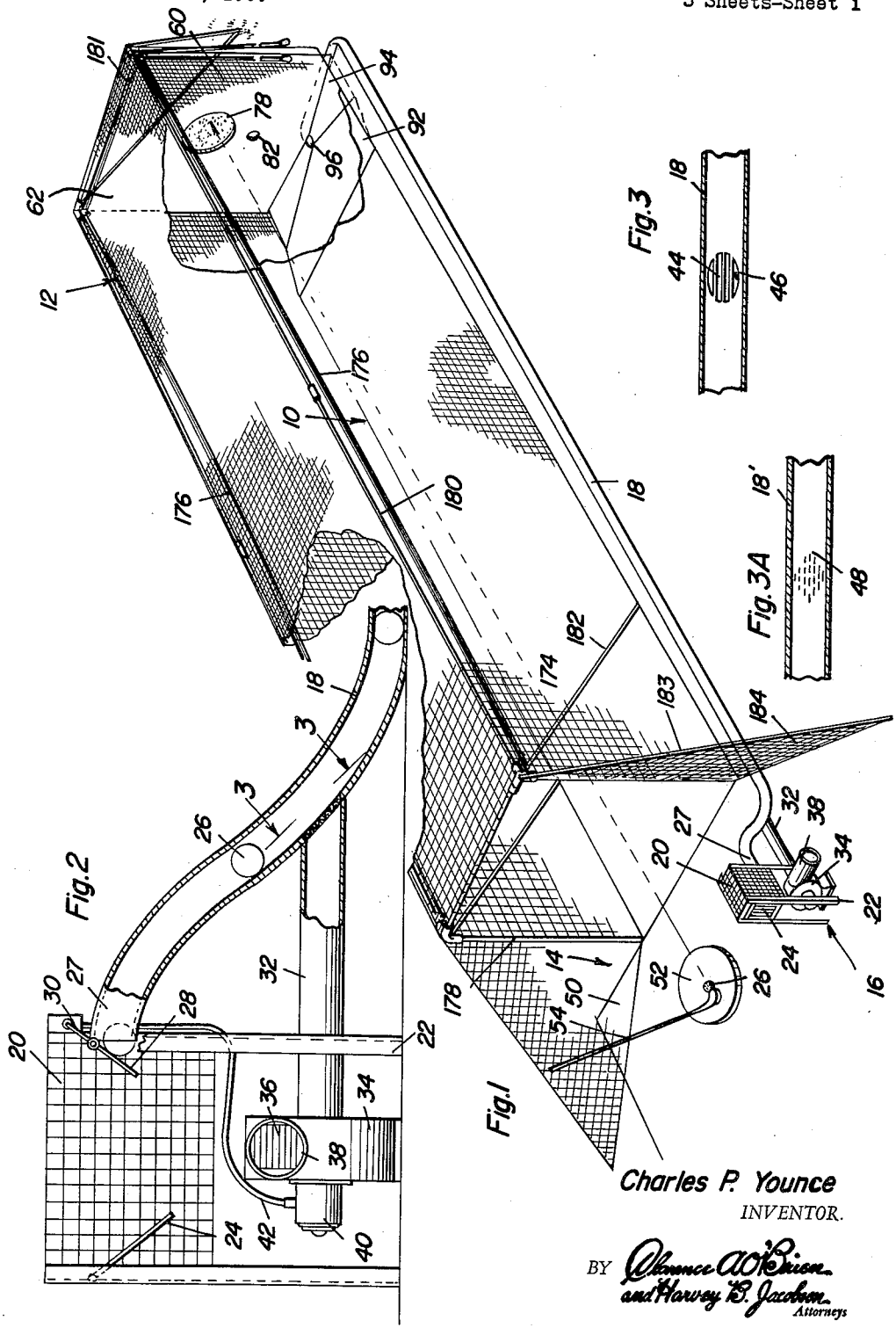
June 5, 1962 C. P. YOUNCE 3,037,776

TARGET DEVICE

Filed Jan. 11, 1960 3 Sheets-Sheet 1



