March 16, 1948. I. N. JACOBS ET AL 2,437,745

MECHANICAL PITCHING AND BATTING DEVICE FOR BASEBALL GAMES

Filed Nov. 12, 1946 3 Sheets-Sheet 1

Fig. 1.

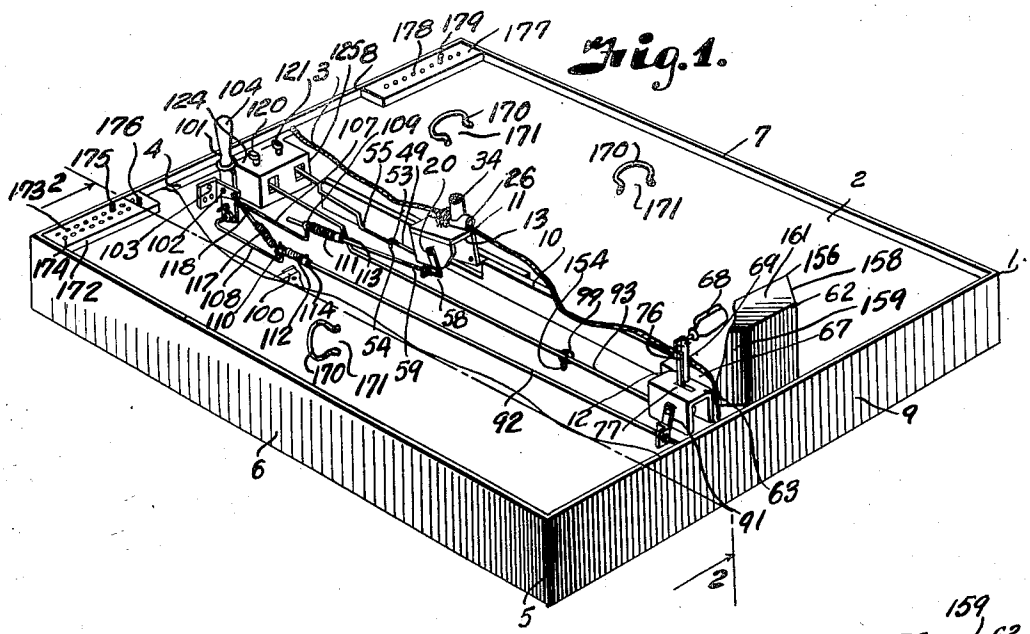


Fig. 2.

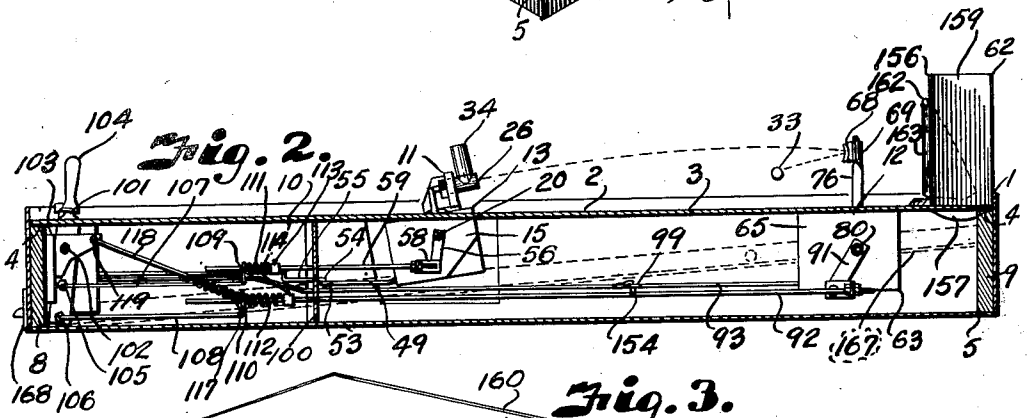
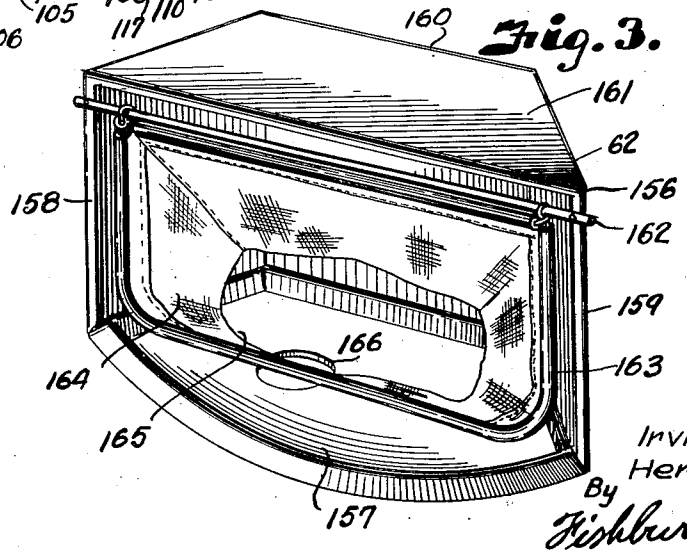


