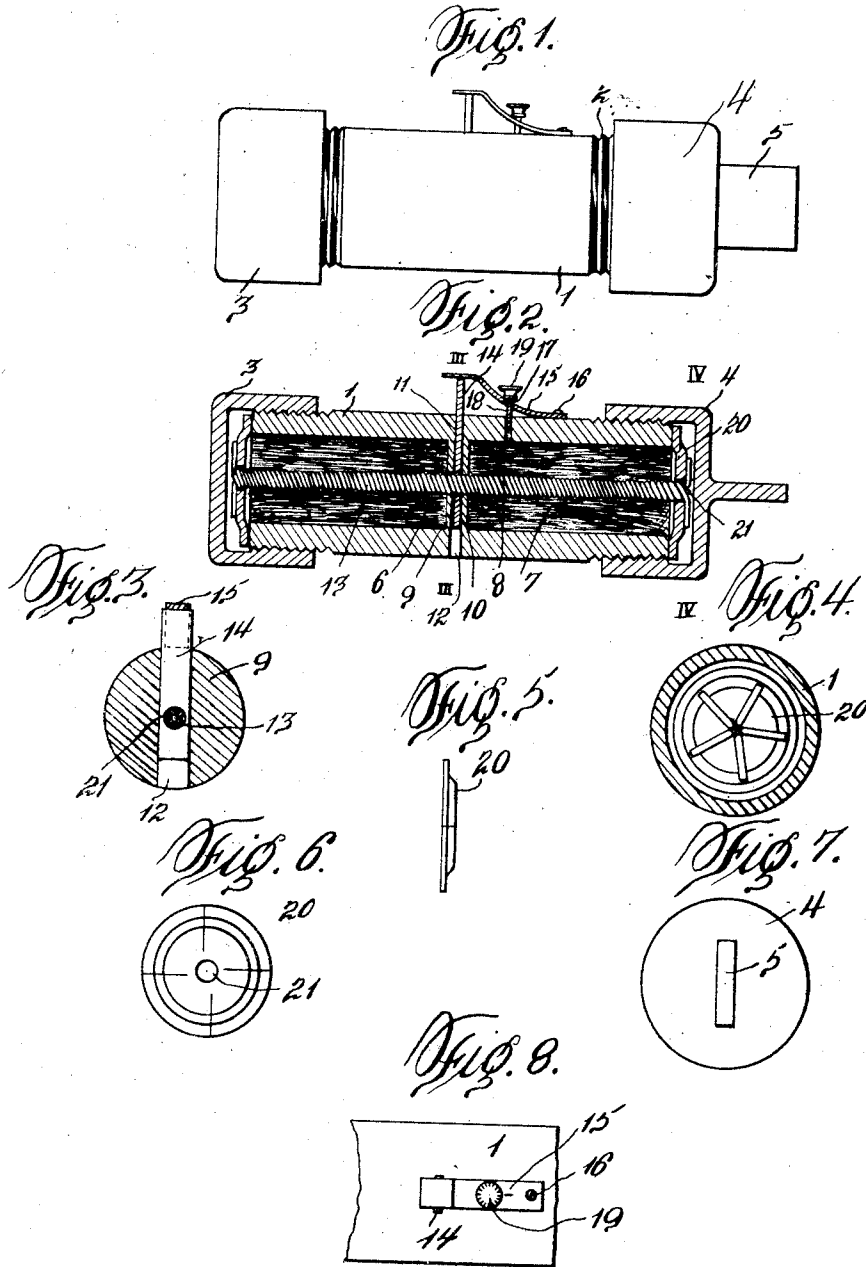


A. F. DAUM.
FUSE.
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1,005,517.

Patented Oct. 10, 1911.



WITNESSES
David C. Turner
E. A. Seiler

INVENTOR
A. F. Daum,
H. E. Evans, Jr.
Attorneys

UNITED STATES PATENT OFFICE.

ALBERT F. DAUM, OF PITTSBURGH, PENNSYLVANIA.

FUSE.

1,005,517.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ALBERT F. DAUM, a citizen of the United States of America, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Fuses, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention is an improvement upon my Patent No. 961,716, granted June 14, 1910.

Besides having the same objects in view as recited in my prior patent, the present invention has for its object to provide a fuse that is more durable, sensitive, and more readily adjusted for different voltage.

Another object of the invention is to provide a cartridge fuse in which the fuse will be normally retained under tension, whereby a weakening of the fuse due to an abnormal voltage will immediately cause the fuse to part.

A further object of the invention is to provide simple and effective means for retaining the fuse of a cartridge under tension and indicating when the fuse has been burned out.

A still further object of the invention is to provide a cartridge fuse with two compartments which will obviate the necessity of using a non-combustible and insulation material within the cartridge fuse.

I attain the above objects by a mechanical construction that will be hereinafter specifically described and then claimed, and reference will now be had to the drawing forming a part of this specification, wherein there is illustrated a preferred embodiment of the invention, but it is to be understood that the structural elements thereof are susceptible to such changes as fall within the scope of the appended claims.

In the drawing:—Figure 1 is a side elevation of the fuse, Fig. 2 is a longitudinal sectional view of the same, Fig. 3 is a cross sectional view of the fuse taken on the line III—III of Fig. 2, Fig. 4 is a similar view taken on the line IV—IV of Fig. 2, Fig. 5 is a side elevation of a resilient washer adapted to form part of the fuse, Fig. 6 is a front elevation of the same, Fig. 7 is an end view of a detached cap, and Fig. 8 is a plan of a portion of the fuse.

