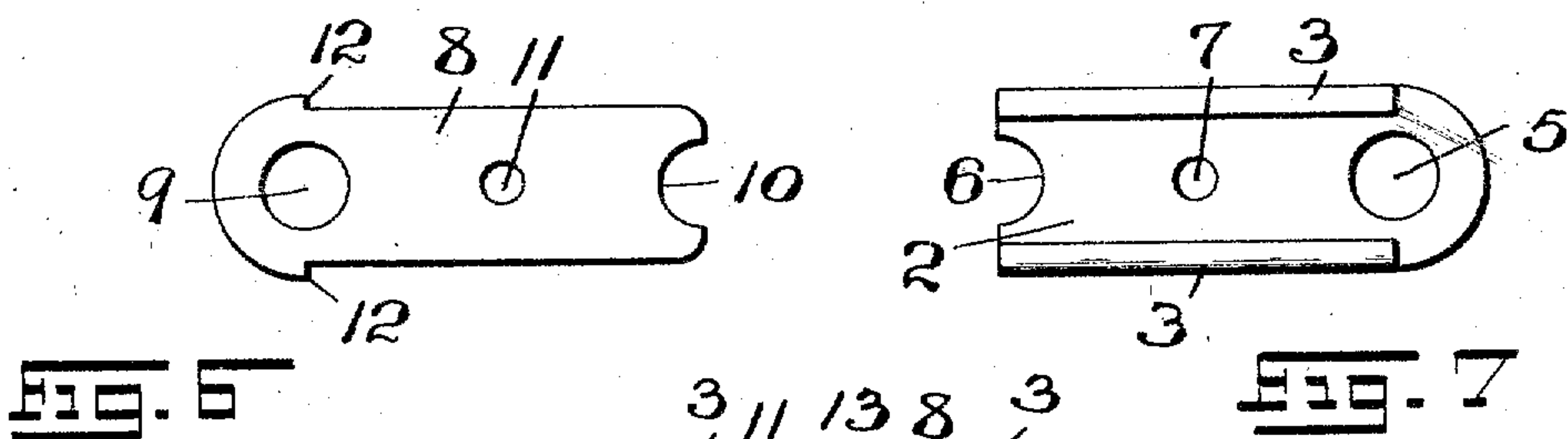
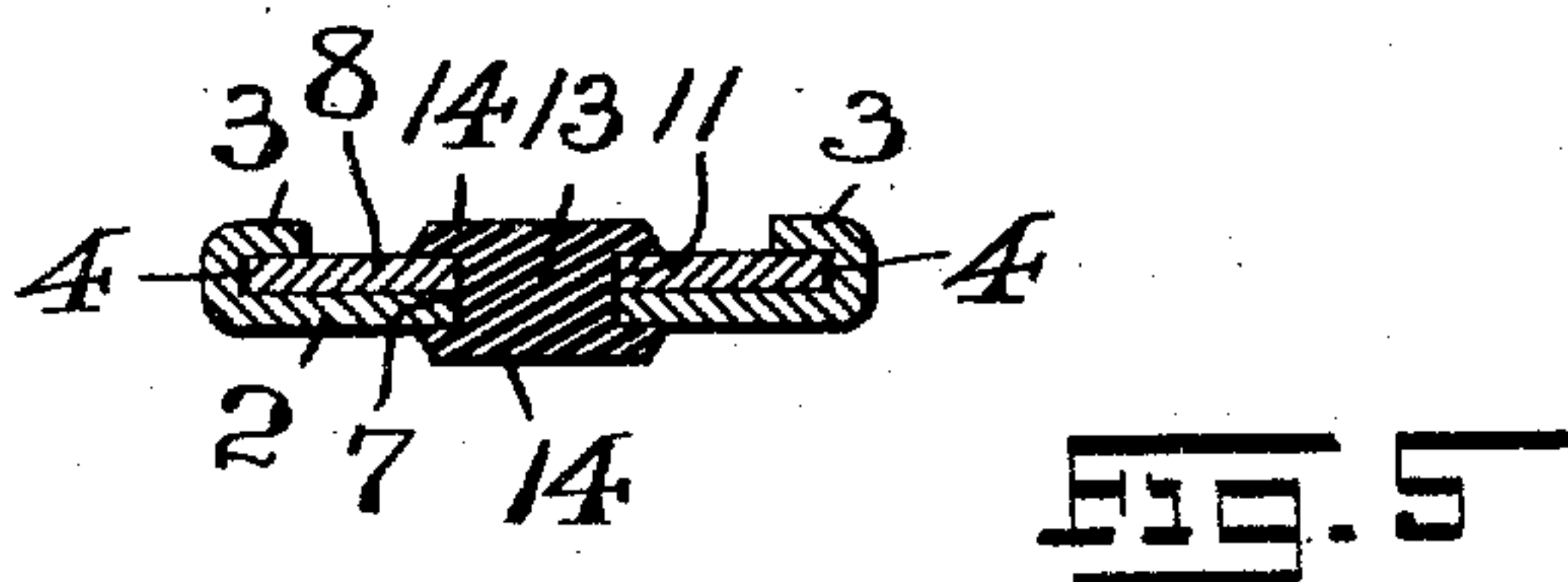
