F. KIMBLE.

BALL TRAP.

APPLICATION FILED JUNE 8, 1916.

1,229,092.

Patented June 5, 1917.

2 SHEETS—SHEET 1.

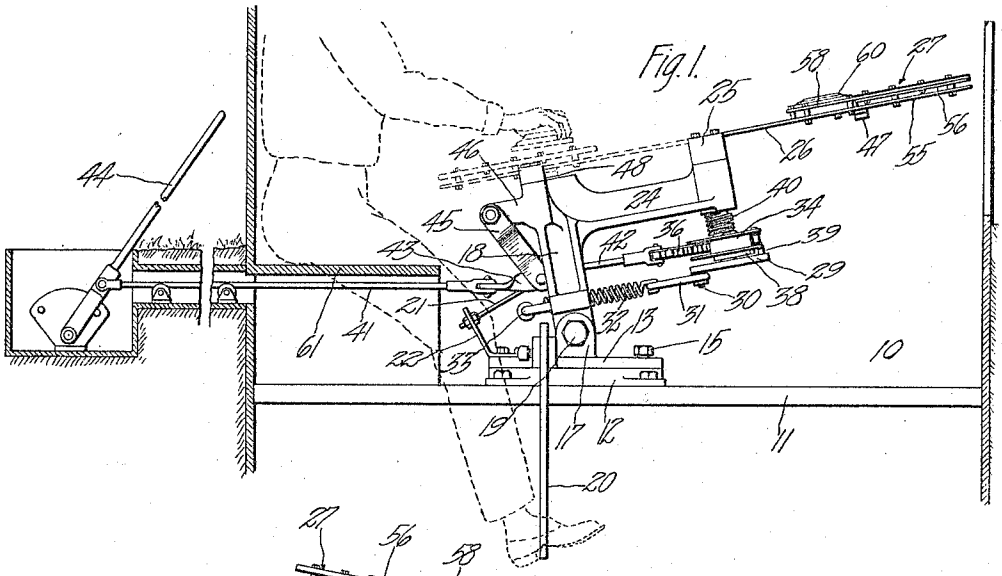


Fig. 1.

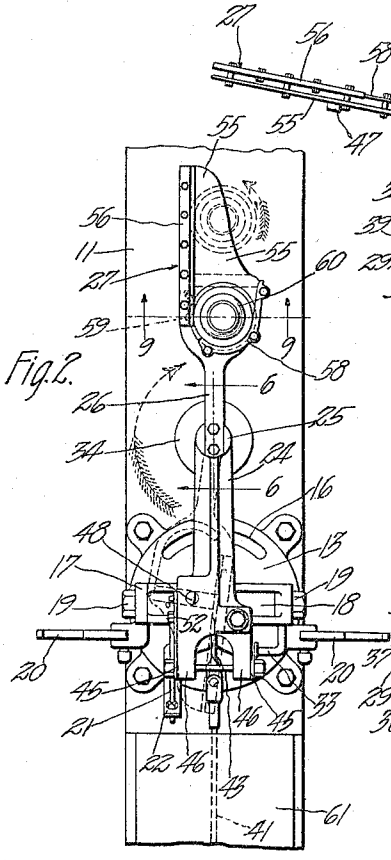


Fig. 2.

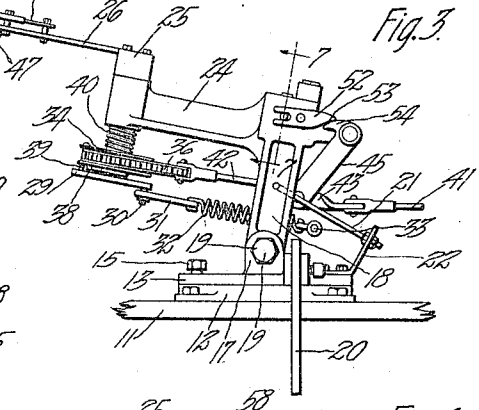


Fig. 3.

