Patented Apr. 9, 1929. 1,708,187

UNITED STATES PATENT OFFICE.

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COMBUSTIBLE COMPOSITION.

No Drawing. Application filed January 18, 1926. Serial No. 82,120.

(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.

The subject of this invention is a combustible composition intended primarily for use in tracer projectiles for signalling, illuminating, or like purposes.

The principal object of the invention is to impart greater visibility, brilliance and luminosity to the combustible by using an element or elements which occur in abundance and which may replace other elements whose scarcity may assume serious proportions. I therefore propose to use zinc compounds either alone or in combination with other substances.

The zinc compounds may be used in the form of oxygen carriers, as zinc oxide, zinc peroxide, zinc nitrate, etc., or in the form of a fuel for decreasing the rate of burning of the mixture while at the same time increasing the brilliance as by using it in the form of zinc thicoyanate, zinc acetate, or zinc oxalate; or the zinc may be added merely in the form of an inert substance to increase the brilliance, as for example, zinc chloride, zinc sulphide, etc.

As an example of the use of zinc compounds in the form of oxygen carriers, the following formulæ are given:

	Parts.
Strontium nitrate	60
Zinc nitrate	40
Sodium oxalate	10
Sodium nitrate	8
Magnesium	46
Calcium resinate	28
Barium nitrate	60
Zinc peroxide	50
Barium oxalate	10
Sodium nitrate	8
Magnesium	34
Aluminum	12
Calcium resinate	30

The following formula is a typical example of the use of a zinc salt as a fuel.

	Parts.
Barium nitrate	15
Barium peroxide	12
Calcium resinate	12
Magnesium	20
Zinc thiocyanate	12

Of the use of a zinc salt as an inert substance for increasing the brilliance of the combustible, the following are examples:

	Parts.
Barium peroxide	20
Barium nitrate	2
Magnesium	7
Calcium resinate	3
Zinc chloride	2

and

	Parts.
Strontium nitrate	100
Zinc oxalate	10
Sodium nitrate	8
Magnesium	34
Aluminum	12
Calcium resinate	28
Zinc chloride	10

I claim:

1. A tracer mixture comprising magnesium, a metal resinate, a zinc compound and a suitable oxygen carrier.

2. A tracer mixture comprising magnesium, a resinous binder a zinc compound and a suitable oxygen carrier.

3. A tracer mixture comprising aluminum magnesium, a metal resinate, a zinc compound and a suitable oxygen carrier.

4. A tracer comprising aluminum, magnesium, a binder, a zinc compound and a suitable oxygen carrier.

5. A tracer composition including a highly combustible metal, a zinc compound and a metallic resinate binder.

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