(No Model.) 2 Sheets—Sheet 1.

J. S. BRIGGS.

BALL TRAP.

No. 302,094. Patented July 15, 1884.

Fig. 1.

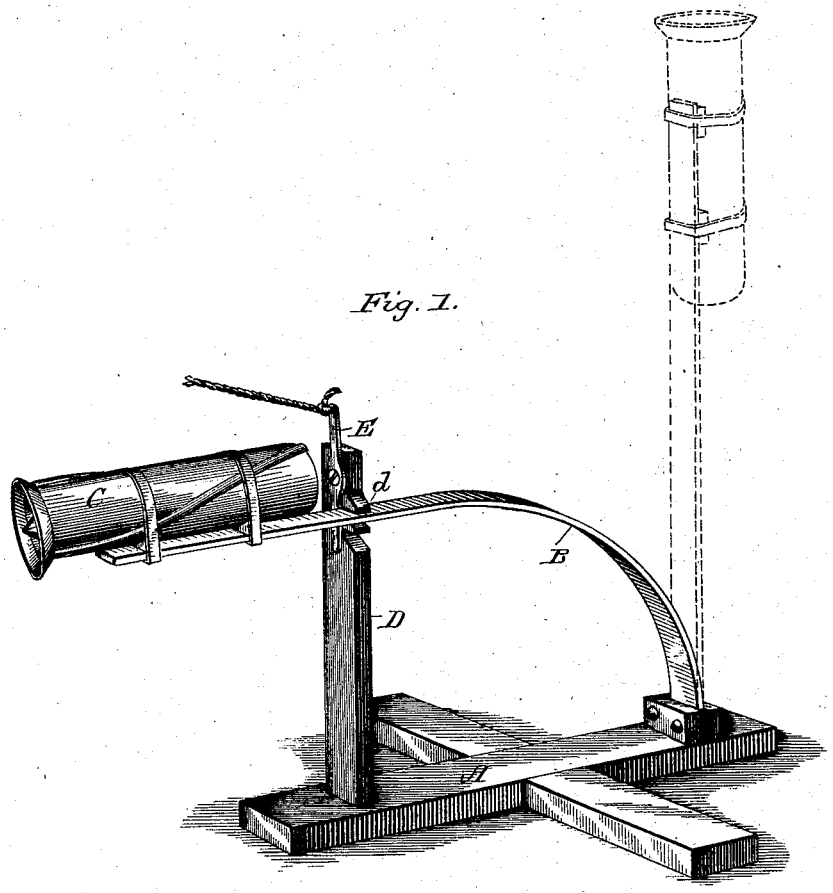


Fig. 2.

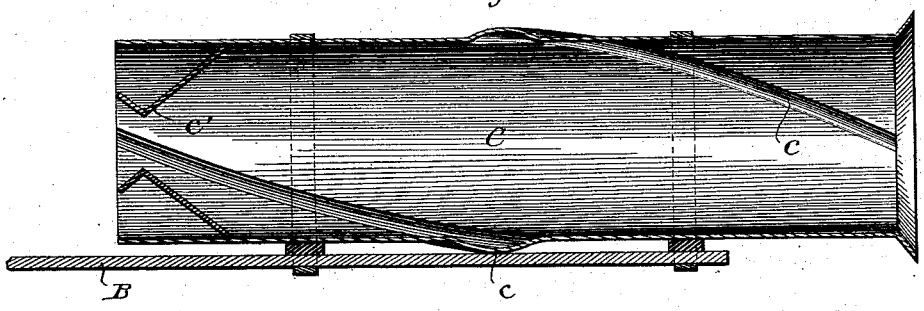
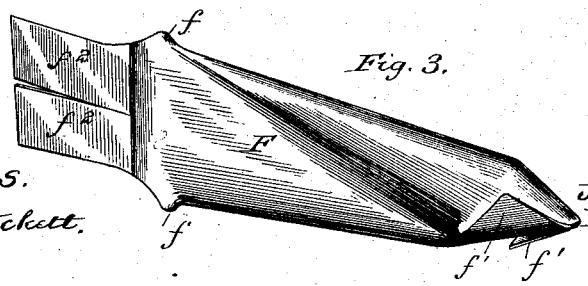


Fig. 3.



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C. C. Poole

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 4.

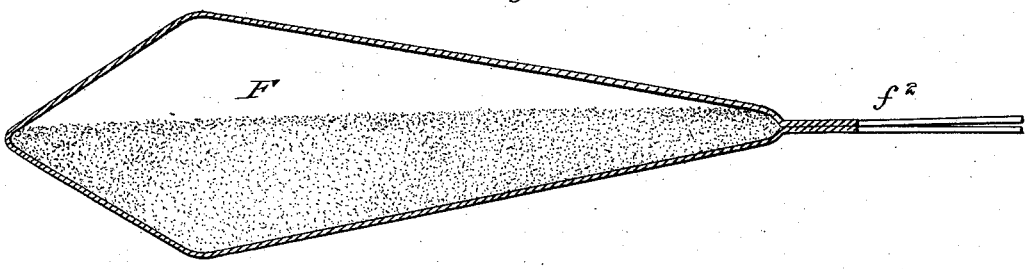


Fig. 5.

