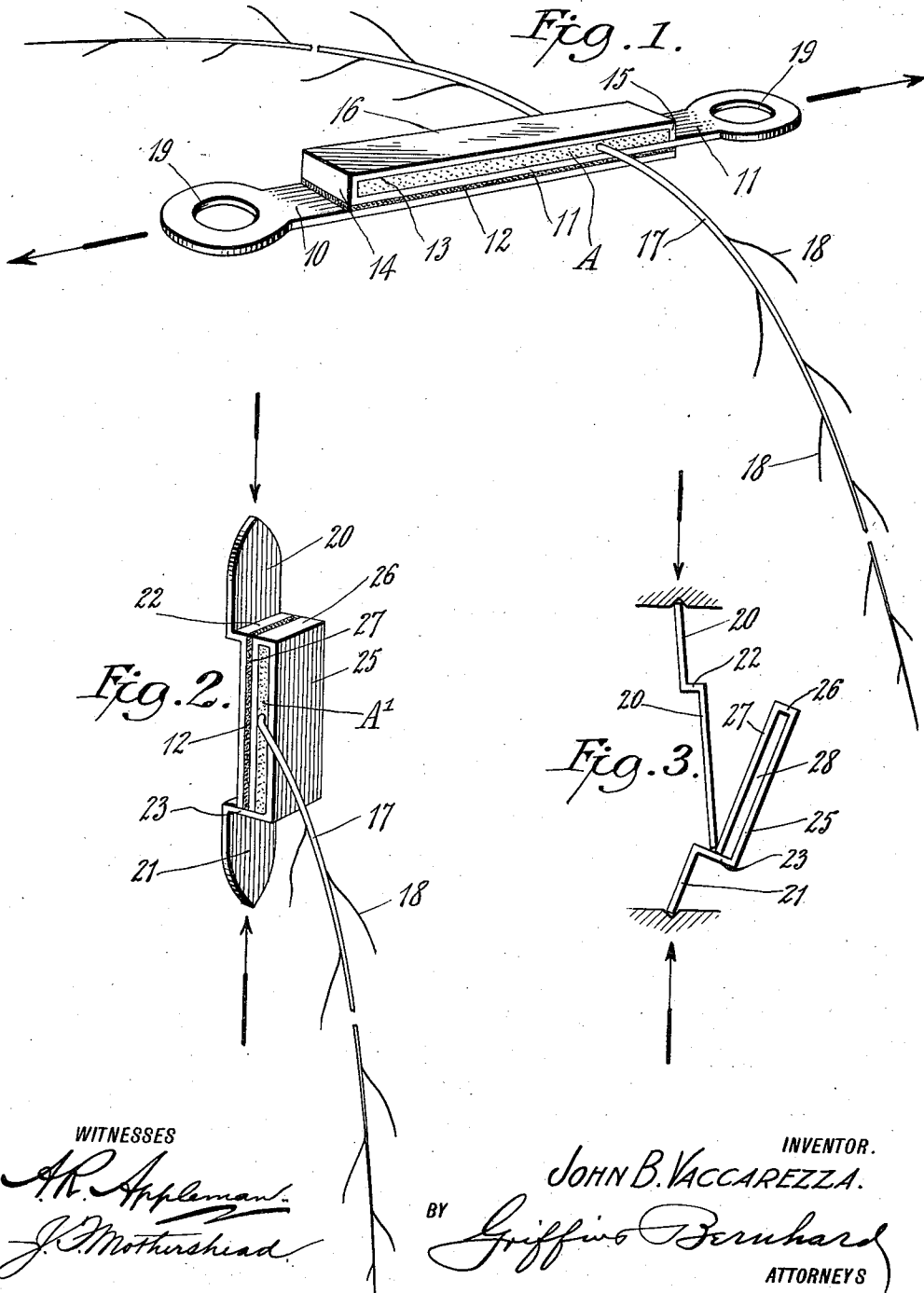


J. B. VACCAREZZA.
FUSIBLE LINK.
APPLICATION FILED JULY 25, 1911.

1,014,677.

Patented Jan. 16, 1912.



WITNESSES
A. R. Appleman
J. P. Motherhead

INVENTOR.
JOHN B. VACCAREZZA.
BY *Griffith Bernhard*
ATTORNEYS

UNITED STATES PATENT OFFICE.

JOHN B. VACCAREZZA, OF SPRING LAKE, NEW JERSEY.

FUSIBLE LINK.

1,014,677.

Specification of Letters Patent.

Patented Jan. 16, 1912.

Application filed July 25, 1911. Serial No. 640,385.

