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S. S. ADAMS  
EXPLOSIVE FOUNTAIN PEN

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FIG-1

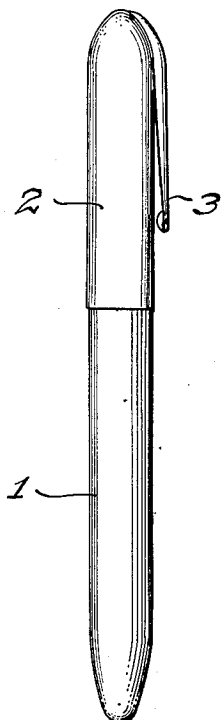


FIG-2

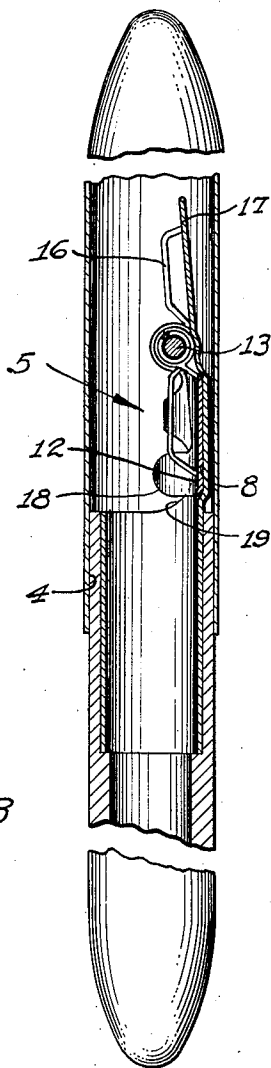


FIG-4

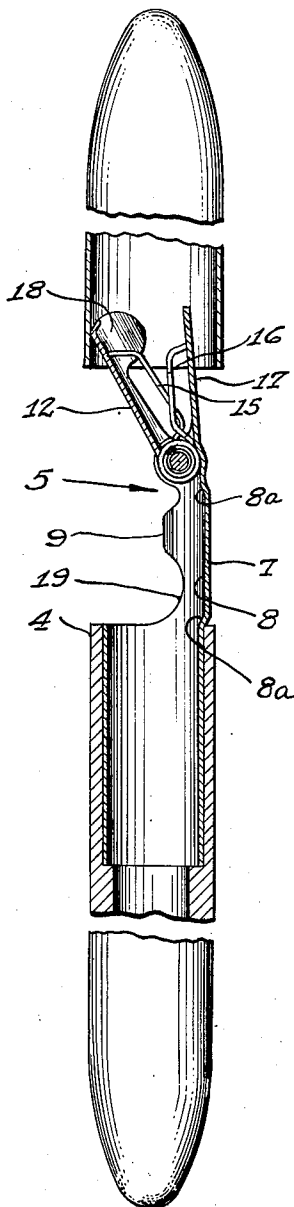


FIG-3

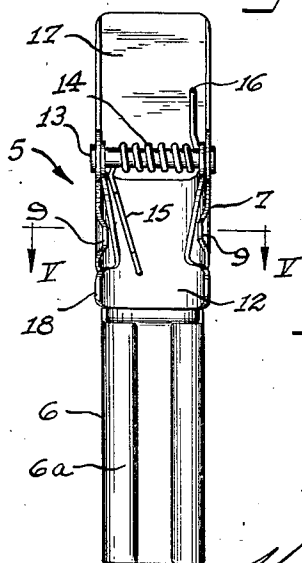
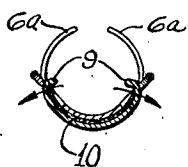


FIG-5



Inventor  
Soren S. Adams

by

Mill, Sherman, Munro, Gools & Smith  
ATTYS

## UNITED STATES PATENT OFFICE

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## EXPLOSIVE FOUNTAIN PEN

Soren S. Adams, Asbury Park, N. J.

