April 13, 1937. J. E. CRADDOCK 2,076,880

TARGET AND REGISTER DEVICE

Filed Dec. 12, 1934 4 Sheets-Sheet 1

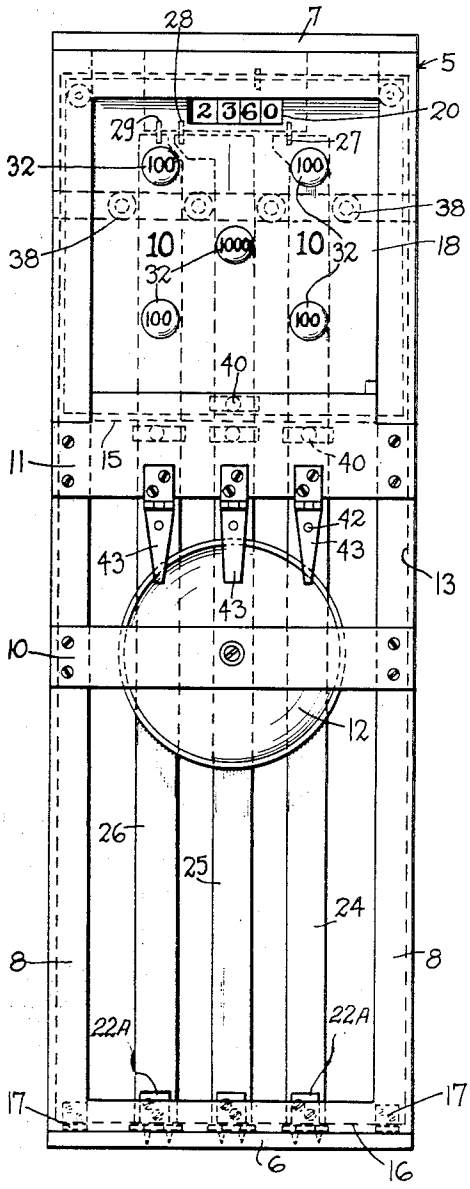


FIG. 1.

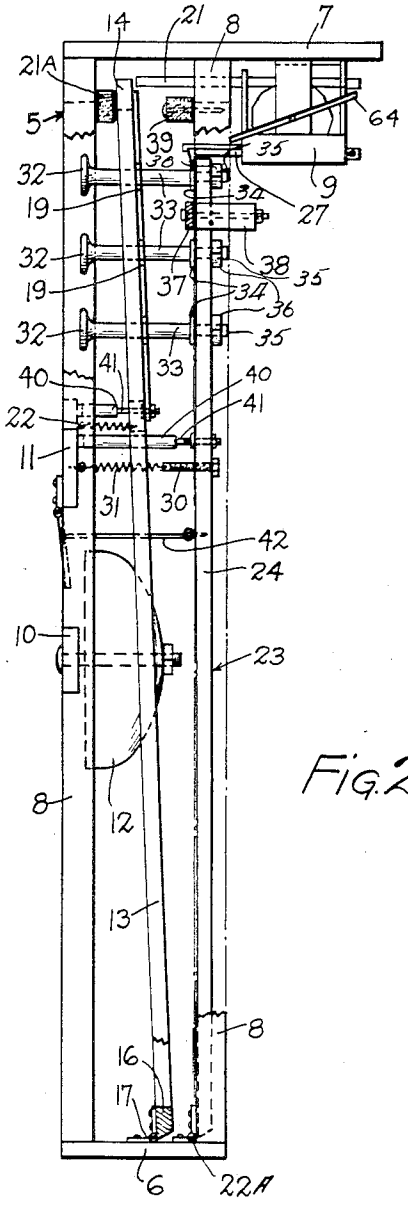


FIG. 2.

INVENTOR.
JOHN E. CRADDOCK
BY
ATTORNEY.

