(No Model.)

L. HILL.

TOY PISTOL.

No. 420,068. Patented Jan. 28, 1890.

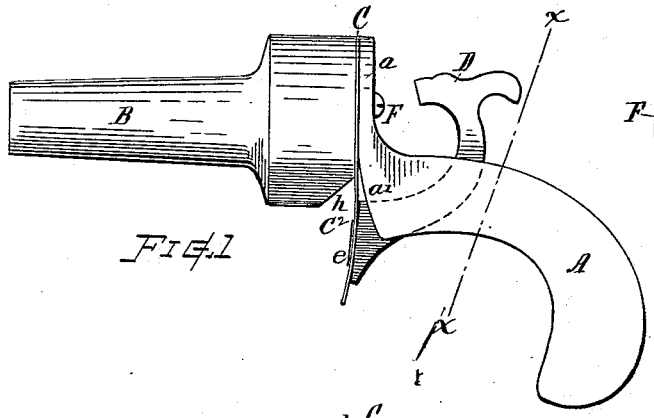

FIG. 1

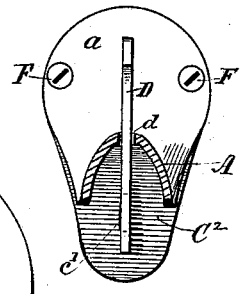

FIG. 3

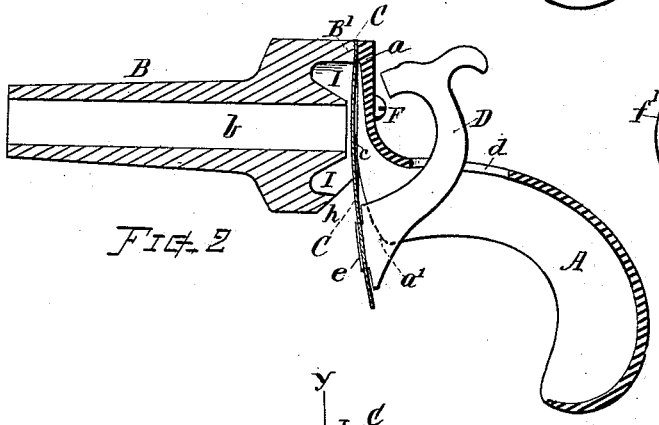

FIG. 2

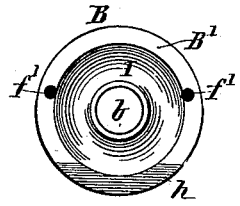

FIG. 4

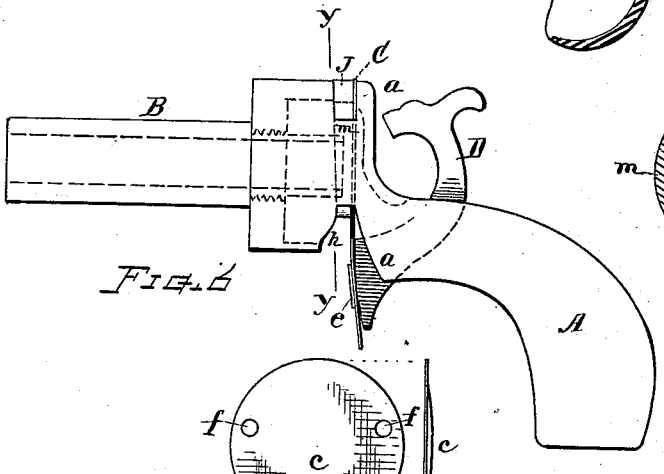

FIG. 6

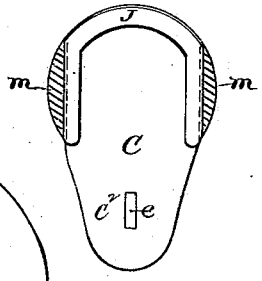

FIG. 7

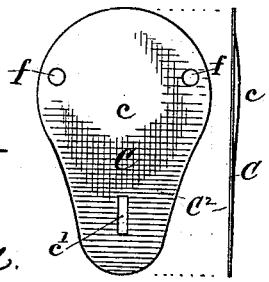

FIG. 5

Witnesses.
Ella P. Blenus
Edward K. Hill.

Inventor
Lucian Hill
By Chas. H. Burleigh
Attorney.

UNITED STATES PATENT OFFICE.

LUCIAN HILL, OF WORCESTER, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO EDWARD K. HILL, OF SAME PLACE.

TOY PISTOL.

SPECIFICATION forming part of Letters Patent No. 420,068, dated January 28, 1890.

Application filed May 31, 1889. Serial No. 312,815. (No model.)

To all whom it may concern:

Be it known that I, LUCIAN HILL, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Toy Pistols, of which the following, together with the accompanying drawings, is a specification sufficiently full, clear, and exact to enable persons skilled in the art to which this invention appertains to make and use the same.

This invention relates to certain improvements in the construction of toys of that class described in Letters Patent No. 358,664, heretofore granted me, the objects of my present invention being to provide a more efficient and desirable toy pistol for producing a loud report, or for throwing a projectile by the flexure of a dished or "rim-bound" spring plate or diaphragm, and to so arrange and combine the said diaphragm with the supporting-frame and operating parts as to give freedom of action, facility for manipulation, and to produce a loud report; also, to facilitate the convenience and economy of manufacture.

To this end my invention consists in a toy pistol the parts of which are constructed and arranged substantially as illustrated and explained, the particular features of improvement claimed being hereinafter definitely specified.