55 A fuse in accordance with this invention comprises a cylindrical shell or section of

tubing 1 made of a suitable non-conductive material, and having the ends thereof screw threaded, as at 2 to receive caps 3 and 4, said caps having the walls thereof threaded to screw upon the ends of the shell 1. The cap 4 is provided with a blade 5 whereby the cartridge fuse can be used in connection with a knife switch or blade contact. Located within the shell 1 is a non-combustible and insulation material 7, as soapstone, chalk, asbestos, etc., and extending through the material 7 are a plurality of strands of wire 8 wound together to constitute a fuse. The fuse extends through a longitudinal opening 6 provided therefor in a partition or web 9 arranged intermediate the ends of the shell 1, said partition or web dividing the shell into two compartments. The partition or web 9 has a lateral opening 10 alining with diametrically opposed openings 11 and 12 in the shell 1.

The fuse extends through an opening 13 provided therefor in a flat bar 14 arranged in the openings 10 and 11, the opening 13 registering with the longitudinal opening 6 of the partition or web 9. One wall of the opening 13 is normally held in engagement with the fuse 8 by a flat compression spring 15 having one end thereof bearing upon the outer end of the bar 14 and the opposite end thereof secured, as at 16 to the shell 1. The compression spring 15 is provided with an opening 17, and extending through said opening is a screw 18 detachably mounted in the shell 1, said screw having the outer end thereof provided with a head 19 to engage the compression spring 15 and limit the outward movement of said spring.

Arranged against the ends of the shell 1 within the caps 3 and 4 are dished slitted washers 20 having central openings 21 to receive the ends of the fuse 8, the wire composing said fuse having the ends thereof bent outwardly and radially disposed, as best shown in Fig. 4 to engage the outer sides of the washers 20. The resiliency of the washers 20 is adapted to hold the ends of the strands of wire composing the fuse, whereby the fuse will be retained in a taut position within the non-combustible and insulation material 7.

The bar 14 and the compression spring 15 constitute means whereby the burning out of the fuse can be readily detected without removing the caps thereof, and when said fuse does burn out, the tension of the flat

compression spring 15 forces bar 14 inwardly, thereby indicating that the fuse has been severed.

Since the fuse will be held under tension 5 by the spring pressed bar 14, a weakening of the fuse by an abnormal voltage causes the fuse to immediately snap, the broken or burned ends to drop into the compartments of the shell 1, the partition or web serving 10 functionally as an insulation, and it is in this connection that the non-combustible and insulation material can be dispensed with.

When the fuse 8 has been burned out, it is only necessary to remove the caps 3 and 4, 15 remove the ends of the fuse from the washers 20, pull outwardly on the bar 14 and insert a new fuse in the cartridge shell 1. The same can be fixed therein by bending the ends of the wires into engagement with the 20 washers and replacing the caps 3 and 4.

What I claim is:—

1. In a cartridge fuse, the combination with a shell of non-conductive material, and insulation filling the shell, a partition arranged intermediate the ends of said shell 25 and dividing said shell into two compartments, said partition having a lateral opening alining with openings in said shell, said partition having a longitudinal opening 30 formed therein, a bar movably mounted in the openings of said partition and said shell and projecting beyond the latter, said bar having an opening formed therein adapted to aline with the openings of said partition, 35 a fuse extending through the openings of said partition and said bar, means for holding the ends of said fuse, caps detachably mounted upon the ends of said shell, and means carried by and exteriorly of said 40 shell and engaging the projecting portion of the bar for normally holding the latter in engagement with said fuse.

2. In a cartridge fuse, the combination with a shell of non-conductive material, of 45 a partition arranged intermediate the ends of said shell and having a lateral opening alining with the openings in said shell, said partition having a longitudinal opening formed therein, a flat bar movably mounted 50 in the openings of said partition and said shell and projecting beyond the latter, said bar having an opening formed therein adapted to aline with the longitudinal opening of said partition, a fuse extending 55 through the openings of said partition and said bar, means for holding the ends of said

fuse, caps detachably mounted upon the ends of said shell, means carried by and arranged exteriorly of said shell and engaging the projecting portion of the bar to normally hold said bar in engagement with said 60 fuse, and means adjustable in said shell and adapted to regulate the last mentioned means.

3. A cartridge fuse including a shell of 65 non-conductive material, a partition arranged intermediate the ends of said shell and formed with a laterally-disposed opening, said shell having its wall provided with a pair of openings registering with the 70 ends of the opening in the partition, said partition further provided with a centrally-disposed longitudinally-extending opening communicating with said lateral opening, a bar movably-mounted in the openings of 75 said partition and shell and projecting from the latter, said bar having an opening formed therein adapted to aline with the said longitudinal opening, a fuse extending through said longitudinal opening and the 80 opening of the bar, and means carried by the exterior of the shell and engaging the projecting portion of the bar for normally holding the latter in engagement with the fuse.

4. A cartridge fuse including a shell of 85 non-conductive material, a partition arranged intermediate the ends of said shell and formed with a laterally-disposed opening, said shell having its wall provided with a pair of openings registering with the ends 90 of the opening in the partition, said partition further provided with a centrally-disposed longitudinally-extending opening communicating with said lateral opening, a bar movably-mounted in the openings of 95 said partition and shell and projecting from the latter, said bar having an opening formed therein adapted to aline with the said longitudinal opening, a fuse extending through said longitudinal opening and the 100 opening of the bar, and resilient means carried by the shell exteriorly thereof and engaging the projecting portion of the bar for holding the latter in engagement with the fuse, and means for adjusting the tension of 105 said resilient means.

In testimony whereof I affix my signature in the presence of two witnesses.

ALBERT F. DAUM.

Witnesses:

MAX H. SROLOVITZ,
E. A. SEFLER.