Fig. 3.



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MECHANICAL PITCHING AND BATTING DEVICE FOR BASEBALL GAMES

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Fig. 4.

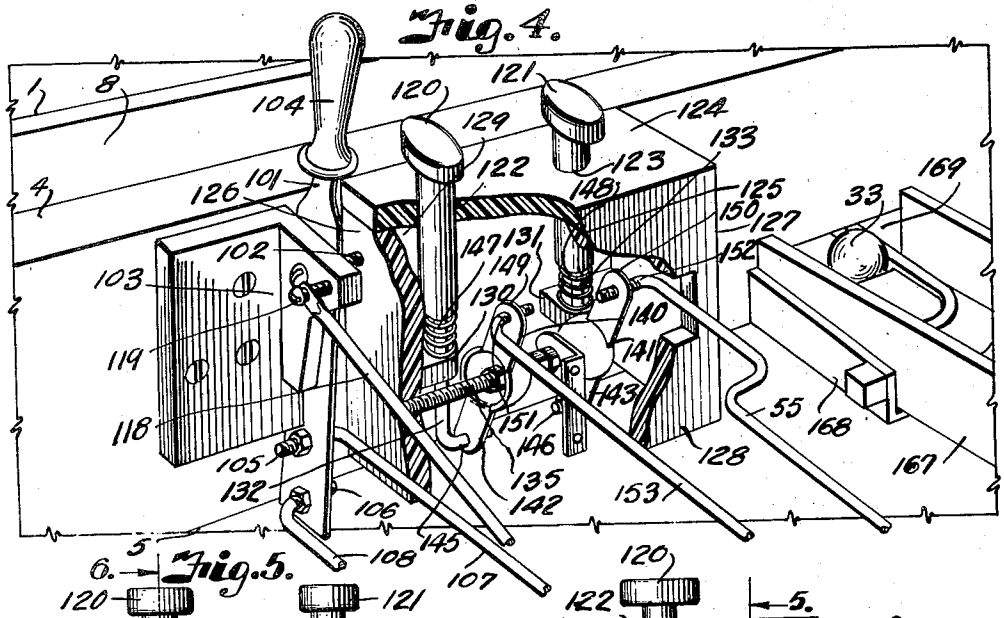


Fig. 5.

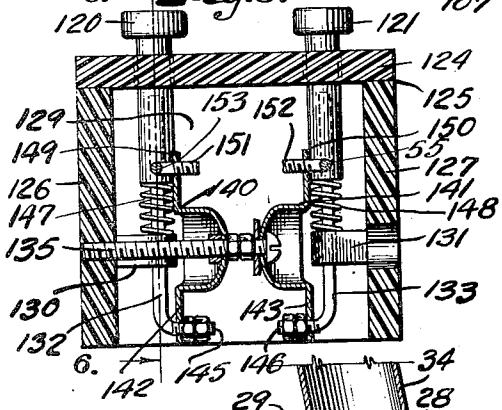


Fig. 6.

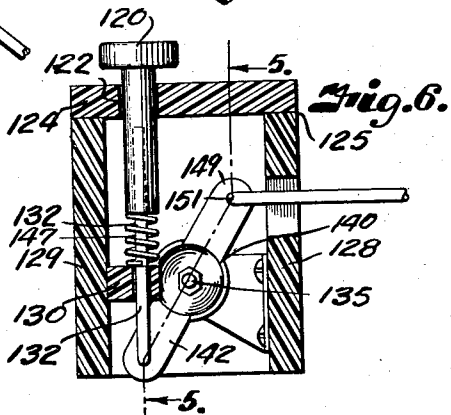


Fig. 7.