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11 Claims. (Cl. 46-176)

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This invention relates to a trick, or novelty, fountain pen. More particularly, the invention relates to an explosive fountain pen of the type which is designed to permit safe use while at the same time providing an explosion calculated to afford amusement to onlookers and extreme surprise to the user.

Exploding toys of various types have long been known in the art of trick novelty amusement devices. One of the chief disadvantages, however, of the explosive type of novelty is the necessity that an explosive charge, usually of the common paper percussion cap variety is required to produce a satisfactory explosive characteristic. The presence of this explosive material, while it is not of very large proportions, nevertheless causes concern among those using the device as well as those upon whom the trick is played.

It, therefore is an object of the present invention to provide an explosive fountain pen in which the danger of inadvertent explosion of the percussion cap during loading of the device is minimized.

A further object of the present invention is the provision of a novel cap retaining structure which completely eliminates the possibility of misfire due to a dislodging of the cap during carrying or other handling of the novelty fountain pen.

Still a further object is the provision of a percussion mechanism which explodes the percussion cap at a point which is guarded from the user of the fountain pen so that the danger of injury by the explosion is eliminated.

Yet another object of the present invention is to provide a novel and simplified loading construction wherein a minimum amount of manual dexterity is required to cock and load the detonating apparatus.

Still a further feature of the present invention is the provision of a novel and effective percussion cap retaining mechanism which securely holds the cap and yet requires no sharp edges or other fastening means.

Still a further feature of the present invention is the provision of a simple and yet an extremely rigid detonating device for use in novelty articles of the type in which a loud report is desired.

Still other and further objects will become apparent to those skilled in the art from a consideration of the accompanying drawings which disclose a preferred embodiment by way of illustration only.

On the drawings:

Figure 1 is a showing of the fountain pen novelty as it looks in its loaded position ready for use;

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Figure 2 is a disclosure of the fountain pen with the cap in place and showing the detonating mechanism in the detonated or uncocked position;

Figure 3 is a plan view of the detonating mechanism as shown in Figure 2 but removed from the pen barrel;

Figure 4 is an elevational view of the novelty pen showing the position of the parts in the cocked position immediately prior to placing the cap in the cap chamber and showing the hammer in cocked position;

Figure 5 is a cross-sectional view taken along the line V—V of Figure 3 and clearly showing the cap retaining ears utilized in the present construction.

As shown on the drawings:

The outer casing of the novelty fountain pen is constructed to exactly resemble the common fountain or ball-point pen now on the market and comprises a barrel 1 upon which a cap 2 having a pocket clip 3 is positioned. A slightly tapered surface 4 is provided at the cap end of the barrel 1 so that a frictional fit is provided for maintaining the cap in its position on the barrel when the pen is to be carried about in its uncocked position.

A detonating mechanism generally indicated at 5 is positioned in the barrel inside the cap 2 and is exposed to view upon removal of the cap from the barrel.

As may be seen from Figure 3, the detonating mechanism 5 is provided with a split ferrule 6 having ears 6a which resiliently and springingly engage the inner walls of the barrel 1 to retain the detonating mechanism 5 tightly positioned therein. The detonating mechanism 5 has an intermediate portion 7 which is as clearly shown in the cross-sectional view in Fig. 5, of arcuate form. This intermediate portion forms a pocket for the retention of a percussion cap and as may be seen from the elevational views in Figs. 2 and 4, a depression 8 is formed in the bottom of this intermediate portion causing a hollow pocket or anvil to be formed in the bottom surface of the intermediate portion 7. As may be seen, this depression is defined by the bulge indicated at 8 and is formed by displacing the sheet metal slightly outwardly during the stamping process.

At the upper edge of the intermediate portion ears 9 are deflected inwardly. These ears 9 provide abutments for containing the outer edges of the paper cap 10 as is shown in Figure 5. It is noted in connection with the ears 9 that while they have proved extremely desirable in elimi-

nating all possibility of the cap becoming dislodged from its position in the pocket 8, the ears are not absolutely essential in producing an operative structure since the outward deformation of the pocket 8 tends to prevent the cap from shifting axially of the pen in either direction and the curvature of the intermediate portion 7 is by itself sufficient in many instances to retain the cap in the pocket.

