

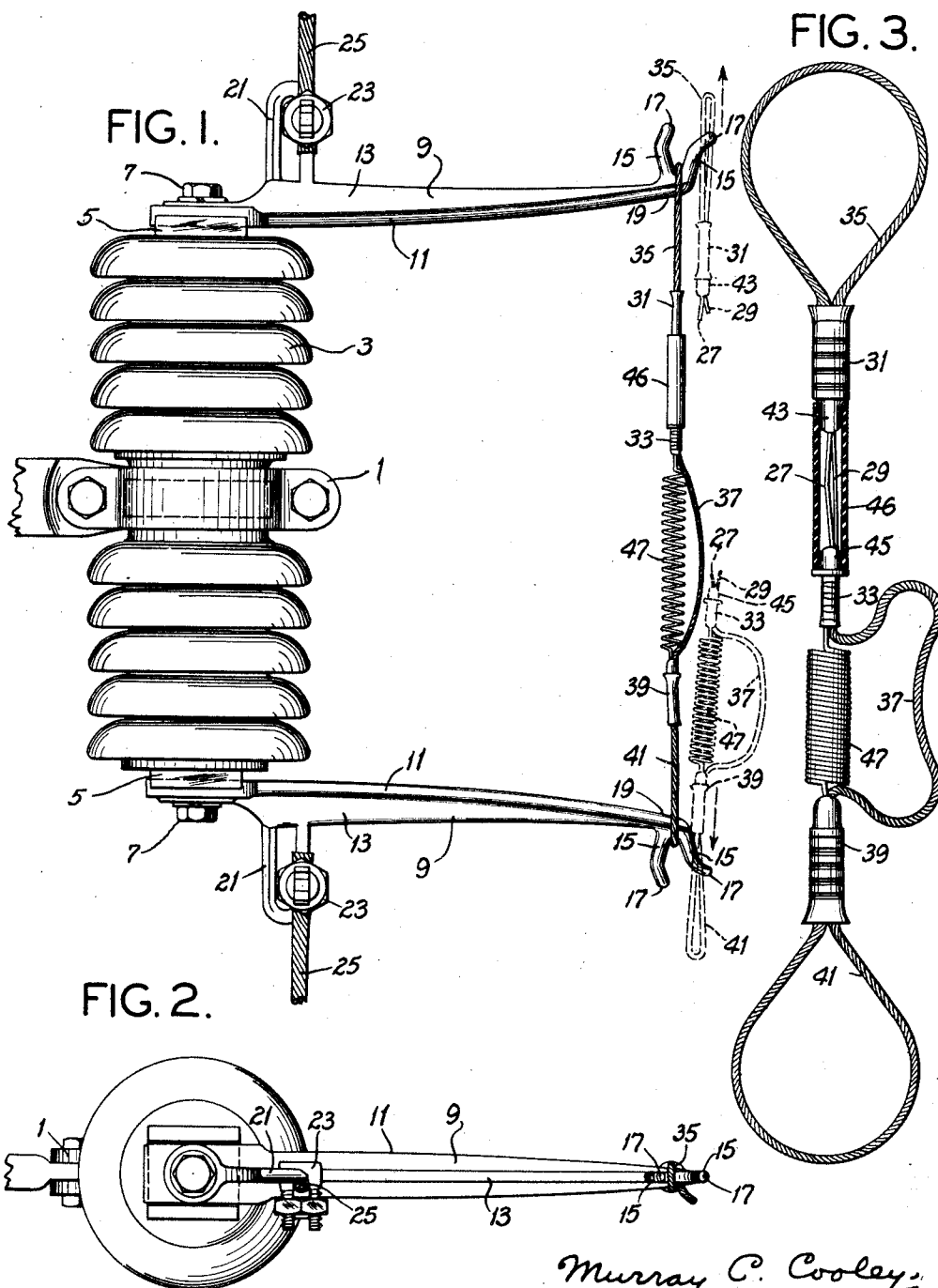
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FUSE

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2,215,321

FUSE

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6 Claims. (Cl. 200—117)

This invention relates to fuses, and with regard to certain more specific features, to open-type fuses.

