No. 646,575. Patented Apr. 3, 1900.

C. F. GRABER & C. F. PAULUS.

DETONATING TOY.

(Application filed Aug. 9, 1899.)

(No Model.)

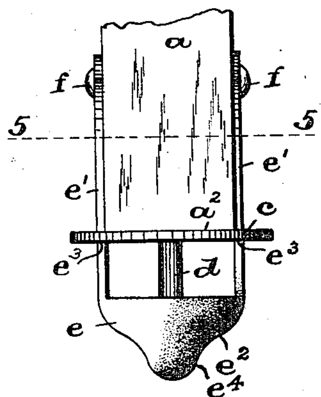

FIG. 2

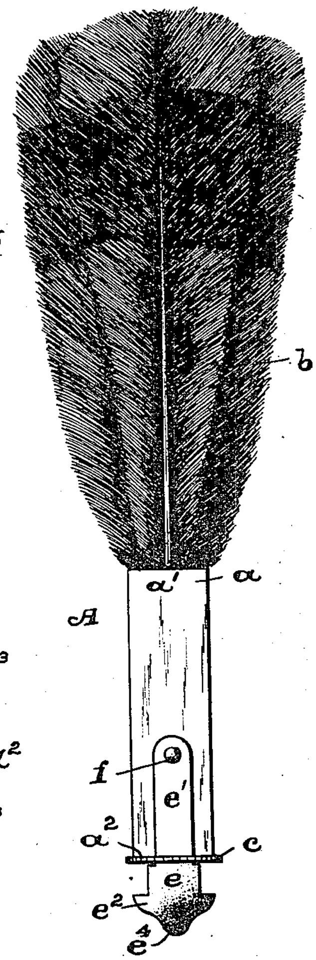

FIG. 1

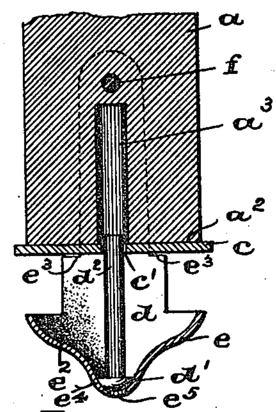

FIG. 6

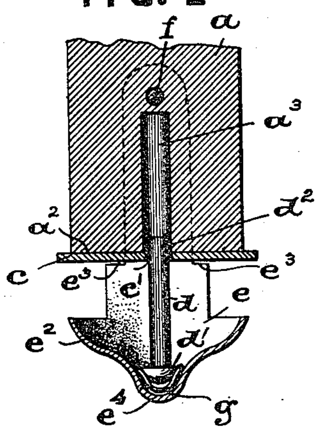

FIG. 3

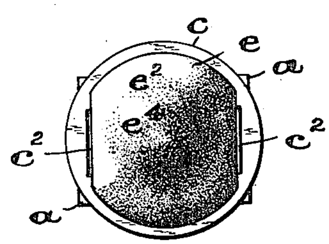

FIG. 4

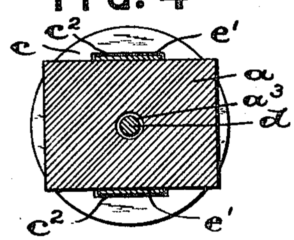

FIG. 5

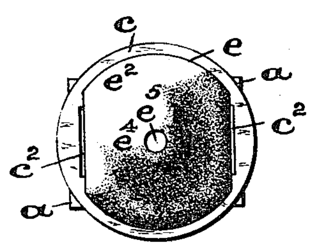

FIG. 7

WITNESSES:

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UNITED STATES PATENT OFFICE.

CHARLES F. GRABER AND CHARLES F. PAULUS, OF NEWARK, NEW JERSEY.

DETONATING TOY.

SPECIFICATION forming part of Letters Patent No. 646,575, dated April 3, 1900.

Application filed August 9, 1899. Serial No. 726,664. (No model.)