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TARGET DEVICE

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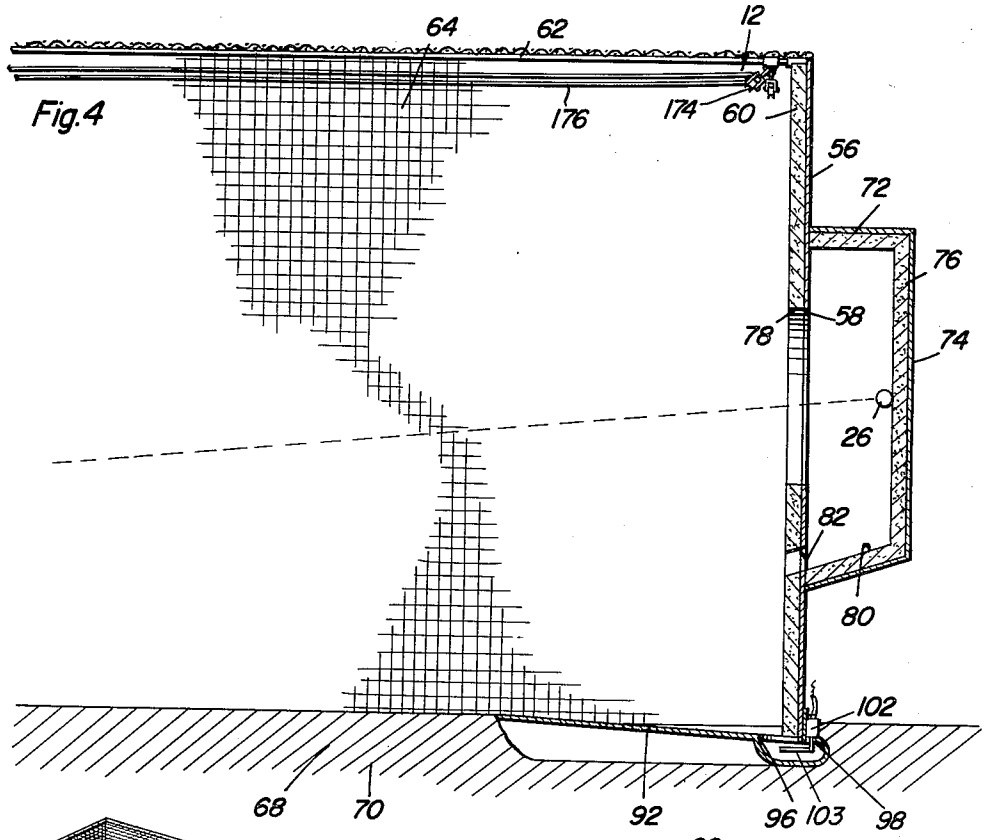