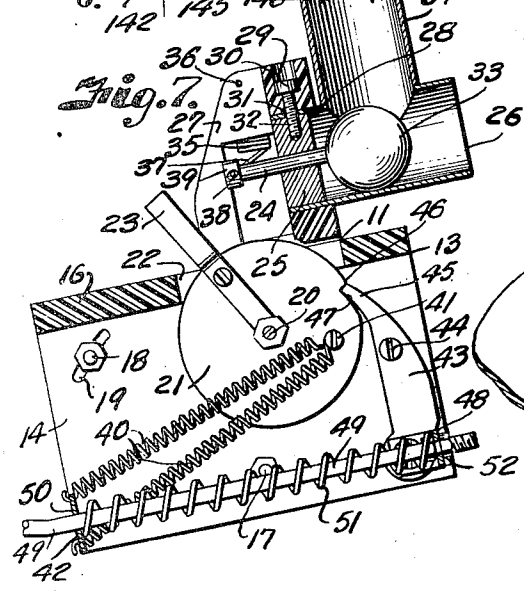
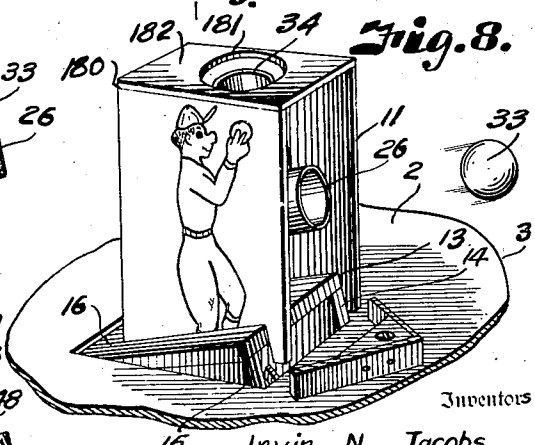


Fig. 8.



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MECHANICAL PITCHING AND BATTING DEVICE FOR BASEBALL GAMES

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Fig. 9.

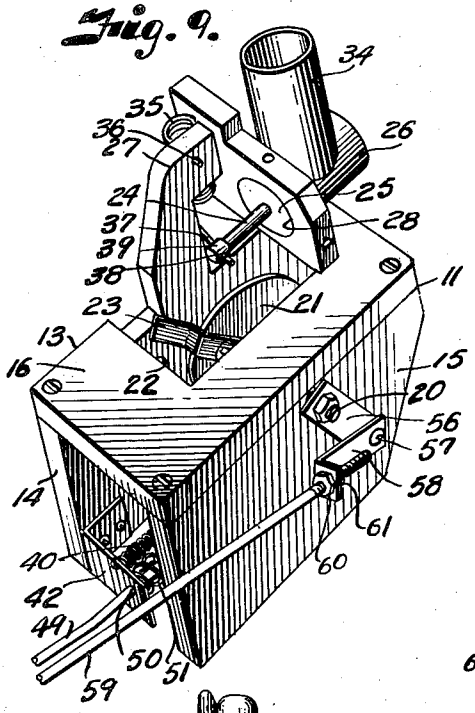


Fig. 10.

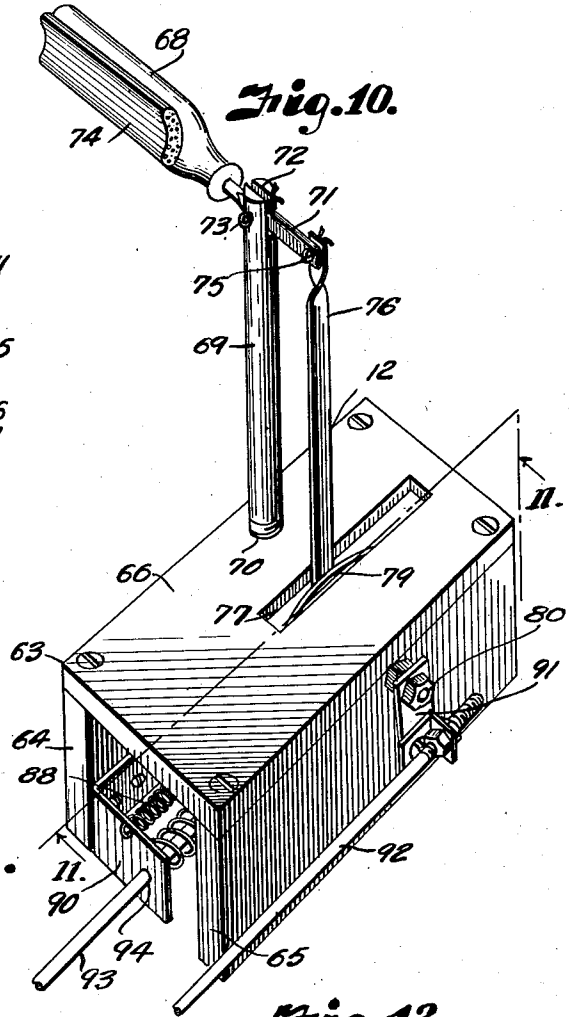


Fig. 11.

