Nov. 7, 1939. E. J. McCORMICK 2,178,595

HOLDER FOR DIVISIONAL PROPELLENT CHARGES

Filed March 2, 1938

Fig-1

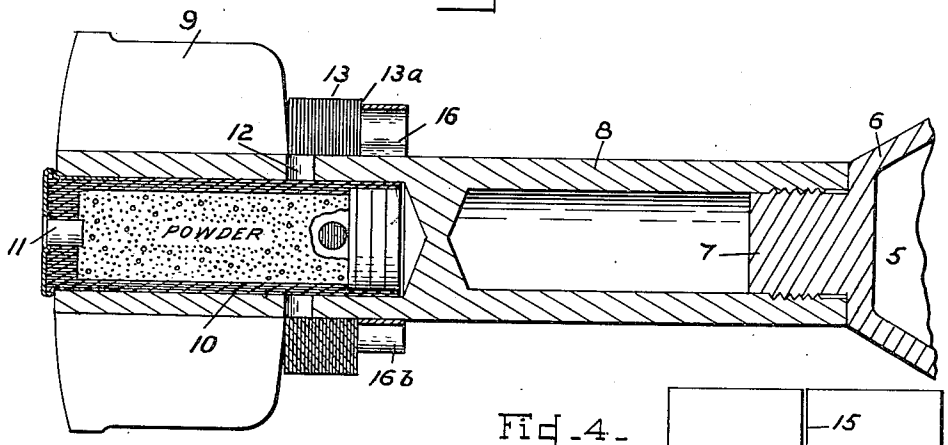


Fig-2.

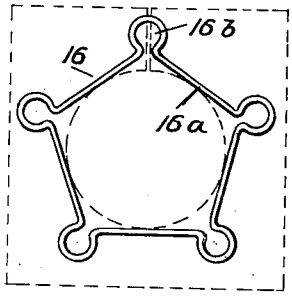


Fig-3.

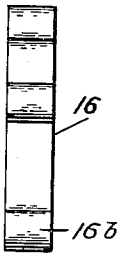


Fig-4.

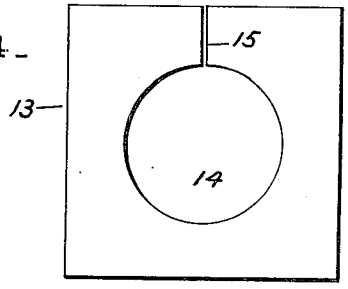


Fig-5.

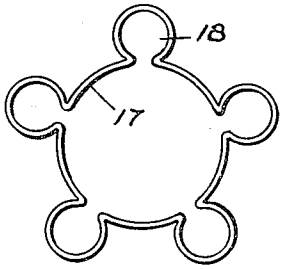
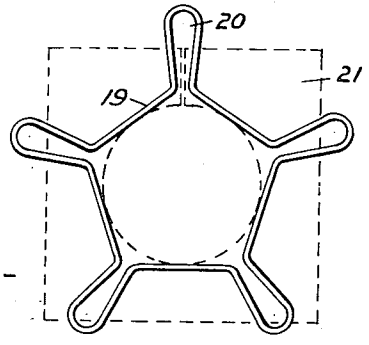


Fig-6.



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HOLDER FOR DIVISIONAL PROPELLENT CHARGES

Edward J. McCormick, Spencer, N. C.

Application March 2, 1938, Serial No. 193,537

3 Claims. (Cl. 102—1)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

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 a holder for divisional propellent charge and similarly arranged units.

In a round of ammunition for trench mortars it is customary to issue the round with a maximum propellent charge and then to remove a portion of the charge as occasion requires.

The purpose of this invention is to provide a simple form of propellent charge holder which will maintain the charge in its proper place to insure ignition and which may be readily moved when it is desired to remove a portion of the charge.

A further object is to so form the holder that it will not become detached from the projectile and remain in the mortar and that it will offer a minimum of resistance to flight of the projectile.

To these and other ends, the invention consists in the construction, arrangement and combination of elements described hereinafter and pointed out in the claims forming a part of this specification.

A practical embodiment of the invention is illustrated in the accompanying drawing, wherein:

Fig. 1 is a longitudinal sectional view of the rear end of a projectile equipped with the improved charge holder;

Fig. 2 is a detail view of the holder;

Fig. 3 is a view in side elevation of the holder;

Fig. 4 is a plan view of the propellent charge;

Fig. 5 is a plan view of a modified holder;

Fig. 6 is a plan view of a holder that is larger than the propellent charge.