Fig. 4

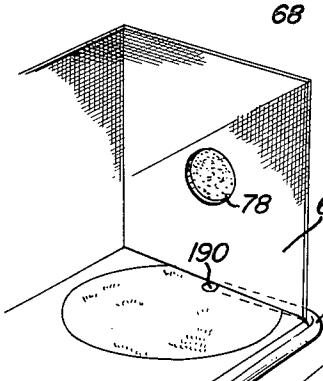

Fig. 12

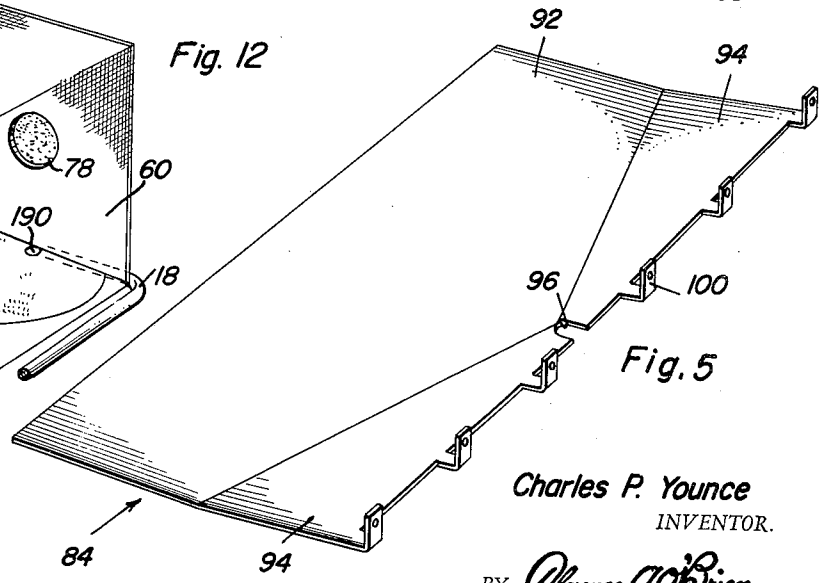

Fig. 5

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Fig.6

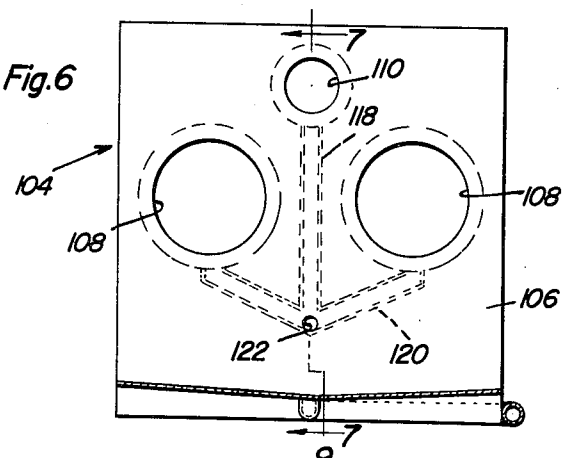


Fig.7

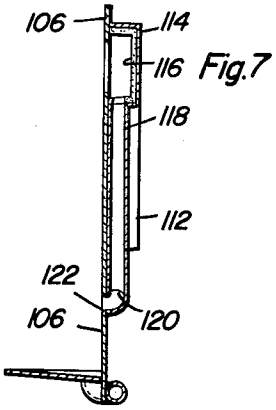


Fig.8

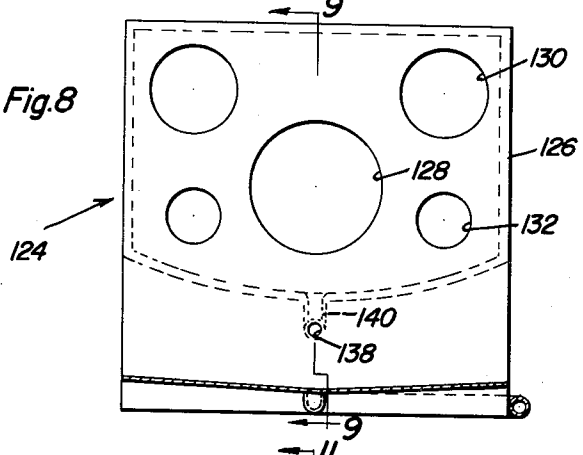


Fig.9

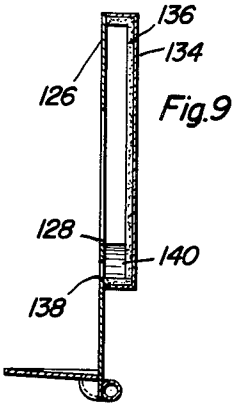


Fig.10

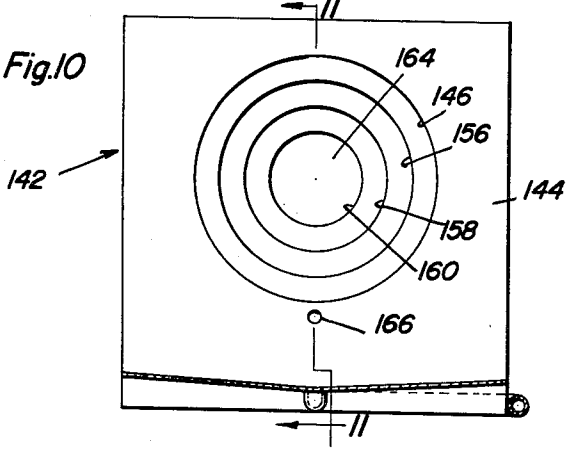
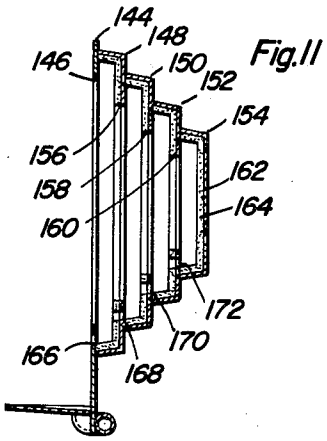


Fig.11



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3,037,776

TARGET DEVICE

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Filed Jan. 11, 1960, Ser. No. 1,783
5 Claims. (Cl. 273—182)

The present invention generally relates to a target device or practicing device which may be effectively employed indoors or outdoors for use by persons engaged in causing a ball or the like to be projected including a novel mechanism for controlling and returning a ball from the time it leaves the projecting area until it reaches the target area and returns.

The primary object of the present invention is to provide a target device in which control of the driven ball is maintained from the time the ball leaves the projection area until it is delivered back to the area for reuse.

