

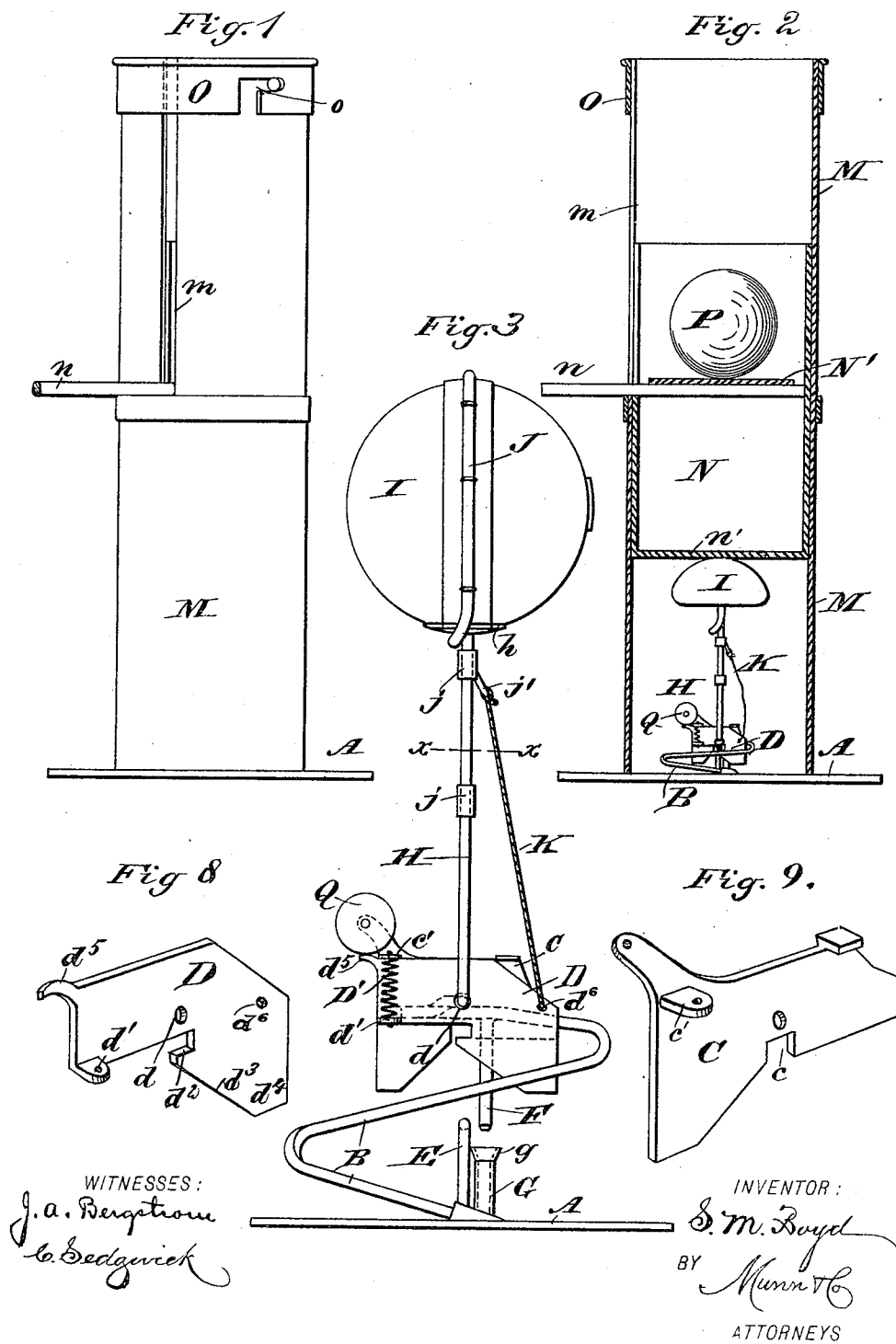
(No Model.)

S. M. BOYD.
TOY.

2 Sheets—Sheet 1.

No. 480,065.

Patented Aug. 2, 1892.



