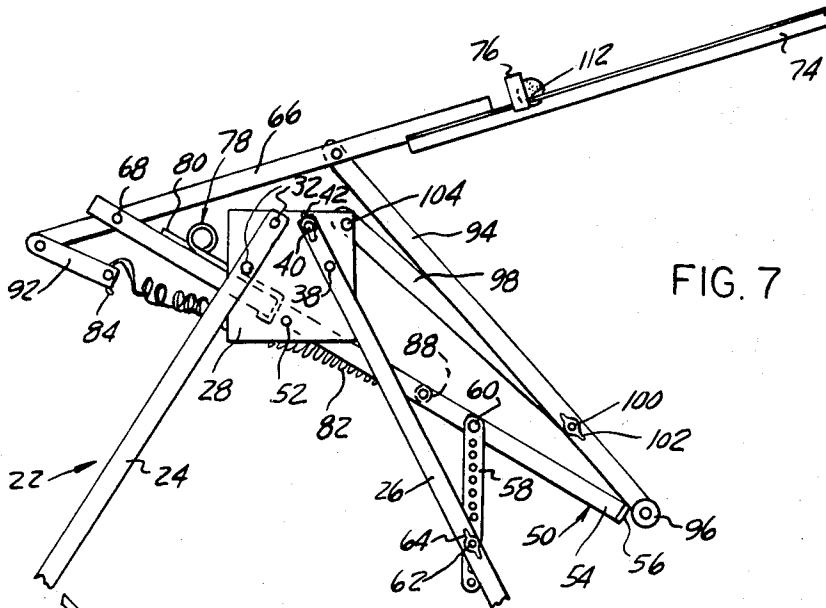


FIG. 7

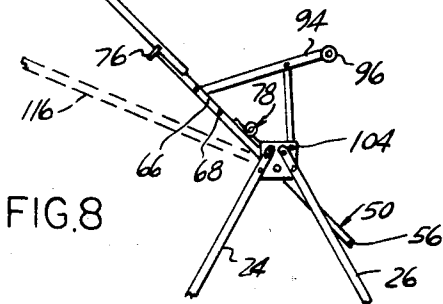


FIG. 8

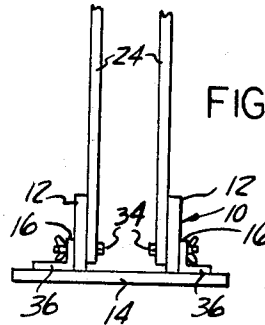


FIG. 10

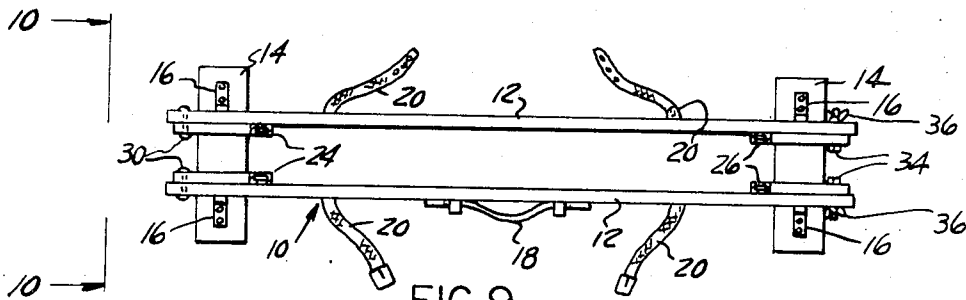


FIG. 9

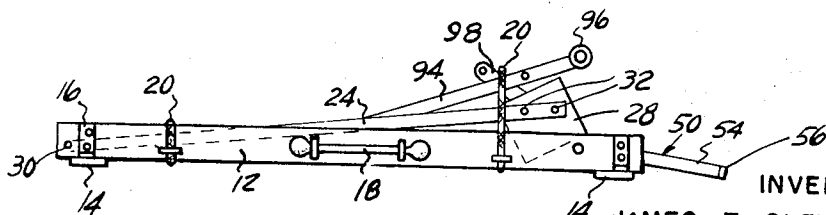


FIG. 11

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MECHANICAL BALL THROWING DEVICE

BACKGROUND OF THE INVENTION

This invention relates to ball throwing devices generally, but more particularly to a type of such device adapted for use in mechanically hurling a baseball for both batting and fielding practices. Conventional baseball throwing devices presently in use are bulky, heavy and consequently difficult to move, transport and store. Furthermore, such devices are not readily and accurately adjustable so that the trajectory of the ball can be easily changed and satisfactorily controlled. Accordingly, ball propelling devices are not used extensively in non-professional baseball and in junior leagues.

