J. B. VAN DOREN.

PYROTECHNIC TOY.

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1,089,166.

Patented Mar. 3, 1914.

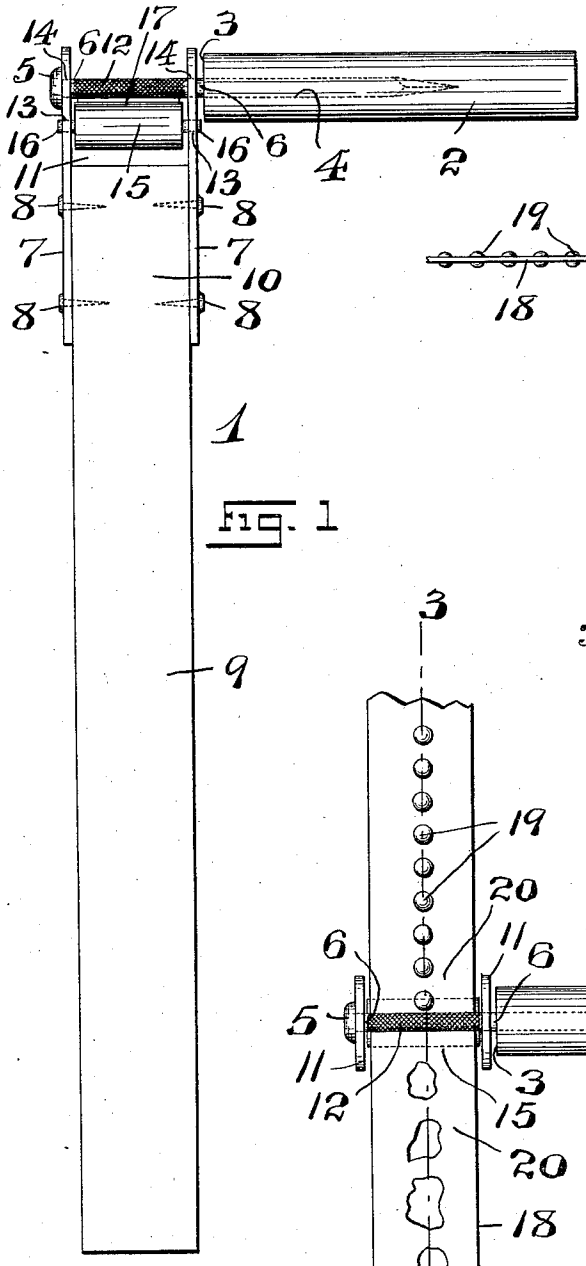


Fig. 1

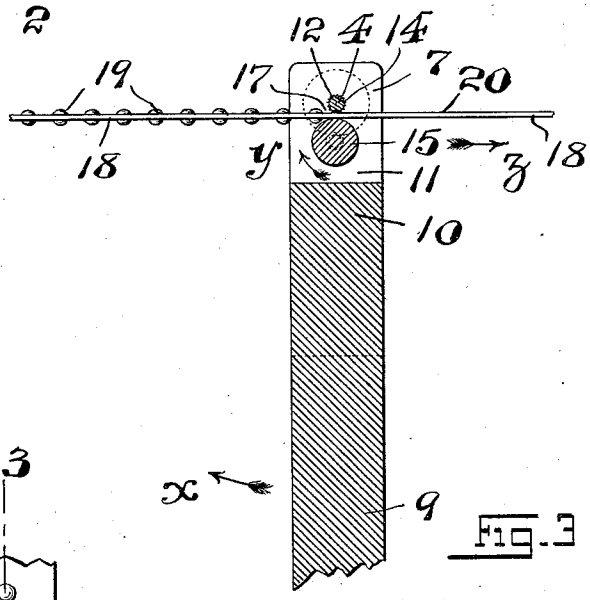


Fig. 3

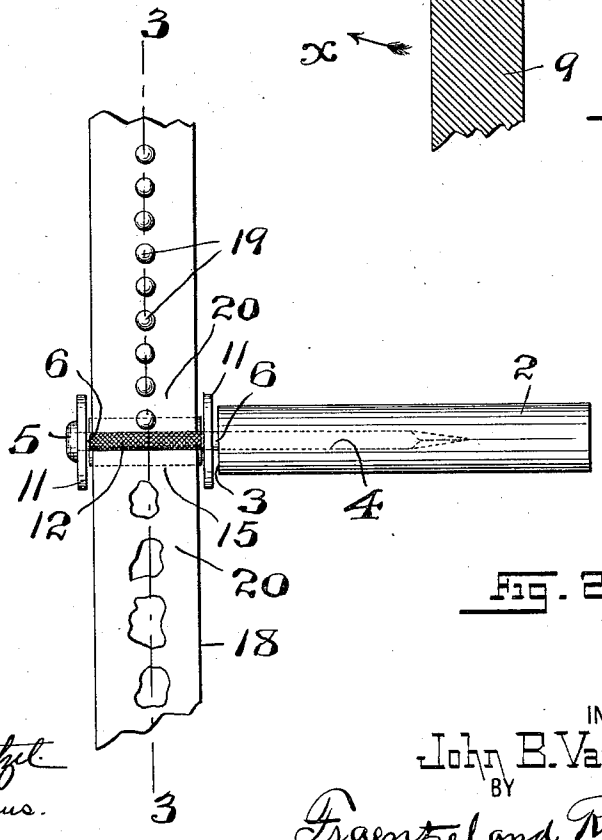


Fig. 2

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PYROTECHNIC TOY.

1,089,166. Specification of Letters Patent. Patented Mar. 3, 1914.

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To all whom it may concern:

Be it known that I, JOHN B. VAN DOREN, a citizen of the United States, residing at Berkley Heights, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Pyrotechnic Toys; and I 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 characters of reference marked thereon, which form a part of this specification.

This invention has reference, generally, to improvements in pyrotechnic toys; and, the present invention has reference, more particularly, to a novel device adapted to be held in the hand and operating in the manner of a whirler for exploding or firing in rapid succession a series of percussion caps or fulminate arranged upon a strip of paper which is rapidly and easily fed in a straight line and with a rectilinear motion between a fixed pin and a roller, having a rotary motion about said fixed pin, the strip of caps while having a rectilinear movement relative to the axes of the fixed pin and the roller, also being moved about the said pin.

The present invention has for its principal object to provide a simply constructed and efficiently operating pyrotechnic toy having the characteristics herein-above mentioned, the arrangement of the various parts of the device being such, that the feeding of the strip of paper is positively accomplished, and the explosions of the caps or fulminates take place in rapid succession and without any of the caps or fulminates failing to explode.

Other objects of this invention not at this time more particularly enumerated will be clearly understood from the following detailed description of the present invention.