To all whom it may concern:

Be it known that we, CHARLES F. GRABER and CHARLES F. PAULUS, citizens of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Detonating Toys; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Our invention has reference more generally to improvements in detonating toys known as "bomb-darts;" and the invention has for its primary object to provide a simple and perfectly-harmless toy to be employed for the explosion of percussion or paper caps which is suitable for children of all ages.

A further object of this invention is to provide a novel construction of toy having a movable igniting-rod and a yoke or similar means between which the cap is placed for the explosion of the same when this end of the toy comes in contact with some object and the body of the device having at one end thereof an arrangement of feathers, wings, or other similar means in order that when the toy is thrown into space, its center of gravity being near the end opposite to the feathered end during the descent of the toy, the said igniting-rod and yoke will cause the cap to be exploded with a loud report.

A further object of this invention is to avoid the use of a spring-actuated igniting-rod, for such rod is objectionable in that when it is pulled back for the insertion or placing of a cap upon the anvil the spring connected with such rod will sometimes cause the rod to be forced from between the fingers of the child manipulating the device and cause the cap to be exploded near the face of the child, with perhaps very serious results.

A further object of this invention is to provide a novel construction of parts comprising the toy, to be hereinafter more fully described, which shall be very simple and operative and the objectionable features heretofore existing in devices of this character are fully overcome, and also to produce a device which when it comes in contact with a body of a soft nature, as sand, will be just as capable for exploding the cap and will not stick in the sand without exploding the cap, as in the constructions of detonating toys heretofore made.

Our invention therefore consists in the novel construction of detonating toy hereinafter set forth and also in such novel arrangements and combinations of the various parts of the same, as well as in the details of the construction of such parts, all of which will be fully described in the accompanying specification and finally embodied in the clauses of the claim.

The invention is clearly illustrated in the accompanying sheet of drawings, in which—

Figure 1 is a front elevation of the detonating toy embodying the principles of our invention. Fig. 2 is a side view, on an enlarged scale, of the lower portion of the toy and the firing or exploding mechanism employed in connection with said end. Fig. 3 is a vertical section, on an enlarged scale, of the several parts represented in said Fig. 2. Fig. 4 is a bottom view of the device, and Fig. 5 is a horizontal cross-section taken on line 5 5 in said Fig. 2. Fig. 6 is a vertical section; and Fig. 7 a bottom view of the lower exploding portion of the toy, illustrating in this construction a retaining-yoke of a slightly-modified form of construction.

Similar letters of reference are employed in all of the said above-described views to indicate corresponding parts.

In the said drawings, A indicates the complete detonating toy, which consists, essentially, of a suitably-shaped body portion a, which may be of wood and is preferably made rectangular in cross-section, but it will be evident that said body portion may be of any other desirable configuration. Secured upon or in the upper end portion a' of said body a is a directing means, such as an arrangement of feathers b or other suitable means, which will cause the explosive end of the toy to be brought in a downward position during the descent of the toy when it has been thrown into space. Arranged against the under surface a^2 of said body a of the toy, preferably by means of a suitable yoke e, is a disk c, which has a centrally-arranged hole or per-

foration c' for the reception of a striking or exploding rod d, which is made in the form of an ordinary rivet, being provided with a head d' and a shank d^2, said shank being loosely and movably arranged in a socketed or chambered portion a^3 in the lower end of said body a, substantially as illustrated in Figs. 3 and 6. The said plate or disk c has a pair of slots c^2, through which are passed the arms e' of said yoke, which are arranged upon opposite sides of the lower end portion a^2 of said body a and are secured thereto by means of a pin f or other suitable fastening means, which is arranged and driven through the upper perforated ends of said arms e', substantially in the manner illustrated in the several figures of the drawings. In order that the said disk c is securely held against the under surface of the said body a of the toy, the said yoke e is provided at the points where the arms e' are connected with a lower cup-shaped receiving portion e^2 of said yoke with suitably-arranged shoulders e^3, which are firmly forced against the under side or surface of the said disk adjacent to the slots c^2 herein, and thereby firmly supporting said disk c in its operative position when the pin has been driven through the perforated arms e' of the yoke and through the body portion a of the toy.