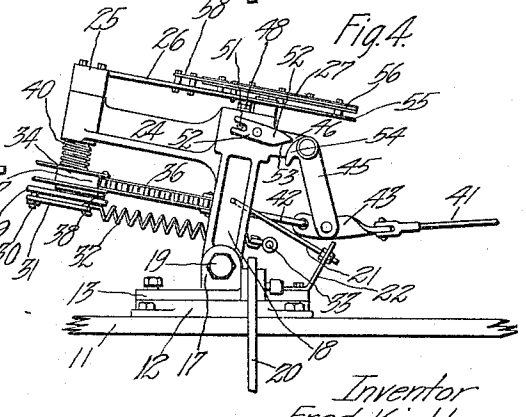


Fig. 4.

Inventor
Fred Kimble
by Hazard Berry & Miller
Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

F. KIMBLE.

BALL TRAP.

APPLICATION FILED JUNE 8, 1916.

1,229,092.

Patented June 5, 1917.

2 SHEETS—SHEET 2.

Fig. 5.

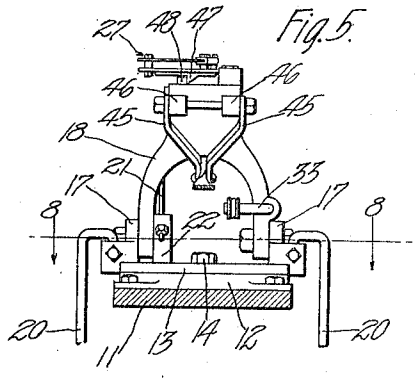


Fig. 8.

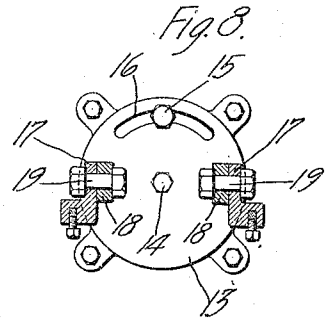


Fig. 6.

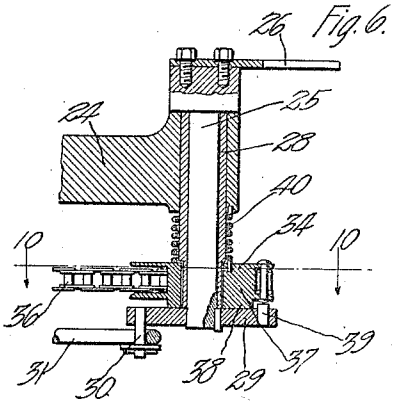


Fig. 9.

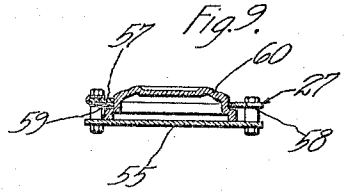


Fig. 7.

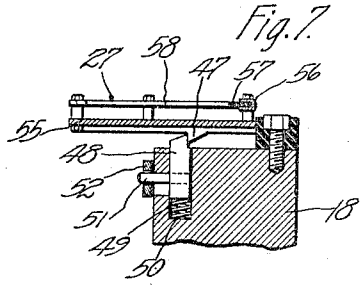
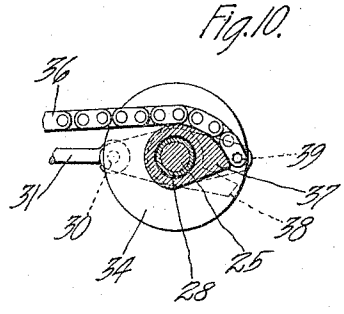


Fig. 10.



Inventor
Fred Kimble
by Hazard Berry & Miller
Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FRED KIMBLE, OF LOS ANGELES, CALIFORNIA, ASSIGNOR OF ONE-HALF TO ANSALEM W. BRUNER, OF LOS ANGELES, CALIFORNIA.

BALL-TRAP.

1,229,092. Specification of Letters Patent. Patented June 5, 1917.

Application filed June 8, 1916. Serial No. 102,455.

To all whom it may concern:

Be it known that I, FRED KIMBLE, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Ball-Traps, of which the following is a specification.

My invention relates to a trap for throwing disk targets generally known as clay pigeons.

