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E. R. RECHEL

2,425,005

METHOD OF MAKING INCENDIARY BULLETS

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Fig. 1.

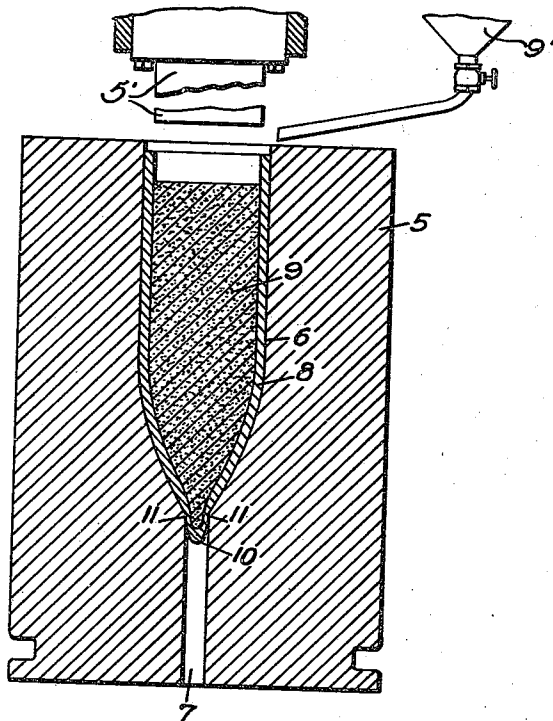


Fig. 2.

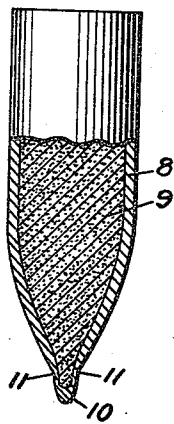
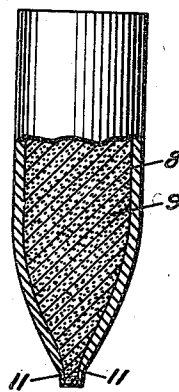


Fig. 3.



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METHOD OF MAKING INCENDIARY BULLETS

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5 Claims. (Cl. 86-30)

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The invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

This invention relates to an incendiary bullet and to a method of making the same.

It is an object of this invention to produce an incendiary bullet of high sensitivity which may be economically and conveniently manufactured.

The specific nature of the invention as well as other objects and advantages thereof will clearly appear from a description of a preferred embodiment as shown in the accompanying drawing in which:

Figure 1 is a longitudinal sectional view of the bullet and a mold which may be used in the forming thereof.

Figure 2 is a view in side elevation, partly in section, of a bullet removed from the mold.

Figure 3 is a similar view of a bullet with the tip removed.

Referring to the drawing by characters of reference there is shown in Figure 1 a mold 5 in which the bullet may be formed under high pressure. The mold has a cavity 6, complementary in shape to the finished bullet, and a passage 7, axially in alignment with said cavity, adapted to accommodate a knock-out pin used in removing the bullet from the mold, and also serving another purpose as will hereinafter appear.

The bullet is formed by placing a jacket 8, of gilding metal or other suitable jacket material, in the cavity in the mold 5. The jacket is then filled with the incendiary mixture 9 by hand or from any suitable container, such as a hopper 9' and sufficient pressure by any suitable means, such as plunger 5', is applied to compact the incendiary material into an impervious fused condition and to cause the tip 10 of the bullet jacket to be partially extruded into the knock-out pin passage 7 as shown in Figure 1. Controlled heat may be applied to the mold externally or by steam or hot water circulated through passages in the mold simultaneously with the application of pressure to assist in fusion of the composition. The rear portion of the bullet may be closed in any conventional manner which will assure the protection of the incendiary charge from the flame of the propellant powder.

The bullet in the condition shown in Figure 2 may be removed from the mold by means of a knock-out pin operating through the passage 7.

In case it is desired to have an incendiary bullet of extreme sensitivity the extruded tip 10 shown in Figure 2 may be cut off by the use of a suitable

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cutting tool. As the incendiary compound is fused during molding it will be comparatively independent of the presence of moisture or other atmospheric agents and no protection will be needed for the tip of the completed bullet shown in Figure 3. In case the bullet is charged with some composition more sensitive to the effects of moisture a coating of lacquer or other sealing medium may be applied to the tip by dipping or other known methods. This bullet is very sensitive, and will ignite on impact with any light material, such as a thin aluminum sheet.

In case it is desired to use the bullet in a less sensitive condition it may be used in the form shown in Figure 2. The partial extrusion of the tip of the bullet will have thinned the walls thereof in the annular zone 11 drawn over the edge of the mold cavity 6 into the passage 7. The amount of such extrusion governs the thickness of the wall and the sensitivity may be controlled thereby through wide limits. Upon impact with the target material the jacket wall will collapse in the thin-walled section 11 exerting a pinching action on the composition contained therein and permitting the jacket tip 10 to be driven, firing pin-like, into the mass of the incendiary composition 9 to ignite the same.

Other methods of controlling the sensitivity of the finished bullet include cutting off the tip at various distances from the charge chamber leaving a wall of jacket material of predetermined thickness protecting the incendiary composition in advance of the thin sidewalls produced by the extrusion operation. Obviously the sensitivity will be governed by the thickness of the wall protecting the incendiary composition.

Suitable incendiary compositions include magnesium with barium peroxide, aluminum with barium nitrate, aluminum with potassium chlorate, or other combinations of metallic powders and suitable oxygen producing compounds. Preferably the above mentioned compositions are used with suitable binders and lubricants for the molding operation such as lead, calcium resinate, or zinc stearate.

I claim:

1. A method of making an incendiary bullet comprising the steps of placing a bullet jacket in a mold which supports all of said jacket except the tip thereof, filling said jacket with an incendiary composition, applying pressure to said composition sufficient to compact the same and cause a partial extrusion of the unsupported jacket tip, and removing the extruded section of the tip whereby said composition is exposed.

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2. A method of making an incendiary bullet comprising the steps of placing a bullet jacket in a mold adapted to support all of said jacket in a mold adapted to support all of said jacket except the tip thereof, filling said jacket with an incendiary composition, applying pressure to said composition sufficient to compact the same and cause a partial extrusion of said unsupported tip whereby the walls of said jacket will be reduced in thickness in an annular zone adjacent the tip of said jacket.

3. A method of making an incendiary bullet comprising the steps of placing a bullet jacket in a mold adapted to enclose all of said jacket except the tip portion thereof, filling said jacket with an incendiary composition, applying pressure to said composition sufficient to compact the same and to cause the unsupported tip of the jacket to be partially extruded from the mold, whereby the walls of said jacket will be reduced in thickness in an annular zone adjacent said tip, and removing a portion of said tip whereby a wall of predetermined thickness will be left in advance of said composition.

4. A method of making an incendiary bullet which comprises the steps of confining a predetermined portion of a bullet jacket adjacent the tip end thereof against expansion but leaving the tip end free and unsupported, filling the bullet jacket with an incendiary composition and apply-

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ing pressure to said composition sufficient to compact the same and to extrude the tip end of said bullet jacket beyond the confined portion of the bullet jacket.

5. A method as described in claim 4 including the step of applying heat to said composition simultaneously with the application of pressure to assist in fusion of the composition.

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