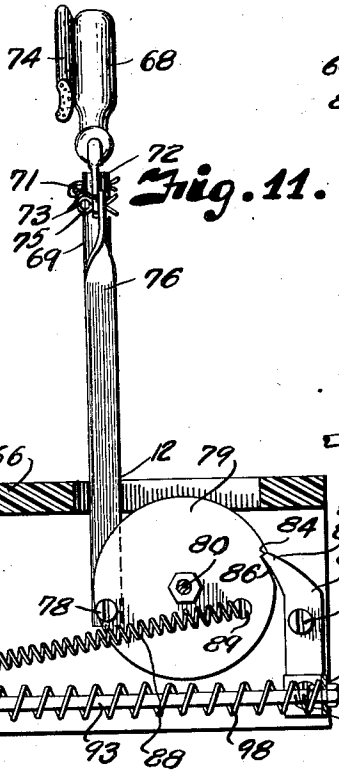
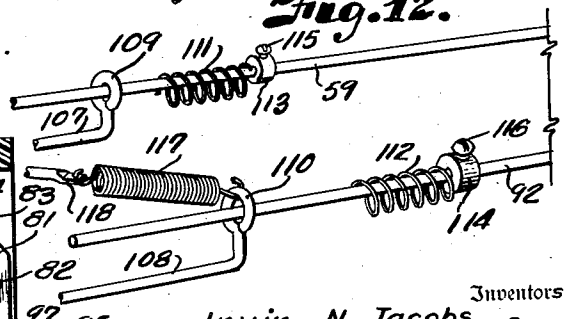


Fig. 12.



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UNITED STATES PATENT OFFICE

2,437,745

MECHANICAL PITCHING AND BATTING DEVICE FOR BASEBALL GAMES

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Application November 12, 1946, Serial No. 709,298

7 Claims. (Cl. 273—89)

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This invention relates to games and more particularly to a game device wherein the plays are in simulation with the plays and action of a regulation baseball game.

The principal object of the present invention is to provide a mechanically operated game of this character that is of simple construction and which is mechanically operated to give action and interest encountered in a regulation game of baseball.

Other objects of the invention are to provide a ball game device with pitching and batting mechanisms to be operated with skill and timing and which result in scores corresponding to the scores of a well-played ball game; to provide a common actuator for individually cocking the pitching and batting mechanisms and which will operate to cock one of the mechanisms should the other mechanism remain in cocked position; to provide a backstop mechanism for automatically returning the balls which are ejected by the pitching mechanism and missed by the batting mechanism as in the case of a ball or strike; and to provide a playing field in association with the pitching and batting mechanisms for scoring the plays when the ball is struck by the bat of the batting mechanism.

In accomplishing these and other objects of the invention, we have provided improved structure, the preferred form of which is illustrated in the accompanying drawing wherein:

Fig. 1 is a perspective view of a game device embodying the features of the present invention, a part of the playing field being broken away to better illustrate the mechanism covered thereby.

Fig. 2 is a longitudinal section on the line 2—2 of Fig. 1 illustrating the ejection of a ball by the pitching mechanism and striking thereof by the batting mechanism.

Fig. 3 is a perspective view of the backstop or ball-catching mechanism.

Fig. 4 is an enlarged perspective view of the keys for actuating the pitching and batting mechanisms and the lever for cocking the mechanisms preparatory to setting up a pitch.

Fig. 5 is a section through the tripping key housing on the line 5—5 of Fig. 6.

Fig. 6 is a section through the tripping key housing on the line 6—6 of Fig. 5.

Fig. 7 is a longitudinal section through the pitching mechanism.

Fig. 8 is an outer perspective view of the pitching mechanism.

Fig. 9 is a perspective view of the pitching mechanism as it appears when removed from its enclosure and from the game device.

Fig. 10 is a similar view of the batting mechanism.