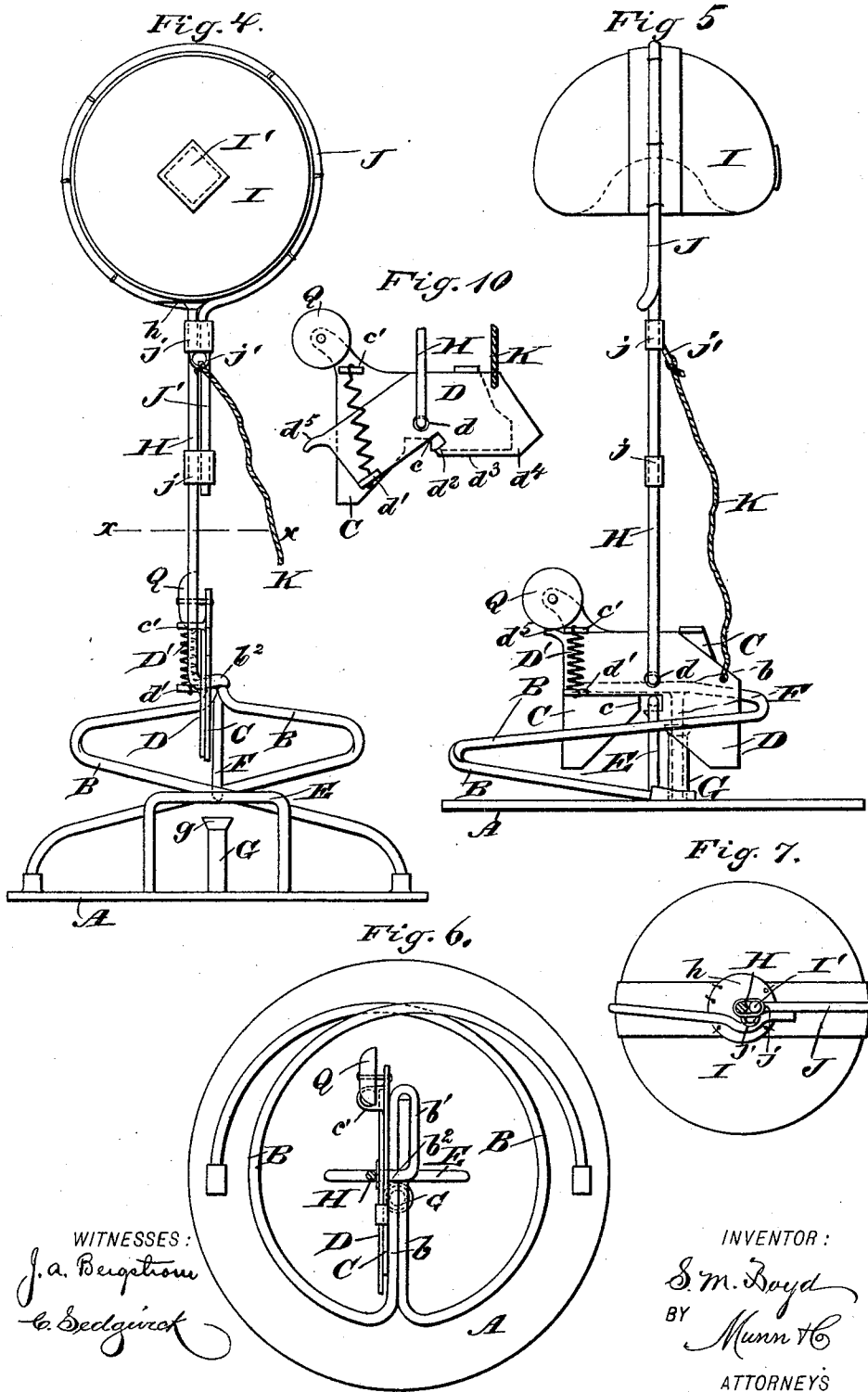
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UNITED STATES PATENT OFFICE.

SAMUEL M. BOYD, OF MIDDLETOWN, NEW YORK.

TOY.

SPECIFICATION forming part of Letters Patent No. 480,065, dated August 2, 1892.

Application filed August 21, 1891. Serial No. 403,296. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL M. BOYD, of Middletown, in the county of Orange and State of New York, have invented a new and
5 Improved Toy, of which the following is a full, clear, and exact description.

The invention relates to jumping toys—that is, toys adapted to spring upward or forward in response to the reaction of a spring forming
10 part of the structure.