April 13, 1937. J. E. CRADDOCK 2,076,880

TARGET AND REGISTER DEVICE

Filed Dec. 12, 1934 4 Sheets-Sheet 2

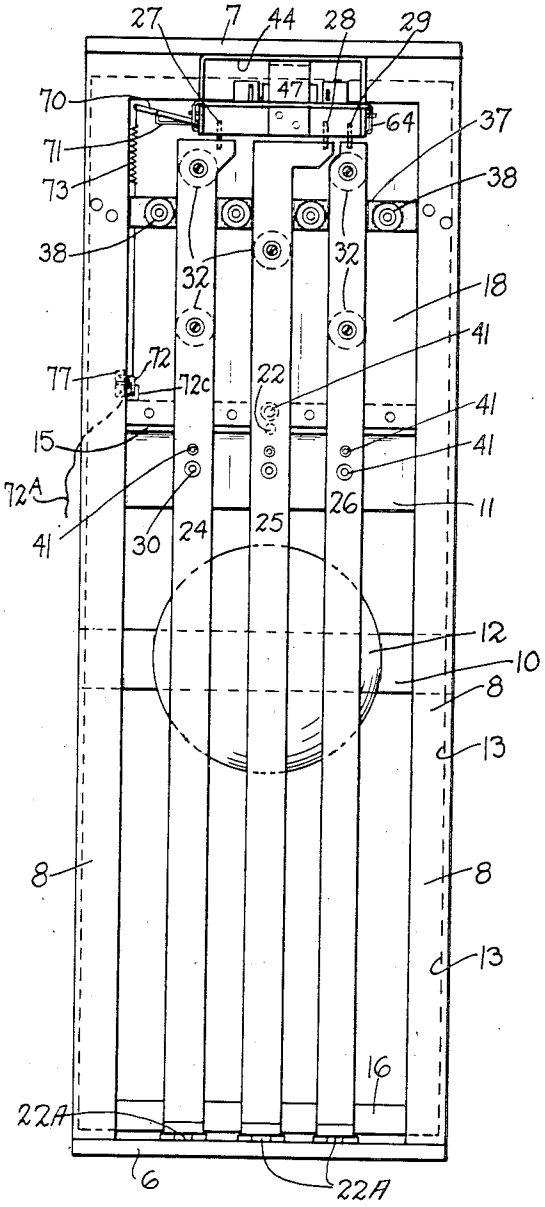
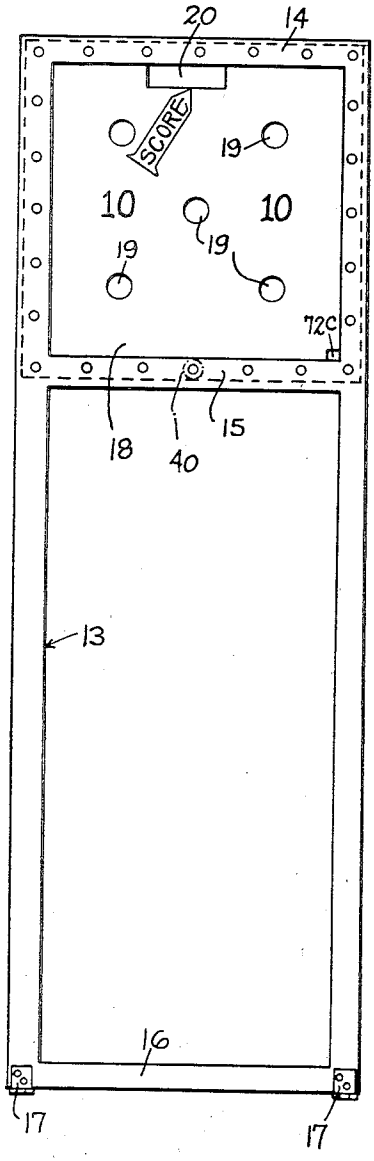


FIG. 3.

FIG. 10.



INVENTOR.
JOHN E. CRADDOCK
BY
ATTORNEY.

April 13, 1937. J. E. CRADDOCK 2,076,880

TARGET AND REGISTER DEVICE

Filed Dec. 12, 1934 4 Sheets-Sheet 3

FIG. 4.

