(No Model.)

S. D. ENGLE.

AIR GUN.

No. 442,025. Patented Dec. 2, 1890.

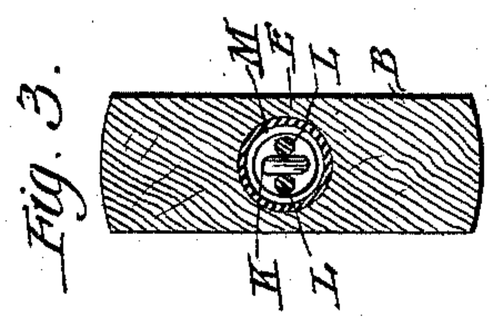

Fig. 3.

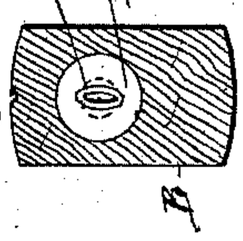

Fig. 2.

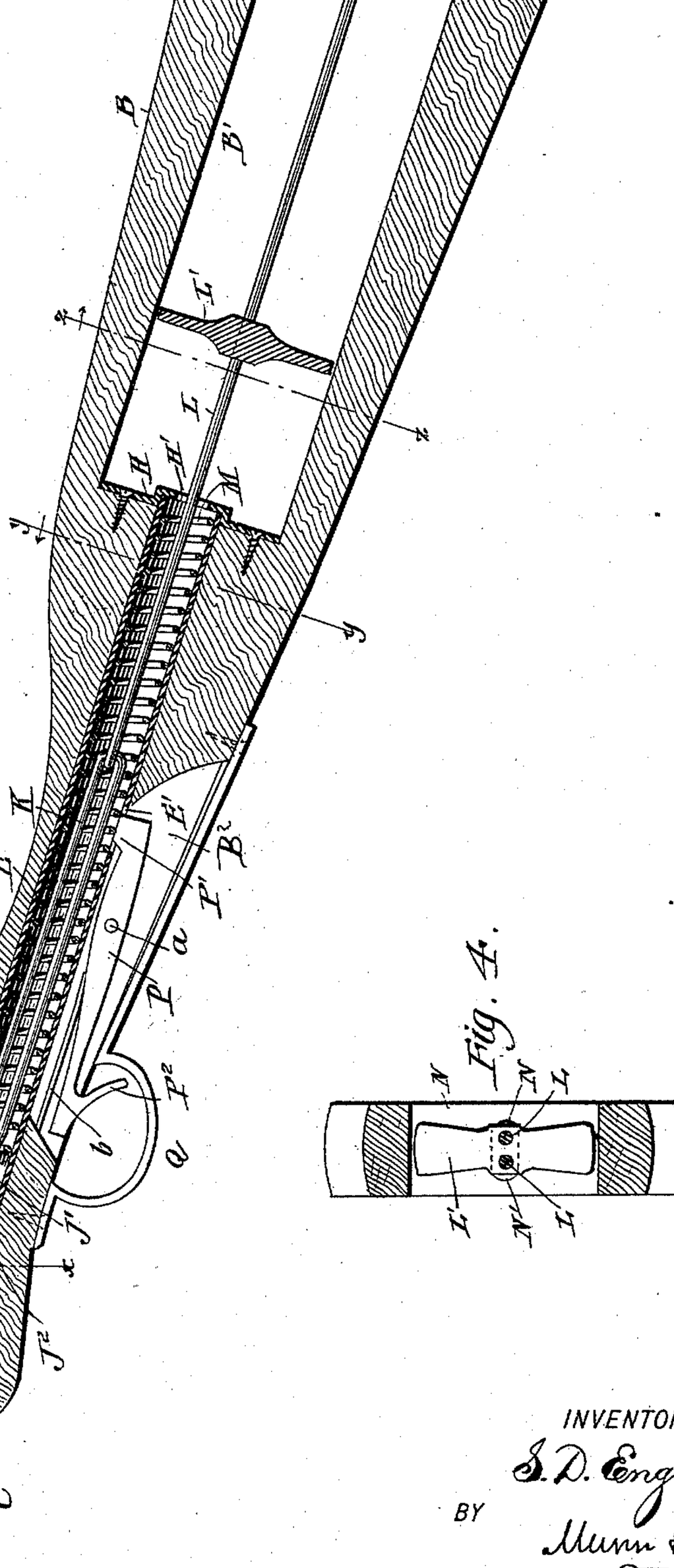

Fig. 1.