Another object of the present invention is to provide a target device which substantially eliminates noise usually made by a ball striking a target and more importantly eliminating rebound or bounce of the ball upon striking of the target.

A further object of the present invention is to provide a target which will absorb impact of the ball when it strikes the target and will cause the ball to drop substantially straight down without any bounce or rebound.

Yet another feature of the present invention is to provide a ground or floor level shelf or trough connected to the target which provides means for returning the ball to a ball return device by the action of gravity with the ball return device then being automatically operated by the ball and capable of returning the ball to the projection area, the returned ball immediately and automatically turning off the ball return device.

A further important object of the present invention is to provide a target incorporating a ball return device employing a pneumatic suction which will return the ball to the projection area and automatically discharge the ball into a container within convenient reach of the person using the target, the return of the ball serving to automatically stop the ball return device to eliminate the noise thereof during the time in which the person is concentrating on accurately projecting the ball.

The present invention is capable of use in many orientations but for purposes of illustration, the invention has been disclosed as a target device for golf balls. However, it could be employed and is readily adapted to use as a catcher or target for a pitcher pitching baseballs such as would occur when the pitcher warms up or when he is merely practicing for gaining accurate control of the ball, and for elimination of the catcher when used as a batting cage during batting practice. In either instance, the ball return device will instantly return the ball to the area from which it was projected. Further, the device could be used as a batting practice device in which the batter would stand in the projection area and the balls could be thrown by a suitable pitching machine automatically receiving the return balls from the target area. In the particular use disclosed, the invention enables the golfer to concentrate on the various factors necessary when driving the golf ball since the ball return device will be automatically turned off whereby all noise will cease during the time that the person using the device actually addresses and drives the golf ball.

Other important objects of the present invention are to provide a golf target which is substantially permanent in construction, easy to set up, adapted to indoor and outdoor use, light and easily movable from place to place, compact in form and easy to ship, neat in appearance for both private and commercial use and generally inexpensive to manufacture.

These together with other objects and advantages which will subsequently become apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a perspective view of the target device of the present invention with parts broken away;

FIGURE 2 is an enlarged side elevation of the ball returne suction device with portions being shown in section illustrating the structure thereof;

FIGURE 3 is a detailed sectional view taken substantially upon a plane passing along section line 3—3 of FIGURE 2 illustrating the structure of the air intake for the suction fan which enables the balls to continue to the container by the momentum thereof with no interruption to their path of movement;

FIGURE 3–*a* is a view similar to FIGURE 3 but illustrating a modified form of intake for the suction fan;

FIGURE 4 is a detailed sectional view of the target area illustrating the structural details thereof;

FIGURE 5 is a perspective view of the trough illustrating the details thereof;

FIGURE 6 is a front view of another form of target area illustrating a different arrangement of openings in the target member;

FIGURE 7 is a vertical sectional view taken substantially upon a plane passing along section line 7—7 of FIGURE 6 illustrating the details of construction of this form of target;

FIGURE 8 is a front plan view of another target form illustrating another orientation of openings therein;

FIGURE 9 is a vertical sectional view taken substantially upon a plane passing along section line 9—9 of FIGURE 8 illustrating the structural details of this form of the invention;

FIGURE 10 is a front elevational view of another form of the target illustrating a bull's eye arrangement with axially spaced openings of diminishing diameter;

FIGURE 11 is a vertical sectional view taken substantially upon a plane passing along section line 11—11 of FIGURE 10 illustrating further structural details of this form of the invention; and

FIGURE 12 is a detailed view showing a putting cup.

Referring now specifically to the drawings, the numeral **10** generally designates the target or practicing device of the present invention which is illustrated as a golf target or practice device and includes at one end thereof, a target area generally designated by the numeral **12** and, at the other end thereof a tee area or driving area generally designated by the numeral **14**. The tee area includes a ball return mechanism generally designated by the numeral **16** that includes an elongated tube or pipe **18** extending from the tee area **14** to the target area **12**.

Referring now specifically to FIGURE 2, it is pointed out that the ball return mechanism includes a generally rectangular container **20** of wire mesh construction which is conveniently supported on corner legs **22** which may be of angle iron construction. In one end wall of the container, there is provided an inwardly swingable trap door **24** to provide access to golf balls **26** within the container **20**. The other end of the container **20** is connected with the discharge end of the suction tube **18** with the discharge end being designated by the numeral **27**. A swingable trap door **28** is mounted for closing the discharge end **27** of the suction tube **18** with the trap door **28** being relatively light in construction and pivotally supported by a switch **30** whereby a golf ball **26** entering the container will strike the trap door **28** and cause it

to be opened due to the momentum of the golf ball 26 thus actuating the switch 30.