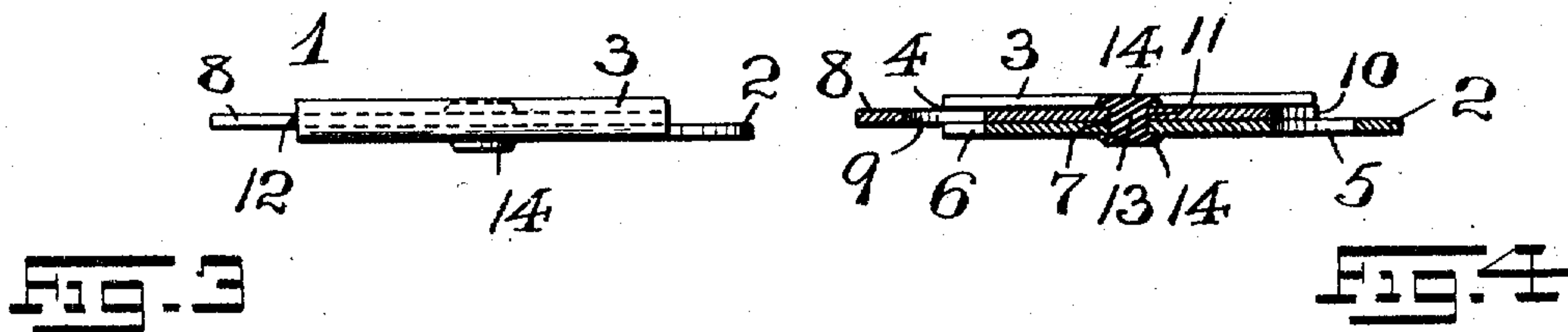
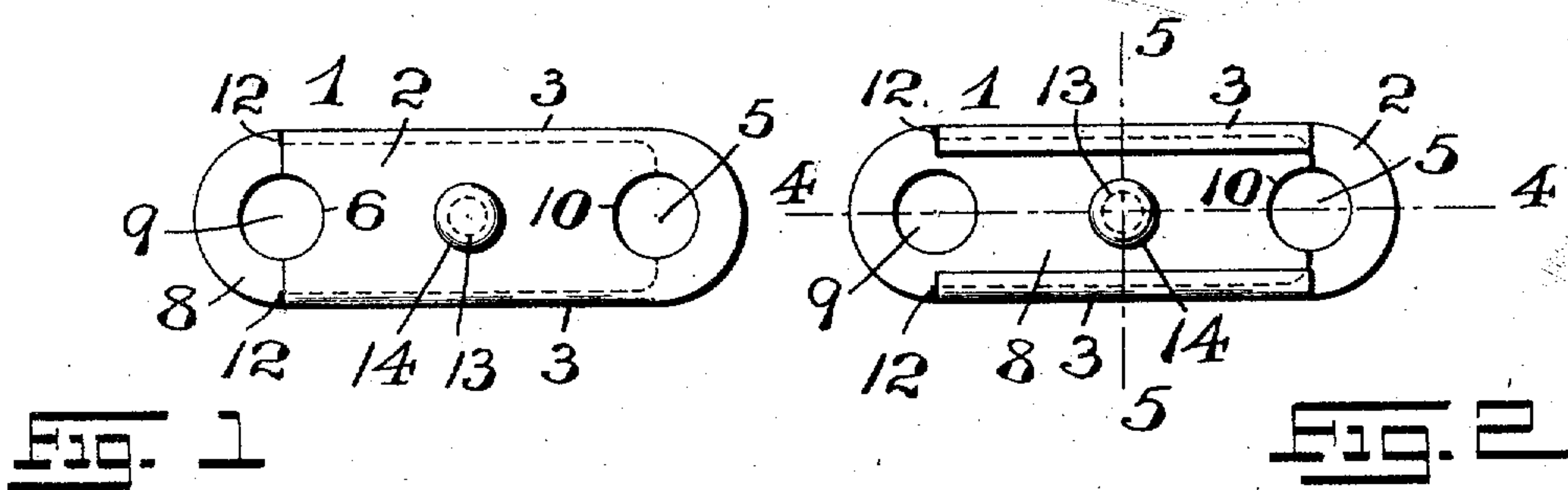