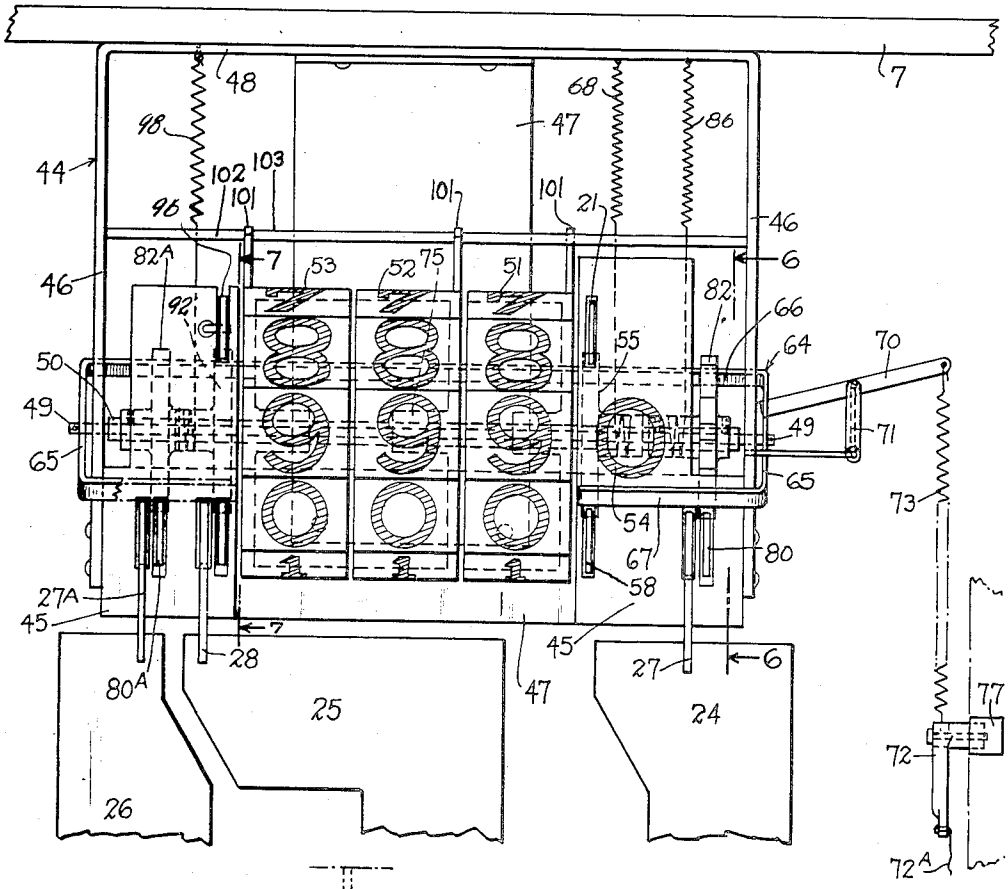
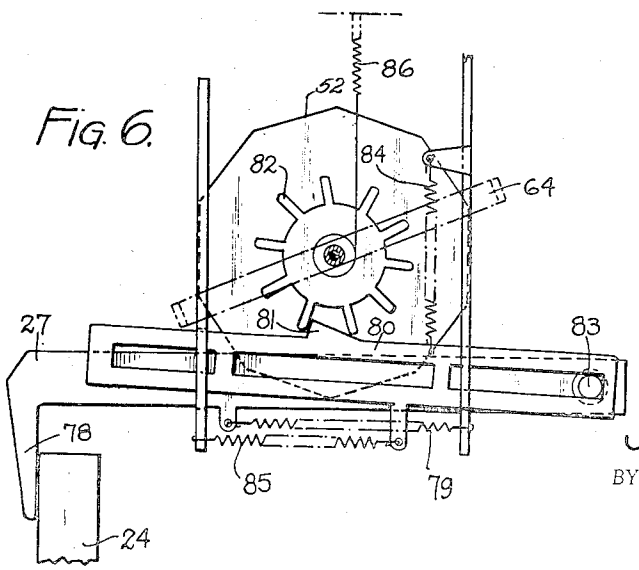


FIG. 6.



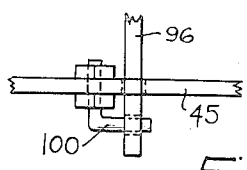


FIG. 9.

INVENTOR.
JOHN E. CRADDOCK
BY
ATTORNEY.