Fig. 4.

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STEPHEN D. ENGLE, OF HAZLETON, PENNSYLVANIA.

AIR-GUN.

SPECIFICATION forming part of Letters Patent No. 442,025, dated December 2, 1890.

Application filed March 3, 1890. Serial No. 342,467. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN D. ENGLE, of Hazleton, in the county of Luzerne and State of Pennsylvania, have invented a new and Improved Air-Gun, of which the following is a full, clear, and exact description.

My invention relates to improvements in that class of air-guns in which the current of air by which the projectile is expelled from the gun-barrel is generated by a spring-actuated plunger; and the object of my invention is to produce a neat, simple, and inexpensive gun having few parts to get out of order, and in which the parts are so arranged that the gun is very easily operated and a missile expelled therefrom with great velocity and precision.

To this end my invention consists in certain features of construction and combinations of parts, which will be hereinafter fully described, and specifically pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a broken vertical longitudinal section of a gun embodying my invention; Fig. 2, a transverse section of the same on the line *x x* of Fig. 1; Fig. 3, a transverse section on the line *y y* of Fig. 1, and Fig. 4 a transverse section on the line *z z* of Fig. 1.

The gun is of ordinary musket shape, having a barrel A and stock B, and in the barrel is fitted a tube C, which is preferably of metal. The tube C extends the entire length of the barrel A, and is slightly pinched or flattened at the breech, as best shown in Fig. 2, to prevent the missile which may be inserted therein from falling out at the breech. The gun is also provided with a removable pin D, which extends through the stock B, and the point of which terminates in the flattened end of the tube C. This prevents any small article that might pass between the flattened sides of the tube from falling through the tube, and also affords means of cleaning the tube or of forcing therefrom any object which may be stuck therein. This may be done in the usual way by forcing a flexible rod through the tube.

Fixed lengthwise in the stock B is a tube E, of larger diameter than the tube C, with which it is connected by the passage F in the stock B. The lower end of the tube E is fixed to the plate H, which is attached to the stock B at the upper end of the recess B′ thereof, and which has in the center a hole H′, the object of which will hereinafter appear. Fitting closely within the tube E is a plunger J, having an annular groove J′ therein, and having its forward end provided with a packing J^2, of leather, rubber, or other suitable material, which fits air-tight in the tube.

Fixed to the plunger J is a rod K, which is doubled, as shown, so as to form a loop therein, and to the lower end of the loop is attached the rod L, which is likewise doubled, as shown in Fig. 3, and extends through the hole H′ of the plate H and into the holes N′ of the plate N, which is attached to the butt of the stock B. It will thus be seen that the rods K and L are simply looped or doubled over each other, so that when the rod L is pulled back the rod K will be pulled also; but when the rod L is pushed in, as hereinafter described, one rod will slide within the other.

Coiled around the rods K and L within the tube E is a strong spiral spring M, one end of which rests against the closed lower end of the tube, and the other presses against the lower end of the plunger J and normally holds the plunger in the upper part of the tube. Fixed to the rod L so as to be movable longitudinally in the recess B′ is a handle L′, by means of which the gun is primed or set.

Pivoted in the recess B^2 on the under side of the stock B by the pin *a* is a lever P, having one end formed into an upwardly-projecting catch P′, which extends through a slot E′ in the under side of the tube E, and having the other end formed into a depending trigger P^2, which projects below the gunstock B in the usual manner and is inclosed by an ordinary guard Q, which is attached to the gunstock as in ordinary guns. The front edge of the catch P′ is beveled, as shown, to enable it to slide easily over the rear edge of the plunger J.

Fixed to the stock B at the forward end of the recess B^2 is a light spring *b*, which extends rearwardly and presses upon the upper side of the lever P, thus depressing the front end, raising the rear end, and holding the catch P′ well up into the slot E′ of the tube E.

