

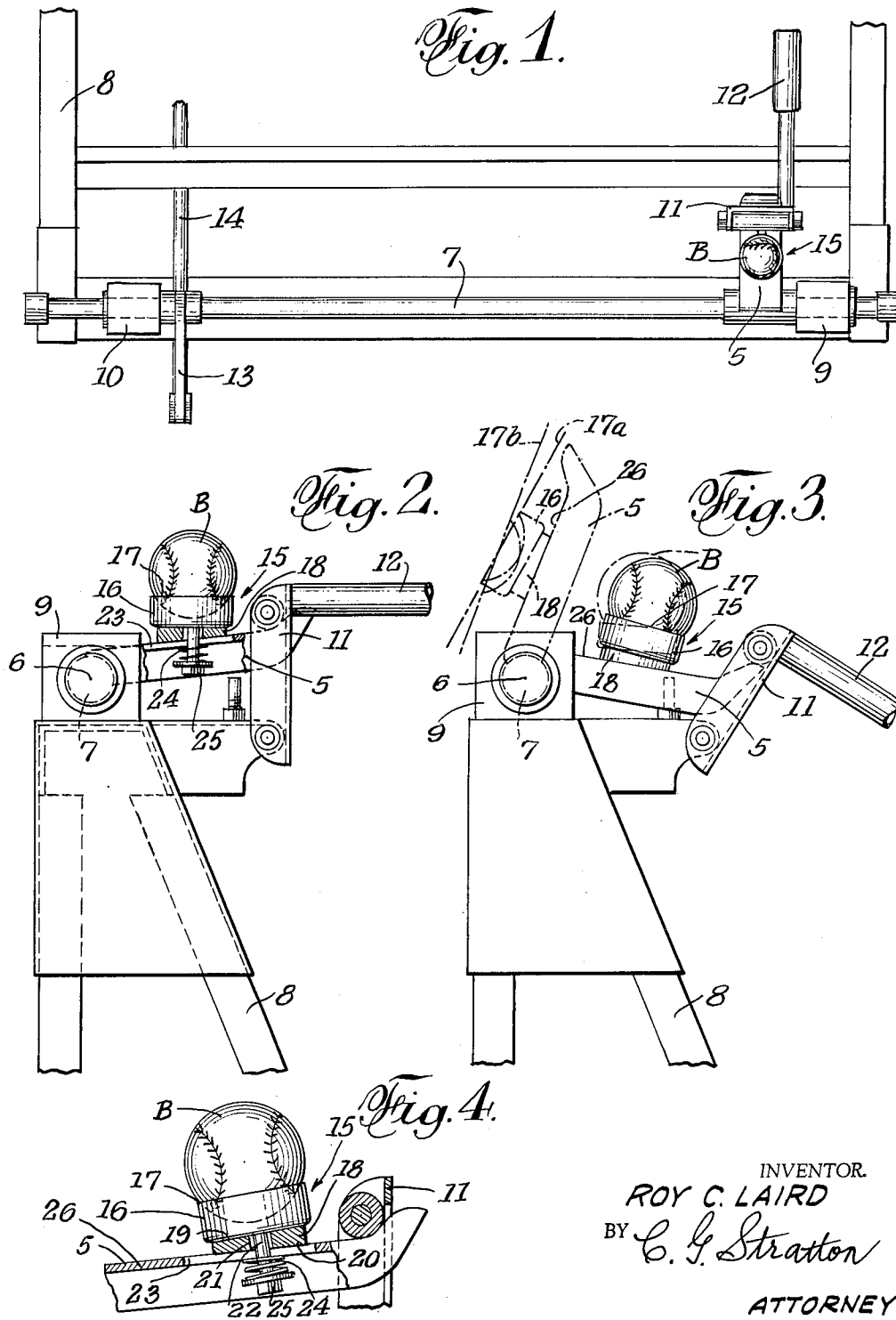
July 19, 1966

R. C. LAIRD

3,261,340

BALL-PITCHING MACHINE WITH TRAJECTORY-CONTROLLING MEANS

Filed Sept. 24, 1964



INVENTOR.
ROY C. LAIRD
BY *C. G. Stratton*
ATTORNEY

1

3,261,340 BALL-PITCHING MACHINE WITH TRAJECTORY- CONTROLLING MEANS

Roy C. Laird, P.O. Box 75, Palmdale, Calif.