A hammer 12 is pivoted at the pivot point 13 to the detonator body. The pin 13 is surrounded by a helical spring 14 having arms 15 and 16 which coast with the hammer 12 and the end portion 17 of the detonator body. This spring 14 biases the hammer into the position shown in Figures 2 and 3 with a substantial force. The hammer 12 is provided with ears 18 which, when the hammer is in the position shown in Figures 2 and 3, extend slightly above the cutaway portion 19 of the intermediate section 7 of the detonator body. Since the hammer 12 is made from sheet metal in the same manner as the detonator body 5 and is made to conform therewith, the hammer is arcuate in cross-section. In view of this arcuate construction the ears 18 extend slightly beyond the sides of the intermediate portion 7 at the cutaway 19. This extension provides a gripping portion or gripping ear which may be easily grasped by the user to cock the hammer.

In preparing the novelty explosive fountain pen for surprising a prospective user, the cap 2 is removed from the barrel 1 exposing the detonating member in the position shown in Figures 2 and 3. The user then grasps the hammer 12 by the ears 18 and pulls the hammer back against the force of the spring 14 into a position approximately that shown in Figure 4. In actual practice the cocking of the hammer is rather simple since the user can easily grasp the barrel in one hand, and the ears 18 between the thumb and forefinger of the other hand. As soon as the hammer is lifted slightly off its seat, the user may then interpose the thumb, of the hand holding the barrel 1, between the hammer 12 and the pocket 8 and then proceed to force the hammer 12 all the way back to its cocked position as shown in Figure 4 by merely pushing his thumb axially along the pen upwardly as viewed in Figure 4.

With the hammer 12 in the position as shown in Figure 4, the cap 2 is slid over the end portion of the detonator body 17 and the hammer 12. The spring 14 presses the hammer 12 away from the end portion 17 and the two in combination tend to frictionally grip the cap in a tight manner. With the parts in this position it is impossible for the hammer to inadvertently fall. The safety may be increased by pushing the cap 2 downwardly as viewed in Figure 4 until it covers all but the cap pocket 8. With the parts in this position the cap 10, which is of the generally available commercial paper variety, is pressed into the anvil recess or pocket 8.

As is shown in Figure 5, the cap assumes a somewhat arcuate form to conform with the walls 8 of the pocket of the intermediate portion. This bending of the cap into an arcuate form causes a pressure to be exerted in the direction indicated by the arrows in Figure 5 upon the walls 8. This force will tend to maintain the cap in position in the pocket. However, in order to positively insure that the cap will stay in the pocket provided for it, the ears 9, already described are provided. These ears project in-

wardly a sufficient distance to intercept the ends of the cap 10 and positively prevent its inadvertent movement out of the pocket 8. As explained above the cap is prevented from moving in a direction axially of the pen by the deformed edges of the pocket, clearly shown in Figure 4 at 8a. As soon as the cap is positioned as above described in the pocket 8, the cap 2 is slid along the detonator body against the resistance imposed by the attempted separation of the members 17 and 18 until it impinges on the surface 4 of the barrel 2. With the parts in this position the pen looks as shown in Figure 1 and appears to be identical to any one of thousands of various makes of commonly used fountain pens.

It will be apparent from the above disclosure taken in connection with the drawings that I have provided an extremely simple, and safe detonating fountain pen which may be readily manufactured of sheet metal in an inexpensive manner. The cap containing bulge not only provides a cap receptacle which prevents inadvertent dislodging of the cap, but it also aids rigidifying effect to the detonator body, thereby greatly strengthening it. Further, the arcuate form of the detonator body possesses great strength and provides great rigidity, thereby preventing misfires due to deflection of the hammer 12 on impact. Further, the high sides formed by the arcuate walls of the intermediate portion 7 ending in the ears 9 form a safety barrier between the user and the actual exploding cap, thereby greatly protecting him of any danger of powder burns. As also will be noted, the placement of the cap at an intermediate position rather than at the outer end of the mechanism tends to place the cap in a safe position.

