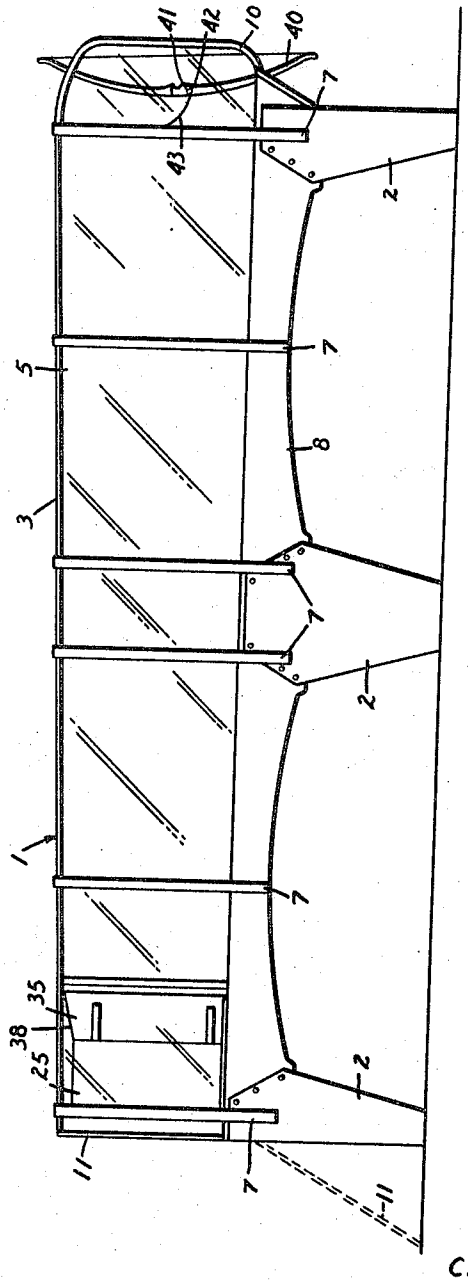
Feb. 28, 1967 C. R. BALDWIN ETAL 3,306,616

ENCLOSED ARCHERY LANE HAVING A MOVABLE TARGET

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Fig. 1



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Fig. 2

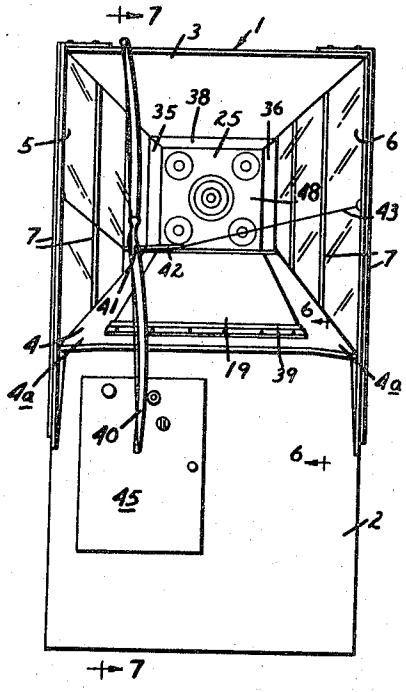
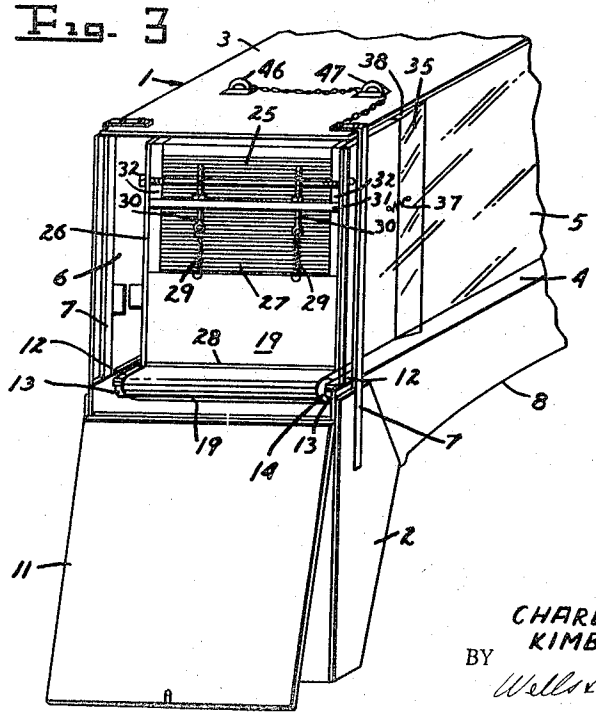