With the various objects of the present invention in view, the said invention consists, primarily, in the novel pyrotechnic toy hereinafter set forth; and, the invention consists, furthermore, in the novel arrangement and combinations of the several devices and parts, comprising in general a handle, a fixed pin, a roller and a weight, the roller being adapted to move about its own longitudinal central axis, but the weight and roller also being capable of being rotated about the fixed pin, all of which will be more fully described in the following specification, and then finally embodied in the clauses of the claim which are appended to and which form an essential part of this specification.

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

Figure 1 is a face view of a pyrotechnic toy, illustrating one embodiment of the principles of the present invention. Fig. 2 is a top view of the toy, showing in connection therewith a portion of the cap or fulminate-bearing strip; and Fig. 3 is a detail transverse sectional representation of the same, said section being taken on line 3—3 in said Fig. 2, the cap or fulminate-bearing strip being shown in side elevation.

Similar characters of reference are employed in the said above described views, to indicate corresponding parts.

Reference now to the several figures of the drawings, the reference-character 1 indicates the complete pyrotechnic toy, the same comprising a handle 2 of any suitable marginal configuration, said handle being made of wood, or any other suitable material. Extending from one end-portion, as 3, of said handle is a pin 4 which is fixed against rotation by being driven into the said end 3 of the handle. It will be understood, however, that the said pin 4 may be otherwise secured to the said handle. The said pin 4 is also provided upon its free end with an enlargement or head 5, and loosely and rotatably mounted upon cylindrical portions 6 of said pin are a pair of plates, as 7, said plates having secured between them, by means of pins 8, or other suitable fastening means, the end-portion 10 of a weight 9, which may be a piece of wood, or any other suitable material, the parts being arranged in their assembled relation in such a manner, that a suitable space 11 is provided between the end-portion 10 of the weight and the said pin 4, substantially as shown in Figs. 1 and 3 of the drawings. That portion of the pin 4 located between the oppositely placed upper face-portions of said plates is preferably roughened, by being knurled or serrated, as at 12. The said upper end-portions of said plates are also provided with oppositely located holes or perforations 13, preferably in vertical aline-