Connected to the suction tube 18 in spaced relation to the discharge end 27 thereof and generally at a point in which the tube curves upwardly is an intake conduit 32 connected to a fan housing 34 at the center thereof which includes the usual impeller 36 with a tangential discharge 38 and also a driving motor 40 which receives power from a suitable electrical conduit or conductors 42. The fan may be of any conventional construction but is preferably of a squirrel cage type in which sufficient vacuum will be induced in the line 18 to suck the golf balls 26 from the target area 12 back to the container 20 with the speed and momentum of the golf balls 26 carrying the golf balls 26 up the inclined portion of the return pipe 18 and thus into the container 20 by virtue of the trap door 28 being open. In view of the length of the tube 18, the suction provided in the tube 18 while the golf ball is being drawn towards the fan will of course, cause a suction within the discharge 27 of the tube but since the air in the tube 18 behind the ball or between the ball 18 and the inlet end of the pipe 18 is atmospheric, as soon as the ball 18 passes the inlet of the conduit 32, then the suction provided by the pump is broken and the momentum of the golf ball 26 will cause the golf ball 26 to proceed up the incline and open the trap door and drop into the container 20.

FIGURE 3 illustrates the orientation and construction of the inlet of the intake conduit 32 which joins to the conduit or pipe 18 in acute angular relationship. This opening is partially closed by a plurality of longitudinal bars 44 which leaves a plurality of slit-like openings 46 for entrance of air but the bars 44 will prevent entry of the golf balls. The bars 44 are arranged so that there will be no interruption of the surface contact of the ball 26 with the pipe so that the ball will continue to freely roll along the pipe.

FIGURE 3—*a* illustrates a modified form of invention in which the pipe 18′ is provided with a plurality of slit-like openings 48 therein which form an air inlet for the conduit 32 whereby the surface of the interior of the pipe 18′ will not be interrupted so that the ball may roll freely along such surface without interruption.

The teeing area 14 includes a simulated grass area 50 having a circular teeing area 52 which may have a tee incorporated therein for positioning a golf ball 26 for striking with a golf club 54 in the usual manner for driving it towards the target area and the target generally designated by the numeral 12.

As illustrated in FIGURE 4, the target 12 generally includes a vertically disposed panel 56 having an enlarged centrally disposed aperture 58 therein with the front surface of the panel 56 being covered with a relatively thick cushion 60 of cellular resilient material such as foam rubber or foam plastic which will absorb the impact of the driven golf ball 26 without any rebound or bounce being imparted to the golf ball 26. In other words, when the golf ball 26 engages the cushion 60, the golf ball will drop substantially in a vertical manner downwardly to the bottom of the target area. Projecting from the panel 56 towards the teeing area 14 is a top wall 62 and side walls 64 preferably constructed of screen mesh material so that any golf balls that are badly aimed will still be guided into contact with the cushion 60 on the panel 56.

The panel 56 is provided with a generally rectangular hollow enclosure formed by a panel 72 which encloses the enlarged aperture or opening 58 and has a rear wall or panel 74 spaced rearwardly therefrom. The entire inner surface of the panel 72 and the rear wall 74 is covered with a cushion 76 equivalent to the cushion 60 for cushioning a golf ball when it passes through the opening 58 into the area enclosed by panels 72 and 74. Note that the cushion 60 also is provided with an opening 78 corresponding with the opening 58 in the panel 56 thus permitting unobstructed passage of the golf ball 26 through the target panel 56 into the area defined by panels 72 and 74 so that it will come in contact with the cushion 76 wherein it will drop straight down to engage an inclined bottom surface 80 defined by the bottom of the panel 72 and the bottom of the cushion 76. The panel 56 and the cushion 60 are provided with an opening 82 at the lower end of the inclined surface 80 whereby golf balls 26 being projected through the openings 58 and 78 will drop down and be discharged back out through the opening 82 onto the area forwardly of the target panel 56.