SUMMARY OF THE INVENTION

This device consists of a base 10 having a pair of vertically disposed spaced members 12. A frame, comprising a pair of spaced upright A-shaped members 22, is mounted on the base 10. An elongated head 50, comprising two spaced members 54, is adjustably supported between the two A-shaped frame members 22. A pitching arm 66 is pivotally attached to the forward end of the elongated head 50. A coil spring 82 is adjustably connected by pivotal means between the rear end of the pitching arm 66 and the elongated head 50. A cocking arm 94 is pivotally attached at one end to the pitching arm 66, and supported intermediate the ends by a link 98 pivotally connected between the pitching arm 66 and the frame.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a side elevation view, showing the applicant's ball propelling device with the pitching arm 66 in a fully extended position, and the elongated head 50 adjusted to pitch balls for batting practice.

FIG. 2 is an enlarged fragmentary plan view, taken substantially on plane 2—2 in FIG. 1, showing structural details of the elongated head 50.

FIG. 3 is a section view, taken substantially on plane 3—3 in FIG. 2, showing the laterally spaced channel members 54 of the elongated head 50 and the adjustable links 58.

FIG. 4 is an enlarged fragmentary elevation view, showing the pitching arm 66, and its associated components in a partially cocked position.

FIG. 5 is an enlarged section view, taken substantially on plane 5—5 in FIG. 1, showing structural details of the ball guide 74 and ball holder 76.

FIG. 6 is a fragmentary elevation view, taken substantially on plane 6—6 in FIG. 4, showing the pivotal connection between the link 98 and the plates 28 on the frame.

FIG. 7 is an enlarged fragmentary elevation view, showing the pitching arm 66 and its associated components in a fully cocked position.

FIG. 8 is a fragmentary elevation view, showing the applicant's ball propelling device with the pitching arm 66 in a fully extended position, and the elongated head 50 adjusted to throw balls to the outfield.

FIG. 9 is a section view, taken substantially on plane 9—9 in FIG. 1, showing structural details of the base 10.

FIG. 10 is an end view, taken substantially on plane 10—10 in FIG. 9, showing the end attachments of the A shaped members 22 of the frame to the base 10.

FIG. 11 is a side elevation view, showing the applicant's ball propelling device collapsed and compacted on the base 10.

CONSTRUCTION

For a more detailed description of the invention, reference is made to the drawing in which numeral 10 designates a base comprising a pair of spaced vertically disposed elongated members 12 mounted on two transverse supports 14 by angle brackets 16. A carrying handle 18 is provided on one of the elongated members 12 of the base 10, and a pair of binding straps 20 are attached to the base 10 for reasons which will be later herein disclosed.

A frame, comprising a pair of laterally spaced A-shaped members 22, is mounted on the base 10. Each of the A-shaped members 22 has a pair of side bars 24 and 26 connected at the upper end by a plate 28. The side bars 24 of the A-shaped members 22 are pivotally attached to the base 10 by a single rivet 30, and connected at the upper end to the plate 28 by a pair of spaced rivets 32. The other side bars 26 of the A-shaped members 22, are removably attached to the base 10 by bolts 34 and wing nuts 36.

The side bars 26, of the A-shaped members 22, are each connected at the upper end to the plate 28 by a rivet 38, and a removable bolt 40 and wing nut 42, for reasons later herein discussed. Cross bars 44 connect the two side bars 24 and 26 of the A-shaped members 22. A rivet 46 provides a permanent pivotal attachment for the cross bars 44 to the side bars 24, whereas a bolt 46 and wing nut 48 provide a detachable connection between the cross bars 44 and the side bars 26.

An elongated head 50, disposed between the two laterally spaced A-shaped members 22 of the frame, is pivotally supported by pintles 52 secured at each end in the plates 28. The elongated head 50 comprises a pair of spaced channel members 54, as shown in FIG. 3, connected at the back end by a plate 56. A vertically disposed link 58 is pivotally attached to each side of the elongated head 50 by rivets 60, and adjustably connected to the side bars 26 of the two A-shaped members 22 of the frame by bolts 62 and wing nuts 64.

A pitching arm 66 is pivotally supported on the forward end of the elongated head 50 for limited rotation between the pair of spaced channel members 54. The pivotal support for the pitching arm 66 consists of a pintle 68 extending through the pair of spaced channel members 54, and having thereon two spacers and washers 70 and 72 respectively. A ball guide 74, having an angular cross section, is welded or otherwise suitably attached to the forward end of the pitching arm 66. A ball rest 76 is provided adjacent the back end of the ball guide 74.

A shock absorber 78, mounted on the elongated head 50, has a transversely disposed end portion 80 disposed above the back end of the pitching arm 66. A coil spring 82, located between the spaced channel members 54 of the elongated head 50, has a hook 84 on the forward end and a threaded axial extension 86 on the other end. The threaded axial extension 86, projects through a rod 88 pivotally supported in the elon-

gated head 50, and is adjustably secured therein by a wing nut 90.