The object of the invention is to provide an improved catch and a retarder controlling the same, whereby when the spring is compressed it will be held by the catch, and the releasing
15 of the latter being governed by the retarder the reaction of the spring will be slightly delayed and the spring then automatically released, for purposes presently described.

The invention is distinguished by novel
20 catch devices, a novel form of pneumatic retarder, and in its preferred form includes a casing which forms a guide for the spring and the movable parts and an arrangement for projecting a ball or the like by the action of
25 the spring.

The invention is also distinguished by novel details of construction and combinations of parts, as hereinafter particularly described, and defined in the claims.

30 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 side elevation of a toy constructed in accordance with my invention, including the guide-casing and its appurtenances for projecting a ball. Fig. 2 is a vertical section thereof. Fig. 3 is an enlarged side elevation of the spring and the retarder
35 and their appurtenances removed from the casing. Fig. 4 is a like view taken at right angles to Fig. 3. Fig. 5 is a view similar to Fig. 3, but showing the spring compressed and held by the catch devices. Fig. 6 is a
40 sectional plan view on line $\alpha\alpha$, Fig. 3. Fig. 7 is an inverted sectional plan view on line $\alpha\alpha$, Fig. 3. Fig. 8 is a perspective view of the catch-plate. Fig. 9 is a like view of the main plate from which the catch-plate and
45 its controlling and operating devices are supported, and Fig. 10 is a detail side elevation

given to illustrate the position of the catch-plate when operated by its releasing device.

In constructing a toy in accordance with my invention a suitable base A is provided 55 of preferably light construction, and on the said base a suitable spiral spring is secured. In the present instance said spring is of double form, (indicated by the letters B B,) the two single springs being coiled in reverse direc-
60 tions. On the said spring a plate C is secured, the springs being continued in a horizontal direction, as at b , and soldered together and to said plate for forming a proper support for the latter. In the bottom edge of the plate C 65 a rectangular recess c is produced.

The horizontal member b of one of the springs B is returned on itself, as at b' , Fig. 6, and then bent laterally, as at b^2 , and passed through the plate C and through an aperture d 70 in a catch-plate D, thereby pivotally supporting the catch-plate from the plate C for movement in the vertical plane. A spiral spring D' is secured at its upper end to the lug c' ,
75 formed on the plate C, and at its lower end the said spring D' is secured to the lug d' on the catch D. The spring D' serves to normally maintain the catch D in such position that a shoulder d^2 thereon lies in a plane below or at the lower end or entrance of the 80 rectangular recess c , and such shoulder is formed at the upper end of the inclined side edge d^3 of the downwardly-extending end d^4 of the catch D. The catch D thus described is adapted to engage an arched bar E, which 85 is supported from the base A, or the catch may engage any equivalent part of the toy at the base. The catch is guided to the said arched bar by a depending rod F, which is supported rigidly in any suitable manner 90 from the plate C or the ends b of the springs, and is adapted to enter the flaring mouth g of a guide-tube G, the latter being secured to the base A.

The end b^2 of one of the springs B, hereto- 95 fore mentioned, after passing transversely through the catch-plate D is projected upward to form a standard H, which is formed with a disk or plate h at its upper end, on which is seated and secured a hollow rubber 100 ball I. Surrounding the ball I is a loop or frame J, which is formed integral with or se-

cured to a slide J', the said slide and loop in the form shown consisting of a piece of wire, the slide having guide keepers or eyes *j*, that embrace the standard H for free vertical movement thereon. A cord K or like flexible connection is secured at its upper end to a ring *j'*, carried by the slide J', and at the lower end said cord is secured to the catch-plate D at an aperture *d*⁶, which is at the side of the pivot *d* opposite the spring D'. With this construction when pressure is applied to the top of the structure—by one's hand, for instance—all the parts supported from the springs B B will be moved bodily in the direction of the base and the said springs will be compressed. At the same time the yoke J and its slide J' will be moved downward more rapidly than the standard H, thereby collapsing the ball I and expelling or partly expelling the air therefrom. The resistance of the ball finally causes the standard H and slide I to move downward together, the edge *d*³ of the catch D finally striking the arched bar D, and thus causing the said catch to be rocked on its pivot against the tension of the spring D' until the bar E enters the recess *c* of the plate C, whereupon the reaction of the spring D' will cause the shoulder *d*² of the catch-plate to be sprung beneath the arched bar, thereby holding the springs B B compressed.

