This invention relates to amusement devices and more particularly to devices of this character comprising one or more moving targets. It is an object of the invention to provide a moving target which will pass through the target area a predetermined number of times at substantially constant speed. It is another object of the invention to provide means for resetting any target which has been hit during its passage through the target area. Still another object of the invention is to provide a score registering mechanism which will automatically maintain a cumulative score which increases each time that a target has been hit. It is a feature of the invention that the score registering mechanism will respond selectively to targets of different sizes providing an increased score for striking the smaller target. A further object of the invention is to provide a hazard within or adjacent to the target area which will reset the score previously made by a player to zero if the hazard should be inadvertently struck instead of the target. Other and further objects will become apparent upon reading the following specification together with the accompanying drawing forming a part hereof.

Referring to the drawing:

Fig. 1 shows a view in elevation of an embodiment of the invention.

Fig. 2 is a plan view of the device shown in Fig. 1.

Fig. 3 is a rear view of the device shown in Fig. 1.

Fig. 4 is a sectional view in elevation, partly broken away, similar to the view in Fig. 1 taken along the line 4-4 of Fig. 2, looking in the direction of the arrows.

Fig. 5 is a sectional view in elevation taken on the line 5-5 of Fig. 1 looking in the direction of the arrows.

Fig. 6 is a sectional view in elevation taken along the line 6-6 of Fig. 1, looking in the direction of the arrows.

Fig. 7 is a schematic wiring diagram of the electrical circuit used in practicing the invention.

Fig. 8 is a rear view of a small target member.

Fig. 9 is a rear view of the larger target member.

Fig. 10 is a plan view showing the larger target in its knocked down or reclining position illustrating operation of the selective scoring feature of the invention.

Fig. 11 is an end view of the small target shown in Fig. 8 illustrating the contact closure which occurs when the target is struck.

Fig. 12 is a plan view of the smaller target shown in Fig. 8, showing the target in a knocked down position and illustrating the increased scoring feature which results from striking the smaller target. Referring to Fig. 1, a base 20 is adapted to house and to support the operating mechanism. A vertical back board 21 presents a woodland scene or any other suitable background on the forward surface and in the rear it supports the scoring mechanism. To add to the realistic effect, miniature trees 22 are provided in the front of the device.

The target area extends between the trees 22 and in Fig. 1, the smaller target 24 which is shown in the shape of a rabbit, is indicated as passing through the scoring area. The fir trees 22 at either side of the target area are shown arranged to operate as a hazard by mounting them to be rotated when struck. This is described in greater detail below. In this manner, a player is penalized for an unusually wild shot by losing any score he may have previously made.

Referring to Fig. 2, the base comprises a slot 25 in the form of a continuous track with rounded ends beneath which passes an endless belt 27 carrying the two target members 24 and 25. The belt 27 is supported by the pulleys 28 and 29, pulley 29 being driven by a further pulley 30 mounted on the same shaft. Driving pulley 30 is operatively connected by belt 31 to a smaller pulley 32 mounted on the shaft with motor 33.

When motor 33 is energized, belt 27 passes over pulleys 28 and 29 and the target members 24 and 25 pass successively through the target area. If one of the target members is struck, it is restored to a vertical position by a ramp 70 which may best be seen in Fig. 4, which will lift the target from its struck or reclining position gradually to a point where it will be restored to vertical by the centrifugal force exerted on the target member as it swings around pulley 28 in returning to the rear of the back board 21. Thus, each one of the target members, if struck, will be automatically restored to vertical position for the next shot.

Disposed behind top of the target member when it is in the target area, is a pair of electrical contact bars 34 and 35. Bar 35 is broken into two segments with a gap between the segments constituting the bars 35 and 35'. Referring to Fig. 8, it will be seen that the smaller target 24 is provided with a single bridging contact
member 36 adapted to bridge the bars 34 and 35 whenever the smaller target is struck. Upon reaching the gap between the bars 35 and 35', the circuit is interrupted and is closed again when the contact member 35 bridges bars 34 and 35'. This supplies two consecutive impulses to the scoring mechanism thereby providing an increased score for hitting the smaller target.

In the larger target, illustrated in Fig. 9, a bifurcated contact member 37 is provided and is of such width which will bridge contact bars 34 and 35 and which will bridge the gap between bars 35 and 35' to engage contact bar 35' before breaking contact with contact bar 35. In this manner, a single impulse is delivered to the scoring mechanism, upon striking the larger target member 25.

Referring to Fig. 3, the score registering mechanism comprises an 11 position wheel with translucent indicia disposed therein. These indicia being shown numerals to indicate by this consecutively from zero to one hundred inclusive. Small incandescent lamp 30 is disposed to illuminate the particular number corresponding to the score. The scoring wheel 35 is adapted to be retained in its advanced position by a pawl 40 which may be retracted by energization of magnet 41. Scoring wheel 35 is advanced by ratchet wheel 42 which is adapted for engagement with ratchet arm 43 and which is actuated by solenoid 44. Compression spring 45 urges ratchet arm 43 to its normal position after demagnetization of solenoid 44. Magnets 46, when energized, attracts the end 47 of arm 46 which is pivoted at 49 and which raises the end of ratchet lever 43 disengaging it from ratchet wheel 42 thus permitting the scoring wheel 35 to turn to its normal position under the influence of spiral restoring spring 49.

A stop pin 55 is adapted for engagement with a fixed stop member 51 in both the zero and one hundred scoring positions and serves to limit the travel of scoring wheel 35.