April 13, 1937. J. E. CRADDOCK 2,076,880

TARGET AND REGISTER DEVICE

Filed Dec. 12, 1934 4 Sheets-Sheet 4

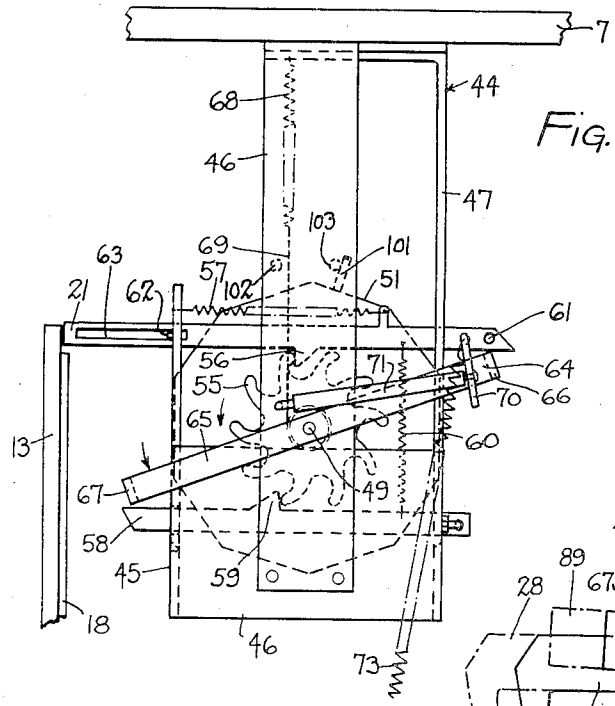


FIG. 5.

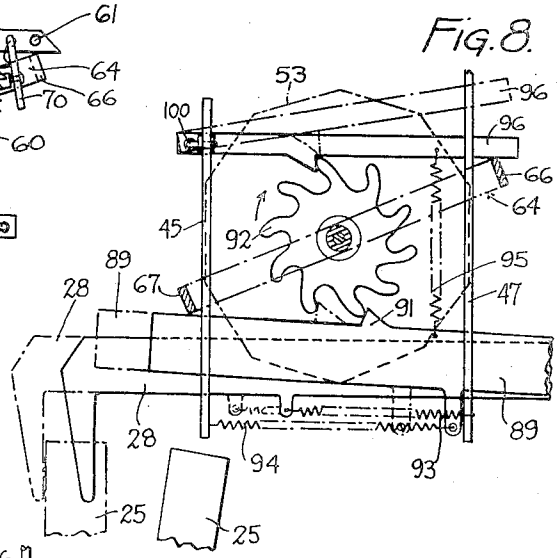


FIG. 8.

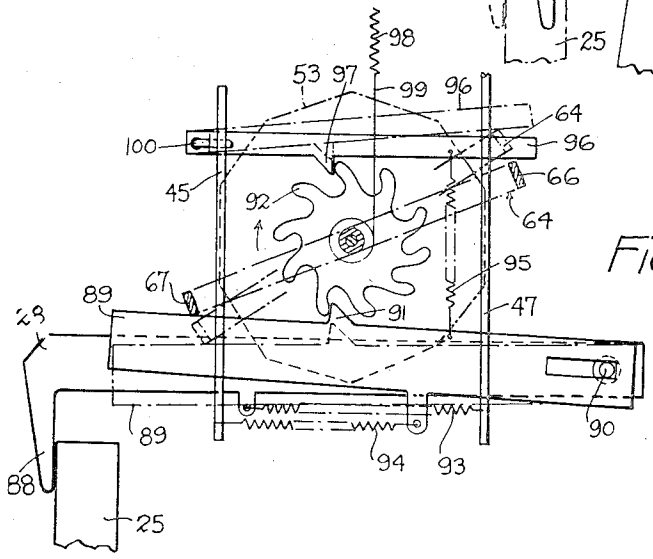


FIG. 7.

INVENTOR
JOHN E. CRADDOCK
BY
ATTORNEY

Patented Apr. 13, 1937

2,076,880

UNITED STATES PATENT OFFICE

2,076,880

TARGET AND REGISTER DEVICE

John E. Craddock, Brooklyn, N. Y.

