J. D. LONG,
MECHANICAL BASE BALL PITCHER,
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Witnesses
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To all whom it may concern:

Be it known that I, John D. Long, a citizen of the United States, residing at Butte, in the county of Silverbow and State of Montana, have invented a new and useful Mechanical Base-Ball Pitcher, of which the following is a specification.

The present invention is a machine for pitching or delivering base balls one at a time to a batter, in order that the batter may have practice or amusement in hitting the balls or attempting to do so, and it is the object of the invention to provide a novel and improved mechanical base ball pitcher.

The invention includes novel means for pitching or throwing the ball with considerable momentum or impetus, novel means for guiding the ball and changing the angle of delivery thereof, and novel means for delivering the balls one at a time to the throwing member or arm.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawings, wherein:

Figure 1 is a side elevation of the apparatus, portions being broken away. Fig. 2 is a plan view of the machine, portions being broken away. Fig. 3 is a front view of the machine, portions being broken away. Fig. 4 is an enlarged sectional detail taken on the line 4-4 of Fig. 1. Fig. 5 is an enlarged perspective view of the free end portion of the throwing arm. Fig. 6 is an enlarged sectional detail of the lower end of the ball guide illustrating the spring for momentarily holding the ball pocket of the throwing arm. Fig. 7 is a plan view of the lower portion of the ball guide and accompanying parts. Fig. 8 is a detail view illustrating a modification.

In carrying out the invention, the machine embodies a suitable frame or support 1 embodying a pair of standards 2, having secured upon their upper ends, bearings 3 through which a short horizontal shaft 4 is journaled for rotation. A throwing arm 5 is attached to said shaft 4 between the bearings 3, and is in the form of a leaf spring constructed of sheet steel or other suitable resilient material. The arm 5 is so arranged that it can flex in a vertical plane arranged at right angles with the shaft 4, but is prevented from flexing to any appreciable extent transversely or out of the plane in which the arm rotates. The throwing arm 5 is provided at its free end with a ball pocket 6 adapted to hold a base ball, and embodying side wings 7, the free end of the arm 5 being curved, as at 8, to complete the pocket with the wings 7.

The throwing arm 5 is rotatable within an arcuate guide 9 constructed of channel iron having its flanges projecting inwardly, and the guide 9 extends through an arc of about 240 degrees, with one end of the guide or channel 9 at the top and the other end projecting upwardly and forwardly. The channel 9 is carried by a pair of spiders 10 which have their hubs mounted loosely upon the shaft 4, and which have the ends of their arms attached to the outer sides of the flanges of the channel 9 adjacent the ends and intermediate portion thereof. From the lower end 11 of the channel, the channel is curved about the axis of the shaft 4 as a center to the point 12 between the ends of the channel, and from the point 12 to the point 13 adjacent the upper or delivery end of the channel, the channel is curved on a spiral or involute line, so that the point 13 of the channel is closer to the shaft 4 than the point 12. From the point 13 which is near the upper end of the channel, the channel is straight to the upper or delivery end 14. The length of the throwing arm 5 is practically the same as the radius of that portion of the channel 9 between the end 11 and point 12, so that the pocket 6 can move snugly within said portion of the channel, but when the pocket 6 moves within the portion of the channel above the point 12, the arm 5 will naturally be bowed as indicated in dotted lines in Fig. 1. The lower portion of the channel 9 is disposed between the standards 2 within the frame, and that portion of the machine between the ends of the channel is open.

Secured upon the lower or receiving end of the channel 9 is a leaf spring 15 which has its free portion curved upwardly and projecting away from the end 11 of the channel, whereby when the pocket 6 is received
by the lower end of the channel 9, it will be momentarily held by the spring 15. Thus, 5 if the arm 5 is sprung into the end 11 of the channel 9, the spring 15 will hold the free end of the arm, until the shaft 4 is turned sufficiently to carry the arm with it along the channel.

The base balls B are delivered one at a time into the lower portion of the channel 9 to be taken up by the throwing arm 5 and to this end, one flange of the channel 9 is cut away at the lower portion of said channel, as at 16, and an inclined chute 17 has its lower end extending to said cut away portion or opening 16, the lower end of said chute being secured upon a brace or portion 18 of the frame 1. The balls are placed within the chute 17 and will roll down said chute one behind the other, the channel 9 being sufficiently wide to accommodate a single ball which rolls from the chute 17 into the channel 9.