Supporting and detachably connected to the lower end of the target 12 is a trough or shelf assembly generally designated by the numeral 84 which includes a downwardly inclined ramp 92 which is in the form of a plate and extends rearwardly and downwardly towards the target panel 56. The side edges of the ramp 92 adjacent target 56 are also downwardly and inwardly inclined towards the center. Inclined side edges 94 are integral with the ramp 92 whereby the ramp 92 and the side edges 94 generally cooperate to form a trough or shelf for directing all of the golf balls landing thereon towards the center thereof immediately forwardly of the target panel 56 and cushion 60. In the center of the trough assembly 84 there is provided slot 96 extending to the rear edge thereof for discharge of all of the golf balls through the trough 84 into the inlet adapter 98 for the suction tube 18. Thus, all of the golf balls will be caused to enter the opening 96 for subsequent discharge through the suction tube 18.

The rear edges of the inclined side edges 94 are each provided with rearwardly extending and upturned brackets 100 for detachable engagement with the panel 56 thus supporting the panel 56 and the entire target assembly.

In the inlet adapter 98 there is provided a switch mechanism 102 having a hair trigger 103 which is responsive to engagement by a golf ball, the switch mechanism 102 is part of a three-way switch which also includes switch 30 for operating the fan motor 40. Thus, as a golf ball 26 drops into the inlet adapter 98, the switch 102 will be closed thus activating the motor 40 for automatically returning the golf ball to the tee area and into the container 20.

The various components of the target may be constructed of metal or plastic and the ball return may be of suitable pipe construction which may also be metal or plastic and the size of the opening of the inlet adapter may be such that any cut or otherwise damaged golf balls will not enter the suction pipe to prevent clogging thereof. The trough assembly 84 is inset or depressed in the floor surface or ground surface so that the frontal edge of the trough or ramp 92 is flush with the ground surface or the floor surface. This will assure that any balls rolling along the floor or ground surface and onto the trough will be return to the driver's tee-off station.

For indoor use, the tee area 52 is of sponge rubber or other suitable material and when the device is used outdoors, such a pad is unnecessary since the ball will be teed up in the normal ground of the driving fairway. Also shown in dotted lines in FIGURE 1 is the indoor fairway of smooth cloth or carpet surface, the fairway ending flush with the edge of the trough or ramp 92. This indoor carpet surface of simulated fairway may be artificial grass with that portion adjacent the target area simulating a green. The various dimensions of the components of the invention may be altered as desired and a scoring mechanism may also be provided for registering the scores obtained by the various golfers with the scoring mechanism being especially adapted for use with the targets illustrated in FIGURES 6–11 of the drawings.

In each form of the invention illustrated in FIGURES 6–11, the trough structure 84 will remain the same and will not be described. The only structural change is in

the target panel **56** and, of course, the cushioning material **60** and the structure behind the panel **56**.

In FIGURE 6, the target member is generally designated by the numeral **104** in which the target panel **106** is provided with a pair of side-by-side enlarged apertures **108** with there being a single aperture **110** above and disposed centrally of the enlarged aperture **108**. Each of the apertures **108** is provided with an enclosure **112** disposed behind the aperture **108** and the aperture **110** is provided with an enclosure **114** disposed behind this aperture. All of the enclosures are provided with a cushion lining **116**. Extending downwardly from the enclosure **114** is a tubular passageway or pipe **118** and extending inwardly from the enclosures **112** is a tubular passageway or pipe **120** all of which connect at the discharge opening **122** in the panel **106** for discharging the golf balls back onto the trough or shelf assembly for subsequent discharge in the same manner as in the device shown in FIGURES 4 and 5.

Referring now to FIGURES 8 and 9, the form of the target illustrated in these two figures of the drawings is designated generally by the numeral **124** and this form of the target includes a target panel **126** having a centrally disposed enlarged opening **128** and two smaller openings **130** located in the upper corners thereof and two openings **132** yet smaller than the openings **130** disposed below the openings **130** and to one side of the lower portion of the opening **128**. Disposed behind all of the openings **128**, **130** and **132** is an enlarged enclosure **134** provided with a cushioning material **136** on the inner surface thereof so that any golf ball entering any of the target openings will be cushioned and discharged to the bottom of the enclosure for passage downwardly and inwardly through an opening **138** in the panel **126**. The opening **138** is communicated with the arcuate lower edge of the enclosure **134** by a depending centrally disposed offset portion **140** of the enclosure as illustrated in FIGURE 8. When the golf balls are discharged back through the opening **138**, they are collected and proceed to the intake end of the suction tube in the usual manner.