Fig. 3



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Fig. 4

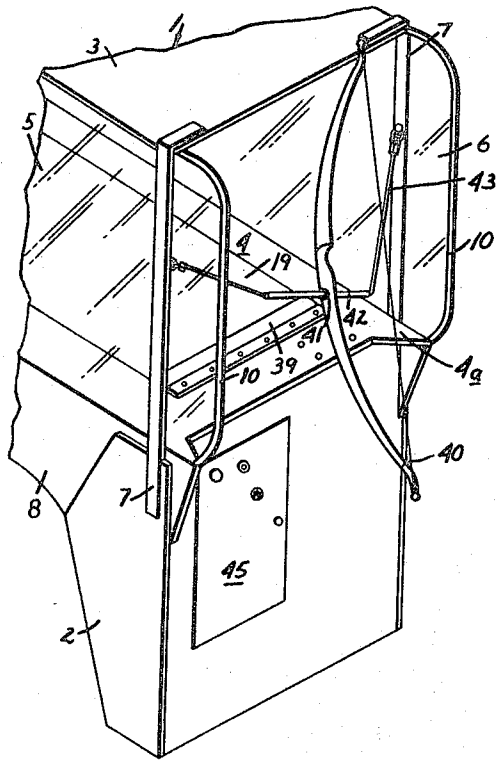


Fig. 5

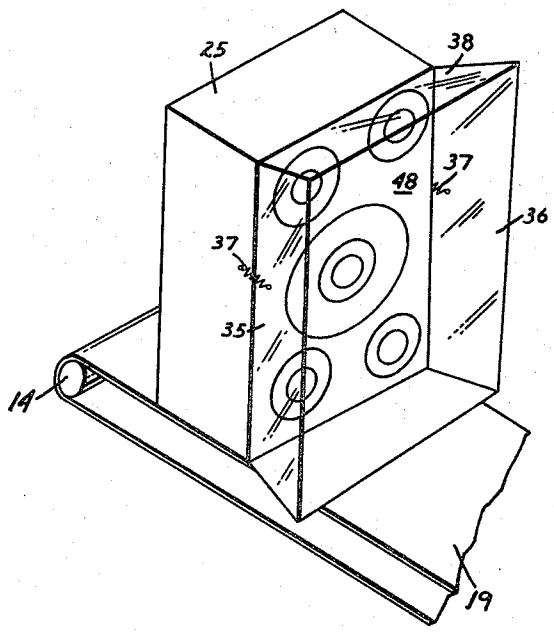
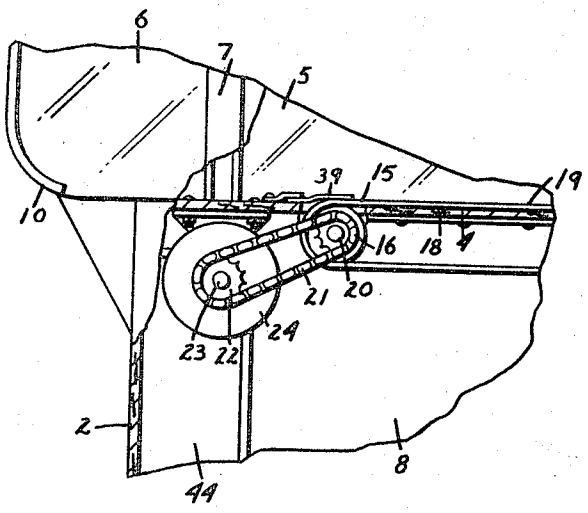