Fig. 11 is a longitudinal section through the batting mechanism on the line 11—11 of Fig. 10.

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Fig. 12 is a fragmentary view of the rods which connect the cocking lever with the batting and pitching mechanisms and particularly illustrating the connections whereby the mechanisms are simultaneously cocked by a single lever.

Referring more in detail to the drawings:

1 designates a ball game device embodying the features of the present invention and which includes a substantially rectangular playing field or site 2 formed on a board 3 that is supported by its marginal edges from a ledge 4 provided on the inner side of a rectangular frame 5. The frame 5 includes sides 6 and 7 connected by ends 8 and 9 so as to form an enclosure for the various actuating mechanisms, their operating levers and the interconnections therebetween. Extending between the end members 8 and 9 is a longitudinal support 10 which extends parallel with the side members 6 and 7 and provides a mounting for a pitching mechanism 11 and a batting mechanism 12. The pitching mechanism is best illustrated in Figs. 7 to 9 inclusive and comprises a frame-like housing 13 having spaced side members 14 and 15 connected by a top 16. The frame-like housing 13 is attached to the longitudinal support 10 at a point spaced from the end member 8 and at an angle with respect to the board 3 to give an upward pitch to the ball when it is discharged therefrom as later described, the angle being adjusted by pivotally mounting the side member 14 on a fastening device 17 and securing it in adjusted angular position by a fastening device 18 that extends through an arcuate slot 19 therein as best shown in Fig. 7. By loosening the fastening devices the frame 13 may be shifted to provide the required traverse of the ball in the direction of the batting mechanism.

Oscillatably mounted between the side members of the frame on a cross shaft 20 is a disk 21 having its upper portion projecting through an opening 22 in the top 16 and from which a lever or hammer 23 projects to contact a ball ejecting plunger 24 slidably mounted in a block 25 closing the rear end of a ball ejecting barrel 26, which barrel is supported at its rear end in a bracket 27 that is carried on the side member 14. The barrel 26 is supported within an opening 28 of the bracket by a set screw 29 that is passed through an opening 30 in the bracket and threaded into an opening 31 of the barrel and a registering socket 32 in the closure block 25 as shown in Fig. 7.

Balls 33 to be projected are loaded into the barrel through a tubular magazine 34 extending upwardly from an opening formed in the upper portion of the barrel. The plunger 24 is normally retained in retracted position by a coil torsion spring 35 having one end fixed to the bracket 22 as indicated at 36 and which has its other end terminating in a laterally extending arm 37 which

projects loosely through an opening 38 in the head 39 of the plunger 24. The disk is actuated in a clockwise direction to cause the hammer 23 to strike the plunger and eject a ball from the barrel by coil springs 40 having one end fixed to the disk at a point ahead of and below the axial center of the disk as indicated at 41 and which have their opposite ends hooked into openings provided in a bracket 42 that is carried by the side wall 14 as best shown in Figs. 7 and 9. The disk is retained in cocked condition against action of the springs by a pawl 43 that is pivoted on a screw 44 carried by the side member 14 and which has a latch end 45 adapted to engage against the shoulder 46 formed by a notch 47 provided in the periphery of the disk as shown in Fig. 7. The opposite end of the pawl has a laterally extending apertured ear 48 passing a rod 49 which is reciprocably supported in an opening 50 that is provided in the bracket 42. The pawl 43 is urged into latched position by a coil spring 51 having one end engaging the bracket 42 and the opposite end engaging the ear 48 to retain the ear in contact with a nut 52 on a threaded end of the rod as best shown in Fig. 7. The rod 49 extends rearwardly from the bracket 42 and terminates in an eye 53 which is engaged with a hooked end 54 of a tripping lever 55 that extends rearwardly and connects with the tripping or actuating key of the tripping mechanism later described. The pawl is normally retained in position to engage the shoulder 46 of the notch 47 when the disk is turned in counter-clockwise direction as viewed in Fig. 7 by means of a cocking lever as now to be described.

The shaft 20 projects through the side member 15 and fixed thereto is an arm 56 that is pivotally connected as at 57 with an angle-shaped bracket 58 that has one leg extending laterally and provided with an opening through which the threaded end of a cocking rod 59 is projected, the cocking rod being adjustably fixed to the bracket 58 or the bracket by jamb nuts 60 and 61 engaging the respective sides thereof.