It is an object of this invention to provide a superior construction of a trap in which the throw arm is moved into active position by means of a single pulling means operated at a distance. The pulling means is connected to a flexible means wound about the pulley provided with a cam engaging a crank arm which puts the throw spring under tension. The throw arm is locked when in active position and released when the pulling means is moved in an opposite direction, the release of the throw arm taking place subsequent to the winding up of the flexible means about the pulley which is effected by a retractive spring. At the moment of release of the throw arm there are no parts or elements of the machine which are likely to interfere with the action of the same, and consequently a quick clean throw of the target disk is effected.

It is another object of this invention to provide a target trap which is simple of construction, positive in action, and not liable to get out of order.

With the above and other objects in view which will appear as the description proceeds, my invention consists in the construction, arrangement and combination of parts hereinafter described and claimed.

In the accompanying drawings, I have illustrated a convenient and practical embodiment of my invention, and in which:

Figure 1 is a side elevation of the apparatus.

Fig. 2 is a plan view of the target trap.

Fig. 3 is a side elevation of the target trap taken from the other side of that shown in Fig. 1 and with the throw arm end in inoperative position.

Fig. 4 is a similar view with the throw arm in active position.

Fig. 5 is a rear view of the trap with parts broken away.

Fig. 6 is a section taken on line 6—6 of Fig. 2.

Fig. 7 is a section taken on line 7—7 of Fig. 3.

Fig. 8 is a horizontal section taken on line 8—8 of Fig. 5.

Fig. 9 is a section on line 9—9 of Fig. 2.

Fig. 10 is a horizontal section taken on line 10—10 of Fig. 6.

Referring to the drawings, 10 designates a pit in which the trap is located. A horizontal base plate or plank 11 is provided on which the trap is securely bolted. The trap comprises a turn table base plate 12 secured to the base or support 11 on which a rotatable plate 13 is mounted on a central pivot pin 14, extending upwardly from the base plate 12. A guide pin 15 depending from the rotatable plate 13 extends into an arcuate guide slot 16 of the base plate 12. A pair of upstanding lugs 17 oppositely arranged, support the target frame 18 by means of bolts 19. Secured adjacent to the lower ends of the frame 18 and fast to the rotatable plate 13 is a pair of depending stirrups 20 adapted to be engaged by the feet of the operator for oscillating the rotatable plate 13 and the frame 18 carried thereby in the usual manner. The inclination of the frame 18 from the vertical may be adjusted by means of an adjuster arm 21, pivoted at one end of the frame 18, and secured to a supporting plate 22, fast to the rotatable plate 13 at the other. A pair of lock nuts engage the threaded end of the adjuster 21 at opposite sides of the supporting plate 22. By loosening the bolts 19 and the nuts 23, the degree of inclination of the frame 18 may be adjusted, and by screwing the bolts and the lock nuts into place the frame may be held securely in its adjusted position. From the upper end of the frame 18, a shaft supporting arm 24 extends at right angles thereto at the outer end of which a bearing for a shaft 25 is provided. The throw arm 26 is rigidly mounted at the upper end of the shaft 25 and carries at its outer extremity, a target carrier 27. Referring to Fig. 6 it will be seen that shaft 25 is rotatably mounted in a sleeve 28, the lower ends of said shaft and said sleeve extending below the arm 24. At the lower extremity of the shaft 25 a crank arm 29 is keyed, which extends in opposite directions from the shaft. At one extremity of the crank arm 29, a pin 30 is secured to which link 31 is connected, and spring 32 is attached thereto at one

end and to a stud 33, secured to the frame 18 at the other. The lower section of the sleeve 28 is reduced in diameter and provides a bearing for a grooved pulley 34 loosely mounted thereon. The end of a chain 36 is secured to a cam shaped winding member 37, fast to the pulley 34. The lower face of the pulley 34 is provided with a dog 38, adapted to engage as the pulley is rotated with a crank actuating pin 39, projecting upwardly from the extremity of the crank arm 29 remote from the end of the throw spring 32. A coiled retractive spring 40 fast to the arm 24 at one end and encircling the sleeve 28 and fast to the pulley 34 at the other, tends to wind the chain 36 about the pulley 34.

The outer end of the chain 36 is connected to a pulling rod 41 by a link 42 and a link plate 43. The pulling rod 41 is connected to a manually operated lever 44 of the second class, preferably located at the place where the marksman stands to do the shooting.