Among the several objects of the invention 5 may be noted the provision of a very simple but reliable open-type fuse; the provision of a fuse of the class described in which a single means is used for holding a fuse link in position on its line terminals, for effecting separation after fusion 10 and for assisting thereafter in properly directing away from said line terminals the conducting elements which are used on opposite ends of the fusible element; and the provision of a fuse 15 of the class described which may readily be re-fused. Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly comprises the elements and combinations of elements, features of construction, and arrangements of parts 20 which will be exemplified in the structures hereinafter described, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawing, in which is illustrated one of various possible embodiments 25 of the invention,

Fig. 1 is a side elevation of my new fuse, the fuse link thereof being shown in solid lines in connected and conducting position, and in dotted 30 lines in a separated and non-conducting position;

Fig. 2 is a top plan view of the solid-line portions of Fig. 1; and,

Fig. 3 is an enlarged front view of a fuse link, 35 a certain tubular portion around the fusible element being shown in cross section for clarity.

Similar reference characters indicate corresponding parts throughout the several views of the drawing.

Referring now more particularly to Fig. 1, 40 there is shown at numeral 1 a bracket supporting an insulator 3. On the opposite ends of the insulator are affixed supporting blocks 5 to which conducting arms or horns 9 are bolted at 7.

The arms 9 are substantially rigid, preferably being brass castings of a T-section. Each T-section has a web 11 and a flange 13.

The rear portions of the ribs 13, near the insulator 3, are formed with eyes 21 for slidably receiving connector bolts 23 by means of which 50 line wires 25 may be brought into electrical connection with the line terminals 9.

At the outer end of each line terminal 9 is formed a pair of upstanding fingers 15. The 55 members of each pair of these fingers form be-

tween them a V-shaped notch, the open portions of which are directed away from one another as shown. The curved ends 17 of these fingers are directed forward away from the insulator 31 and line wires 25.

The line terminals 9 curve outward away from one another, as shown at numeral 19, the curves gradually continuing in the forms of the respective outer fingers 15.

The fuse link for conducting the line terminals 9 is shown in enlarged detail in Fig. 3 and consists of a fusible portion consisting of a melting section 27 and a strain wire 29. These are joined to an upper flexible conductor loop 35 by means of a conducting crimped thimble 31. 15 They are also joined to a lower flexible conductor 37 by means of a conducting crimped thimble 33. The conducting sleeves or thimbles 31 and 33 are crimping means which serve to hold together the elements 27 and 29 and to place them 20 in electrical conducting relationship with the upper loop 35 and a lower flexible shunt wire 37.

The lower flexible wire 37 is in turn held by a crimping thimble 39 which places the flexible conductor 37 in electrical communication with 25 a lower flexible conductor loop 41. The loops 35 and 41, as well as the shunting portion 37 are preferably made of flexible, stranded wire. However, the loops 35 and 41 may be rigid.

The crimping sleeves 31 and 33 are provided 30 with guides 43 and 45 respectively upon which is separably supported an insulating sleeve 46 composed of a material such as fiber.

The crimping thimbles 33 and 39 besides holding the flexible conducting wire 37, also hold the 35 ends of a tension spring 47. The parts of the fuse link are so arranged that the ends of the loops 35 and 41 are normally closer together than the fixed distance between the bottoms of the notches between the fingers 15. 40

To apply the fuse link of Fig. 3 to the construction shown in Fig. 1, the loop 35, for example, is placed in the V-notch between the fingers 15 of the upper line terminal 9. If necessary, this may be done by supporting the loop 35 on the 45 ball-point of a lineman's hook stick and hooking the loop 35 over the upper line terminal.

Then the ball-point of the hook stick may be placed within the lower loop 41 and said loop pulled down into engagement with the lower V- 50 notch between the lower fingers 15 on the lower line terminal 9. This stretches the spring 47, the flexible shunt wire 37 accommodating itself in form. Therefore, when the hook stick is released from the loop 41, the condition prevails 55

such as shown in full lines in Fig. 1. At this time the spring 47 is stretched, the flexible wire portion 37 is extended, and the strain wire 29 is in tension.