The batting mechanism 12 is also attached to the longitudinal supporting member of the pitching mechanism but is spaced inwardly from the rear member 9 of the frame to accommodate the ball catching device 62 to be later described. The batting mechanism is best shown in Figs. 10 and 11 and includes a base frame 63 having spaced sides 64 and 65 connected by a top plate 66. The side 64 is attached to a lateral offset 67 on the longitudinal support 10 so that the bat 68 of the mechanism will be in line with the ball projected from the pitching mechanism. A bat 68 is adapted to swing transversely across the path of a pitched ball and in a substantially perpendicular plane. The bat is, therefore, pivotally mounted on a post 69 that is adjustably threaded in a threaded opening 70 of the top plate 66. The bat has a tail portion 71 that extends through a slotted end 72 of the post and is pivoted therein by a fastening device such as a cotter pin 73 that extends through registering openings in the post and tail portion 71 of the bat as will be well understood. The striking end of the bat is relatively wide, somewhat concave and has a mat 74 fixed to the concave face thereof, which controls the direction that the ball is driven when struck with the bat. The tail portion of the bat is pivotally connected by a cotter pin 75 with the upper end of a link 76, which link extends downwardly through a slot 77 in the top 66 and pivotally connects as at 78 with an oscillatable disk 79 similar to the disk previously described, the disk 79 being mounted on a shaft 80 that extends across the base frame 63 and has its ends suitably mounted in openings in the plates 64 and 65.

The bat is supported in cocked position by a pawl 81 similar to the pawl previously described and which is pivotally mounted on a screw 82 carried by the side plate 64. The pawl has a latch end 83 that engages a shoulder 84 formed by a notch 86 in the periphery of the disk. When cocked the disk is released in latching engagement with the pawl by a coil spring 88 that is connected with a screw 89 located in the face of the disk eccentrically of the shaft 80. The opposite end of the spring is hooked to a bracket 90 similar to the bracket 42 previously described. The disk is rotated in an anti-clockwise direction to effect cocking thereof by an arm 91 and the arm is connected with a rod 92 in the same manner as the rod 59 previously described. The pawl 81 is shifted out of latching position to release the bat to the action of the spring 88 by means of a rod 93 similar to the rod 49. The rod 93 is reciprocably supported in an opening 94 of the bracket 90 and has a threaded end 95 extending through an opening 96 in a laterally extending ear 97 on the tail portion of the pawl 81. The threaded end of the rod carries a nut 97 that engages against the rear face of the ear. The pawl is retained in latched position with the ear in contact with the nut by means of a coil spring 98 sleeved over the rod and having one end engaging the ear and the other end engaging the bracket 90 as best shown in Fig. 11.

The rod 93 extends rearwardly from the bracket 90 and terminates in an eye 99. The rods 59 and 92 are guided in suitable openings in a plate 100 that extends laterally from the longitudinal support as best shown in Fig. 2 and are actuated in a forward direction to simultaneously cock the pitching and batting mechanisms. This is effected by a lever 101 which is pivotally mounted on a pivot 102 that is carried on a bracket 103 that is mounted on the inner side of the front frame member 8 as best shown in Fig. 4. The lever 101 includes an upwardly extending portion that projects through a suitable slot in the board 3 and carries a handle 104 by which the lever is rocked on its pivot. The lower end of the lever projects downwardly and pivotally connects with the laterally extending terminals 105 and 106 of links 107 and 108 that extend forwardly and which are provided with upwardly extending eye-shaped terminals 109 and 110 that pass the free ends of the rods 59 and 92 therethrough and which abut against coil springs 111 and 112 sleeved on the respective rods and which have ends abutting against collars 113 and 114 adjustably fixed to the rods by set screws 115 and 116 (Fig. 12). Thus, when the lever 101 is moved retractively, the eyes 109 and 110 on the ends of the links 107 and 108 are shifted on the terminal ends of the rods 59 and 92 and engage the springs 111 and 112 whereupon the springs are compressed until sufficient power is provided to effect forward shifting of the rods 59 and 92 to cause latching of the pitching and batting mechanisms.

The lever 101 is moved retractively to its normal position by a coil spring 117 hooked to the eye terminal 110 and its opposite end to a link 118 fixed to a stud 119 projecting from the bracket 103. Thus, when the actuating pressure is relieved from the lever the spring 117 restores the lever to its normal position and causes the eye terminals 109 and 110 of the links 107 and 108 to

leave the ends of the springs 111 and 112 so that the disks remain in latched position and the disks are free to operate when released by their respective release mechanisms now to be described.