It will be understood that modifications and variations may be effected without departing from the scope of the novel concepts of the present invention.

I claim as my invention:

1. A detonating device comprising a sheet metal body member having a ferrule at one end for insertion into a fountain pen-like barrel, an intermediate portion having an arcuate cross-section across the axis of the body forming an arcuate cavity, and an outer extremity portion, a pivot pin between said intermediate and said outer portions, a sheet metal arcuately formed hammer pivotally mounted on said pivot pin, said arcuate hammer being biased away from said outer portion toward said intermediate portion and into conforming relation therewith, whereby a percussion cap may be placed in the arcuate cavity of said intermediate portion for detonation by said arcuately formed hammer moving under the influence of said biasing means.

2. A detonating device comprising a generally cylindrical body having an inner end portion for insertion into the barrel of a fountain pen-like article, an intermediate portion having an opening cut in one side of said cylinder and an outer portion likewise having a portion of said cylinder cutaway therefrom, pivot means positioned substantially perpendicularly to the axis of said cylinder and between said intermediate portion and said outer portion, hammer means pivotally mounted on said pivot pin, said hammer means having an arcuate configuration for cooperation with the inner arcuate wall of the intermediate portion of said cylindrical detonating member, the cutaway portion of the cylinder at the intermediate portion of said detonating member providing access to ears formed on said

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hammer and also permitting the movement of said hammer about said pivot to lie substantially parallel to and adjacent said outer portion, and spring biasing means between said outer portion and said hammer whereby said hammer is biased from said position adjacent said outer portion into contact with said intermediate portion of said detonating member to detonate a percussion cap held between the hammer and the intermediate portion.

3. A detonating device comprising a body member having inner and outer end portions with an intermediate portion therebetween, said inner end portion being of cylindrical configuration and adapted to be inserted in a barrel of a fountain pen-like article for maintaining said body member within said barrel, a pivot pin between said intermediate portion and said outer portion and substantially perpendicular to the longitudinal axis of said member, a hammer pivoted to said pivot pin for oscillation from a position substantially parallel to and adjacent with said outer portion into a position substantially parallel with and in conformity with said intermediate portion, biasing means for moving said hammer into contact with said intermediate portion, said intermediate portion having a curved side wall, the curvature being defined by an arcuate surface drawn about a line parallel to the longitudinal axis of said member, abutment means between said intermediate portion and said inner portion for forming a side retaining wall between said curved wall of the intermediate portion and said inner portion whereby a paper cap may be disposed against said arcuate wall and confined axially by said abutment, said hammer having an arcuate configuration conforming to the arcuate wall of said intermediate portion whereby said hammer and said arcuate wall are positioned immediately adjacent each other when said hammer is in its cap detonating position.

4. A detonating device comprising a body member having inner and outer end portions with an intermediate portion therebetween, said inner end portion being of cylindrical configuration and adapted to be inserted in a barrel of a fountain pen-like article for maintaining said body member within said barrel, a pivot pin between said intermediate portion and said outer portion and substantially perpendicular to the longitudinal axis of said member, a hammer pivoted to said pivot pin for oscillation from a position substantially parallel to and adjacent with said outer portion into a position substantially parallel with and in conformity with said intermediate portion, biasing means for moving said hammer into contact with said intermediate portion, said intermediate portion having a curved side wall, the curvature being defined by an arcuate surface drawn about a line parallel to the longitudinal axis of said member, abutment means between said intermediate portion and said inner portion for forming a side retaining wall between said curved wall of the intermediate portion and said inner portion whereby a paper cap may be disposed against said arcuate wall and confined axially by said abutment, said hammer having an arcuate configuration conforming to the arcuate wall of said intermediate portion whereby said hammer and said arcuate wall are positioned immediately adjacent each other when said hammer is in its cap detonating position, said hammer having ears at the outer extremity thereof for grasping

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by the user in order to cock the hammer, and the curved wall of said intermediate portion ending in a pair of inwardly directed ears whereby said percussion cap may be positively confined against inadvertent movement away from said curved wall.