5 Upon an overload, the fusible section 27 and the strain portion 29 separate. Since the sleeve 46 is simply slidable on the supports 43 and 45, the spring 47 pulls down the lower crimping member 33. This involves release of the separating
10 reaction which, by rebound, drives the opposite ends of the fuse links more or less into the dotted line position shown in Fig. 1, wherein both the loops 35 and 41 may leave the notches between the pairs of fingers 15. Permanent separation
15 of both the upper and lower portions of the link from the line terminals 9 is facilitated by the sloping portions 19 which when stuck by the separating fuse link fragments deflect these forwardly and away from the insulator 3 and consequently away from the line wires 25. The outward curved forms of the ends 17 of the fingers
20 15 also facilitate this forward direction of motion. The lower fuse link fragment certainly drops to the earth, and the upper one may also
25 do so.

It will be understood that not always is there enough reaction to drive the upper lighter fragment of the fuse link entirely from the upper notch. However, in any event, it is never driven
30 toward the line wire 25, and even though it should settle back into position in the notch, its location there is harmless.

All of the tension used in providing the reaction for separating the fuse link fragments is provided by the spring 47 and substantially none is provided by the relatively rigid line terminal
35 9. The result is a structure of great simplicity and economy.

It is to be understood that the application of the fuse link may be inverted, that is, the loop 41 may be applied uppermost. In this event, the parts function inversely as above described. Either mode of application is satisfactory.

The loops 35 and 41 constitute hooking means
45 which have various mechanical equivalents, such as open rigid hooks and the like. Mechanical equivalents of the curved fingers 15 for forming notches may also be conceived. In the inverted mode of application, there is a somewhat better
50 chance of the loop 41 leaving the upper notch, because of the kinetic energy in the then upwardly moving spring 47. In this case, the relatively light portions of the loop 35 fall away by gravity from the lower notch.

55 In view of the above, it will be seen that the

several objects of the invention are achieved and other advantageous results attained.

As many changes could be made in the above constructions without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawing, shall be interpreted as illustrative and not in a limiting sense.

I claim:

1. A fuse comprising substantially rigid line terminals laterally directed with respect to gravity and having oppositely located link-receiving notch portions, one terminal being above the other, a fuse link having hooking means for attachment over said link-receiving notch portions, said fuse link including a tensioning element therein.

2. A fuse comprising substantially rigid oppositely located line terminals, said terminals being curved away from one another toward their ends, a fuse link, means substantially at the ends of said link for hooking said fuse link over the terminals, and a tensioning spring in said fuse link.

3. A fuse comprising substantially rigid oppositely located line terminals, said terminals being curved away from one another toward their ends, said ends having open notches directed away from one another, a fuse link, means substantially at the ends of said terminals for hooking said fuse link over the terminals at the notches, and a tensioning spring in said fuse link.

4. A fuse comprising substantially rigid line terminals curved away from one another, fingers on the ends of said line terminals forming V-shaped notches which open away from one another, a fuse link comprising end means for hooking into said notches respectively, fusible means between said hooking portions, a tension spring in said fuse link, and a loose flexible conducting portion shunting said spring.

5. A fuse comprising substantially rigid line terminals, said terminals being oppositely located, a fuse link comprising endwise eyes of a conducting material, said eyes being respectively applicable to said line terminals, a fusible portion and a loose flexible portion serially connected between said conducting eyes, and a tension spring shunted by said loose flexible conducting portion.

6. A fuse link comprising endwise eyes composed of conducting material, a fusible portion and a loose flexible portion connected in series and between said conducting eyes, and a tension spring which is shunted by said loose flexible conducting portion.

MURRAY C. COOLEY. 55

DISCLAIMER

2,215,321.—*Murray C. Cooley*, University City, Mo. FUSE. Patent dated September 17, 1940. Disclaimer filed October 15, 1942, by the assignee, *W. N. Matthews Corporation*; the patentee assenting and concurring.

Hereby disclaims claim 6 from said patent.

[*Official Gazette November 10, 1942.*]

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