Application December 12, 1934, Serial No. 757,161

7 Claims. (Cl. 273—95)

This invention relates to amusement devices and in particular to a device in which skill in aim is scored in accordance with the points on the target struck by one or more manually thrown balls.

An object of my invention is to provide a device having a plurality of targets to be aimed at, including a movable background which, when struck, will automatically cause a registering mechanism to register the point score, there being also provided before said background member a plurality of much smaller movable targets requiring a higher degree of skill to strike and which also cause the register to indicate the score made and totalize the same.

A further object of my invention is to provide a registering mechanism which can be employed in connection with my amusement device which will be releasable by some of the targets to score the points value allotted to such targets and which will be self setting to zero when released after a game has been finished.

A still further object of my invention is to provide an amusement device which can be constructed at minimum cost, operates with a minimum of attention and one which may be used in batteries of any number and placed beyond a counter so that a number of players may be accommodated at the same time without the constant attention of an attendant.

Changes and variations may be made in the construction shown and described without departing from the principles of the invention or sacrificing its chief advantages; hence, such invention is not to be confined to the identical structures shown in the accompanying drawings, in which;

Figure 1 is a view in front elevation, of the amusement device, illustrating the targets and the audible signal employed to indicate a scoring strike.

Figure 2 is a view in side elevation of the device as shown in Figure 1 and illustrates the means of mounting the targets in the frame.

Figure 3 is a view in rear elevation of the device and shows the relative arrangement of the slats employed to carry some of the targets and the guide means therefor.

Figure 4 is an enlarged view showing the registering mechanism in front elevation.

Figure 5 is a side view of the register as seen in Figure 4, the register release means being also illustrated.

Figure 6 is a section taken on the line 6—6 of Figure 4 illustrating the lever and pawl which operates to register one value scored on the device, and

Figure 7 is a section taken on the line 7—7 of Figure 4 illustrating another lever and pawl arrangement employed in the registering mechanism.

Figure 8 is a view similar to Figure 7 in which the operation of the mechanism is illustrated.

Figure 9 is a plan view of a pivot device employed for the register levers, and

Figure 10 is a plan view in elevation of the inner frame which carries the panel target.

Referring to the drawings in detail, 5 is a housing frame consisting of a bottom 6, top 7, and corner pieces 8, all rigidly secured together in any suitable manner. The top 7 is wider than the bottom and has secured to the underside thereof the registering mechanism 9 in position to be actuated by the target members. The front corner pieces 8 have, extending across the front thereof, the cross pieces 10 and 11, the member 10 having secured to its inner face, the bell 12 which is rung in a manner to be later described.

The bottom 6 supports an inner frame 13 consisting of the top 14, intermediate portion 15 and lower portion 16, the latter of which is hinged to the bottom 6 by the hinges 17. The space between the top 14 and intermediate piece 15 is covered by a panel 18 made from a cushion material that will prevent too rapid rebound of a ball and also provide a cushion for the other targets when struck by a fast ball. This panel entirely closes the upper part of the frame 13 and is provided with the openings 19, through which pass the shanks of other targets to be later referred to and also a sight opening 20 through which the score on the register can be seen.

The frame 13 is normally at an angle to the vertical with its top forward and in contact with suitable cushions 21A secured near the top of the main or housing frame 5, and is held yieldably in this position by the spring 22 which connects the frames 5 and 13. When a ball is thrown and strikes the panel 18 it causes the frame 13 to swing rearwardly against the pull of the spring 22, which returns the frame 13 to normal position after registering the score value.

The panel 18 is secured at its edges in any suitable manner to the frame 13 and is also provided with any suitable indicator marked "score" and pointing to the sight opening 20. The upper end of the frame 13 is arranged to have free engagement with the end of a push lever that

forms a part of the registering mechanism, the lever being indicated at 21.