5. A novelty exploding pen comprising a barrel member and a cap member, a body member associated with said barrel member, detonating means mounted on said body member comprising a hammer pivoted to said body member at a portion intermediate the ends thereof, a semi-cylindrical cavity in said member, the axis of said semi-cylinder lying parallel to the longitudinal axis of said pen and perpendicular to the axis of said pivot, said hammer comprising a semi-cylindrical member having a curvature conforming to the curvature to said body member, biasing means for biasing said hammer against said cavity, abutment means on said body member at the ends of the cylindrical recess for maintaining a cylindrical percussion cap within said recess, and means for maintaining said hammer in a cocked position substantially parallel to said end portion during the insertion of said cap in said cylindrical recess, said last named means comprising the cap of said pen.

6. As an article of manufacture, an explosive device for percussion caps and the like and insertable in another article, comprising, an elongated member having free ends and a transversely arcuately bowed concave partially cylindrical section therebetween defining an anvil for receiving and housing a cap, and a complementary arcuately curved, partially cylindrical hammer pivoted to said member between said concave section and one of said free ends and swingable over said one free end against a biasing force for cocking said hammer and for loading said anvil with a cap.

7. A detonating device comprising an elongated member having first and second free ends with an intermediate, transversely bowed concave portion therebetween defining an anvil, means on said first free end for attachment to an article with which the detonating device is to be used, and a transversely bowed hammer pivoted between said second free end and said intermediate portion and biased into conforming overlying contact with said concave intermediate portion for detonating a cap positioned therein.

8. A detonating device comprising an elongated member having first and second free ends with an intermediate, transversely bowed but longitudinally substantially straight concave portion therebetween defining an anvil, means on said first free end for attachment to an article with which the detonating device is to be used, a transversely bowed hammer pivoted between said second free end and said intermediate portion and biased into conforming overlying contact with said concave intermediate portion for detonating a cap positioned therein, and said hammer having transversely extending ears for gripping by the operator whereby the hammer may be pivoted about its pivot into a cocked position overlying said second free end.

9. A detonating device comprising an elongated member having first and second free ends with an intermediate, transversely bowed concave portion therebetween defining an anvil, means on said first free end for attachment to an article with which the detonating device is to be used, a transversely bowed hammer pivoted

between said second free end and said intermediate portion and biased into conforming overlying contact with said concave intermediate portion for detonating a cap positioned therein, and said concave intermediate portion having transversely, inwardly turned projections for insuring that a cap placed in said concave portion will remain in said concave portion.

10. A detonating device comprising an elongated member having first and second free ends with an intermediate, transversely bowed concave portion therebetween defining an anvil, means on said first free end for attachment to an article with which the detonating device is to be used, a transversely bowed hammer pivoted between said second free end and said intermediate portion and biased into conforming overlying contact with said concave intermediate portion for detonating a cap positioned therein, and said intermediate portion having transversely extending abutments at both ends thereof for preventing longitudinal movement of a cap placed in said concave portion.

11. A detonating device comprising an elongated member having first and second free ends with an intermediate, transversely bowed concave portion therebetween defining an anvil,

means on said first free end for attachment to an article with which the detonating device is to be used, a transversely bowed hammer pivoted between said second free end and said intermediate portion and biased into conforming overlying contact with said concave intermediate portion for detonating a cap positioned therein, said hammer having transversely extending ears for gripping by the operator whereby the hammer may be pivoted about its pivot into a cocked position overlying said second free end, and said intermediate portion having transversely extending abutments at both ends thereof for preventing longitudinal movement of a cap placed in said concave portion.

SOREN S. ADAMS.

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