A coupling 92 pivotally connects the hook 84 on the forward end of the coil spring 82 to the back end of the pitching arm 66. A cocking arm 94 is pivotally connected on the lower end to the pitching arm 66 intermediate the ends. A gripping handle 96 is provided on the other end of the cocking arm 94. A link 98 is pivotally connected at the upper end to the crank arm 94 by a bolt 100 and a wing nut 102, and supported at the lower end on a pintle 104 mounted in the plates 28 of the frame. A pair of spacers 106 and washers 108 hold the link 98 in vertical alignment with the pitching arm 66.

The preceding discussion completes a description of the structural details relating to the applicant's invention as herein disclosed. However, to facilitate a more thorough and comprehensive understanding of the invention, a discussion is immediately hereinafter set forth directed to the manner in which the device operates to accomplish its intended function.

OPERATION

In use, the applicant's device is first erected as shown in FIG. 1, and the elongated head 50 adjusted to throw balls at the desired trajectory. If it is desired to use the device for pitching batting practice, the elongated head 50 is adjusted to the position shown in FIGS. 1 through 7 by means of the links 58. A moving force of sufficient magnitude is then applied to the handle 96, in the direction of the arrow 110, to pivot the cocking and pitching arms 94 and 66 respectively into a fully retracted position, as shown in FIG. 7.

In this position, the coil spring 82 is fully loaded, and a ball 112 is placed on the ball guide 74 in contact with the ball rest 76. The handle 96 is then released, and the coil spring 82 drives the pitching arm 66 forward thereby propelling the ball 112 toward home plate, not here shown. The momentum imparted to the pitching arm 66, however, causes it to travel beyond its fully extended position, shown by the full lines in FIG. 1, and reach the broken line position 114.

This over-travel of the pitching arm 66 brings the back end of the arm into contact with the transverse end portion 80 of the shock absorber 78. The shock absorber 78 is thereby forced to the broken line position shown in FIG. 1, thus reducing the chock transmitted through the frame to the base 10 and stabilizing the device. The cocking arm 66 can then be immediately returned to its fully retracted position, and the previously described procedure repeated to provide the required pitching pattern.

In the event it is desired to increase the pitching speed, the wing nut 90 on the threaded axial extension 86 is advanced to increase tension on the coil spring 82. To adapt the applicant's device for use in throwing balls for outfield practice, it is only necessary to elevate the elongated head 50 to the full line position shown in FIG. 8. Likewise, the device may be conveniently adapted for use in throwing balls for infield practice by lowering the elongated head 50 to the broken line position 116 shown in FIG. 8.

When it is desired to compact the device for convenience in storing or transporting it, the bolts 34, 46

and 40 are first removed from the side bars 26 of the frame. The side bars 26 can then be pivoted about the rivet 38 to a position adjacent the side bars 24. The bolts 62 are then removed from the links 58 so that the elongated head 50 may be substantially aligned with the two side bars 24 and 26.

The device can then be swung about the rivet 30 as a pivot point, so as to place the side bars 24 and 26 and the elongated head 50 in the storage channel between the two elongated members 12 of the base 10. The bolt 100, connecting the cocking arm 94 and the link 98, is next removed, and these members allowed to swing downward into the positions shown in FIG. 11. The straps 20 on the base 10 are then closed so as to secure the compacted components on the base 12 thus enabling the device to be conveniently carried by the handle 18.

Based upon the foregoing discussion, the applicant is of the opinion that his invention has fulfilled a long-felt need in the field of ball propelling devices, and that he has accordingly made a valuable and significant contribution to the related art. However, while the invention was described with reference to the structural details of only a single embodiment, it will be appreciated by those familiar with the art, that the principles involved are susceptible of numerous other practical adaptations.

I therefore claim as new, and desire to secure by Letters Patent:

1. A ball throwing device comprising a base, a frame having a pair of upright laterally spaced A-shaped members supported on the base, a head having two spaced elongated members pivotally supported between the pair of upright laterally spaced A-shaped members of the frame, a pitching arm pivoted on the forward end of the head for movement between the two spaced elongated members of the head, a ball guide on the outer end of the pitching arm, a ball holder on the ball guide, a resilient member pivotally connected between the head and the inner end of the pitching arm, a cocking arm pivotally attached at one end to the forward portion of the pitching arm, a link pivotally connected between the cocking arm and the frame, and a handle on the other end of the cocking arm for applying thereto a moving force of sufficient magnitude to pivot the pitching arm so as to load the resilient member.

2. The ball throwing device of claim 1 having in addition thereto an adjustable link connected between the frame and the head so that the attitude of the head may be changed to vary the trajectory of balls thrown by the device.

3. The ball throwing device of claim 2 having in addition thereto a link pivotally connected between the inner end of the pitching arm and the forward end of the resilient member.

4. The ball throwing device of claim 3 having in addition thereto a shock absorber mounted on the head having a transverse resilient member which makes contact with the rear portion of the pitching arm as it travels beyond the fully extended position in throwing a ball, thereby limiting over-travel of the arm and stabilizing the device.

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