Fig. 6



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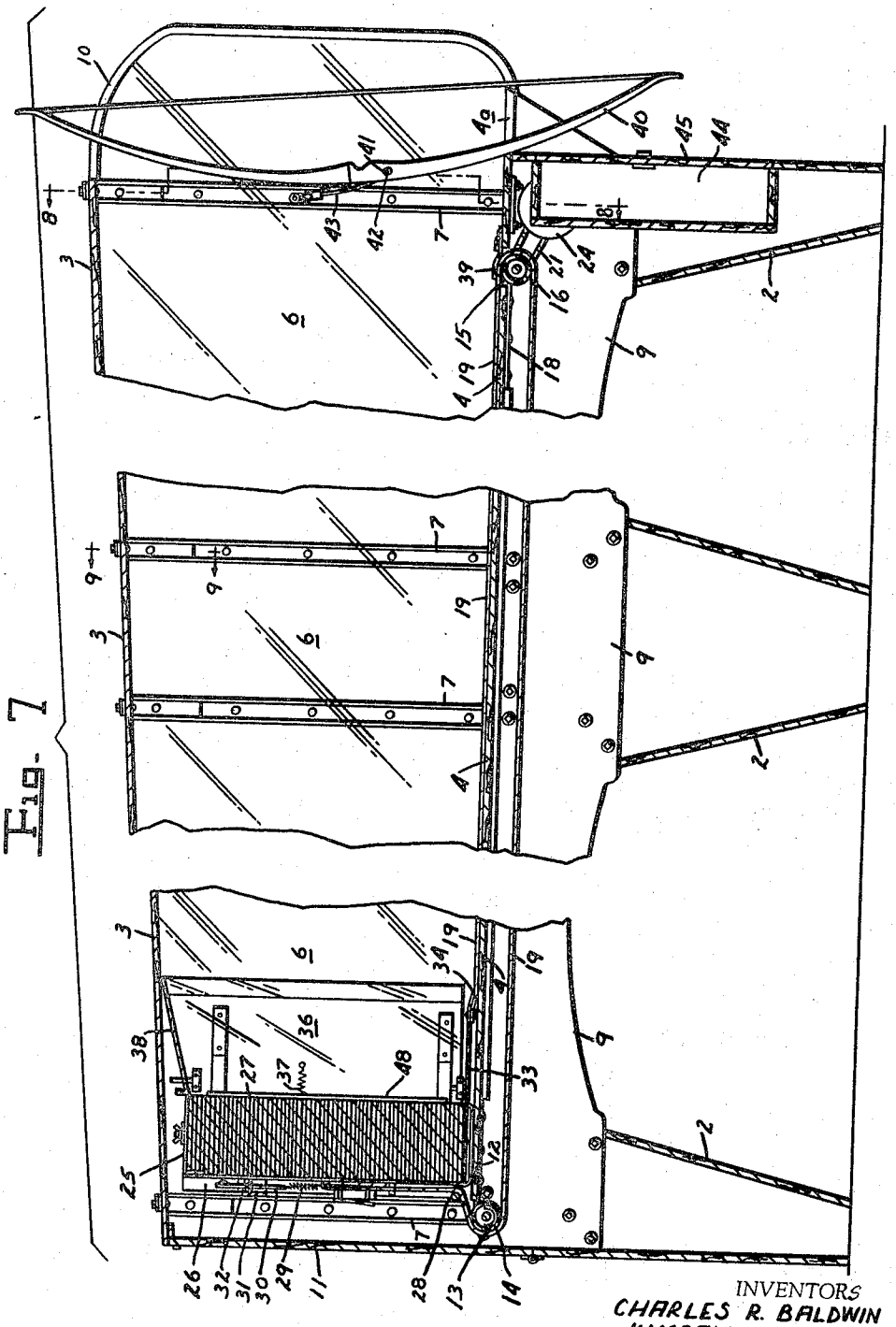
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Fig. 7