Referring to the drawing by characters of reference there is shown a portion of a projectile of the muzzle loading type adapted to be fired from a trench mortar. The projectile includes a body 5 formed with a tapered tail 6 ending in a reduced stem 7. A tube 8 threaded on the stem is provided on its rear portion with a plurality of vanes or fins 9 which serve the usual purpose of stabilizing the projectile while in flight.

A cartridge 10 of the shot-gun type is carried in the rear part of the tube and includes a primer 11 which is fired when it strikes a pin at the bottom of the mortar. The tube 8 is provided with a plurality of staggered vents 12 for conducting the flame from the cartridge to a propellent charge 13 which is disposed on the outer side of the tube and forwardly of the fins 9.

The propellent charge 13 consists of a plurality of thin flexible sheets 13*a* each having a circular opening 14 for receiving the tube 8. Each sheet is also provided with a slit 15 extending from the opening 14 to the edge and enabling the sheet to be readily applied to and removed from the tube. In accordance with the zone system of firing employed with mortars a variable quantity of propellent charge is employed under various circumstances. The round of ammunition is assembled with the maximum charge and a predetermined number of sheets is removed as occasion requires.

The sheets constituting the charge are maintained against the fins or a corresponding abutment and also in line with the vents 12 by means of a holder 16 which frictionally and resiliently grips the tube and which may be manually moved away from the charge to facilitate removal of certain of the sheets and then restored to a holding position.

The holder 16 shown in Figs. 1 to 3 comprises an annular resilient metal band or element having a plurality of spaced elongated straight planar portions 16*a* arranged tangentially to a circle having the diameter of the tube 8 and connected at their adjacent ends by radially extending loops or circular portions 16*b*. The planar portions resiliently engage the tube 8 while the circular portions engage the front sheet 13*a* of the propellent charge.

In the modification shown in Fig. 5 the holder consists of spaced elongated arcuate portions 17 disposed on a circle of substantially the same diameter as and adapted to resiliently engage the tube 8. The adjacent ends of the portions 17 are connected by radially extending circular portions 18.

In Fig. 6 the tube-engaging portions 19 are connected by loops 20 which are of sufficient length so that at least some of them project beyond the edge of the propellent charge 21 to afford portions which may be readily grasped by an operator.

I claim:

1. In a projectile of the type having a tubular member provided to receive a propellent charge in surrounding relation, a holder adapted to retain the propellent charge in engagement with an abutment on the tubular member comprising, a resilient element, engageable with the end of said propellent charge remote from the abutment, having a plurality of spaced relative elongated portions disposed in substantially the same plane, with each elongated portion having a part arranged on a circle of substantially the same diameter as said tubular member, and a radially

outward extending loop joining the adjacent ends of each pair of said relative elongated portions; whereby the holder is adapted to slidingly engage the outside of the tubular member with sufficient friction to hold propellent charges of different relative lengths axially of the tubular member in engagement with said abutment.

2. In a projectile of the type having a tubular member provided to receive a propellent charge in surrounding relation, a holder adapted to retain the propellent charge in engagement with an abutment on the tubular member comprising, a resilient element, engageable with the end of said propellent charge remote from the abutment, having a plurality of spaced straight portions disposed in substantially the same plane arranged tangentially to a circle having substantially the same diameter as said tubular member and joined at their adjacent ends by radially outward extending loops; whereby the holder is adapted to slidingly engage the outside of the tubular member with sufficient friction to hold propellent charges of different relative lengths axially of the tubular member in engagement with said abutment.

3. In a projectile of the type having a tubular member provided to receive a propellent charge in surrounding relation, a holder adapted to retain the propellent charge in engagement with an abutment on the tubular member comprising a resilient element, engageable with the end of said propellent charge remote from the abutment, having a plurality of spaced arcuate relative elongated portions disposed on a circle of substantially the same diameter as said tubular member and a radially outward extending loop joining the adjacent ends of each pair of said arcuate portions; whereby the holder is adapted to slidingly engage the outside of the tubular member with sufficient friction to hold propellent charges of different relative lengths axially of the tubular member in engagement with said abutment.

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