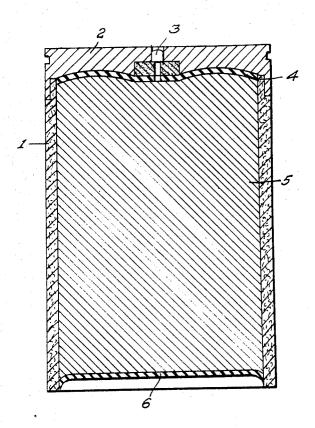
FIRE CARTRIDGE

Original Filed July 6, 1967



INVENTOR, Ralph L.Allen

BY: Harry M. Saragovit, Edward J. Kelly R. P. Gitson 4-Herbert Ball ATTORNEYS. 1

3,457,860
FIRE CARTRIDGE
Ralph H. Allen, 318 Paradise Road,
Aberdeen, Md. 21001
Original application July 6, 1967, Ser. No. 651,626, now 5
Patent No. 3,401,633. Divided and this application Apr.
29, 1968, Ser. No. 738,756
Int. Cl. F42b 11/24, 13/14; C06c 15/00
U.S. Cl. 102—32
4 Claims

ABSTRACT OF THE DISCLOSURE

A cartridge, which is actuated by a pyrotechnic primer, and which contains a special pellet that when loaded in a weapon and discharged, projects a special pellet in the burning state at a low velocity; thus the target material when contacted will not be disturbed, and though damp or wet, combustion will take place.

This application is a division of application Ser. No. 651,626, filed July 6, 1967, now Patent No. 3,401,633.

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

This invention relates to a fire cartridge for starting a fire under adverse circumstances or in inclement weather by an individual who may encounter such circumstances.

It is, therefore, the object of this invention to overcome such adversity by providing a charge adaptable to any shell casing that may be inserted in and fired from the barrel of any conventional hand weapon to attain combustion in the target material.

This special pellet may be modified to fit any type shell casing, completely fills the case and requires no other material. The powdered pellet material is readily mixed and formed prior to pressing in the cartridge case, wherein the pressing is accomplished by a hydraulic press utilizing a pressure of approximately 800 p.s.i. The precaution of water-proofing is adequately provided for by employing a standard glue or adhesive at the bottom of the shell casing before compressing the pellet in the shell casing and at the top of the casing the pellet is sealed by a waterproofing material.

The drawing illustrates any conventional cartridge casing 1 with a cap 2 and a primer 3 in the center of the cap 2. On the inside of the cap 2 a standard glue or adhesive 4 is applied as shown for reception of the pellet 5. The open end of the shell casing 1, after the pellet 5 has been pressed therein, is sealed with a waterproof composition 6.

The following fire starter formulations were devised to yield the desired characteristics and the percentages are by weight:

Composition No. 1

	Percent
Antimony sulphide	_ 5-15
Barium nitrate	_ 20-30
Lead styphnate	
Tetracine	
Magnesium oxide	_ 3-8
F33D	
(Ferric oxide, 51%; Zirconium, 49%).	

2

Composition No. 2

Barium nitrate	67-87
Red phosphorus	13-23
TNT	
Aluminum oxide	3–7

The pellet may be pressed into any shell casing that is selected to fit the barrel of the particular hand weapon chosen for this type of survival equipment. This method of igniting a fire has the advantage while insuring combustion of the target, material also is ejected at a velocity low enough is not to disturb or scatter the material to which it is directed.

This device will naturally be of great assistance to the individual that is lost or separated from companions for the purpose of initiating a fire regardless of the prevailing conditions whether it be for domestic or incendiary purposes.

I claim:

- 1. A pellet for a cartridge shell casing adapted when initiated to ignite a fire even in damp materials in which the composition of said pellet consists of 5-15% antimony sulphide, 20-30% barium nitrate, 3-8% lead styphnate, 3-8% tetracine, 3-8% magnesium oxide and 40-60% F33D (51% Fe₂O₃-49% Zr).
- 2. A method of igniting a fire even in damp material comprising:
 - Compressing a powdered pellet material in any conventional cartridge shell casing, the pellet comprising 5-15% antimony sulphide, 20-30% barium nitrate, 3-8% lead styphnate, 3-8% tetracine, 3-8% magnesium oxide, and a mixture of approximately equal parts of ferric oxide and zirconium,

firing the shell casing containing said pellet to propel the pellet at a low velocity from any hand gun suitable to the cartridge shell, and igniting the target material even if damp without displacing said target material.

- 3. The method of igniting a fire as in claim 2 wherein 40 the open end of the shell casing with the pellet material compressed therein is sealed with a waterproof composition
- 4. A cartridge for igniting a fire even in damp materials comprising a shell casing, a pellet disposed in said 45 casing, the composition of said pellet comprising 5-15% antimony sulphide, 20-30% barium nitrate, 3-8% lead styphnate, 3-8% tetracine, 3-8% magnesium oxide, and a mixture of approximately equal parts of ferric oxide and zirconium, means to seal the pellet within the shell casing, the composition of said pellet comprising 5-15% shell casing of a strength to propel the pellet from the casing in a burning state at a low velocity.

References Cited

UNITED STATES PATENTS

621,553	3/1899	Behr	102-32
2,375,742	5/1945	Kalil et al.	149-37
2,480,141	8/1949	King	149-28
2,640,770	6/1953	Magram	14937
2,887,370	5/1959	Donnard	14928
3,348,484	10/1967	Grandy	102-32
	2,375,742 2,480,141 2,640,770 2,887,370	2,375,742 5/1945 2,480,141 8/1949 2,640,770 6/1953 2,887,370 5/1959	2,375,742 5/1945 Kalil et al 2,480,141 8/1949 King 2,640,770 6/1953 Magram

BENJAMIN A. BORCHELT, Primary Examiner

65 JAMES FOX, Assistant Examiner

U.S. Cl. X.R.

102-28, 37, 90

PO-1050 (5/69)

UNITED STATES PATENT OFFICE CERTIFICATE OF CORRECTION

Patent No	3,457,860	Dated	July 29,	1969	
Inventor(s)_	RALPH H. ALLEN		**************************************		
	ertified that error appears d Letters Patent are hereby			-	
	line 50, "the composition to read and a primer		_	-	
				1	į
	SIGNED SEALI				
	NOV 1 8	1969		:	

(SEAL)

Attest:

Edward M. Fletcher, Jr.

Attesting Officer

WILLIAM E. SCHUYLER, JR. Commissioner of Patents