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ENCLOSED ARCHERY LANE HAVING A M

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Fig. 8

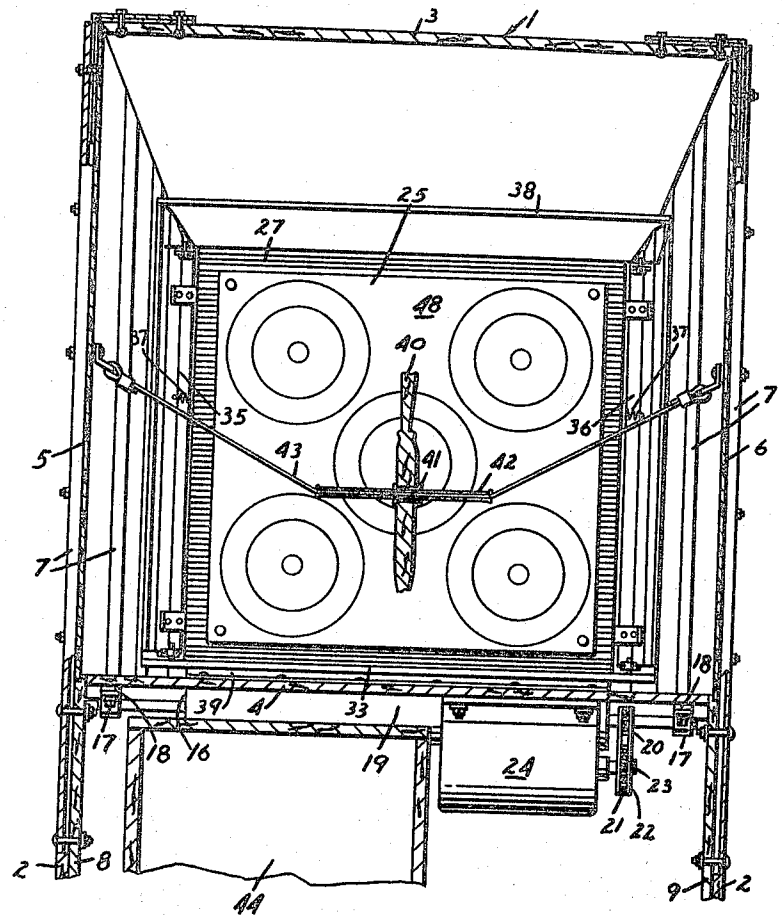


Fig. 9

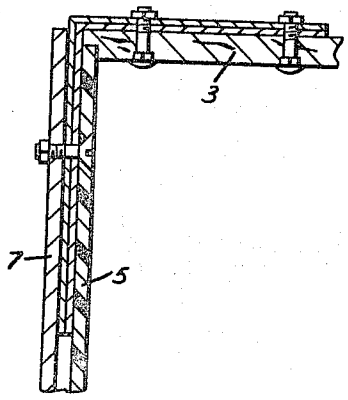
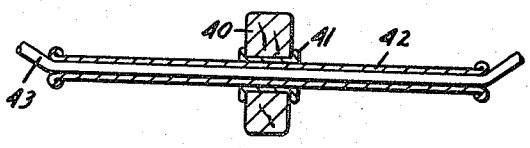


Fig. 10



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United States Patent Office 3,306,616
Patented Feb. 28, 1967

3,306,616

ENCLOSED ARCHERY LANE HAVING A MOVABLE TARGET

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Filed Sept. 28, 1964, Ser. No. 399,798
11 Claims. (Cl. 273—101)

This invention relates to a device for use by archery enthusiasts wherein they may use a bow to propel arrows toward a target and when it is desired to retrieve the arrows they may bring the target to the vicinity of the bow and bring with it the spent arrows that may not have lodged in the target or its backstop.

It is a purpose of this invention to provide an enclosed archery lane having a target at one end and a bow at the other with novel means for bringing the spent arrows to the vicinity of the bow, with the target regardless of whether the arrows are stuck in the target backstop.