The gun is provided with the usual sights, and is operated as follows: Drop a missile, preferably a ball or shot, in the tube C, and it will be caught and held in place between the flattened sides of the tube or will rest upon the end of the pin D. Then grasp the handle L′ and pull it back against the plate N. This will pull back the rod K and plunger J, compressing the spring M, and when the plunger is opposite the catch P′ the catch, being actuated by the spring *b*, will project into the groove J′ of the plunger and hold the same in position. When the handle L′ is pulled back, the ends of the rod L will project through the holes N′ of the plate N; but when the catch P′ engages the plunger J the handle may be pushed back into its former position and the rod L will slide within the rod K, and its projecting ends will be retracted, so as to leave the plate N smooth for the shoulder. The ends of the rod L should be headed to prevent them from being pushed through the holes N′.

To discharge the gun, pull the trigger P^2, and as this slants rearwardly, as shown, the action will raise the trigger and the forward end of the lever P, depress the rear end of the lever, and release the catch P′ from the plunger J. The spring M will then force the plunger forward. As the plunger J rushes forward, the air will be forced from the tube E and passage F into the tube C, and as the passage F and tube C are smaller than the tube E the air will be condensed and the missile in the tube C will be forced out with great velocity and accuracy.

It will be observed from the foregoing description that the gun contains comparatively few parts, and that the operative parts are all in the breech of the gun, thus making it evenly balanced, neat in appearance, very convenient to use, and giving sufficient length to the barrel to enable it to shoot accurately.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. An air-gun comprising a barrel, a stock having a transverse longitudinally-extending recess B′ through it, a tube leading from said recess and communicating at its forward end with the bore, a plunger working in the tube, a rod connected with the plunger, a second rod having a sliding connection at its inner end with the first-named rod and extending into the recess B′, a handle on the second rod within said recess, a spring within the tube throwing the plunger forward, and a trigger mechanism whereby when the plunger is held in its retracted position the handle, with its rod, may be pushed inward and not operated by the plunger-rod in the forward throw thereof, substantially as set forth.

2. An air-gun having the opening of the barrel flattened or pinched at the end next the breech and having suitable means for forcing air through said barrel, substantially as described.

3. An air-gun having a suitable barrel, means for forcing the air through the same, and a pin projecting through the breech or stock and terminating in the rear end of the barrel, substantially as described.

4. An air-gun having a barrel with the rear end of the opening therein pinched or flattened, a pin projecting through the stock and terminating in the end of the barrel, a tube located in the gun-stock and communicating with said barrel, a spring-actuated plunger movable longitudinally in said groove and having an annular groove or recess therein, means, as shown, for retracting said plunger, and a lever pivoted below the plunger-tube, having one end formed into a catch projecting through a slot in the plunger-tube to engage the plunger, and having the other end formed into a depending trigger by which the lever may be actuated and the plunger released, substantially as described.

5. The combination, with a gun having a spring-actuated plunger located in the stock, of a trigger-lever pivoted below said plunger, having formed thereon at its rear end an upwardly-projecting catch to engage the plunger and a depending downward and rearward inclined trigger at its forward end to release the same, substantially as described.

6. The combination, with the barrel A and tube C and the slotted stock B, having the tube E and passage F therein, of the plunger J, having groove J′ therein, rods K and L and handle L′, for retracting the plunger, the spring M, for forcing it forward, and means, as a spring-lever P, having catch P′ at its rear end, and trigger P^2, integral with and inclined downward and rearward from the front end of said lever, for tripping and releasing the plunger, substantially as described.

7. The combination, with the tube E and plunger J therein, of the rods K and L, looped together within the tube, as shown, and having means, as handle L′, on the outer end of rod L, in rear of the tube, for operating the same, substantially as described.

8. The combination, with the tube E and plunger J, of the trigger-lever P, having the catch P′ and trigger P^2 thereon at its rear and forward ends, respectively, and means, as spring *b*, pressing the forward end of the lever down, substantially as described.

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Witnesses:
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