The lower portion of the channel 9 has its web provided with a longitudinal slot 19 in which is disposed a pair of trips 20 projecting upwardly within the channel at the opposite sides of the lower end of the chute 17, the trips 20 being pivoted, as at 21, to the brace 18, and having lower weighted arms 22 which normally hold the trips 20 projecting upwardly. The ball which rolls from the chute 17 into the channel 9 will be held between the trips 20 to prevent the displacement of the ball, and when the pocket 6 passes the chute 17 to carry the respective ball therewith, the trips 20 can swing out of the way. As soon as the pocket 6 has passed the trips, the trips are swung back to normal position under the influence of the weighted arms 22 thereof.

The channel or guide 9 can be tilted or swung about the horizontal axis of the shaft 4, for changing the angle of delivery of the ball from the delivery or upper end of the channel, and to this end, a longitudinal rod 23 is slidable through the lower portion of the frame 1 below the channel 9, and is connected by a link 24 with said channel 9. The rod 23 is extended forwardly to the desired distance to a lever 25 to which the forward end of the rod 23 is pivoted. The lever 25 is fulcrumed upon a stand 26, and said stand has a segment 27 for the engagement of a pawl or dog 28 carried by the lever 25, whereby said lever can be held at various angular positions. When the pawl 28 is released, the lever 25 can be swung for purpose of tilting the channel or guide 9 to the desired angle. The cut away portion or opening 16 and slot 19 being elongated, permit the channel 9 to be turned without interfering with the delivery of the balls between the trips 20 within the channel 9.

The throwing arm 5 may be actuated either mechanically or manually. To actuate the arm 5 mechanically, there is provided an electric motor or other prime mover 29 carried by a bracket 30 attached to the frame 1 at one side thereof, and a driving shaft of the motor or prime mover 29 has secured thereon a worm 31 meshing with a worm wheel 32 secured to the lower end of a vertical shaft 33 disposed at one side of the frame 1 and journaled within a bearing 34 attached to said frame. A bevel gear 35 is secured to the upper end of the shaft 33 and meshes with a bevel gear 36 secured to one protruding end of the shaft 4. When the motor or prime mover 29 is operated, the throwing arm 5 will naturally be rotated, and the gear ratio is such, that the arm is rotated at the proper velocity, the speed of rotation being governed by speeding up or slowing down the motor 29.

As a means for actuating the throwing arm 5 manually, there is provided an oscillatory arm 37 at one side of the frame, and mounted adjacent a gear wheel 38 meshing with a pinion 39 secured to the other protruding end of the shaft 4. The rear end of a rod 40 is pivoted adjacently to the arm 37, and the forward end of said rod 40 is connected at a suitable point in advance of the frame 1 to a lever 42 fulcrumed upon a stand 41. The arm 37 and gear wheel 38 are mounted upon a pin or stub shaft 43 secured to the respective standard 2, and the face of the gear wheel 38 is provided with an annular series of beveled lugs 44. An angular or L-shaped pawl 45 has its elbow pivoted to an ear 46 of the arm 37, and one arm of the pawl 45 is engageable with the lugs 44, while a spring 47 is disposed between the other arm of the pawl and the arm 37, to normally swing the pawl to such position that it will engage the square ends of the lugs 44.

The lever 42 is normally swung rearwardly, so that the arm 37 is swung correspondingly, with the pawl 45 engaged with one lug 44. Then when the lever 42 is pulled forward manually, the arm 37 will be swung forward, and the latch 45 will carry the respective lug 44 therewith, to rotate the gear wheel 38 one step, which will be sufficient to rotate the pinion 39 one complete revolution, whereby the throwing arm is given one complete revolution. When the lever 42 is swung backwards, the pawl 45 snaps past the successive lug 44 to engage in rear thereof, whereby the successive forward movement of the lever 42 will again rotate the arm 5. Either the mechanical or manual actuating means may be employed, whichever is desired.