To all whom it may concern:

Be it known that I, JOHN B. VACCAREZZA, a citizen of the United States, residing in Spring Lake, county of Monmouth, and State of New Jersey, have invented a certain new and useful Fusible Link, of which the following is a specification.

This invention is a fusible element adapted more particularly for use in connection with fire extinguishing mechanisms of one form or another. In one form of the invention, it is embodied in a fusible link such as are used in connection with the chains of windows, etc., whereas in another embodiment of the invention it is adapted for use in connection with a valve of a liquid extinguishing system.

Broadly stated, the invention is a fusible element, such as a link, provided with an inflammable heat generating medium as an integral part of such element, said heat generating medium being ignitable by the action of a fuse, the heat generated by the combustion of such medium being applied directly to the parts of the fusible element or link so as to quickly melt or dissolve the film of solder which unites the components of the link or fusible element.

Specifically stated, the invention comprises a link the parts or members of which are retained in operative position relative to each other by a film of solder which is fusible at low temperature, a chamber or pocket on one of the link members and in coöperative relation to the parts thereof which are united by the solder, said chamber or pocket being adapted to contain an inflammable heat generating material, and a fuse extending from said chamber or pocket for the purpose of igniting the inflammable material within the pocket or chamber, thereby quickly heating the parts of the link to such a degree of temperature as will result in melting the solder of the link.

In the accompanying drawings, I have illustrated different practical embodiments of the invention, but the constructions shown therein are to be understood as illustrative, only, and not as defining the limits of the invention.

Figure 1 is a perspective view of a link embodying the invention, said link being adapted for use in conjunction with a chain, and wherein the parts of the link are separated by a pulling strain. Fig. 2 is a per-

spective view of a link for use in connection with automatic sprinklers and the like, wherein the link is broken by the members being forced toward each other. Fig. 3 is an edge view of the link shown in Fig. 2, the parts being in the act of separating under pressure applied to the link in the direction of the arrows.

The link shown in Fig. 1 is adapted to be used in connection with a chain, or other device which exerts a pulling strain upon the respective ends of the link sections or members so as to separate the latter when the parts thereof are sufficiently heated to melt the retaining solder. Said link is composed of two parts or members 10, 11 which are joined together for the greater portion of their length by a solder fusible at a low temperature, indicated at 12. Member 11 of the link is provided with a pocket or chamber 13, which may be produced therein by any suitable construction. In the drawings, the chamber is shown as being open at the sides, and said chamber is produced by doubling the member 11 upon itself at 14, and forming its other end with the inturned shoulder 15, said doubled end 14 and shoulder 15 supporting the wall 16 in parallel relation to the link member 11, but out of contact therewith, except where the inturned shoulder 15 engages with said member. This construction of the link member produces a chamber wherein the parts 11 and 16 serve as the front and rear walls respectively of the chamber, and the shoulders 14 and 15 close said chamber at the ends, leaving the sides thereof open. A suitable inflammable material A is contained within this chamber 13, the material being, preferably, an intense heat producing substance, such for example as celluloid, or celluloid composition. In a preferred form, the link is provided with an inflammable ignition means extending from the chamber, said ignition means being in the form of a fuse 17, said fuse being composed of a celluloid filament, or other appropriate material, and provided with loose strands 18, preferably integral with the fuse 17. The fuse 17 depends loosely from the link for a suitable distance, and it is free to swing or sway in the air for the purpose of increasing the chances of the fuse to become ignited by fire. The respective members 10, 11 of the link are provided with eyes

19, whereby the link may be secured to the device to which it is to be applied, as to a chain for fire proof doors, windows, and the like.

5 In operation, the link resists the strain or pull of the chain so that the link will remain intact, but should a fire occur adjacent to the link, the flames will ignite one or more loose strands 18 of fuse 17, which in
10 turn will ignite the inflammable material A within the chamber 13. This material will burn comparatively quickly so as to generate heat in immediate contact with wall 11 of the chamber, thereby resulting in quick
15 dissolution of the solder. The strain upon the link in the direction of the arrows causes the members to separate, and thereby release the chain for the purpose of closing the fireproof window or door.

20 In Figs. 2 and 3, the invention is illustrated as a link which is designed to retain the supply valve of an automatic sprinkler in a normally closed position, the parts of said link being subjected to stress or strain
25 applied in a direction to force the members toward each other instead of away from each other, as in the link of Fig. 1. The link illustrated in Figs. 2 and 3 comprises cooperating members 20, 21, of which the
30 member 20 is bent to form a shoulder 22 intermediate its ends. Member 21 is provided with a shoulder 23, against which rests one end of member 20. Member 21 is provided, also, with a pocket or chamber which
35 is preferably formed by bending the member to produce the outer wall 25, the closed end 26, and the inner wall 27, the end of the inner wall 27 contacting with shoulder 23, thereby forming a chamber 28, similar to
40 the chamber 13 of Fig. 1. The two members are retained in operative position by solder 12, fusible at low temperature, said solder being between the member 20 and the wall 27 of member 21, as illustrated in Fig. 2.