Behind the frame 13, and hinged at their lower ends to the bottom 6 as at 22A are the slats or strips 23, which are almost as long as the frame 13 and extend to a point adjacent the registering mechanism 9. While any number of these slats 23 may be employed, I have shown three for the purpose of illustration and have designated them as 24, 25 and 26 respectively. Each slat is arranged to engage at its upper end, a lever, which forms a part of the registering mechanism, the levers 27, 28 and 29 being engaged by the slats 24, 25 and 26 respectively. Each lever is permitted to operate when each slat swings rearwardly. Each slat has adjustably threaded thereto a pin 30 whose end is engaged by one end of a tension spring 31 whose opposite end is connected to the cross piece 11. These springs yieldably resist rearward swinging movement of the slats under the impact of a ball striking the targets carried thereby. Each slat carries one or more targets and as shown, the slat 25 carries one target, while the slats 24 and 26 each carry two targets. These targets consist of a face disk 32 upon which is indicated a score designation, for instance "100" or "1000" and an integral shank portion 33 which extends through the openings 19 of the panel target 18, and an integral tongued flange 34 and threaded stud portion 35. The stud 35 passes through an opening in the slat and the target is held firmly on the slat by the nut 36 which engages the stud 35. The tongues on the flange 34 bite into the slat and prevent rotation of the target. The openings 19 in the panel target 18 are large enough to permit free movement of the target shanks therethrough. The slats 24 and 26 each carry two disk targets 32 designated "100" and the slat 25 carries a single, centrally positioned, disk target 32 designated "1000".

In order to prevent the slats from moving sidewise as they have swinging movement I provide a cross member 37 extending between the rear frame pieces 8 but in front of the slats, and this member 37 has secured thereto the cylindrical guides 38 positioned between the slats.

The frame 13 is limited in its rearward swinging movement by the stop 39 positioned on the rear corner pieces 8, and the frame 13 and each of the slats is cushioned in its rearward movement, under the impact of a ball, or the forward movement, under the influence of the springs, in order not to too suddenly jar the registering mechanism, by the dash pots consisting of cylinder casings 40 pivotally secured to the rear face of the cross piece 11 and containing the plungers 41, whose shanks are connected in any suitable manner each to one of the slats 23 and to the frame 13.

The frame 13, and each slat, is connected by a flexible elastic cord or member 42 with an individual bell clapper 43. These clappers 43 are hinged to the lower edge of the crosspiece 11 and are arranged to strike the edge of the bell upon a rearward movement of either the frame 13 or any of the slats 23. If desired the clapper for the slat that carries the target designated "1000" may be heavier than the others in order to ring the bell louder. The clappers normally hang in vertical position and the elastic nature of the members that connect the clappers with the moving targets permit movement of said targets after the clappers have come into contact with the bell.

The registering mechanism is supported from the under side of the top of the frame 5 and is contained in a frame 44 having front, side, rear and top portions 45, 46, 47 and 48 respectively. In the side portions 46 there is journaled the ends of a shaft 49 which extends through the frame 44 and has thereon a sleeve shaft 50 which terminates short of said sides and upon which are mounted the three numeral wheels representing, in the total visible score, tens wheel 51, hundreds wheel 52 and thousands wheel 53. The units numeral zero is fixed and is painted on the front part of the frame 44 as at 54 in horizontal alignment with the numerals on the wheels. Each wheel has 10 faces and each wheel is moved to nine from zero and does not have a tens transfer means from one wheel to the other; that is, the movement of each wheel is independent of the other wheels.

The movement of the wheel to register the score in tens is made by contact of the upper end of the frame 13 (see Figure 5) with the lever 21. This lever slides in suitable openings in the frame 44 and overides a ratchet wheel 55 so that the tooth 56 on the slide, will, when the slide moves forwardly, engage one tooth of the ratchet wheel 55 and cause it to revolve the numeral wheel 51 one space. The ratchet wheel is fastened to the numeral wheel 51 and consequently every time the panel target 18 is hit by a ball, its inward movement will force the lever 21 inwardly and the tooth thereon will ride over the next tooth of the wheel 55 to be engaged and snaps behind it so that, when the slide is allowed to move forward by the forward movement of the panel target 18, and under the influence of the spring 57, the ratchet wheel 55 is revolved and with it the numeral wheel 51 to score "10". At the under side of the wheel 55 a lever is employed designated as 58 and having a tooth 59 which prevents retractile movement of the wheel 55 when the slide lever 21 moves rearwardly. The levers 21 and 58 are joined by the spring 60 which maintains said levers in contact with the wheel 55. The lever 21 is limited in its forward movement by a pin 61 and said lever may also have a pivotal movement about a lip 62 which fits into a slot 63 in said lever without interfering with its sliding movements. A numeral wheel zero reset is employed and its operation can be explained in connection with the tens wheel. A yoke 64, made of strip metal, has end portions 65 which are journalled on the ends of the shaft 49, a back portion 66 and front parts 67. This yoke has swinging movement and as seen in Figure 5, the back 66 underlies the end of lever 21 beyond the back of the frame 44 and overlies the front end of lever 58 in front of the frame 44. Lever 58 is pivoted at its rear end to frame 44 and as the yoke swings it spreads the levers against the tension of spring 60 and permits the spring 68 to draw on the cord 69 which is wrapped about the hub of the ratchet 55 to revolve the tens wheel 51 in a clockwise direction to reset it to zero. The spring 68 is secured at one end to the top of the frame 44, and the cord wraps itself about the hub of the ratchet 55 as the latter is operated by lever 21.