Filed Sept. 24, 1964, Ser. No. 398,843

4 Claims. (Cl. 124-7)

This invention relates to a ball-pitching machine that is provided with means to adjust or control the trajectory of the ball that it propels. The present invention is an improvement of the machine disclosed in my pending application, Serial No. 182,351, filed March 28, 1963, and titled Ball-Pitching Machine.

The machine disclosed in the mentioned application has a pitching arm on which is mounted a ball holder which, upon release of said arm, expends energy stored therein by a torsion spring bar and swings around the axis of said spring bar to centrifugally propel a ball resting in the ball holder. The pitching arm of said machine provides for adjusting the ball holder toward and from the spring bar to increase or decrease the effective length of the ball-pitching arm or lever. Regardless of such adjustment, the ball is propelled for a shorter or longer distance, but always in the same manner, i.e., the relationship between the ball and the holder is always such that the ball leaves the holder on a trajectory that is always the same but is shorter or longer according to the adjustment.

An object of the present invention is to provide a machine, as above characterized, with means that may be adjusted to control the height of a ball from the ground as it crosses home plate and also to control the path of the ball over the plate in simulation of curves, sliders and other such pitches thrown by a pitcher.

This invention also has for its objects to provide such means that are positive in operation, convenient in use, easily installed in a working position and easily disconnected therefrom, economical of manufacture, relatively simple, and of general superiority and serviceability.

The above objects are realized in a ball-pitching machine, as above generally described, in which means is provided to tilt the ball-holding means so that it is at different angles relative to the pitching arm and to the plane of the arc in which it swings. The adjustment enables effecting ball release in different ways, i.e., earlier or later to control the height of the trajectory and the height of a pitched ball above home plate, or at different lateral angles to control the angle of the path of the ball as it crosses over home plate, or a combination of these two ways of propelling the ball so that the ball will cross home plate in simulation of a slider thrown by a pitcher.

The invention also comprises novel details of construction and novel combinations and arrangements of parts, which will more fully appear in the course of the following description, and which is based on the accompanying drawing. However, said drawing merely shows and the following description merely describes, one embodiment of the present invention, which is given by way of illustration for example only.

In the drawing, like reference characters designate similar parts in the several views.

FIG. 1 is a plan view of a ball-pitching machine which, according to the invention, is provided with trajectory-controlling means.

FIG. 2 is an enlarged and partly broken end elevational view of said machine in cocked position preparatory to pitching or propelling a ball.

FIG. 3 is a similar view showing said machine immediately before release of the pitching arm.

FIG. 4 is a further enlarged and fragmentary sectional view of the cocked pitching arm with the trajectory-controlling means adjusted differently from that shown in FIG. 2.

2

The present improvements are provided in a pitching machine that has a pitching arm 5 that, from a cocked position, is released so as to swing about an axis 6 under the power stored in a torsion member 7 disposed on said axis. An exemplary machine as shown, comprises a support frame 8, two longitudinally spaced blocks 9 and 10 fixedly mounted on said frame, said member 7 comprising an elongated tube that has rotational bearing at its opposite ends in both said blocks, the pitching arm 5 being affixed to the tube 7 adjacent bearing block 9, means 11 to releasably latch the arm 5 and including a releasing handle 12, a cocking arm 13 affixed to the end of a member 7 that is adjacent to the block 10, and pedal-operated means 14 to rock said cocking arm 13 to place the member 7 under torsional stress that stores energy therein so that, when the means 11 is moved by its handle 12 to release the pitching arm 5, the latter will rapidly swing on the axis 6 as the member 7 resumes an unstressed condition.

According to the present invention, the pitching arm 5 is provided with a holder 15 for a ball B which is adjustable toward and from the axis 6 and also universally tiltable relative to said arm 5.

Said holder is shown as comprising a cup 16 that has an upper perimeter or annular rim or lip 17 that is smaller, diametrically, than the ball B and, therefore, constitutes an annular ball-engaging support for said ball, as shown. A preferably circular shim 18 is interposed between the flat bottom of the cup 16 and the top of arm 5, said shim being wedge-shaped so that its opposite faces 19 and 20 define an acute angle between them. The shim 18 has a central hole 21 through which a stud 22 extends from the bottom of the cup, said stud extending also through an elongated slot 23 in arm 5. A compression spring 24 is confined between a head 25 on the end of stud 22 and the under face of the top 26 of arm 5.