120 and 121 designate keys reciprocably mounted in bearing openings 122 and 123 in the top plate 124 of a housing 125. The housing also includes side walls 126, 127, 128 and 129, the wall 129 being suitably attached to the inner face of the frame member 8 at a point alongside of the bracket 103. Fixed to and projecting from the inner face of the side walls 126 and 127 are ears 130 and 131 having openings coaxial with the bearing openings 122 and 123 to mount extended shanks 132 and 133 of the keys. Mounted transversely of the housing in front of the plungers is a shaft 135 carrying rocker arms 140 and 141 having lower ends 142 and 143 piovtally connected with laterally extend terminals 145 and 146 on the shanks of the keys whereby downward movements of the keys effect rocking movement of the levers. The keys are normally retained in their upper position by coil springs 147 and 148 sleeved over the shank extensions and having ends engaging respectively against the ears 130 and 131 and against the keys as shown in Fig. 4. The keys and shank extensions have sufficient clearance in their bearing openings to accommodate for arcuate movement of the rocker arms. The upper ends 149 and 150 pivotally connect lateral terminals 151 and 152 on the rod 55 and a rod 153 having a hooked end 154 engaged with the eye 99 of the rod 93.

The catching mechanism 62 includes an open front housing 156 having a concave bottom 157, sides 158 and 159 converging toward a rear wall 160 and a top 161. Extending across the front of the housing near the front edge of the top is a rod 162 supporting a frame 163 carrying an open-bottom fabric pocket or basket 164 that forms a backstop to check the speed of the balls and cause them to drop through a bottom opening 165 of the pocket into the concave bottom 157 for discharge through an opening 166. The catching mechanism thus described is mounted over a suitable opening in the board 3. The opening 166 is located over a chute 167 that slops downwardly toward the frame member 8 where it empties the balls into a drawer 168 that is slidably mounted over the end of the chute and is adapted to be withdrawn through an opening 169 in the member 8.

Located at various points on the playing field, for example in positions relating to the playing positions in a regulation ball game, are a plurality of U-shaped pockets 170 having opening sides 171 directed toward the batting mechanism so that balls struck by the bat may roll therethrough to signify a hit; for example, a one-base hit, two-base hit, three-base hit, or a home run.

Mounted at one corner of the playing field is a block 172 having rows of openings 173 and 174 for inserting pegs 175 and 176 to indicate the score as the game is being played. The opposite corner is also provided with a similar block 177 having a single row of openings 178 for receiving a peg 179 indicating the innings played.

The pitching magazine 34 and barrel 26 may be enclosed in an open front box 180 and have an opening 181 in the top 182 thereof to expose the inlet to the magazine.

Assuming that the game is constructed and assembled as described, the play is as follows:

The cocking lever 101 will be moved retractively on its pivot 102 to shift the lower end forwardly, thereby moving the rods 107 and 108 so that the eye terminals 109 and 110 thereof engage the springs 111 and 112 to shift the rods 59 and 92 simultaneously in a forward direction. The rod 59 rocks the shaft 20 through the arm 56 to move the disk 21 of the pitching device in an anti-clockwise direction (Fig. 7) and load the springs 40, which are retained under load since the latch end 45 of the pawl has dropped into the notch 47 and is engaged by the shoulder 46 when the disk tends to reverse rotation. The springs 40 are thus retained in stretched condition with the hammer 23 of the disk away from the head 39 of the plunger 24.

The other rod 92 actuates the latch disk 79 in a similar manner so as to tension the spring 88 and effect engagement of the latch end 83 of the pawl 81 with the shoulder 84. In this position the link 76 has moved downwardly to raise the bat 68 above the path of a ball to be ejected from the pitching device.

A ball is then placed in the magazine 34 and it rolls into engagement with the inner end of the plunger 24. The player then depresses the keys 120 and 121 in such sequence to cause ejection of the ball and striking of the bat with the ball. Upon pressing the key 121, the key rocks the lever 141 and moves the rod 55 retractively against action of the spring 51 to effect disengagement of the latch end of the pawl from the shoulder 46 whereupon the springs 40 come into play and turn the disk in a clockwise direction to drive the hammer 23 into contact with the head 39 of the plunger whereupon the plunger ejects the ball from the barrel 26 in the direction of the batting mechanism.