In Figure 4, is shown the means for operating the yoke 64 which consists of a reset lever 70 pivoted to a bracket 71 secured to the frame 44, and having an end beneath the yoke. The op-

posite end is connected by a spring 73 to a crank lever 72 which is mounted in a bracket 77 on the frame 5. The crank lever is operated by any suitable pull string passing out of the device to a remote point.

In Figure 6, I have illustrated the means for operating the hundreds wheel 52, the hub 75 of which is secured to the sleeve shaft 50. I employ a slide 27 having a hook 78 on the front end thereof which overlies the upper end of the slat 24, the slide passing through suitable openings in the frame 44 and normally urged rearwardly by the spring 79, which is not powerful enough to overcome the resistance of spring 31. A companion slide 80 positioned adjacent slide 27 has a tooth 81 which underrides the ratchet wheel 82 in moving in one direction (rearwardly) and when moving forwardly revolves it to register 100 on the hundred wheel 52. The slide 80 is pivoted as at 83 to slide 27 and is held raised by the springs 84 and 85, the latter of which is weaker than spring 79, so that the actual registering depends upon the movement of the slat 24 forwardly to draw the slide forward and cause the slide 80 to operate the ratchet wheel 52. At the opposite side of the mechanism, I provide a similar construction in connection with the slat 26 which carries "100" targets. I have not deemed it necessary to illustrate this duplicate construction as it is the same as shown in Figure 6 and Figure 8, the latter of which shows the action. When the opposite set of levers indicated in Figure 4 as 27A, 80A and ratchet wheel 82A, are stationary and those at the right side of the mechanism are operating, the stationary ones keep the tubular shaft 50 from revolving when the slide tooth 81 underrides the ratchet wheel 82. Each set acts as a dog while the opposite set is working.

The ends 67 of the yoke 64 overlie the slides 80 and 80A and when the mechanism of the register is to be set to zero, the operation of the yoke depresses the slides against the resistance of their springs sufficiently to allow disengagement of the slide teeth from the ratchet wheels 82 and 82A with the result that the spring 86 pulls cord 87 which is wound about the hub of ratchet wheel 82 to revolve the "100" numeral wheel 52 in a counterclockwise direction to set it to zero. The ratchet wheels 82 and 82A are pinned to the hollow shaft 50 to which is also secured the numeral wheel 52.

In registering the hits on the "1000" target slat 25, the mechanism shown in Figure 7 is used and consists of the slide 26 having a hooked end 88 which overlies the upper end of slat 25 and has pivoted thereto as at 90, the slide lever 89 whose tooth 91 operates the ratchet wheel 92 in the same manner as does the devices illustrated in connection with Figures 6 and 7. The springs are designated 93, 94 and 95, the latter connecting the lever 89 with an upper dog lever 96 whose tooth 97 prevents retractile movement of the ratchet wheel 92 when the member 89 moves rearwardly. In this instance also, the end or portion 67 of the yoke 64 overlies the end of lever 89 and the yoke portion 66 underlies the rear end of lever 96 and pivotal or rocking movement of the yoke as before described, will separate the levers 89 and 96 sufficiently to permit the spring 98 to revolve the ratchet wheel 92 and the "1000" numeral wheel 53 in a counterclockwise direction to zero, through the medium of a cord 99 wrapped on the hub of the ratchet wheel 92. The wheel 92 is secured to the numeral wheel 53 and both are mounted for free revolving movement on shaft 50. The lever 96 is pivoted at one end as at 100 to the frame 44.

