

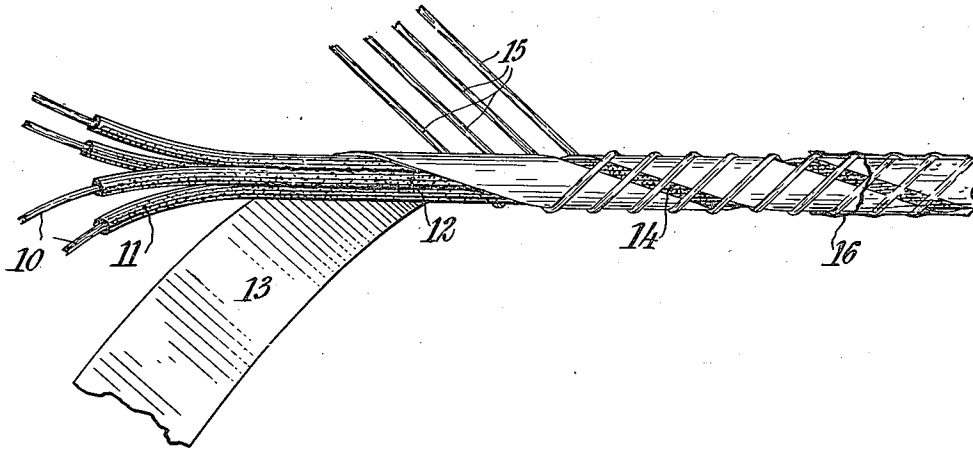
April 22, 1941.

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2,239,052

RAPID IGNITION DEVICE FOR USE WITH SAFETY FUSES OR THE LIKE

Filed March 16, 1939



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UNITED STATES PATENT OFFICE

2,239,052

RAPID IGNITION DEVICE FOR USE WITH
SAFETY FUSES OR THE LIKE

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Application March 16, 1939, Serial No. 262,145

5 Claims. (Cl. 102-8)

Our present invention relates to a fast-burning ignition device for the purpose of initiating a number of explosive charges in rapid succession.

The primary object of our invention is to provide such a device which will project a regulated flame of sufficient intensity from its surface while burning as to render it suitable for continuous or sequential igniting of safety fuses and similar burning media to which it may be connected at any point along its length. A further object is to insure in blasting, more especially in what is known as block hole blasting, a safe and simple method of igniting a number of safety fuses by the single application of a flame, glow or other source of heat at a given point, which may be located at any desired distance from the actual fuses, and thereby afford the shot-firer improved conditions of safety.

The foregoing and other objects of the invention not specifically enumerated, we accomplish by providing a flexible cord-like structure not exceeding one-eighth of an inch in diameter, which can be easily ignited and which will burn at the rate of not slower than five feet per second, which will be moisture-resistant, and be such as to be almost, if not entirely, consumed by the burning thereof. The invention will be better understood from the detailed description which follows, when considered in connection with the accompanying drawing, which shows a fractional side elevation of an ignition device embodying our invention, with parts thereof being broken away to better illustrate the constructional details thereof.

Referring to the drawing, the ignition device may be said to consist of a flexible cord-like structure composed of a plurality of textile yarns 10 of the proper size and surface texture to permit satisfactory application thereto of powder paste coatings 11. Preferably the yarns 10 are coated separately and processed in parallel longitudinally of the device to form a so-called core or powder train 12. The powder paste which constitutes the powder train of the device preferably consists of mealed black powder in a binder solution of nitrocellulose and suitable solvents and diluents in proper proportions. Lightly encompassing the powder train 12 is a protective tape covering 13 formed of paper, cloth, or other suitable material, which is spirally wound around the powder train allowing a continuous open space 14 between adjacent edges of the tape. A light counterering of textile yarns 15 engages around the tape to hold the same in place. The

resulting assembly is then coated with a suitable water-resistant coating 16.

The uncovered areas 14 defined by the edges of the tape are of definite width and determine the amount of flame that will be projected from the ignition device, as well as the burning speed of the same. We have found that the narrower the space the faster the ignition device will burn and the less will be the amount of flame projected from it.

More specifically, the ignition device hereinbefore described may be said to consist of a core structure of four strands of 15/4 ply cotton yarn coated and dried separately with a powder paste comprising mealed black powder and nitrocellulose in suitable solvent and diluents. The tape preferably consists of one-quarter inch Kraft paper applied spirally about the core, leaving a suitable gap between the spiral edges of the tape. The paper taped core is wound in a counterwise direction with strands of 16/1 ply cotton yarn, and the resulting structure finished with a coating of nitrocellulose lacquer or other suitable water-resistant substance.

Although we have shown and described a preferred embodiment of our invention it will be apparent that the concept underlying the same is of such character and scope as to permit variations in the specific constructions disclosed as well as within the powder composition mentioned, within the range of mechanical and engineering skill without departing from the spirit of the invention.

What we claim is:

1. An ignition device comprising a flexible powder train core, a covering for said powder train, said covering providing exposed areas of the powder train on the outer surface of the ignition device for the emission of a continuous flame from the device as it burns, the size and spacing of the exposed areas of the powder train serving to control the burning speed of the ignition device.

2. An ignition device according to claim 1, wherein the covering for the powder train comprises a tape spirally wound over the powder train to provide a relatively narrow spirally-extending exposed area of the powder train.

3. A flexible cord-like ignition device comprising a core composed of a plurality of substantially parallel-disposed textile yarns each having a powder coating individually applied to provide a powder train, a tape covering for the powder train so applied thereover as to leave exposed areas of the powder train between adja-

ent edges of the tape and a moisture-resisting coating encompassing the assembly.

4. A flexible cord-like ignition device comprising a powder train core composed of a plurality of substantially parallel-disposed textile yarns each having a powder coating individually applied, and a tape covering for the powder train spirally applied thereover as to leave exposed areas of the powder train between adjacent edges of the tape covering.

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5. A flexible cord-like ignition device comprising a core of rapidly combustible material and a covering for said core, said covering providing substantially uniformly spaced exposed areas longitudinally of the core surface of rapidly combustible material whereby the ignition device as it burns will project a regulated flame from its surface.

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