

June 18, 1957

T. BARNES
FIRE FUSE LINK

2,796,494

Filed March 5, 1956

Fig. 1.

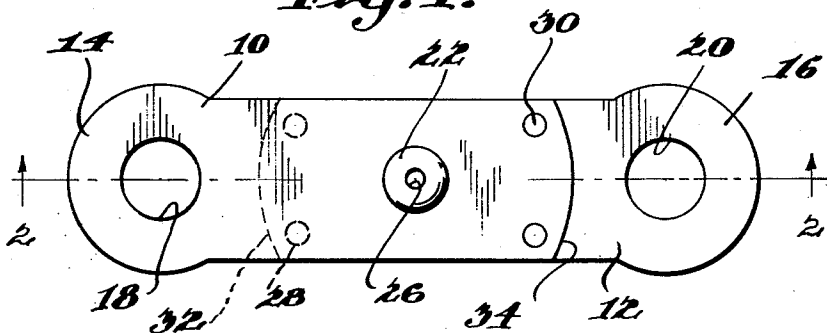


Fig. 2.

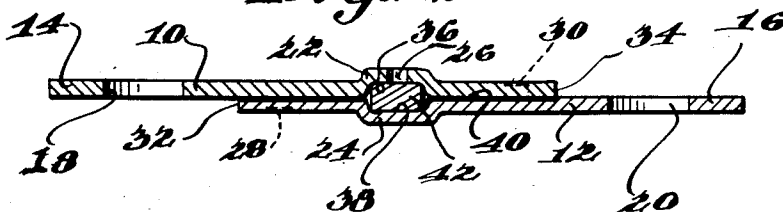


Fig. 3.

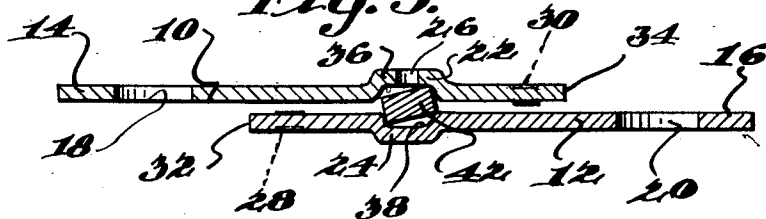
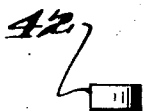


Fig. 4.



Fig. 5.



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2,796,494

FIRE FUSE LINK

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Application March 5, 1956, Serial No. 569,574

9 Claims. (Cl. 200—142)

This invention relates to fire fuse links, particularly to the connecting solder type which will melt in a predetermined time, a predetermined temperature and at a predetermined pressure or force.

The subject invention has many uses as key lock kick-out for fire fuse sprinklers, duct work systems, in fact in any given location, wherever a temperature responsive circuit closer is required for home or building to increase the security of the occupants and users of the home or building. Obviously, the present apparatus may function to operate a sprinkler system or any of the many types of alarms.

The present invention is primarily designed for use with a switch box having a built-in momentary contact, spring loaded to Off position and having an easily removable cover for ready access to the wiring without the necessity of dismantling the fuse link or the switch assembly.

It is contemplated that the approved type of bonding material be used that meets the requirements of the Bureau of Standards for the melting point of materials, metals or waxes, at the standard or accepted conditions established by their code standards, namely tests in accepted 212 and 32 degrees Fahrenheit or in the equivalent centigrade scale.

With respect to other material qualifications, the connecting links have been tinned electrolytically for better solder adhesion and increased corrosion resistance. The solder may be of two types that will melt at 135 or 165 degrees Fahrenheit.

In addition to the above noted uses, the link is also adapted for important utilization in connection with attic fan shutters, doors, as well as with conventional warning devices.

It is an object of my invention to provide a connecting link for operating circuit closers at a predetermined temperature.

Another objective is to provide an overlapping connecting link that will hold any specified strength, weight or pull, dependent upon the size link used.

A further object is to arrange for the link melting point at the desired temperature through the use of approved bonding material, metallic or otherwise.

An additional object is to provide a connecting key lock construction which will enable an immediate and positive jacking action with respect to the overlapping link members and the loosely contained key lock.

These and other objects made apparent during the further progress of the specification are accomplished by means of the apparatus described herein; a full and complete understanding of my invention being facilitated by reference to the drawings herein, in which,

Figure 1 is a top plan view of the connecting link.

Figure 2 is a sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a similar sectional view taken at the time of the separation of the two overlapping members.

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Figure 4 is a plan view of the cylindrical key, while Figure 5 is an end view of the same.

In the drawings where like reference characters denote like parts, the connecting fire fuse link comprises two overlapping electrolytically tinned members 10 and 12. The specific material used is yellow brass, .062 inch thick, which are tin plated before assembly. The opposed outer ends 14 and 16 are of general circular formation and are provided with central apertures 18 and 20.

The aperture 18 is adapted to be received on a threaded post of a switch box assembly, not shown, while the aperture 20 is engaged by a switch lever opposed from said post. The members 10 and 12 have reversed raised circular portions 22 and 24 while only the circular portion 22 has an opening 26 which serves as a gas vent. It is to be noticed that the overlapping members 10 and 12 have reversed embossments 28 and 30 in the semi-circular ends 14 and 16 while the inner ends of the members are curved at 32 and 34.