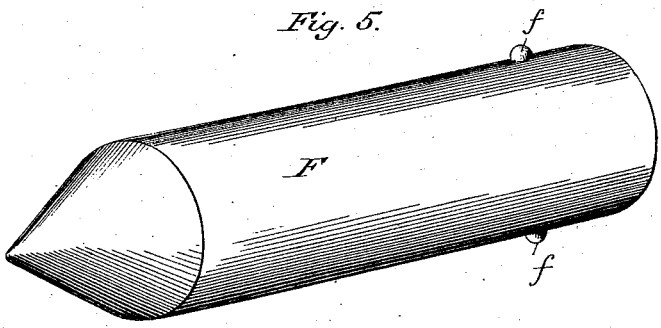
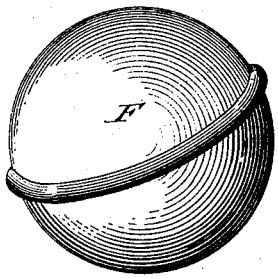


Fig. 6.



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UNITED STATES PATENT OFFICE.

J. SMITH BRIGGS, OF KANKAKEE, ILLINOIS.

BALL-TRAP.

SPECIFICATION forming part of Letters Patent No. 302,094, dated July 15, 1884.

Application filed July 2, 1883. (No model.)

To all whom it may concern:

Be it known that I, J. SMITH BRIGGS, of Kankakee, in the county of Kankakee and State of Illinois, have invented certain new and useful Improvements in Trap-Shooting Apparatus; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in that class of devices for trap-shooting having a trap or discharging device and a hollow target containing dust.

The object of the invention is to produce a rotary movement in the target in its passage through the air, whereby its course is made more certain, and also whereby the dust or powder contained in the target will find egress from the target as it rotates, and thus clearly indicate to the eye the fact that the target has been struck and punctured by a shot.

To these and other ends my invention consists in the matters hereinafter set forth, and pointed out in the claims.

In the drawings, Figure 1 is a perspective view of the trap of my improved apparatus. Fig. 2 is an axial section of the spirally grooved or flanged barrel from which the target is thrown. Fig. 3 is a side view of a target adapted to be used with my improved apparatus. Fig. 4 is an axial section of the target shown in Fig. 3. Figs. 5 and 6 are modified forms of the target.

In Fig. 1 is shown a trap or target-throwing device, which is substantially similar to one kind of trap previously in use, with the exception of the cylinder or barrel for holding the target to be thrown. In said figure, A represents the base-board of the trap, B a flat spring rigidly affixed at one end thereto, and C is a cylinder or barrel for holding the targets, which is attached to the free end of the said spring. An upright, D, provided with notches *d*, is also attached to the base-board, by which the spring may be held in a flexed position, said upright being provided with a catch, E, constructed to release the spring and to allow the latter to throw the barrel and thus discharge the target. The said barrel is constructed with one or more spiral grooves, *c*, upon its interior surface, as shown in Fig. 3, said grooves being constructed to receive a suitably-shaped projection upon the target, so as to give a rotary motion thereto when discharged from the barrel in a well-known manner. Spiral grooves of any shape or number desired may be used in the barrel C; or, instead of grooves, inwardly-projecting flanges may be formed in said barrel, constructed to engage projections or grooves in the surface of the target. The targets are placed in the barrel C and discharged therefrom through its top or outer end, its lower end being partially closed so as to prevent the target from slipping entirely through it when placed therein, and at the same time to allow the entrance of air behind the target when it is discharged. The target is discharged from the barrel described by the centrifugal force caused by a rapid movement of the barrel laterally in a circular path. In the trap shown this movement is given to the barrel by the operation of the spring D, which is first secured in one of the notches *d*, as shown, and then released therefrom by the action of the latch E, whereby the barrel is thrown in a direction opposite that in which it is held by the said notch, with the obvious effect of hurling the target forth from the upper or outer end of the barrel.

F is the target, which is made hollow and contains dust or fine powder, preferably only in sufficient quantity to partially fill it. Said target is preferably constructed of paper, but may be made of any other preferable material, such as thin sheet metal. The target F is provided with two oppositely-arranged projections or studs, *f*, constructed to fit into the grooves *c* in the barrel C, whereby a rotary motion is given to the target when discharged, as before described. The target being given a rotary motion, as described, as it passes through the air, if the shell thereof is perforated by a shot, the dust therein will sift out by the turning of the target, or will be thrown out by centrifugal force if the target is rotating with sufficient rapidity, so as to indicate to the eye that the target has been struck.