It is also a purpose of the present invention to provide an enclosed lane with a target backstop and an apron connected with the backstop to catch arrows falling in front of the backstop and extended to the front of the lane and means to move the apron and backstop endwise of the lane.

It is a further purpose of the invention to provide an enclosed archery lane with a bow therein adjacent one end, and a backstop movable in said lane between the bow end thereof and the other end of the lane, and bow mounting means retaining the bow in position to prevent it directing an arrow outside the enclosed lane.

Other objects and advantages of the invention will appear from the following description and the accompanying drawings which illustrate a preferred form of the invention. It should be understood however that minor changes may be made from the exact details shown and described without departing from the scope of the invention as defined in the claims of this application.

In the drawings:

FIGURE 1 is a side view of an archery lane embodying the invention;

FIGURE 2 is a front end view of the archery lane;

FIGURE 3 is a perpective view looking at the open rear end of the archery lane and showing the backstop for the arrows and its connection to the spent arrow apron;

FIGURE 4 is a perspective view of the front end portion of the archery lane;

FIGURE 5 is a somewhat diagramatic perspective view of the target backstop apron assembly;

FIGURE 6 is a fragmentary sectional view substantially on the line 6—6 of FIGURE 2;

FIGURE 7 is a longitudinal sectional view taken on a vertical plane substantially on the line 7—7 of FIGURE 2;

FIGURE 8 is a sectional view taken on the line 8—8 of FIGURE 7;

FIGURE 9 is an enlarged fragmentary sectional view taken on the line 9—9 of FIGURE 7; and

FIGURE 10 is an enlarged sectional view taken through the bow showing how it is mounted on the bow support to provide free movement within certain confines but preventing it from shooting an arrow outside the archery lane.

The archery device embodying the present invention is embodied in an enclosed archery lane 1 which is supported upon supports 2. The enclosed lane has a top wall 3 preferably made of plywood, a floor 4 also preferably made of plywood and side walls 5 and 6 which are preferably made of transparent material such as one of the transparent resin compositions. The side walls 5 and 6 are supported upon upright channels 7 which in

turn are secured to plywood side rails 8 and 9 that are secured to the supports 2. These side rails carry the archery lane floor 4.

Two of the channels 7 are located at the front end of the archery lane 1 and the floor 4 and top wall 3 terminate substantially at these channels. The transparent side walls 5 and 6 extend beyond these channels as shown in FIGURES 1 and 7. They are provided with padding strips 10 to cover the exposed edges thereof. The side walls 5 and 6 diverge slightly from the rear end to the front end and the top wall 3 and the floor 4 diverge slightly from the rear end to the front end of the lane so that although substantially square in cross section at any point, the lane actually becomes smaller toward the rear end.

The rear end of the lane is closed by a rear door 11 which is hinged at the bottom so it can swing down for access to the rear end of the lane. The floor 4 terminates short of the rear door 11 and has a pair of brackets 12 secured thereto and projecting rearwardly on which bearings 13 are mounted for a roller 14. Near the front end of the lane 1 the floor 4 is provided with a slot 15. A second roller 16 is mounted on bearings 17 that are mounted on brackets 18 in the same manner as the bearings 13 are mounted. These rollers 14 and 16 are used to guide an apron 19. The roller 16 is driven by a sprocket wheel 20 thereon, a sprocket chain 21 and a second sprocket wheel 22 on the shaft 23 of a motor 24. The motor 24 is mounted on the front support 2 of the lane 1.

A target backstop 25 of known construction embodying a frame 26 and corrugated boards 27 is mounted for movement over the floor 4 with the apron 19. As shown in FIGURE 3, one end of the apron 19 passes under a cross bar 28 on the back side of the backstop 25 and extends upwardly. It is secured to a pair of springs 29 which are suspended by eye-bolts 30 from a cross member 31 of the frame 26. The eye-bolts can be adjusted up or down by means of the nuts 32 to tighten or loosen the apron 19. The apron 19 extends from the cross bar 28 rearwardly around the roller 14 then forwardly beneath the floor 4 to the roller 16, and up over this roller through the slot 15 and rearwardly on the floor 4 to the backstop 25.