Referring now specifically to FIGURES 10 and 11, the form of the target designated in these two figures of the drawings are defined by the numeral **142** which includes a panel **144** having an enlarged opening **146** therein. Located behind the panel **144** is a plurality of enclosures **148**, **150**, **152**, and **154**. The enclosure **148** is provided with an opening **156**, the enclosure **150** is provided with an opening **158**, the enclosure **152** is provided with an opening **160** and the enclosure **154** is provided with a solid rear wall **162**. All of the enclosures and walls are provided with cushioning material **164** and the panel **144** is provided with an opening **166** therein below the enlarged opening **146** and the panel **148** is provided with an opening **168** below the opening **165**, the enclosure **150** is provided with an opening **170** below the opening **158** and the enclosure **152** is provided with an opening **172** below the opening **160**. The openings **146**, **156**, **158** and **160** progressively diminish in diameter thereby providing a substantially bull's eye effect for forming a target for the golf ball whereby the accuracy of the golf ball will determine how far into the target the golf ball will go. All of the golf balls will drop to the bottom of the particular enclosure in which it stops and will then fall forwardly through the openings **172**, **170**, **168** and **166**. With this form of the invention, as well as the forms illustrated in FIGURES 6–9, a scoring device may be readily associated for determining the particular enclosure in which the golf ball lands thus registering a score accordingly.

As shown in FIGURE 1 a mesh curtain wall **64** and ceiling **62** extend in the form of a tunnel for containing widely driven balls on the fairway and deflecting them toward the target panel **56** and onto shelf or trough assembly **84**. A frontal frame **178** is provided and to each

top corner of the frontal frame **178** a wire **180** is fastened. Each wire is extended taut to its corresponding top corner of target panel **56**, from which point anchor wires **181** are connected and anchored at a center point in the ground in the rear of target panel **56**, thereby making fast the position of the target and sustaining the curtain in position from the tee to the target. Frontal frame **178** is sustained in rigid position by inclined braces **182** or extension **183** of wire **180** which extends from the corner of frame **178** and are flared outwardly to a ground anchor. A side wall curtain **184** is supported from extensions **183**.

The frame **178** is of light stainless steel, aluminum or other inexpensive small pipe, the ground end of which is sleeved over a stable metal stake driven in the ground. The type of mesh curtain used is of such light weight that employment of support braces between tee area end and target area is unnecessary, thus eliminating an obstruction that might cause back bouncing balls. For putting and chip shots the retainer curtain may be drawn out from target any desired distance.

The foregoing description of target, frame and method of sustaining the wall curtain covers set-up of target for outdoor or lawn use. Indoors, the frame, curtain suspension by sustaining wire, brace and anchors are unnecessary. The target and ball return mechanism alone are moved indoors. The target rests on a T base that holds it in a vertical position and no bracing or sustaining support is required. Merely move it indoors, set it up, unroll the artificial fairway from tee station to frontal edge of container trough, hang a side wall container curtain from ceiling, where necessary and play golf.

The target patterns or target front wall may be changeable by merely replacing removable discs in target intake openings, thereby eliminating the necessity of having a separate front wall for each target pattern.

The mesh curtains **62** and **64** are moved along the wires **180** by virtue of a draw cord or string **176** supported by pulleys **174** at each corner thereof which act somewhat in the nature of a drapery or stage curtain in that the mesh screen members **62** and **64** may be drawn longitudinally of the support wires **180** by virtue of attachment of the free edge of the wire mesh curtain walls to the line **174**. The netting suspended on the tightly drawn wires enables the person to draw and collapse the curtain against the target when not in use and, when desiring to use the target for driving, a player merely reverses the pull of the cord which draws the netting back into position as illustrated in FIGURE 1 thus forming a complete tunnel. This is simply done by having four pulleys, one at each top corner of the frontal frame **178** and the target panel **56**. The endless loop of cord **174** along each suspension wire operates through the pulleys with the frontal frame end of the netting being fastened to the loop. This may be accomplished by a small hook fastened to the cord so that when the cord is pulled to collapse the netting against the target, the hook follows along the suspension wire gathering the netting and collapsing same against the target. When the pull is reversed, the netting is drawn back in extended position ready for use of target for driving. Thus, this will enable the target to be used for short chip shots by a mere pull of the curtain collapsing cord **174**. This curtain collapsing facility also makes the target compact for covering protection when used outdoors and prevents the target from being unsightly when used on a lawn.

The present invention has many uses including the uses as previously set forth in that a pitcher may warm up by pitching baseballs towards the target in which case the baseballs will be automatically returned to the pitching position or mound which would be the projection area. Also, the device may be used as a batting practice device in that the ball return mechanism would return the batted balls back to the projection area which would be the area from which the balls are batted.