45 Suitable inflammable heat generating material, indicated at A' in Fig. 2, is positioned within the pocket, and a filament or fuse 17 cooperates with said inflammable material for the purpose of heating the wall 27 of the
50 chamber to a sufficient degree to melt the solder 12, whereupon the pressure applied to said link in the direction of the arrows in Figs. 2 and 3 will force the members of the link toward each other, the end of member 20 bearing against the shoulder 23 of
55 member 21 in a manner to deflect said member 21 away from engagement with member 20, thereby disrupting the link and permitting the valve to be opened.

60 Assuming that the link of Fig. 2 is applied to an automatic sprinkler, should a conflagration occur near the sprinkler, one or more of the loose strands 18 will become ignited by the flames and they will commu-
65 nicate the flame to the filament or fuse 17,

thereby immediately igniting the inflammable material A'. The combustion of this material will quickly heat wall 27, and thereby soften or melt solder 12 between said wall and member 20. As the pressure of
70 water against the valve of the sprinkler causes the parts of the link, when under normal conditions, to resist strain in the direction of the arrows of Figs. 2 and 3, it is obvious that when the solder is softened or
75 melted the members of the link will be forced apart, for the reason that the end of member 20 bears against a shoulder 23 of member 21 in a line which is at one side of the vertical axis of the link, the result of
80 which is to force the member 21 away from member 20 when pressure is applied at the respective ends of the members.

In both forms of the device herein shown, it will be observed that one or more sides of
85 the chamber are open, thereby exposing the inflammable material directly to the action of flames of a conflagration, the said material being ignitable either directly by the flames or by the action of the fuse.
90

Having thus fully described the invention, what I claim as new, and desire to secure by Letters Patent is:—

1. A fusible link comprising a plurality of members united by a material fusible at
95 low temperature, a heat generating material supported or carried by the link intermediate the ends thereof, said heat generating material being positioned directly at the fusible material which unites the link mem-
100 bers, and an inflammable fuse in communication with the heat generating material, the fuse being free or unconfined for substantially its length.

2. A fusible link comprising two mem-
105 bers, said members being connected by a solder positioned between the meeting faces thereof, one of said members being provided with means for retaining a combustible heat generating material adjacent to the meeting
110 faces of said members, the combustion of which material is adapted to soften the fusible connection, and an inflammable fuse in communication with the heat generating material, the fuse being free or unconfined
115 for substantially its length.

3. A link embodying a plurality of members united by a solder which is fusible at low temperature, one of said members being
120 provided with a chamber, and a heat generating substance positioned within the chamber and adapted by its combustion to heat the walls of said chamber for the purpose of melting the solder.

4. A link comprising a plurality of mem-
125 bers united by a solder fusible at low temperature, a chamber adjacent the united parts of the link, a heat generating substance contained within said chamber and adapted by its combustion to melt the solder uniting
130

said members, and a fuse depending from said link and cooperating with the substance within the chamber.

5 5. A link comprising a plurality of members united by a solder fusible at low temperature, one of said members being provided with a chamber, and an inflammable heat generating material within said chamber whereby the link may be heated to soften
10 the solder between the members thereof.

6. A link comprising a plurality of cooperating members, one of said members being bent to form a chamber, said members being united along one wall of said chamber by a solder fusible at low temperature,
15 an inflammable heat generating material within said chamber, and a fuse depending from said link and cooperating with said inflammable material.

20 7. A link comprising a plurality of cooperating parts united by a solder fusible at low temperature, a chamber within one of said parts, said chamber being open at the

sides, and an inflammable heat generating material positioned within said chamber, 25 the edges of said inflammable material being exposed through the open sides of the chamber to the action of a flame.

8. A link comprising a plurality of cooperating parts united by a solder fusible 30 at low temperature, a chamber provided in one of said parts, an inflammable heat generating material within said chamber, and a fuse depending from said link and cooperating with said inflammable material, 35 said fuse being provided with a plurality of igniting strands united at intervals to the body of said fuse.

In testimony whereof I have signed my name to this specification in the presence of 40 two subscribing witnesses.

JOHN B. VACCAREZZA.

Witnesses:

JOHN W. GOSLING,
OTTO M. MORRIS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."