This invention relates to a moving target machine.

A further object of this invention is to provide an improved moving target machine in which the target is conveyed upwardly in full view of a shooter and then drops under the influence of gravity out of view of a shooter when the target reaches highest point of its path.

A further object of this invention is to provide an improved moving target mechanism in which the target is conveyed upwardly by a conveyor and when hit by a shooter, drops immediately under the influence of gravity in full view of the shooter comparable to bringing down game in field shooting.

Another object of this invention is to provide an improved moving target machine having a target which is carried by a conveyor during the target run and which falls freely to the starting point at the end of the target run or when hit by a shooter.

Still another object of this invention is to provide an improved moving target device wherein a target is conveyed upwardly in front of back stop plates during the target run and is returned under the influence of gravity behind the back stop plates after completion of the target run, said device including fixed cams to release the target from the conveyor at the end of the target run and to reset the target for coaction with the conveyor at the start of the target run.

Other objects of this invention will appear from the following specification and claims and from the accompanying drawings illustrating the invention, wherein:

Figure 1 is a front elevational view showing successive positions of the target;

Figure 2 is a side elevational view with the side wall removed to show the conveyor mechanism and target construction;

Figure 3 is a rear elevational view with the rear wall removed to show one of the conveyor lift fingers cooperating with the target; and

Figure 4 is a plan view with the top wall removed showing the back stop and the target construction.

Referring to the drawings, the target mechanism is housed in a cabinet having a rear wall 2, side walls 3 and 4, a bottom 5, and a top wall 6, the front of the cabinet being open except for shield plates 7 and 8 extending across the lower and upper ends, respectively. Spaced inwardly from the front of the cabinet and spaced from the top and bottom of the cabinet are a pair of back plates 9 and 10 forming a vertical slot 11 therebetween.

There is one target device in the machine and Figures 1, 2 and 3 show three successive positions of the target device. The target device is made up of a target face 12 which is fixed to shaft 13, extending through slot 11. The block 14 is provided with a groove 15 which slidably receives shaft 13. Plate 16, screwed on top of block 14, holds the shaft 13 in the groove 15. The rear end of shaft 13 extends beyond the block 14 and is provided with a lateral projection 17, which is engaged by a lug or lift finger 18, carried by conveyor 19, during upward travel of the target. The conveyor 19 is provided with a number of fingers 18 at spaced intervals, any one of which can carry the target through the target run defined by slot 14.

As can be seen in Figure 2, in position A of the target, the target face 12 is being carried upwardly in front of back plates 9 and 10 by one of the fingers 18 bearing against the under surface of projection 11 of target shaft 13. When the target reaches the position B, it engages a fixed cam plate 20 which forces target face 12 and target shaft 13 to move rearwardly during upward travel. During this camming movement shaft 13 slides rearwardly in groove 15 of block 14. Continued rearward movement of shaft 13 positions target face 12 behind the plane of plates 9 and 10 and results in projection 17 being carried beyond finger 18 and out of cooperation therewith. As soon as the target shaft 13 is released from finger 18, the target block 14, carrying target shaft 13 and target face 12, will immediately fall to the bottom of the cabinet under the influence of gravity. During this fall, the block 14 is guided by fixed guide rods 21, the block 14 being provided with guide holes 22 to receive the guide rods.

When the target shaft 13 nears the bottom of the cabinet, its rear end engages a fixed cam 23 which gives the shaft 13 forward movement while falling, to present the target face 12 in front of the plane of back plates 9 and 10 and to place projection 17 in the line of conveyor 19 when the target face reaches the bottom of the housing.

The bottom of the cabinet is provided with a pad 24 to absorb the force of block 14 falling thereon.

The target mechanism remains at the bottom until the next approaching finger 18 engages the under surface of projection 17 to lift the target block, target shaft and target face through another cycle.