As can be seen, the spring 24 resiliently holds the cup 16 and a ball therein against the arm 5, and the lip 17 of the cup is at an angle to the top 26 of the arm 5, according to the rotational disposition of the shim. It will be noted from FIG. 2 that the shim has its thicker edge on the side toward the axis 6, the cup 16 and its rim 17 being at one angle relative to said arm top 26; and from FIG. 4, that the shim has its thinner edge on the side toward said axis 6, the cup and its lip 17 being at a different angle relative to said arm top 26. FIG. 3, by dot-dash lines 17a and 17b, respectively, shows the said lip angles relative to arm top 26 at the approximate position of arm 5 at which the ball B is propelled. It will be clear therefrom that the ball is released from engagement with the cup rim 17 differently in one said adjusted position than in the other. Not only the height of the trajectory is different, but also the height at which the ball passes above the plate is different. At the angle of line 17a, the top portion of the rim 17 will release the ball sooner than at the angle of line 17b, providing the above-described differences in ball control.

By adjusting the shim 18 so that the thick edge thereof is at one side or the other, i.e., phased 90° from one of the above adjusted positions, the cup rim 17 engages the ball differently at one side than at the other, and so affects ball rotation as to cause the same to pursue a course at a lateral angle as it crosses the plate.

At most angular positions of the cup and its rim 17, one part of the rim, by retaining contact with the ball longer than other portions thereof, will impart ball rotation or spin that will cause the ball, according to the speed of the pitch, to curve in a direction according to the location of said one rim part.

Since the shim 18 may be readily rotated between pitches, the ball may be directed toward a batter practicing hitting, in different ways without the batter being

aware of the adjustment. Adjustment along slot 23 of the cup 16 may as readily be effected.

While the foregoing has illustrated and described what is now contemplated to be the best mode of carrying out the invention, the construction is, of course, subject to modification without departing from the spirit and scope of the invention. Therefore, it is not desired to restrict the invention to the particular form of construction illustrated and described, but to cover all modifications that may fall within the scope of the appended claims.

Having thus described the invention, what is claimed and desired to be secured by Letters Patent is:

1. In a ball-pitching machine having a ball-pitching arm mounted on an energy-storing member and provided with means to hold said arm while energy is stored in the mentioned member and to release the arm to swing under force of the energy stored in said member, the improvements that comprise:

- (a) a ball-holding device on said arm and having a ball-supporting rim,
- (b) means engaged with the arm and the ball-holding device to adjust the rim of the latter at various angles relative to the arm, and
- (c) said means comprising a wedge shim member interposed between the device and arm, and means to resiliently bias the device into angle-accommodating engagement with the shim member.

2. In a ball-pitching machine having a ball-pitching arm mounted on an energy-storing member and provided with means to hold said arm while energy is stored in the mentioned member and to release the arm to swing

under force of the energy stored in said member, the improvements that comprise:

- (a) a ball-holding device on said arm and having a ball-supporting rim,
- (b) a wedge shim having a thick edge and a thin edge and interposed between the ball-holding device and the arm and adjustable to change the disposition of said shim edges, and
- (c) means to resiliently bias the device in a direction toward the shim whereby the rim of said device assumes an angle relative to the arm that conforms to the disposition of said shim edges.

3. In a ball-pitching machine according to claim 2, the shim being circular, and the ball-holding device being provided with a stud around which the shim is angularly adjustable.

4. In a ball-pitching machine according to claim 3, said device and arm each having a flat face, and said faces engaging opposite sides of the shim, said opposite shim sides being flat and at an acute angle to each other.

References Cited by the Examiner

UNITED STATES PATENTS

1,821,755	9/1931	Jeter	124—7
1,912,360	6/1933	Blanchard	124—7

FOREIGN PATENTS

928,649 6/1947 France.

30 RICHARD C. PINKHAM, *Primary Examiner*.
W. R. BROWNE, *Assistant Examiner*.