In Figures 2 and 3 it will be observed that companion half-pockets 36 and 38 are formed by the reversed raised central portions. Interposed between the two overlapping members 10 and 12 is a strip of solder film 40, from .002 to .004 inch in thickness, terminating at the opposed ends 32 and 34. Adapted to be encased in the formed pocket 36—38 is a loosely contained slug or key 42, preferably cylindrical.

The fire fuse link is tinned electrolytically for better solder adhesion and increased corrosion resistance. The solder is to be made in two types, one melts at 135 degrees Fahrenheit, which is required by some States; the other melts at 165 degrees, Fahrenheit, a requisite in the majority of states and is considered to be acceptable for all service use such as on fans and blowers.

It can also be appreciated the switch utilized may be designed for "On-loaded" purposes for use in connection with fire alarms, signal lights, signal bells and other safety mechanisms. Due to the uses of the specific fuse link with the suggested type of switch in this development a faster acting operation has been accomplished.

There is no lag or delay when temperature has reached the melting point of the solder and the "jacking action" of the small cylindrical key obtained springs apart the two halves of the fuse link. This resultant action is clearly defined in Figure 3 where the key or slug is shown tilted with the two previously fused halves of the link separated. It can be understood that when the present device is subjected to tension the relatively longitudinal movement of the members is converted into transverse separation of the two half sections. Because of this and the abutting relationship of the two members with the loosely contained key or slug the tilting or jacking action is accomplished.

From the above it will be apparent that the strip of solder film is designed to melt at a predetermined temperature and pressure and at a predetermined time. The connecting link may be constructed to hold any specified strength, weight or pull, dependent upon the size used.

The melting point temperature effectiveness is acquired by using approved Bureau of Standards bonding material, metallic, waxes or otherwise in accordance with their established standards, namely 212 or 32 degrees Fahrenheit, or equivalent centigrade scale. The subject link adapted to be actuated by the temperature under standard conditions has the approval of the Underwriters' Laboratory, such approval given at 135 and 165 degrees Fahrenheit.

In addition to operation in connection with attic fan shutters and switches, the link is adaptable for use on duct work, doors and conventional safety warning de-

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vices, or wherever time operation of the devices is required and manual replacement is involved.

Various changes and modifications may be made in the size, shape and arrangement of the connecting fire fuse link without departing from the spirit of the invention or scope of the appended claims.

What is claimed is:

1. A connecting fuse link subjected to tension comprising two overlapping members fusibly connected and means between said members for jacking apart said members upon fusing of said fusible connection while said members are subjected to tension, and means comprising reversed raised central portions on said members whereby a pocket is formed adapted to receive a key.

2. A connecting fuse link subjected to tension comprising two overlapping members fusibly connected and means between said two members for converting relatively longitudinal movement of said members into transverse separation thereof upon fusing of said fusible connection while said members are subjected to tension, said means comprising reversed raised central portions on said members whereby a pocket is formed adapted to receive a key, and said key being approximately of the same formation as the inner walls of said pocket whereby said key may be loosely received therein.

3. A connecting fuse link subjected to tension comprising two overlapping members fusibly connected and means between said members for jacking apart said members upon fusing of said fusible connection while said members are subjected to tension, means comprising reversed raised central portions on said members whereby a pocket is formed adapted to receive a key, and said key being approximately of the same formation as the inner walls of said pocket whereby said key may be loosely received therein.

4. A connecting fuse link subjected to tension comprising two overlapping members fusibly connected and means between said two members for converting relatively longitudinal movement of said members into transverse separation thereof upon fusing of said fusible connection while said members are subjected to tension, said means comprising reversed raised central portions on the outer surfaces of said members whereby a pocket is formed, a loose key received therein, said key adapted to tilt and in abutment with said two members.

5. A connecting fuse link subjected to tension comprising two overlapping members fusibly connected and means between said two members for jacking apart said members upon fusing of said fusible connection while said members are subjected to tension, said means com-

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prising reversed raised central portions on the outer surfaces of said members whereby a pocket is formed, a loose slug received therein, said slug adapted to tilt and in abutment with said two members.

6. A connecting fuse link subjected to tension comprising two overlapping members fusibly connected and means between said two members for converting relatively longitudinal movement of said members into transverse separation thereof upon fusing of said fusible connection while said members are subjected to tension, and said means comprising reversed central portions raised above the plane of the respective outer surfaces of said members whereby a pocket is formed to receive a key, and a gas vent disposed in the raised portion of the upper overlapping member.

7. A connecting fuse link subjected to tension comprising two overlapping members fusibly connected and means between said members for jacking apart said members upon fusing of said fusible connection while said members are subjected to tension, means comprising reversed raised central portions on said members whereby a pocket is formed adapted to receive a tiltable key, and a gas vent disposed in the raised portion of the upper overlapping member.

8. A connecting fuse link subjected to tension comprising two overlapping members fusibly connected and means between said two members for converting relatively longitudinal movement of said members into transverse separation thereof upon fusing of said fusible connection while said members are subjected to tension, and spaced embossments formed in the opposed ends of said members whereby better clearance of said fusible connection is maintained.

9. A connecting fuse link subjected to tension comprising two overlapping members fusibly connected and means between said two members for converting relatively longitudinal movement of said members into transverse separation thereof upon fusing of said fusible connection while said members are subjected to tension, said means comprising reversed central portions raised above the plane of the prospective outer surfaces of said members whereby a pocket is formed adapted to receive a key, and spaced embossments formed in the opposed ends of said members whereby better clearance of said fusible connection is maintained.

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