The target is preferably only partially filled with powder, so that such powder will not pack, and will readily sift out through any perforation that may be made by shot. Any material in a powdered condition may be placed in the targets—as, for instance, finely-powdered clay or soapstone, or other material calculated to remain in a pulverulent condition, and not to pack readily by moisture. The hollow targets F may be of any size and form adapted to be discharged from the barrel C; but as preferably constructed such targets are made of about the size of a pigeon, both as to length and diameter. A preferred construction in a hollow dust-filled target is illustrated in Figs. 3 and 4, in which the shell thereof is made originally in cylindric form and then flattened at its ends in planes at right angles to each other, the projecting edges *f* of one of said ends being adapted to enter the grooves of the barrel C, for the purpose before stated. The said edges *f* are preferably formed upon the rear end of the target, the front corners, *f'*, of the flattened portion of the front end being bent down upon inclined lines meeting at the axial line of the target and forming inclined surfaces or wings calculated by their contact with the air to continue the rotation of the target after the rotary movement given by the spirally-grooved barrel has ceased, or to increase the movement given by such spiral grooves. The rear flattened portion of the target mentioned is preferably extended so as to form tail-flanges f^2, to steady the target in its course. The construction in the hollow target above described, and shown in Figs. 3 and 4, and the devices upon said target for giving it a rotary motion during its passage through the air, form, however, the subject of a separate application for patent, and are not, therefore, embraced in this invention.

Other forms of hollow targets adapted for use with the trap shown are illustrated in Figs. 5 and 6. In Fig. 5 the target is cylindrical and has a conical head, and is provided with projections *f*, for engagement with the grooves of the barrel; and in Fig. 6 a spheral form of the target is shown, having annular ribs to engage said grooves. The form shown in Figs. 3 and 4 is, however, generally preferred, both on account of its simplicity of construction and from its resemblance in general shape to a bird or pigeon.

My invention is not restricted to the special means shown in the drawings for throwing the target, inasmuch as other means may be used to accomplish the same result—as, for instance, the cylinder C may be provided with a closed lower end and connected with a reservoir for compressed air, whereby pneumatic force may be used to expel the target therefrom. It is, however, preferable that centrifugal force be employed, because the target in this case is started more gradually, and has an accelerated speed during its passage through the barrel, and is therefore less retarded by this engagement of the spiral grooves or flanges of said barrel. Another reason why centrifugal force is preferable is that the dust or powder contained in the shell of the target, being heavier than the substance of the target itself, is by such centrifugal action of the throwing mechanism carried forward into the front end of the target, or, more properly, is broken up and distributed throughout its whole interior, while if propelled by pneumatic force, acting exclusively on the shell, such powder is more likely to take position at the rear of the target, whereby its sailing effect is made less perfect and whereby any perforations made in the front end of the target are less likely to discharge dust, and thus communicate the fact of the target being hit.

I am aware that in trap-shooting apparatus devices have heretofore been used to give a rotary motion to a solid target, for the purpose of facilitating or otherwise effecting the passage of target through the air, and also that hollow perforable dust-filled targets have been used with an ordinary trap, or ones not adapted to rotate the target. My invention is limited, therefore, to the combination, with a hollow perforable target containing dust, of means upon or forming part of the trap operating in connection with means upon the target, so as to give a rotary motion to the target at the time of throwing the latter.

I claim as my invention—

1. The combination, with a hollow perforable target containing dust and a trap, of means upon the trap and target constructed to give a rotary motion to the target during its passage through the air, substantially as described.

2. The combination, with a spirally-grooved cylinder, of a hollow target containing dust, and constructed to engage the grooves of said cylinder, and a spring constructed to throw the cylinder laterally in a circular path, so as to discharge the target therefrom by centrifugal force, substantially as described.

3. The combination, with a hollow target containing dust and a suitable stand or base, A, of a spring, B, secured at one end to said base, a cylinder provided with spiral grooves constructed to engage the target and attached to the free end of said spring, means for holding said spring in a flexed position, and means for releasing the spring, substantially as described.

4. The combination, with a cylinder provided with spiral grooves and partially closed at its rear end, of a target provided with projections constructed to engage the grooves of the said cylinder, and means for moving said cylinder in a circular path, substantially as and for the purpose set forth.

5. The combination, with a discharging-cylinder provided with spiral grooves and

means for moving said cylinder laterally in a circular path, of a hollow dust-filled target composed of a paper tube flattened at its end so as to form projections at the sides of the flattened portion, adapted to enter the said grooves, substantially as described.

In testimony that I claim the foregoing as my invention I affix my signature in presence of two witnesses.

J. SMITH BRIGGS.

Witnesses:
M. E. DAYTON,
WILLIAM M. STANLEY.