The backstop frame 26 has a bottom shield plate 33 of stainless steel which extends forwardly beyond the corrugated fiberboard 27 and which has a lip 34 downturned to close proximity to the floor 4. This lip 34 overlies the apron 19 and the apron is secured to the plate 33 rearwardly of the lip as shown. The frame 26 has shields 35 and 36 mounted at the sides thereof and diverging forwardly to substantially close the spaces between the frame 26 and the side walls 5 and 6 against the entrance of arrows shot from the front of the lane. These shields 35 and 36 preferably are somewhat resilient so that they will yieldably engage the side walls when the frame 26 moves to the rear end of the lane. If desired springs 37 may be used to spread the shields as the backstop is moved forward so as to make sure that spent arrows lying at the junctions of the side walls with the floor will be brought forward. A top shield 38 overlies the shields 36 and 36 and serves to prevent a mis-directed arrow from lodging between the top of the backstop 25 and the top wall 3 of the lane 1.

It is believed to be evident that with the combination of the apron 19, the backstop 25, its frame 26, the shields 33, 35, 36, and 38 and the means 20–24 for driving the apron, the backstop 25 can be moved from end to end of the enclosed lane 1 and it will bring all spent arrows that fall on the floor 4 and the apron 19 to the front of the lane. The motor 24 is a reversible motor so it can move the roller 16 in both directions. The apron 19 car-

ries any arrows lying on it forward as it pulls the backstop forward. The lip **34** on the shield **33** and the shields **35** and **36** sweep any arrows on the floor **4** alongside the apron **19** forward with the backstop **25**. At the front of the lane a flexible guard sheet **39** is mounted on the floor **4** just forwardly of the slot **15** and extends over this slot and over the apron **19** so as to prevent arrows from falling into the slot **15**.

A bow **40** is provided in the lane **1** and it is mounted in a manner that makes it impossible for an archer to shoot an arrow from the bow to the outside of the enclosed lane. In order to accomplish this result and yet maintain freedom for the archer to handle the bow in the desired manner as though it were free in his hands a bow is provided the overall length of which prohibits it from entering the lane beyond the front edges of the top wall **3** and the floor **4** of the enclosed lane **1**. This bow is provided with a ferrule **41** which receives an elongated tube **42** the ends of which are rolled over outwardly to prevent removal of the tube **42** from the ferrule **41**. A cable **43** extends through the tube **42** and has its ends secured to the uprights **7** at the front of the lane **1**. This cable has enough slack to allow the bow to move to right or left and up and down to suit the person using it. However the bow cannot be pulled away from the lane far enough to allow it to discharge an arrow laterally in front of the lane. It is to be noted that the floor **4** has corner portions *4a* that extend forwardly beyond the uprights **7** at the junctions of the floor **4** with the sides **5** and **6**. The bow length is such that even if it is turned diagonally it cannot be rotated to bring the bowstring between the bow and the target backstop.

The lane **1** has its controls provided within a recess **44** in the front support **2**. This recess is closed by a door **45**. The target may be lighted by a pair of dome lights shown at **46** and **47** in FIGURE 3 or by any other suitable means. The apparatus lends itself readily to coin operated control since the only things that need to be controlled are the sending of the backstop **25** back to the rear end position and the return of it to the front for retrieval of the arrows and renewal of the targets **48**.

It is evident that the part of the apron extending beneath the floor from the front roller **16** around the roller **14** to the rear end of the backstop frame need not be anything more than a flexible means capable of drawing the backstop **25** rearwardly from the front of the lane **1** to the rear end thereof and capable of keeping the part of the apron over the floor moving whenever the backstop is moving. The apron **19** not only serves to pull the backstop forward but it brings the spent arrows back on it so they are not piled up on a stationary surface and slid on this surface by a sweeping device. There is some sweeping action on the arrows that lie on the floor portion exposed at the sides of the apron. However these areas are quite narrow and the side shields **35** and **36** direct arrows thereon inward to the apron as they are encountered. The fact that the apron carries the arrows protects them against wear and damage that sliding or pushing them forward would cause.