In the drawings, Figure 1 is a side view of my improved toy pistol. Fig. 2 is a longitudinal section of the same. Fig. 3 is a transverse section at line *x x*. Fig. 4 is a rear end view of the barrel part. Fig. 5 shows the form of the diaphragm. Fig. 6 shows a modification in the means for confining the diaphragm, and Fig. 7 is a section of the same at line *y y*.

Referring to parts, A denotes the hilt, stock, or handle; B, the barrel, which two parts constitute the frame for supporting the dished spring-plate or rim-bound diaphragm C, and D is the cock or actuating-lever for moving the diaphragm.

The hilt A is best made of cast metal, with a suitably-curved rear end, a slot *d*, for the passage of the cocking-lever, and a circular disk or rounded attaching-seat *a*, corresponding with the diaphragm form. The part below the seating-surface is curved backward, as at *a'*.

The diaphragm C is preferably of inverted-pear shape, as shown in Fig. 5. Its wider portion is centrally stretched or dished, as at *c*, and its narrow depending portion is provided with an opening *c'* for the connection therewith of the cocking-lever D, which latter is best punched from sheet metal, in substantial resemblance to a pistol-hammer, of sufficient length to reach down through the slot *d* in the frame, and its dependent lower end is provided with a lug *e*, that passes through the opening *c'* and is riveted down upon the plate, thereby rigidly connecting the cocking-lever D with the lower part of the diaphragm C, as shown.

The barrel B is made with a tubular portion and a cylindrical part having a circular seat B' at its rear end which corresponds with the shape of the seat *a* on the hilt and with the top of the diaphragm C. The diaphragm C is disposed substantially perpendicular or transversely to the axis of the barrel, and is secured in position by clamping its rim or the upper part of its peripheral edge between the circular seats on the hilt and barrel. The seating-surfaces give pressure on the diaphragm C only near the edges around the upper part, leaving the springing center *c* of the diaphragm and its lower projecting portion C^2 free for flexure, so that the dished portion can be sprung forward or backward at pleasure. The hilt and barrel are connected by screws F, that pass through the disk *a* and through holes *f* in the diaphragm and screw into holes *f'* in the end of the barrel-cylinder, or by other suitable fastenings. The lower part of the cylinder is best cut away, as at *h*. The barrel is provided with an opening or bore *b*, which terminates directly forward of the dished portion of the diaphragm, the barrel being fixed as close to the diaphragm as can be conveniently done without allowing it to come in contact therewith. An annular recess or sounding-chamber I is preferably formed at the inner end of the cylinder about the bore of the barrel

and forward of the diaphragm. This chamber I can in some instances be omitted, if desired.

In the operation, when the cocking-lever D is drawn back by the thumb placed on its head, the lower end thereof bends the lower end of the diaphragm or plate C forward, as in Fig. 1, springing the dished center of the diaphragm to the rear. A projectile can be then inserted in the bore *b* against the face of the diaphragm. Then by placing the finger on the projecting lower end of the diaphragm and drawing it back as a trigger the diaphragm is bent backward, as in Fig. 2, thereby springing the dished center to the front and forcibly ejecting the projectile from the barrel and at the same time producing the loud report due to the snapping of the diaphragm. The manner of producing the sound by a diaphragm is explained in my former patent above named.

The barrel portion B is best made of wood, as that gives a more resonant report than metal, and it can also be economically produced. A metallic appearance can be given to it by japanning or other suitable finish.

In Figs. 6 and 7 I have illustrated a method of securing the diaphragm otherwise than by screws. In this the edge of the diaphragm is held by an arch-shaped wedge J, driven into a recess formed in the frame at the front of the diaphragm-seat. In this case the cylindrical portion is made integral with the hilt A or connected therewith at the sides, as shown at *m m*, Fig. 7.

It will be understood that I do not herein broadly claim a toy pistol having a rim-bound diaphragm for producing sound by flexure thereof, as such is the subject of my former patent; but my present claims relate to the improved construction set forth and described.

What I claim as of my present invention, to be secured by Letters Patent, is—

1. The toy pistol having the dished spring-diaphragm disposed with its plane substantially perpendicular or transverse to the axis of the barrel, the rim at its upper portion rigidly secured between the hilt and barrel parts, and with its lower portion depending below the frame in position to serve as a trigger for flexing said diaphragm, substantially as set forth.

2. The toy pistol provided with the dished spring-diaphragm having a portion of its rim rigidly supported by the frame and an extended portion free for flexure in combination with the handled frame, and an actuating-lever attached to the free portion of said diaphragm for giving flexure thereof, substantially as set forth.

3. The improved toy pistol having the dished spring-diaphragm, its upper portion peripherally supported between the barrel and hilt portions of the frame, with its center free for backward and forward springing action, its lower end extending below the frame and free for flexure, and the actuating-lever attached to the flexible lower end of said diaphragm and projecting above the handle, substantially as shown, for operation as set forth.

4. The toy pistol having the barrel B, the hilt portion A, with supporting-disk *a*, the flexible diaphragm C, fixed transversely between said hilt and barrel, with the bore of the barrel terminating in front of the dished center of said diaphragm, and the diaphragm-actuating lever attached to the lower edge of the diaphragm and extending upward for giving flexure thereof, substantially as and for the purpose set forth.

5. The combination, with the dished spring-diaphragm C and handle portion A, of the wood-barrel portion B, having a central opening *b*, and the annular chamber I, formed in the barrel-cylinder in front of the diaphragm, substantially as and for the purpose set forth.

Witness my hand this 17th day of May, A. D. 1889.

LUCIAN HILL.

Witnesses:
CHAS. H. BURLEIGH,
ELLA P. BLENUS.