A pair of supporting arms 45 having their upper ends pivoted in spaced relation to a rearward extension 46 of the frame 18 and their lower ends pivoted to the link plate 43, serve to support the pulling means and act as a release mechanism for the throw arm 26, presently to be described.

The throw arm 26 is provided with a downwardly depending lug or dog 47, having an inclined face and adapted to be engaged by a latch 48, mounted for vertical movement in a socket 49 in the upper end of the frame 18. A coiled spring 50 confined between the bottom of the socket 49 and the latch tends to move the same upwardly. A horizontal pin 51 fast to the latch 48 and projecting through an aperture in the frame 18 outwardly therefrom, is engaged in the fork end of a latch release lever 52 fulcrumed to the frame 18. The other end of said lever is provided with a bearing face 53 adapted to be engaged by a cam shaped trigger 54 projecting from and integral with the upper end of the supporting arm 45 adjacent thereto. The angle and the shape of the cam shaped trigger 54 are so chosen that the latch releasing lever 52 will not be actuated until after the chain 36 has been wound upon its pulley 34.

Referring now to the target carrier 27, the same consists of a target supporting base plate 55 secured to the outer end of the throw arm 26. The outer side of the target supporting plate, that is to say the one describing the greatest circle in its rotary movement is provided with a slide rail 56, which consists of a metal plate parallel to and slightly spaced from the upper face of the base plate 55. A strip of rubber 57 is secured along the under face of the slide rail 56, said strip of rubber projecting a slight distance beyond the inner edge of the slide rail. A curved target supporting rail 58 is mounted in parallel and spaced relation to the base plate 55 and oppositely disposed from the slide rail 56 at the inner end of said plate. At the inner end of the slide rail 56 and on the under face of the strip of rubber 57 is a small leaf spring 59 adapted to engage a circumferential flange of the target or clay pigeon 60.

The operation of the target trap is as follows: The operator straddles the seat 61 disposed to the rear of the trap and above the pulling rod 41. When the hand lever 44 is moved in the direction shown by the arrow in Fig. 1, the chain 36 will be unwound from the pulley 34 against the tension of the retractive spring 40. The dog 38, fast to the lower face of the pulley 34 in its rotation, engages the crank actuating pin 39 on the crank arm 29 and rotates the same, thereby moving the crank pin 30 to which the throw spring 32 is connected from the position shown in Fig. 3 to that shown in Fig. 4, thereby putting said spring under tension. A semi-revolution of the crank arm 29 causes the throw arm 26 to describe a semi-revolution in a circular path from the position shown in Fig. 3 to that shown in Fig. 4. As the throw arm 26 and target carrier pass over the spring controlled latch 48, the latter will engage the dog 47 and lock the arm in what may be termed its "active" position. The operator now places a clay pigeon in the target carrier. The attendant operating the lever 44 after having set the trap, allows the same to move in the opposite direction. The retractive spring 40 is of sufficient strength to rotate the pulley 34, winding the chain 36 thereon, and also moving the pull rod 41 connected therewith. The attendant retains his grip on the lever at the point when the continued backward movement of the lever would spring the trap. A few trials will indicate to the attendant the exact position of the lever so that when the marksman gives the signal to release the trap, the trap will be sprung instantly. Releasing the lever 44, the action of the spring 40 will move the pull rod 41, thereby causing the trigger 54 to actuate the latch releasing lever 52, withdrawing the latch 48 and allowing the throw spring 32 to swing the throw arm 26 about its pivot and to throw the target. It should be noted that at the moment of release, the movable parts such as the chain 36, which might interfere, are out of the way and a clean, swift throw of the target is effected.

The target 60 is held in place by the supporting jaw 58 and the spring 59. Just as soon as the centrifugal forces overcome the resistance of said spring, the target is thrown outwardly, the friction of the rubber strip in the slide rail 56 retarding that

end of the target and thereby causing the same to rotate swiftly as shown by the arrow in Fig. 2.

It is therefore seen that I have constructed a target trap simple of construction, in which the throw spring is actuated by means independent of the throw arm, that the throw arm is released only after the parts liable to interfere with it are out of the way, thereby effecting a clean, quick throw of the target.