The enclosed lane with the bow mounted as described makes the device safe for the bystanders as well as the archer. Wild shots cannot get out of the lane. They cannot get past the shields which in the rearmost position engage the walls.

The embodiment of the invention in which an exclusive property or privilege is claimed is defined as follows.

What is claimed is:

1. An archery device comprising an enclosed lane having a top wall, a floor and side walls joining the top wall and floor to provide an elongated passageway through which arrows may pass in flight from a bow to a target;
- a target support and backstop in said lane movable lengthwise thereof from the back to the front;
- a bow mounted at one end of the lane for movement transversely thereof up and down and sidewise;

- means securing the bow for limited movement fore and aft with respect to the lane;
- an apron secured to the target support and extending from the target support over the floor to the front of the lane; and
- means to move the apron and target support to and fro between the front end and back end of the lane.

2. The device defined in claim **1** wherein the last named means comprises a roller at the front end of the floor over which the apron passes;
- a second roller at the rear end of the floor;
- said apron comprising flexible means connected to the target support and cooperating with the target support to form a loop around said rollers; and
- means to rotate one of said rollers.

3. The device defined in claim **1** wherein the target support has shields thereon extending forwardly and outwardly therefrom to engage the walls and floor of the lane when the target support is in its rearmost position.

4. The device defined in claim **1** wherein the bow securing means comprises a flexible member extending horizontally across the front end of the lane and anchored to the side walls thereof but having slack therein, a stiff tube through which said member extends and the bow having an opening receiving said tube.

5. The device defined in claim **1** wherein a roller is provided at the floor level at each end of the lane and said apron extends around the rollers with both ends thereof connected to the target support.

6. An archery device comprising an enclosed lane having a top wall, a floor and side walls joining the top wall and floor to provide an elongated passageway through which arrows may pass in flight from a bow to a target;
- a target support and backstop in said lane movable lengthwise thereof from the back to the front;
- a bow mounted at one end of the lane for movement transversely thereof up and down and sidewise;
- means securing the bow for limited movement fore and aft with respect to the lane;
- means secured to the target support operable to move it to and fro between the front end and the back end of said enclosed lane;
- said target support carrying forwardly extending outwardly flaring shield means extending to the side walls and top wall of the lane to prevent arrows from passing the target support when it is in the rearmost position.

7. An archery device comprising an enclosed lane having a top wall, a floor and side walls joining the top wall and floor to provide an elongated passageway through which arrows may pass in flight from a bow to a target;
- a target support and backstop in said lane movable lengthwise thereof from the back to the front;
- a bow mounted at one end of the lane for movement transversely thereof up and down and sidewise;
- means securing the bow for limited movement fore and aft with respect to the lane;
- means secured to the target support operable to move it to and fro between the front end and the back end of said enclosed lane;
- said target support carrying forwardly extending outwardly flaring shield means extending to the side walls and top wall of the lane to prevent arrows from passing the target support when it is in the rearmost position;
- and said target support having a bottom plate, extending forwardly from the support and downwardly to push arrows from the floor.

8. The device defined in claim **6** wherein a flexible apron is attached to the front of the target support and substantially covers that portion of the floor between the target support and the front end of the lane; and
- the entire apron is movable with the target support to bring spent arrows falling thereon to the front of the lane ahead of the target support.

9. The device defined in claim 7 wherein the floor in front of the target support is covered by a flexible apron as wide as the target support;

said apron extending to the front end portion of the floor then below the floor and back to the rear end of the floor and then upwardly and to the target support; and

both ends of said apron being secured to the target support.

10. The device defined in claim 6 wherein the side walls of the lane diverge from each other from the rear to the front end thereof and said side walls extend forwardly beyond the bottom wall and the bow.

11. The device defined in claim 6 wherein the side walls are transparent and wherein the floor and top wall converge toward each other from the front end to the rear end of the lane.

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