Conveyor 19 is mounted on sprockets 25 and
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In operation, the conveyor 19 is continuously in motion, moving in a clockwise direction in Figure 3. Assumimg that the target device comprising block 14, shaft 13, and target face 12 is resting on pad 24, the next approaching finger 16 will engage the under surface of projection 17 of shaft 13 and lift the target device as a unit, the shaft 13 moving through slot 11 and target face 12 being positioned in front of back members 9 and 10. Let us assume that in position A of Figure 3, the target is hit by a shooter and is thus forced inwardly. Inward or rearward motion of shaft 13 will cause projection 17 to be disengaged from finger 16. Since the target device now has no support, it will immediately fall under the influence of gravity while guided by rods 21 passing through block 14. During this fall, target face 12 will be visible to the shooter until it drops behind wall 7. The dotted arrow in position A indicates the path taken by target face 12 when hit. This sudden fall of a struck target simulates falling game when hit and will afford a thrill to the shooter comparable to breaking a clay target in trap shooting or bringing down game in field shooting. Before the target device reaches pad 24, shaft 13 will be cammed forwardly somewhat by cam 23 to bring target face 12 to its forward position and to bring projection 17 in a position to be lifted by the next oncoming finger 18 to restart the cycle.

When the target face is not hit during the target run, it will disappear from view behind wall 8 in position B and soon thereafter will be cammed rearwardly by cam 20 to bring face 12 behind back plates 9 and 10 and to disengage projection 17 from finger 18. The unsupported target device will immediately fall and this time the target face 12, behind back plates 9 and 10, will not be visible to the shooter. Near the bottom, the target device will be cammed to proper position by cam 23 for the next cycle. By returning the target to the starting position by gravity, little time is lost between target runs even when the target is carried slowly through the target run.

While a certain specific embodiment of this invention has been shown, it will be understood that various modifications may be made within the spirit of the invention. Therefore, no limitations on the invention are intended other than are imposed by the scope of the appended claims.

I claim:

1. In a moving target machine, a vertically positioned target run, a target movable from the bottom to the top of the machine through the target run, a conveyor, a finger on said conveyor constructed to engage the target to support it vertically and to carry it upwardly through the target run, a cam at the upward end of the target run for disengaging the target from said finger whereby the target may fall under the influence of its own weight to the bottom of the machine, and means at the bottom of the run for resetting the target for engagement with said finger.

2. In a moving target machine as claimed in claim 1, wherein said target comprises a block movable therewith, a horizontal shaft carried by said block, said shaft being axially slidable in said block, and a target face fixed to said shaft, said shaft being provided with a projection for engagement with said finger.

3. In a moving target machine as claimed in claim 1, wherein said machine is provided with a pair of spaced back plates forming a slot therebetween, said slot defining said target run, and wherein said target comprises a block movable therewith, a horizontal shaft carried by said block, said shaft being axially slidable in said block, and a target face fixed to said shaft, said conveyor being constructed and arranged to carry said target upwardly, with said target face in front of said back plates, and wherein said cam, in disengaging the target from the finger, displaces said target face horizontally to a plane behind said back plates.

4. In a moving target machine, a target movable from the bottom to the top of the machine, a wall in front of said target, a slot in said wall defining the run of said target, a conveyor for supporting said target vertically and for carrying said target upwardly through said target run, means for disengaging said target from said conveyor at the top of said run, whereby the target is unsupported vertically and falls under the influence of gravity to the bottom of the run, and a cam at the bottom of the machine for resetting the target for re-engagement with said conveyor.

5. In a moving target machine as claimed in claim 4, wherein said conveyor comprises a block and a block, a horizontal shaft carrying said target face and saidly mounted in said block, wherein said conveyor is constructed and arranged to engage said shaft to carry the target through the target run with said target face in front of said wall, and wherein when the target face is hit, said shaft is horizontally disengaged from said conveyor and the target falls to the bottom of the machine with the target face in front of said wall.

6. In a moving target machine, a target movable upwardly through a target run, a wall, a slot in said wall defining said target run, a conveyor for vertically supporting said target and for carrying said target upwardly while the target is positioned in front of said wall, and means at the top of the target run for disengaging said target from said conveyor and transposing said target behind the plane of said wall, whereby said target falls to the bottom of the machine behind said wall, said target being constructed and arranged whereby when said target is hit during the target run, said target is horizontally disengaged from said conveyor and falls under the influence of gravity while positioned in front of said wall.

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No references cited.