Disposed beneath either or both of the target members is a pin or actuating member 52 which is arranged to engage a star wheel 53 each time that any target member provided with such a pin passes the star wheel. This advances the wheel by one tooth. The machine is placed in operation by pressing button 64 and at the end of a predetermined number of target passages determined by the number of teeth of the star wheel, the machine will stop. This course and thus limit the number of opportunities which a player may shoot at a moving target. Pressing of button 64 operates toggle switch 55 and closes contacts 65 during the short interval while button 54 is pressed downward to its maximum extent. When pressure is removed from button 54, arm 67 rises slightly opening contacts 65 but not sufficiently to restore toggle switch 55. Contacts 65 are arranged to restore the scoring mechanism to zero and contacts 55 are connected to control the motor and other power supplied to the machine. After the predetermined number of actuations by pin 52, star wheel 53 which rotates arm 56 causes member 59 to disengage arm 57 allowing retraction spring 58 to restore toggle switch 55 to its normal position.

The trees 23 are pivotally mounted at 61 and carry a moving contact member 62 adapted for engagement with either contact member 53 or 64. A front board member 65 is similarly pivotally supported together with the trees 22. If the trees are struck by a player, they will be moved toward back board 21 causing closure of contacts 62 and 63. If the front board 65 is struck, this will move in the trees in the opposite direction to close contacts 62 and 64. Contacts 62, 63 and 64 are included in the resulting circuit of a score registering mechanism so that any score previously registered by a player will be restored to zero upon striking either the trees 22 or the front board 65. As previously noted, this serves as a penalty against a player who makes an unusually wild shot.

Referring to Fig. 7, the wiring drawing of the electrical circuit is shown. Power is supplied to the machine through a cord 66 and conductor 67 thereof passes through toggle switch 55 which controls all of the power for the machine. Upon pressing button 54 all the way down, toggle switch 55 is actuated to the "On" position energizing motor via conductors 67 and 68. At the same time, the primary of a step down transformer 99 is energized providing low voltage for the operation of the machine. The use of low voltage is desirable since there are exposed current carrying parts which may inadvertently be touched by one of the players and this minimizes the danger of shock. When button 54 is pressed all the way down, it momentarily closes contacts 56 while pressure is maintained on button 54. Closure of contacts 56 energizes reset magnets 41 and 46 via conductors 70, 71 and 72. Energization of winding 49 causes bar 48 to lift ratchet lever 43 out of engagement with the teeth of ratchet wheel 42 so that there will be no interference with the teeth as the scoring wheel returns to zero. Energization of magnet 41 withdraws pawl 46 from the peripheral teeth of scoring wheel 55 thus permitting spiral spring 42 to return wheel 39 to its zero or initial position determined by engagement between stop pin 50 and stop pin 51.

Under the conditions just described, the targets pass successively before the target area and each time a target carrying a pin or actuating member 52 passes star wheel 53, the star wheel is advanced one notch. The star wheel mechanism limits the total number of times that a target will pass before the target area. Each time the large target is struck, a single impulse will be delivered to the scoring mechanism advancing the score by ten points in the embodiment illustrated. The single score is the result of the bridging action of the bifurcated member 37 which is not affected by the gap between the bars 34 and 35'. If the small target 34 is struck, the single contact 35 interrupts the scoring circuit again upon passing the gap between the bars 35 and 35' thus delivering two impulses to the scoring solenoid 44 and producing a score of twenty. Other scoring arrangements may be provided as desired by increasing the number of positions on scoring wheel 39 and by increasing the number of gaps in contact bar 35 and by varying the distance between the arms of the bifurcated member 37 to provide for a plurality of different scores such as two, three or more impulses as desired. While various changes may be made in the detail construction, it shall be understood that such changes shall be within the spirit and scope of the present invention as defined by the appended claims.

I claim:

1. In a device of the class described, an endless belt, power operated means disposed to drive the belt at substantially constant velocity, a plurality of normally vertical target members carried by the belt each having a contact member secured
thereto, the width of the contact member on one of the target members being greater than that on one of the other target members and each target member being adapted to be struck by a player when within a predetermined target area and further adapted to assume a reclining position when so struck, fixed contact means adapted for temporary engagement with the contact member when the target is in a reclining position and shaped to produce a lesser number of contact closures upon engagement with the wider contact member than by engagement with the narrower member erecting means disposed to restore a reclining target to its normal vertical position after engagement with the fixed contact means, an actuating member carried by the belt, and operation terminating means responsive to each passage of the actuating member and disposed after a predetermined number of such passages to de-energize the power operated means.

2. In a device of the class described, an endless belt, power operated means disposed to drive the belt at substantially constant velocity, a plurality of normally vertical target members carried by the belt each having a contact member secured thereto, the width of the contact member on one of the target members being greater than that on one of the other target members and each target member being adapted to be struck by a player when within a predetermined target area and further adapted to assume a reclining position when so struck, fixed contact means adapted for temporary engagement with the contact member when the target is in a reclining position and shaped to produce a lesser number of contact closures upon engagement with the wider contact member than by engagement with the narrower member erecting means disposed to restore a reclining target to its normal vertical position after engagement with the fixed contact means, an actuating member carried by the belt, and operation terminating means responsive to each passage of the actuating member and disposed after a predetermined number of such passages to de-energize the power operated means.

GEORGE CLIFFORD.

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