ment with the holes or perforations 14 in said plates 7, and by means of which the said plates are rotatably mounted upon the pin, as has been previously stated, and rotatably mounted in the said holes or perforations 13 are the journals 16 of a roller 15. The size and cross-section of said roller is such, that a narrow space, as 17, is provided between the upper surface of said roller and the lower surface of the serrated or knurled portion of the fixed pin 4, sufficient to permit of the easy insertion of the free end of a cap or fulminate-bearing paper-strip 18 into the said narrow space 17, for feeding the said strip 18, and its caps or fulminates 19 for explosion, between the said fixed pin 4 and the revolving roller 15, when the toy is operated, as will be clearly evident from an inspection of Fig. 3 of the drawings.

The operation of the pyrotechnic toy briefly is as follows: Having inserted the cap or fulminate-bearing strip between the fixed pin 4 and the roller 15, the top is held by means of the handle 2 in the hand, and a rapid swinging motion given to the weight 9 and the plates 7, in the direction of the arrow *x*, see Fig. 3, whereby the said weight and plates receive a curvilinear motion about the fixed pin 4, the roller at the same time also being swung around said pin. The movement of said roller about the fixed pin produces a frictional engagement of the normally upper surface 20 of the strip 18 against the serrated or knurled surface-portion of the fixed pin 4, at the same time causing the roller to revolve about its own axis, in the direction of the arrow *y*, thus feeding the strip 18 with a straight or rectilinear motion, in the direction of the arrow *z*, but the strip at the same time also passing around the fixed pin 4, but without curling itself upon the said pin. The rapid movement of the strip 18, in the direction of the arrow *z*, between the fixed pin and the roller, brings the caps or fulminates 19 in rapid succession and rubbing or frictional contact with the serrated or knurled surface of the pin 4, so that the caps or fulminates are successively and positively exploded, none of the caps or fulminates failing to be exploded, as will be clearly evident from an inspection of Figs. 2 and 3 of the drawings.

Of course, I am aware that some changes may be made in the general arrangements and combinations of the various parts described in the foregoing specification, without departing from the scope of my present invention, as set forth in the said specification, and as embodied in the claims which are appended to the said specification. Hence, I do not limit my invention to the exact arrangements and combinations of the parts as described in the said specification, nor do I confine myself to the exact details of the construction of the said parts, as illustrated in the accompanying drawings.

I claim:—

1. In a pyrotechnic toy, a handle, a fixed pin extending from said handle, and a roller adapted to revolve about its own axis and also move around said fixed pin, whereby a cap or fulminate-bearing strip is fed between said fixed pin and said roller with a rectilinear movement and also around the said pin.

2. In a pyrotechnic toy, a handle, a fixed pin extending from said handle, said pin being provided with a roughened surface-portion, and a roller adapted to revolve about its own axis and also move around the roughened surface of said fixed pin, whereby a cap or fulminate-bearing strip is fed between the roughened surface of said fixed pin and said roller with a rectilinear movement and also around the roughened surface of said pin.

3. In a pyrotechnic toy, a handle, a fixed pin extending from said handle, roller-bearing plates rotatably mounted upon said fixed pin so as to be swung around said pin, a roller rotatably mounted between said plates, said roller being adapted to revolve about its own axis, and a weight connected with and extending from said plates, said weight and roller being also adapted to be swung with said plates around said fixed pin, whereby a cap or fulminate-bearing strip is fed between said fixed pin and said roller with a rectilinear movement and also around the said pin.

4. In a pyrotechnic toy, a handle, a fixed pin extending from said handle, said pin being provided with a roughened surface-portion, roller-bearing plates rotatably mounted upon said fixed pin so as to be swung around said pin, a roller rotatably mounted between said plates, said roller being adapted to revolve about its axis, and a weight connected with and extending from said plates, said weight and roller being also adapted to be swung with said plates around the roughened surface of said pin, whereby a cap or fulminate-bearing strip is fed between said pin and said roller with a rectilinear movement and also around the roughened surface of said pin.

In testimony, that I claim the invention set forth above I have hereunto set my hand this 2nd day of October, 1913.

JOHN B. VAN DOREN.

Witnesses:
GEORGE D. RICHARDS,
FREDK. H. W. FRAENTZEL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."