I have mentioned the resistance of the ball as finally causing the standard H and the catch-plate, &c., to be moved against the arched bar; but should the proportions and arrangement be such as to permit the slide J' to continue moving down on the standard the lower end of such slide will finally strike the top of the plate C, and thus carry the latter and its connected devices downward to cause an engagement of the catch-plate. When now the pressure on the toy is relieved by the manipulator removing his or her hand therefrom, the ball I will gradually fill with air and lift the loop J and slide J' and through the medium of the cord K release the catch D from the bar E, thereby permitting the spring B B to expand suddenly, and this sudden reaction of the spring will cause the toy to spring bodily upward.

The ball is provided over the usual aperture with a valve I', the same being secured at three sides and open at the fourth. This form of valve permits the ready escape of the air when the ball is collapsed, but retards the entrance of air when the ball tends to resume its normal form.

By retarding the action of the spring B B the child operating the toy is permitted to remove his or her hand therefrom before the toy jumps, and also as the release of the catch is automatic and the jumping action follows considerably after the setting of the toy the movement of the latter may be made to give a surprise.

Referring particularly to Figs. 1 and 2, a cylindrical casing M is erected on the base A,

and the same is vertically slotted at its upper end, as at *m*, through which slot projects the handle *n* of a cylinder N, which fits snugly within the casing M and is movable vertically therein, the bottom *n'* of the cylinder N resting on the frame J. The cylinder N is prevented from being thrown from the casing by means of a collar O, which encircles the casing at the upper end and engages the same by a bayonet-joint *o*. Within the cylinder N a horizontal seat N' is provided for receiving a ball P or other projectile. With this construction the tube M forms a guide for the spring B B, the retarder, &c., and for the cylinder N, and as the latter is moved downward by means of the handle *n* the ball I will be collapsed, the spring B B compressed, and the catch D set. When the catch is now released, the rising of the spring B B will act to project the ball P from the casing M.

In order that the manipulator may be made aware of the engagement of the catch D with the bar E, an audible signal is provided, the same consisting of a gong Q or its equivalent arranged on the plate C and adapted to be struck by the end *d*⁵ of catch D when the latter engages the bar E.

In practice when the toy is made for use merely as a jumping toy, the casing M and cylinder N are omitted, and the structure may be covered or dressed to simulate a doll or the like.

The vertical walls of the rectangular recess *c* in plate C serve to guide the plate C and the parts carried thereby in a vertical direction when the plate leaves the bar E.

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

1. In a toy, the combination, with a suitable base, of a spring thereon, a plate carried by said spring and provided with an audible signal, a spring-acted catch on said plate, adapted to sound said signal, and a pneumatic device automatically controlling the release of said catch, substantially as described.

2. In a toy, the combination, with a suitable base, of a spring thereon, a standard supported from said spring, a slide on said standard, a hollow rubber ball collapsible by the relative movements of said slide and standard, a catch also supported from said spring and adapted to hold the latter under tension, and connections between the slide and catch for releasing the latter by the movement of the slide in response to the reaction of the ball, substantially as described.

3. In a toy, the combination of a base having a bar thereon, a spring on said base, catch devices supported from said spring, adapted to engage said bar, a rubber ball also having support from said spring, and connections between the ball and catch, substantially as described.

4. In a toy, the combination of a suitable

base having a bar thereon, a spring on the
base, a plate supported on the spring and
formed with a rectangular recess at its lower
edge, a spring-acted catch pivoted on said
5 plate and formed with an inclined edge at the
bottom and with a shoulder at the upper ex-
tremity of said incline, the shoulder normally
lying adjacent to the recess of the plate, said
catch being adapted to engage the bar se-
10 cured to the base, a standard also supported
from the plate, a slide on said standard, a
rubber ball adapted to be collapsed by the
movement of the slide relatively to the stand-

ard, and a flexible connection between the
slide and catch, substantially as described. 15

5. In a toy, the combination, with a base
and a spring thereon, of a spring-acted catch
adapted to maintain the spring under ten-
sion, a pneumatic device automatically con-
trolling the release of the catch, and an audi- 20
ble signal adapted to be sounded by the catch,
substantially as described.

SAMUEL M. BOYD.

Witnesses:

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E. M. CLARK.