

UNITED STATES PATENT OFFICE.

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DETONATING TOY.

964,529.

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To all whom it may concern:

Be it known that I, FRANK J. LYMAN, a citizen of the United States of America, and resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Detonating Toys, of which the following is a full, clear, and exact description.

This invention relates to a detonating toy or device for exploding paper caps, and the device as constructed and adapted to be used comprises a hollow ball made with separable shells and having therein an anvil on which a cap is placed and retained, a hammer plunger playing in a tube socket therefor relatively to the anvil, having a spring for forcing the hammer against the cap on the anvil, a detent adapted to engage the hammer, to hold it in its retracted position and to maintain the spring in compression, and a dog pivotally mounted within the shell for holding the detent in its engagement with the hammer and adapted by a concussion, as when the ball is thrown and caught, to be swung to a position for releasing the detent so that the hammer may be projected, by the reaction of its spring, against the cap for exploding the latter. The toy, "loaded" with a cap "caught", may, in use by a child, have the attractiveness both of a ball and also a toy pistol, and without the liability of danger attendant on the use of the latter.

The invention consists in the combination and arrangement of parts and the constructions of certain of the parts all substantially as hereinafter described in conjunction with the accompanying drawings and set forth in the claims.

In the drawings:—Figure 1 is a central sectional view showing the toy as loaded, closed and in readiness to be exploded. Fig. 2 is a view showing the external aspect of the toy. Fig. 3 is a view as seen beyond the line 3—3, Fig. 1, but showing the tubular guide for the plunger or hammer with the latter therein, a detent for engaging the hammer, and the dog in engagement with the detent. Fig. 4 is a view as seen beyond the line 4—4, for indicating a bayonet joint connection for the separable shells.

Similar characters of reference indicate corresponding parts in all of the views.

In the drawings, A represents a hollow body comprising separable metallic hemi-

spherical shells *a* and *b* matched together, one or both having perforations *d* in its wall to permit the escape of gas after a detonation. The one shell is made with a circular flange *c* constituting a continuous lip which fits within the circular wall of the other shell at its open edge, one of the shell parts having opposite outwardly extending studs *f f* while the other shell has annular grooves or slots *g*, these parts and formations constituting a very usual form of bayonet joint connection. One of the shells *b* is provided with a central circular block C having its end in the form of a cup, as shown at *h* for receiving and retaining therein a percussion cap *x*, which latter may marginally bind in the wall of the cup-like socket therefor and be reliably retained therein. The other shell is provided with a centralized tube D in which is fitted, for axial movements, a plunger F which constitutes the hammer of the device and which is to be impacted against the cap on the anvil C.

The hammer is made as a metallic tube with the outer end *i* thereof solid, the spring *j* being in compression between the solid outer end *i* of the hammer and the base of the guide tube D. The side of the guide tube is formed with a longitudinal slot through and in which a guiding limiting stud *m* protrudes and plays.

The band G encircles the outer end of the guide tube and is secured thereto by soldering or otherwise, and it has its extremities extended opposite one another at one side of the guide tube to constitute ear lugs *n n*, between which is located the inner end portion of the dog J, which is pivotally hung between said ear lugs on the pin or rivet *o*.

This dog J, as represented in the drawings, may advantageously be made in the form of a cylindrical block having its inner extremity made oppositely beveled, something in the manner of a chisel edge.

L represents the detent for the hammer, the same having the form and nature of a flat spring plate, the shank of which is soldered or otherwise secured on the side of the guide tube at the end portion *s* only of such shank, while its outer free end is angularly turned so that when the detent plate is forced closely alongside the guide tube its right angular lip *t* will have an engagement across a portion of the end face of the

hammer and hold it in its retracted position in the guide tube.

Preparatory to using the toy, the half spherical shells are disconnected one from the other, a percussion cap is placed in the socket h therefor on the anvil, the hammer F is forced fully within the guide tube against the spring so that the detent will spring across the outer end of the hammer, and the dog J is adjusted to the position represented in Fig. 1 at right angles to the axis of the guide tube so that its wedge shaped nose has a bearing against the detent,—it being understood that the tension exerted by the reaction of the detent against the end of the dog is sufficient to retain the dog in the detent engaging position up to the time of a sufficiently violent concussion, whereupon the dog will be dislodged from its engagement with the detent. Therefore, when the half shells are matched and connected together and the ball is thrown, the same on striking the hands of a person catching the ball, or other object, will produce a concussion or detonation sufficiently to dislodge the dog from its binding engagement against the detent, whereby the latter is free to react outwardly to release the hammer plunger which, by its spring, will be violently thrust against the cap on the anvil to explode the latter.

As it may be considered desirable at times to load the ball toy and leave it in its cocked condition, and yet with assurance that it may not inadvertently be exploded, I have provided a hole u leading longitudinally from the outer end of the dog, and a hole v through one of the half shells so that a pin w or other small object may be engaged through the hole v and into the hole u for temporarily restraining the dog against being swung to its detent releasing position; but, of course, so soon as it is desired to render the toy operative the pin w is withdrawn.

I claim—

1. In a detonating toy, in combination, a hollow body having therein an anvil for a cap, a hammer plunger, a spring reacting against the plunger, a spring detent for engaging the plunger to hold it in its retracted position, and a dog pivotally mounted against the detent and adapted to have a binding engagement with the latter and to be swung to a releasing relation thereto by the effect of concussion.

2. In a detonating toy, a pair of hemispherical shells and means for detachably connecting them, one thereof being provided with a block or anvil and the other with a guide tube having a spring therein and a plunger movably guided in said tube and adapted to coact, as a hammer, with said anvil, a spring detent supported by said tube and adapted to engage, for holding in a retracted position, the said hammer, and means for temporarily holding said detent against the spring reaction thereof in its engagement with the hammer.

3. In a detonating toy, in combination, a pair of matching and detachably connected hemi-spherical shells, one having therewithin an anvil block provided with a socketed end for the reception of a percussion cap and the other shell having affixed therein a guide tube in axial alinement with said anvil block which is provided with a slot in its side, a plunger guided and endwise movable in said guide tube and having a stud playing in, and limiting, by the end of, said slot, a spring between the plunger and the base of the tube, opposite ear lugs extending transversely from the side of the tube, a dog pivotally mounted in said ear lugs and a spring detent having a portion thereof affixed on the side of the tube and having an angularly turned end portion for engaging the hammer and holding it retracted, the relations between such dog and detent being such that the dog, when adjusted, maintains the detent in its cam engaging position.

4. In a detonating toy, a pair of hemispherical shells adapted to be matched and detachably engaged, one thereof being provided with an anvil block, another with a spring pressed hammer plunger, a detent for holding the plunger in a retracted position, a dog pivotally mounted within the device, coacting with the detent and having a hole extending longitudinally and opening at its outer end, and one of said shells having a perforation therethrough for registry with the hole in said dog whereby the pin may be inserted for temporarily locking the dog against its releasing movement.

Signed by me at Springfield, Mass., in presence of two subscribing witnesses.

FRANK J. LYMAN.

Witnesses:

G. R. DRISCOLL,
WM. S. BELLOWES.