As will be seen from the several figures of the drawings, the head d' of the exploding rod or rivet d is preferably made of a semispherical shape, and the said cup-shaped receiving portion e^2 of the yoke e is preferably formed with a correspondingly-shaped depression e^4, into which said head d' fits when the toy is held vertically. In order to place the ordinary percussion or paper cap g between said head d' and the depression e^4 of the receiving portion e^2 of the yoke, the rod or rivet d is readily forced farther into the socketed or chambered portion a^3 of the body a, and the cap g can be easily placed upon the depression e^4 of the receiving portion e^2 of the yoke, as will be clearly understood. The toy can now be thrown into space, and during its descent the feathers or other directing means connected with the end a' of the body a will cause the head d' of the rod or rivet d to sufficiently force the cap against the metal surface of the receiving portion of the yoke e when brought in contact with the ground or other object, and the impact will cause the explosion of the cap with a loud report and without danger to the child manipulating the device.

In place of the solid bottom to the depression e^4 said depression may be provided with a perforation, as e^5, which permits a portion of the cap g to be brought in direct exploding contact with the ground or other object and which has this further purpose that it can be employed for the insertion of a pin or the like for removing the particles of paper after the cap has been exploded.

From the above description it will be seen that we have devised a simple and perfectly-harmless detonating toy which is effective in its construction, and the several parts thereof being few they can be easily and quickly assembled. In our present construction we have also dispensed with the use of a spring-actuating firing or exploding rod or rivet, which is often very objectionable in that the spring will force the said rod or rivet from between the fingers while placing a cap in position, and there is danger of the cap exploding close to the face of the child and particles of the paper becoming lodged in the eye, while in our present form of construction this is impossible, since there is no extra pressure caused by a spring upon the firing or exploding rod or rivet, and hence the cap cannot explode until the toy is thrown into space and comes in contact with the ground or other object. Furthermore, the end of the firing-rivet does not project from the receiving portion e^2 of the yoke e, as in the constructions heretofore made, and hence when thrown upon sand the toy will not stick in the sand without exploding the cap, but the cap will be exploded.

Having thus described our invention, what we claim is—

1. As a new article of manufacture, a detonating toy, consisting, essentially, of a body having a chambered portion, an exploding mechanism at said end for retaining a percussion or paper cap in explosive relation with said end, comprising an exploding-rod movably arranged in said chambered portion of said body, a head on said rod, and a yoke operatively connected with said body, provided with a cup-shaped receiving depression into which the head of said rod is loosely fitted for retaining said percussion or paper cap against said head, and means at the opposite end of said body for causing said head of said rod to contact with said cap and explode the same when the yoke comes in contact with a foreign body, substantially as and for the purposes set forth.

2. The herein-described detonating toy, consisting, essentially, of a main body having a chambered portion, a feather or other similar guiding means connected with the upper end of said body, a disk secured upon the lower and chambered end of said body, a yoke connected with said disk and secured upon said lower end portion of the body, said yoke having a cup-shaped receiving portion, and a rod movably arranged in said chambered portion of the body, and passing through a hole in said disk and provided with an exploding-head, for retaining a percussion or paper cap in position and exploding the same, substantially as and for the purposes set forth.

3. The herein-described detonating toy, consisting, essentially, of a main body having a chambered portion, a feather or other similar guiding means connected with the upper end of said body, a disk upon the opposite end of said body portion provided with cut-away

portions or openings, a yoke having a pair of upwardly-extending arms arranged in said cut-away portions or openings of said disk and secured to the lower end portion of said body, said yoke having a cap-receiving portion, and a rod movably arranged in said chambered portion of said body, having one end extending therefrom and in contact with said yoke, for retaining the percussion or paper cap in position and exploding the same, when said yoke contacts with a foreign object, substantially as and for the purposes set forth.

In testimony that we claim the invention set forth above we have hereunto set our hands this 7th day of August, 1899.

CHARLES F. GRABER.
CHARLES F. PAULUS.

Witnesses:
FREDK. C. FRAENTZEL,
F. A. FELDKAMP.