The shaft 4 is preferably provided with an arm 48 projecting in a direction opposite to the direction in which the arm 5 projects, and carrying an adjustable counter weight 49, to balance the arm 5, whereby the arm 5 will turn easier.
In operation, the batter stands at a suitable distance in front of the throwing mechanism, and the shaft is then operated. When the throwing arm is swung downwardly past the trip means, the ball held by said means is caught in the pocket, and is carried upwardly with the throwing arm. The friction of the ball and pocket with the channel, and the momentum of the ball and said pocket, will serve to bow or bend the arm so that it is brought under tension, and this bowing or bending of the arm is accelerated when the arm moves from the point to the point of the channel or track. Consequently, the arm as it moves from the lower to the upper end of the channel, is brought under considerable tension, and then when the pocket is released from the upper or delivery end of the channel, the arm will straighten out, and assisted by the momentum of the ball, will throw or pitch the ball with considerable impetus toward the batter, the ball being slipped or slapped by a quick motion of the arm. Then when the arm is brought adjacent the receiving end of the channel, the pocket is momentarily held by the spring, until the shaft has rotated sufficiently to release the arm from the spring. The base balls are deposited in the chute and roll downwardly therein by gravity to the trip or holding means within the lower portion of the channel. By adjusting the lever, the channel or track can be tilted, so that the balls are delivered at various angles, either high or low to the batter, but always in the same vertical plane past the batter. The present machine is capable of throwing or pitching the balls in succession, and eliminates the necessity of a person pitching the balls, so that the batter or batters can obtain practice in batting. The spring is especially useful when the manually operable means is used for rotating the throwing arm, since the spring will hold the arm in starting position after the arm has rotated a complete revolution.

In Fig. 5, a modified trip or ball holding means is illustrated. In the modification, a single curved trip is employed within the slot of the channel, and is pivoted, as at 21. The trip has a weighted arm whereby the trip is normally held raised within the channel, to hold the ball in place. The trip can be depressed readily when the throwing arm moves past the same to take the ball therewith.

Having thus described the invention, what is claimed as new is:

1. A mechanical base ball pitcher embodying an arcuate guide mounted for oscillatory adjustment, and a resilient rotating arm working with thin sleeve guide and having ball holding means at its free end coöperable with said guide.

2. A mechanical base ball pitcher embodying a rotatable shaft, an arcuate guide, spiders carrying said guide and mounted loosely upon said shaft, means for tilting said guide, means for delivering balls one at a time within said guide, and a resilient arm carried by said shaft and having ball holding means at its free end coöperable with said guide.

3. A mechanical base ball pitcher embodying an arcuate guide, and a rotatable resilient arm working within said guide and having ball holding means at its free end coöperable with said guide, the delivery portion of the guide extending in a spiral curve closer to the center of rotation of said arm.

4. A mechanical base ball pitcher, embodying a rotatable shaft, an arcuate guide, a pair of spiders carrying said guide and mounted loosely upon said shaft, means for tilting said guide, and means for delivering balls one at a time into said guide, and a resilient arm carried by said shaft and having ball holding means at its free end coöperable with said guide, the delivery portion of said guide extending along a spiral curve nearer said shaft than the other portions of said guide.

5. A mechanical base ball pitcher, embodying an arcuate channel mounted in a vertical plane for oscillatory adjustment and extending through an arc of over 180 degrees, the lower portion of the channel having a longitudinal slot and a cut away portion at one side, trip means disposed in said slot for holding a ball, and an inclined chute for delivering balls one at a time through said cut away portion to said trip means, and a rotatable resilient arm movable within said channel and having a pocket at its free end movable in said channel past said trip means.

6. A mechanical base ball pitcher, embodying a frame, a rotatable shaft carried thereby, means for rotating said shaft, an arcuate channel extending through an arc of over 180 degrees and disposed in a vertical plane, a pair of spiders attached to said channel and having their hubs mounted loosely upon said shaft, means for tilting said channel, the lower portion of said channel having a longitudinal slot and a cut away portion at one side, an inclined chute for delivering balls one at a time through said cut away portion into the channel, trip means within said slot for holding the balls in place within the channel, and a resilient arm secured to said shaft and having a ball holding pocket at its free end working within said channel, the upper delivery portion of said channel extending along a spiral curve closer adjacent said shaft than the lower portion of the channel.

7. A mechanical base ball pitcher embodying an arcuate channel disposed in a verti-
cal plane having a lower portion and an upper delivery end, said channel being mounted for oscillatory adjustment, an inclined chute for delivering balls one at a time into the lower portion of said channel, a rotatable arm movable within said channel and having ball holding means at its free end movable along said channel, and trip means at the lower end of said chute for holding a ball to be engaged by said arm, the channel having a slotted portion accommodating said trip means.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JOHN D. LONG.

Witnesses:
ETTA PAYNTER,
LOTTIE L. DENNY.