No. 858,765.

PATENTED JULY 2, 1907.

F. F. SMITH.  
FUSIBLE LINK.

APPLICATION FILED DEC. 3, 1906



WITNESSES:  
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Fig. 8

INVENTOR:  
Frank F. Smith,  
BY  
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ATTORNEYS.



# UNITED STATES PATENT OFFICE.

FRANK F. SMITH, OF NEWARK, NEW JERSEY.

## FUSIBLE LINK.

No. 858,765.

Specification of Letters Patent.

Patented July 2, 1907.

Application filed December 3, 1906. Serial No. 348,007.

To all whom it may concern:

Be it known that I, FRANK F. SMITH, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Fusible Links; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The present invention has reference generally to improvements in fusible links or connections; and, the invention relates more particularly to a novel means or device in the form of a fusible connection which may be used with other devices, such as chains or other flexible connections; for retaining windows, sky-lights, doors, or the like, in an open relation, but from which a part is melted in case of excessive heat due to a fire and allows the automatic closing of the window, sky-light, door, shutter or the like.

The invention has for its principal object to provide a fusible-link for the purposes above set forth, which is simple in construction and is easily fused so as to be quick in its action. Furthermore, the construction is of such a nature that any accidental separation of the link, or distortion of the same, is rendered impossible.

A further object of this invention is to provide a construction of fusible link which can be made of thin or light metal, instead of a heavy metal as heretofore, and, furthermore, where it is desired, the link embodying the principles of this invention can be used again after the separation of its parts by renewing the fusible plug.

A still further object of this invention is to provide a fusible link in which the separable parts or members are united with the least possible quantity of fusible material or solder; but, the construction and arrangement of the parts being such that increased strength and rigidity of the parts is the result, without the least danger of the parts separating under ordinary changes of the varying degrees of temperature.

With the various objects of the invention in view, the same consists in the novel fusible link hereinafter set forth, as well as in the general constructions and arrangements of the various parts, all of which will be hereinafter more fully described and then finally embodied in the clauses of the claims, which are appended to and which form an essential part of this specification.

The invention is clearly illustrated in the accompanying drawings, in which:

Figure 1 is a face view of one of the sides of the fusible link or connection embodying the principles of the present invention; and Fig. 2 is a view of the opposite face of the same. Fig. 3 is a side edge view of the said fusible link; Fig. 4 is a longitudinal section of the same,

said section being taken on line 4—4 in said Fig. 2; and Fig. 5 is a cross-section of the same, taken on line 5—5 of said Fig. 2. Figs. 6 and 7 are detail face views of the two separable parts of the said fusible link. Fig. 8 is a transverse section of a slightly modified construction of fusible link.

Similar characters of reference are employed in all of the above described views to indicate corresponding parts.