The bat is released when the key 120 is depressed which operates the lever 142 and shifts the rod 153 rearwardly against action of the spring 93 to release the latch end 83 of the pawl 81. Upon release of the disk, the spring 88 turns the disk 79 to raise the link 76 and allow the bat to drop across the path of the ball. If the keys are operated in proper sequence, the bat strikes the ball and the ball is propelled across the playing field. If the ball lodges in one of the pockets 170, the play is scored as a one-base hit, two-base hit, three-base hit or home run, depending upon which of the pockets the ball enters. If the ball fails to enter any one of the pockets the play is scored as an out.

Should the player fail to operate the keys in proper sequence to effect a hit and the ball passes the bat, the ball is counted a strike. The ball is caught in the basket 164 and is directed through the opening 166 into the chute 167. The ball then rolls down the chute to the drawer 168. The drawer is opened and the ball removed for replacement into the magazine tube 34 for another play. The keys are again operated and the play continues until the player has had three outs.

The score and innings are kept by means of pegs and peg holes at the corners of the playing field in accordance with the rules of the game.

From the foregoing it is obvious that we have provided a mechanically operated ball game device that is of simple construction and which is operated mechanically to give action and interest encountered in regulation games of baseball.

What we claim and desire to secure by Letters Patent is:

1. In a device of the character described, the combination of a ball pitching mechanism, a ball batting mechanism in the path of a ball ejected by the pitching mechanism, cocking means for

each mechanism, a common actuator for said cocking means, and separate trip means for independently releasing said mechanisms in variable sequence.

2. In a device of the character described, a spring-actuated ball pitching mechanism, a spring-actuated ball batting mechanism in the path of a ball ejected by the pitching mechanism, latch means for each mechanism for retaining said springs in loaded condition, cocking mechanisms for loading the springs of said mechanisms, a common actuator connected with the cocking mechanisms, and separate and independent means for releasing each latch means.

3. In a device of the character described, the combination of a ball pitching mechanism including means for containing a ball to be ejected, a plunger for ejecting the ball from said means, an oscillatory hammer, means for supporting the hammer in position to strike the plunger, spring means for actuating the hammer, manual means for moving said hammer to cocked position and loading said spring, latch means for retaining the hammer in cocked position, a spring-actuated batting mechanism in the path of a ball ejected from said barrel, means for cocking said batting mechanism with the spring thereof in tension, a common actuator for the cocking means and said hammer and spring loading means, separate and independent means for releasing said latch means and for releasing said spring of the batting mechanism.

4. In an apparatus of the character described, pitching and batting mechanisms, each including an oscillatably mounted member for effecting actuation of said mechanisms, springs for driving said members in actuating directions, a latch for each member for retaining the springs in loaded condition to actuate said members, a crank arm connected with each member, a pivotally mounted cocking lever, links connected with the cocking lever, rods connected with said cranks, and lost motion resilient connections between the links and rods.

5. In an apparatus of the character described, pitching and batting mechanisms, each including an oscillatably mounted member for effecting actuation of said mechanisms, springs for driving said members in mechanism actuating directions, a latch for each member for retaining the springs in loaded condition to actuate said members, a crank arm connected with each member, a pivotally mounted cocking lever, links connected with the cocking lever, rods connected with said cranks, lost motion resilient connections between the links and rods, and separate means for independently releasing said latches.

6. In an apparatus of the character described, pitching and batting mechanisms, each including an oscillatably mounted member for effecting actuation of said mechanisms, a spring for energizing each of said members, a latch for each member for retaining the springs in loaded condition in retracted position of said members, crank arms connected with said members, a pivotally mounted cocking lever, links connected with the cocking lever, rods connected with said cranks, lost motion resilient connections between the links and rods, separate means for independently releasing said latches, a spring tension key for releasing each latch releasing means, a rock lever connected with each key, and rods connecting the rock levers with said latches.

7. In an apparatus of the character described, pitching and batting mechanisms, each including an oscillatably mounted member for effecting actuation of said mechanisms, springs for energizing said member, a latch for each member for retaining the springs in loaded condition, crank arms connected with said members, a pivotally mounted cocking lever, links connected with the cocking lever and having spring engaging terminals, rods connected with said cranks, springs on said rods, means for anchoring the end of said springs to the rods in the direction of said crank arms for retaining the other ends of the springs in position for engagement by said terminals, separate means for independently releasing said latches, a spring tension key for releasing each latch, a rock lever connected with each key, and rods connecting the rock levers with said latches.

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