While I have shown the preferred construction of the trap as now known to me, it will be understood that various changes in the arrangement, construction and combination of the parts may be made by those skilled in the art without departing from the spirit of my invention as defined by the appended claims.

I claim:

1. In a target trap, the combination of a frame, a substantially vertically disposed shaft journaled therein, an oscillatory swinging throw arm rigidly mounted on said shaft, a pulley loosely mounted on said shaft, a coiled retractive spring surrounding said shaft and tending to return said pulley to its normal inoperative position, flexible pulley operating means attached to the periphery of said pulley, a crank arm fast to the lower end of said shaft, means on said pulley for engaging and turning said crank arm, a throw spring connecting said crank arm to said frame, a single pulling means connected to said flexible means and operable at a distance and adapted when moved in one direction, to put said throw spring under tension, a spring controlled latch engaging said throw arm when the same is in active position, and means operated by said pulling means on its return movement to release said latch subsequent to the winding of said flexible means around said pulley.

2. In a target trap, the combination of a frame, a shaft journaled therein, an oscillatory swinging throw arm rigidly mounted on said shaft, flexible pulley operating means, resilient means engaging said pulley and tending to rotate the same to wind said flexible means around it, a crank fast to said shaft, means connected to said pulley to engage and rotate said crank, a throw spring connecting said crank to said frame, a single pulling means connected to said flexible means and operable at a distance, said pulling means being adapted when moved in one direction to put said throw spring under tension, a spring controlled latch engaging said throw arm when the same is in active position, and means operable by said pulling means on its return movement to release the latch subsequent to the winding of the flexible means around the pulley.

3. In a target trap, the combination of a frame, means for vertically adjusting the same, means for oscillating the same in a horizontal plane, a substantially vertically disposed shaft journaled in said frame, an oscillatory swinging throw arm fast to said shaft, a pulley loosely mounted on said shaft, resilient means tending to return said pulley to its normal inoperative position, flexible pulley operating means, a crank arm fast to said shaft, means connected to said pulley for engaging and rotating said crank arm, a throw spring connecting said crank arm to said frame, pulling means connected to said flexible means and adapted when moved in one direction to put said throw spring under tension, means for locking said throw arm in its active position, and means operated by said pulling means on its return movement to unlock said locking means subsequent to the winding of the flexible means around the pulley.

4. In a target trap, the combination of a frame, a shaft journaled therein, an oscillatory swinging throw arm fast to said shaft, a pulley loosely mounted on said shaft, resilient means tending to return said pulley to its normal inoperative position, flexible pulley operating means, a crank arm fast to said shaft, means connected to said pulley for engaging and rotating said crank arm, a throw spring connecting said crank arm to said frame, pulling means connected to said flexible means and adapted when moved in one direction to put said throw spring under tension, means operated by said pulling means on its return movement to unlock said locking means subsequent to the winding of the flexible means around said pulley, said unlocking means comprising a lever fulcrumed to said frame and pivoted to said pulling means.

5. In a target trap, the combination of an oscillatory swinging throw arm, a target carrier connected thereto, said target carrier comprising a base plate, a slide rail having a strip of resilient material in spaced and parallel relation to said base plate and adapted to engage the edge of the target and a spring mounted in said slide rail between said base plate and said strip for frictionally engaging the side of said target.

6. In a target trap, the combination of a frame, a substantially vertically disposed shaft journaled therein, an oscillatory swinging throw arm rigidly mounted on said shaft, a pulley loosely mounted on said shaft, a coiled retractive spring surrounding said shaft and tending to return said pulley to its normal inoperative position, flexible pulley operating means connected to said pulley, a crank arm fast to the lower end of said shaft, means on said pulley for engaging and turning said crank arm, a throw spring connecting said crank arm to

said spring, a single pulling means connected to said flexible means and operable at a distance and adapted when moved in one direction to put said throw spring under tension, a spring controlled latch engaging said throw arm when the same is in active position, a latch releasing lever pivoted to said pulling means and adapted to release said latch on the return movement of said pulling means, subsequent to the winding of said flexible means around said pulley.

In testimony whereof I have signed my name to this specification.

FRED KIMBLE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."