In registering a score made on the targets, the numeral wheels 52 and 53 operate counterclockwise and the numeral wheel 51 operates clockwise and in order to limit their registering movement I use a projection on each wheel as at 101 which engages a rod 102 or 103 when the wheel, to which the projection is attached, indicates "9". In a game as used at resorts the number of balls sold for five or ten cents is not usually more than nine.

In Figure 8, I have shown the action of the ratchet mechanism in underriding a ratchet wheel and positioned to operate the ratchet wheel on the forward movement of the slat to register a score made.

It is evident therefore that I have provided a novel amusement device and register therefor, which is positive in operation, can be used in sets or batteries without the necessity of employing a number of attendants and one which is a test of ball throwing skill and aim.

It is also evident that the register mechanism is controlled by the operation of the target carrying slats and will register movements of the panel target while permitting the higher value targets to be struck without effecting the position of the panel target. Also the registering mechanism is protected from jarring as the parts are not connected directly to the slats and panel. The rods 102 and 103 limit the rotation of the numeral wheels in either direction. The face of the panel bears the numerals "10" which is the score value for hitting the panel.

My invention is not to be restricted to the precise details of construction shown, since various changes and modifications may be made therein without departing from the scope of the invention or sacrificing the advantages derived from its use.

What I claim is:

1. An amusement device of the character described including a main frame, an inner frame hinged thereto, a panel in said inner frame serving as a target, means for yieldably resisting the swinging movements of the inner frame, including a dash pot and a spring, a register for accumulating the score made by movements of the inner frame, and means connecting said inner frame with said register whereby movements of said frame are transmitted to said register.

2. In an amusement device, a main frame, having a part of the front thereof open, an inner frame hinged for swinging movement in said main frame, a panel constituting a target and having openings therein, mounted in said inner frame and visible through the front opening in the main frame, said openings permitting movement of the panel target beyond other projecting targets, means for yieldably retarding the swinging movements of the inner frame under the impact of thrown balls, and means for registering the swinging movements of the inner frame as a score.

3. In an amusement device, a main frame, an inner frame mounted for swinging movement in said main frame, a panel in the inner frame constituting a panel target and visible through the main frame, a disk target projecting through openings in the panel, a slat behind said inner frame, upon which is mounted said disk target,

a cross piece on the main frame, slat guides on the cross piece and extending adjacent the sides of the slat, means for hinging the slat for swinging movement relatively to the main frame, means for limiting the swinging movement of the inner frame, means for limiting the swinging movement of the slat and means for registering the movements of said inner frame and slat.

4. In a device of the character described, a slat, a frame to which said slat is hinged for swinging movement behind a panel target, a target on the slat movable through said panel target, a register to score the hits made on the slat target, and a slide member in the register in engagement with the slat and movable therewith to register the movement of the slat caused by impact of a ball on said slat target.

5. In a device of the character described, a hinged slat member disposed behind a panel member, a target on the slat extending through the panel member arranged to move under the impact of a ball, a register for indicating the movement of said member including a numeral wheel, a slide lever in engagement with said movable member and movable therewith, said lever operating said wheel, another lever for preventing retractile movement of the wheel while the slide lever is operating, and means for moving the levers out of operative engagement with the wheel.

6. In a device of the character described, a slat, a frame to which the slat is hinged for swinging movement, a target on the slat, a slide lever having a hook portion engaging the upper end of said slat, said portion moving with the slat a part of its swinging movement in one direction, and being pulled by the slat a part of its swinging movement in the reverse direction, and a score registering mechanism operated by said lever.

7. In a device of the character described, a main frame, having a bottom and top therein, an inner frame hinged to said main frame and extending substantially the length thereof, a panel covering a portion of said inner frame and constituting a target, said panel having an opening therein, a slat hinged to said main frame, said slat and inner frame being arranged to swing inwardly under the impact force of a ball, a target on the slat extending through said panel openings, guides for said slat, and springs for yieldably resisting the inward movement of said slat and inner frame.

JOHN E. CRADDOCK.