The cushion or back stop **60** being constructed of cellu-

lar material has many cavities in its face. The golf ball also has cavities in the form of dimples on the surface thereof. When the golf ball hits the cushion **60**, a vacuum is produced by collapse of the cells of the cushion and such vacuum actually grips the ball and causes the ball to stop and become adhered somewhat to the surface of the cushion. This is accomplished by the combination of the vacuum caused by the dimples on the golf ball and the vacuum caused by the cells in the cellular material thus preventing rebound of the golf ball or other ball employed with the device.

The switch **102** is part of a three-way switch system together with the switch **30** on the ball return receptacle **20** which will enable the ball return mechanism to be automatically cut on and automatically cut off or manually cut on and off by virtue of the switch **30**.

The wire cage and wire netting are made in separate sections so that they may be easily shipped and so that any part can be used to the exclusion of the other. For example, if only one side of the wire curtain is required, this can be employed as may become necessary or desirable.

In FIGURE 12, there is illustrated a putting cup **190** on the fairway near the front center of the shelf for use when the device is assembled outdoors. This cup may be in addition to the shelf or trough **84** or may take the place thereof with the lawn itself being inclined in the form of members **92** and **94**.

Also, the end of conduit **32** where it joins tube **18** may be provided with a wire mesh screen of a size not to obstruct flow of air but will eliminate trash or foreign objects. Such objects will not be drawn into the fan but will be thrown out of the end of tube **18** by balls passing outwardly therefrom. This will prevent fouling of the fan if foreign material accidentally gets into tube **18**.

The suspension wires **180** have a total weight of less than one pound, netting about four pounds, motor about three pounds, and target relatively light depending upon type of materials employed.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A target assembly comprising a projection area and a target area and means for returning a ball from the target area to the projection area, said target area including a generally vertically disposed target panel, a plurality of mesh panels extending from the target area towards the projection area for guiding a ball towards the target panel, an inclined member extending from the bottom of the target panel toward the projection area and inclined downwardly toward the target panel, the edges of said inclined member adjacent the target panel also inclining inwardly and towards the center, said downwardly inclined member having an opening adjacent the center thereof, said ball return means including pneumatic propulsion means communicating with the opening for moving a ball from the target area to the projection area for reuse, said ball return means including an elongated pipe, a suction fan communicated with the pipe, a portion of the pipe communicated wth the suction fan curving upwardly, a reticulated container receiving balls from the pipe, a flap valve on the discharge end of the pipe for closing the discharge end of the pipe for creating a suction in the pipe for sucking balls from the target area, means forming a part of the pipe connecting the pipe to the suction of the fan permitting passage of air but preventing passage of the ball and providing a continuous surface with the interior of the pipe whereby the ball will continue to roll up the incline of the pipe due to the momentum of the ball thus discharging itself into the reticulated container by opening the flap valve.

2. The structure as defined in claim 1 wherein said connection between the suction pipe and the intake of the fan is provided with a plurality of longitudinal bars defining air entrance slits.

3. The structure as defined in claim 1 wherein said connection between the suction pipe and the intake of the fan includes a plurality of slit-like openings in the peripheral surface of the pipe thereby permitting passage of air and permitting rolling engagement of the ball with the interior of the pipe.

4. The structure as defined in claim 1 wherein a pair of parallel wire members supports the mesh panels, and means connected with the panels for collapsing the panels to an area adjacent the target panel and returning the mesh panels to extended position thereby forming substantially a tunnel for the golf ball.

5. The structure defined in claim 1 wherein said target panel is covered with a cushioning material, said panel and cushioning material having a large opening therein forming a target, an enclosure disposed rearwardly of the panel for receiving golf balls passing through the opening therein, said enclosure having a downwardly and forwardly inclined bottom wall, and a relatively small opening in the panel adjacent the bottom wall of the enclosure and in alignment with the lowest point therein for discharging golf balls from the enclosure back onto the inclined member at the bottom of the target panel.

References Cited in the file of this patent

UNITED STATES PATENTS

1,469,130	Whitehair	Sept. 25, 1923
1,669,640	Warlick	May 15, 1928
1,771,466	Scanlan	July 29, 1930
1,931,841	Evans	Oct. 24, 1933
2,054,079	Ham	Sept. 15, 1936
2,301,767	Willingham	Nov. 10, 1942
2,793,636	Cook	May 28, 1957