Referring now to the several figures of the drawings, the reference-character 1 indicates the complete fusible link or connection embodying the principles of the present invention, the same comprising a main body-portion or plate 2 provided upon each of its side-edges with turned-over portions or bezels 3 adapted to form in connection with the said main body-portion or plate 2 a pair of oppositely situated guide-channels or grooves 4. The said main body-portion or plate 2 is furthermore provided with a suitably formed perforation or hole 5 in one end and at the opposite end it may be provided in its edge with a semi-circular or other suitably formed cutaway portion 6. The said body or plate 2 is also provided with another hole or perforation 7, located preferably midway between the two ends of said plate. Adapted to be inserted in said guide-channels or grooves 4 and slidably arranged within the same is a separable plate or member 8. This separable plate or member is provided with a suitably shaped hole or perforation 9 at one end and a semi-circular or other suitable cut-away portion 10 at the other end. The said plate or member 8 is also formed with another hole or perforation 11, adapted to register with the hole or perforation 7 of the plate 2, when the two plates are placed upon each other, in the manner illustrated in the drawings. The said separable plate 8 is, furthermore, provided upon its opposite edges at the end in which the hole or perforation 9 is located with shoulders or off-sets 12, which engage with the end of the main body-portion or plate 2 and serve to bring the holes or perforations and cutaway portions with which each plate is provided in proper registration with each other when the said plates are placed together in their operative relation, as will be clearly evident from an inspection of the accompanying drawings.

To prevent the separable plate 8 from separating from the main body-portion or plate 2 when the same are subjected to the ordinary temperature, a fusible plug or rivet 13 is inserted in the holes or perforations 7 and 11 of the respective plates, above mentioned, said fusible plug or rivet 13 being preferably provided with a head or upset portion 14 upon each end thereof, to prevent the accidental slipping out or other displacement of the said fusible plug.

It will be readily understood, that, when the temperature rises above a certain pre-determined degree



the fusible plug or rivet 13 will melt and thus allows the separable plate 8 to slip away or become disengaged from the main-body-portion or plate 2 and thus allow the window-sky-light, door, or the like to be automatically closed. Furthermore, by telescoping the separable plate 8 within the main-body-portion or plate 2 by means of the bezel 3 and the channels or grooves 4, the said plates cannot be wrenched sidewise or from each other and thus separated accidentally. Thus, it will be evident, that a simple, rigid, strong, and durable link is provided; and, furthermore, by reason of the fact that a very small fusible plug or rivet can be used to hold the plates together, a quick action of the link is secured by the rapid melting or fusing of the said fusible plug or rivet. It will also be understood, that by providing the one plate with the raised edge-portions extending longitudinally along the plate, the longitudinal edges of the other plate registering with said raised edge-portions of the other plate, all possible danger of the plates oscillating upon each other, which would naturally produce a shearing action of the fusible plug is entirely overcome. At the same time, the raised edge-portions of the one plate being made to overlap the marginal edges of the other plate, any likelihood of the two plates becoming distorted, which distortion would tend to loosen the fusible plug, is also obviated, and the enlarged head-portions of the fusible plug may be dispensed with if desired, as clearly illustrated in Fig. 8 of the drawings.

I claim:

1. A fusible connection or link comprising separably connected members adapted to be arranged upon each other, said members being provided with holes or perforations which register with each other, and a plug of fusible metal filling said registering holes, said plug being made upon its ends with retaining heads, substantially as and for the purposes set forth.
2. A fusible connection or link, comprising a pair of separably connected members adapted to be arranged upon each other, each member being provided at one end with a hole and at its opposite end with a semi-circular cut-away portion, the semi-circular cut-away portion of each member registering with a hole of the other member, and said members being provided with intermediately disposed holes which register with each other, and a plug of fusible metal filling said registering holes, substantially as and for the purposes set forth.
3. A fusible connection or link comprising a pair of separably connected members adapted to be arranged upon each other, each member being provided at one end with a hole and at its opposite end with a semi-circular cut-away portion, the semi-circular cut-away portion of each member registering with a hole of the other member, and said members being provided with intermediately disposed holes which register with each other, and a plug of fusible metal filling said registering holes, said plug being made upon its ends with retaining heads, substantially as and for the purposes set forth.
4. A fusible connection or link comprising two separably connected plates, adapted to be arranged upon each other, said plates being provided with holes or perforations which register with each other, a plug of fusible metal filling said registering holes, said plug being made upon its ends with retaining heads, and raised portions on one of said plates with which the edges of the other plate register to prevent any oscillatory movement of said plates with relation to each other, substantially as and for the purposes set forth.
5. A fusible connection or link comprising two separably connected plates adapted to be arranged upon each other, each plate being provided at one end with a hole and at its opposite end with a semi-circular cut-away portion, the semi-circular cut-away portion of each plate

registering with a hole of the other plate, and said plates being provided with intermediately disposed holes which register with each other, a plug of fusible metal filling said registering holes, and raised portions on one of said plates with which the edges of the plate register to prevent any oscillatory movement of said plates with relation to each other, substantially as and for the purposes set forth.

6. A fusible connection or link comprising two separably connected plates adapted to be arranged upon each other, each plate being provided at one end with a hole and at its opposite end with a semi-circular cut-away portion, the semi-circular cut-away portion of each plate registering with a hole of the other plate, and said plates being provided with intermediately disposed holes which register with each other, a plug of fusible metal filling said registering holes, said plug being made upon its ends with retaining heads, and raised portions on one of said plates with which the edges of the other plate register to prevent any oscillatory movement of said plates with relation to each other, substantially as and for the purposes set forth.

7. A fusible connection or link comprising two flat and separably and fusibly connected plates, raised edge-portions extending along the longitudinal marginal edges of one of said plates, and a turned-over part on each raised edge-portion projecting partway over the longitudinal edges of the other plate, all arranged to provide a pair of guides, other plate being slidably held between said guides against distortion, substantially as and for the purposes set forth.

8. A fusible connection or link comprising two flat and separably and fusibly connected plates, raised edge-portions extending along the longitudinal marginal edges of one of said plates, and a turned-over part on each raised edge-portion projecting partway over the longitudinal edges of the other plate, all arranged to provide a pair of guides, other plate being slidably held between said guides against distortion, and stops on said other plate adapted to engage with the ends of the raised edge-portions of the other plate, substantially as and for the purposes set forth.

9. A fusible connection or link comprising two flat and separably connected plates, said plates being provided with holes or perforations adapted to register with each other, a plug of fusible metal filling said registering holes, raised edge-portions extending along the longitudinal marginal edges of one of said plates, and a turned-over part on each raised portion projecting partway over the longitudinal edges of the other plate, all arranged to provide a pair of guides, other plate being slidably held between said guides against distortion, substantially as and for the purposes set forth.

10. A fusible connection or link comprising two separably connected plates, said plates being provided with holes or perforations adapted to register with each other, a plug of fusible metal filling said registering holes, raised edge-portions on one of said plates, and a turned-over part on each raised portion, all arranged to provide a pair of guides, the other plate being slidably held between said guides against distortion, and stops on said other plate adapted to engage with the ends of the raised edge-portions of the other plate, substantially as and for the purposes set forth.

11. A fusible connection or link comprising two separably connected plates, each plate being provided at one end with a hole and at its opposite end with a semi-circular cut-away portion, the semi-circular cut-away portion of each plate registering with a hole of the other plate, and said plates being provided with intermediately disposed holes which register with each other, a plug of fusible metal filling said registering holes, raised edge-portions on one of said plates, and a turned-over part on each raised portion, all arranged to provide a pair of guides, the other plate being slidably held between said guides against distortion, substantially as and for the purposes set forth.

12. A fusible connection or link comprising two separably connected plates, each plate being provided at one end with a hole and at its opposite end with a semi-



5 circular cut-away portion, the semi-circular cut-away  
portion of each plate registering with a hole of the other  
plate, and said plates being provided with intermediately  
disposed holes which register with each other, a plug of  
5 fusible metal filling said registering holes, raised edge-  
portions on one of said plates, and a turned-over part on  
each raised portion, all arranged to provide a pair of  
guides, the other plate being slidably held between said  
10 guides against distortion, and stops on said other plate  
adapted to engage with the ends of the raised edge-portion

tions of the other plate, substantially as and for the  
purposes set forth.

In testimony, that I claim the invention set forth above  
I have hereunto set my hand this 26th day of November  
1906.

FRANK F. SMITH.

Witnesses:

FREDK. C. FRAENTZEL,  
FREDERICK JAMISON.