

No. 808,200.

PATENTED DEC. 26, 1905.

J. E. GRAYBILL.
FUSE.

APPLICATION FILED MAR. 22, 1905.

Fig. 1.

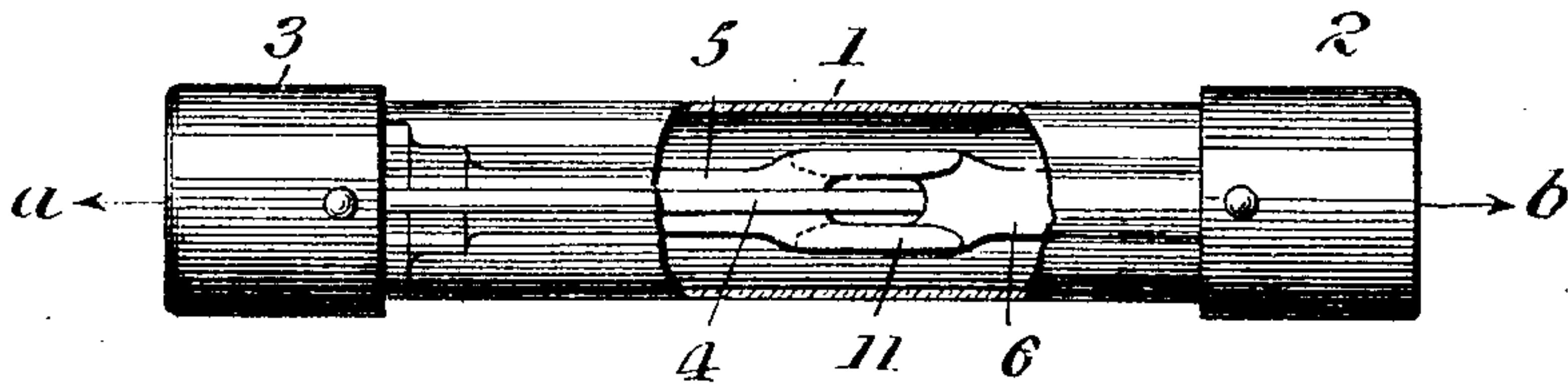


Fig. 2.

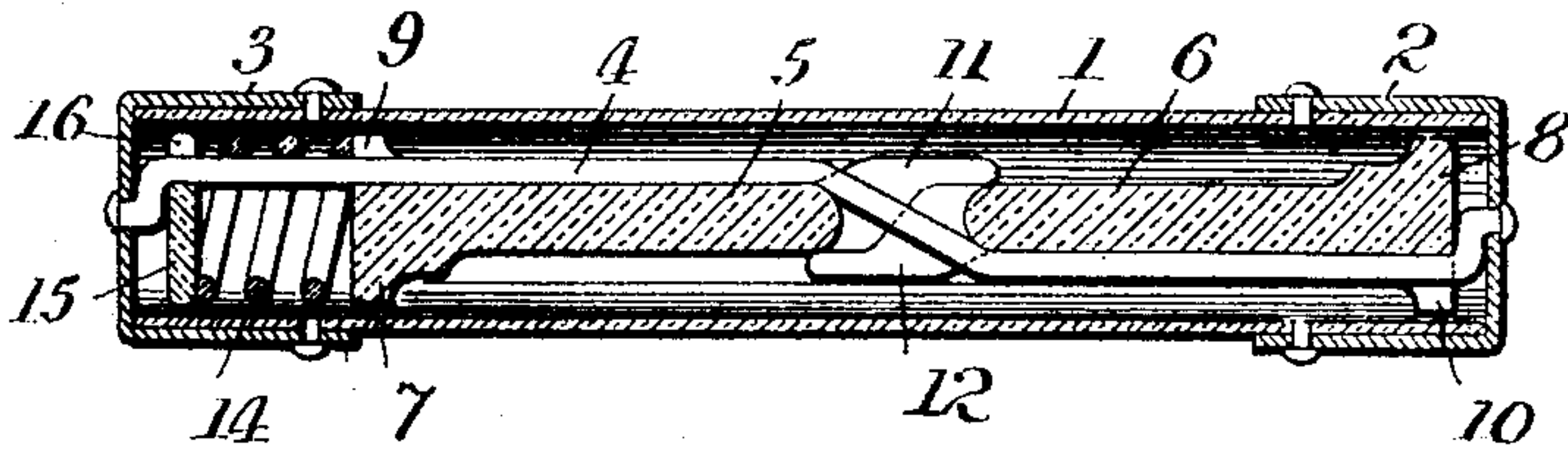
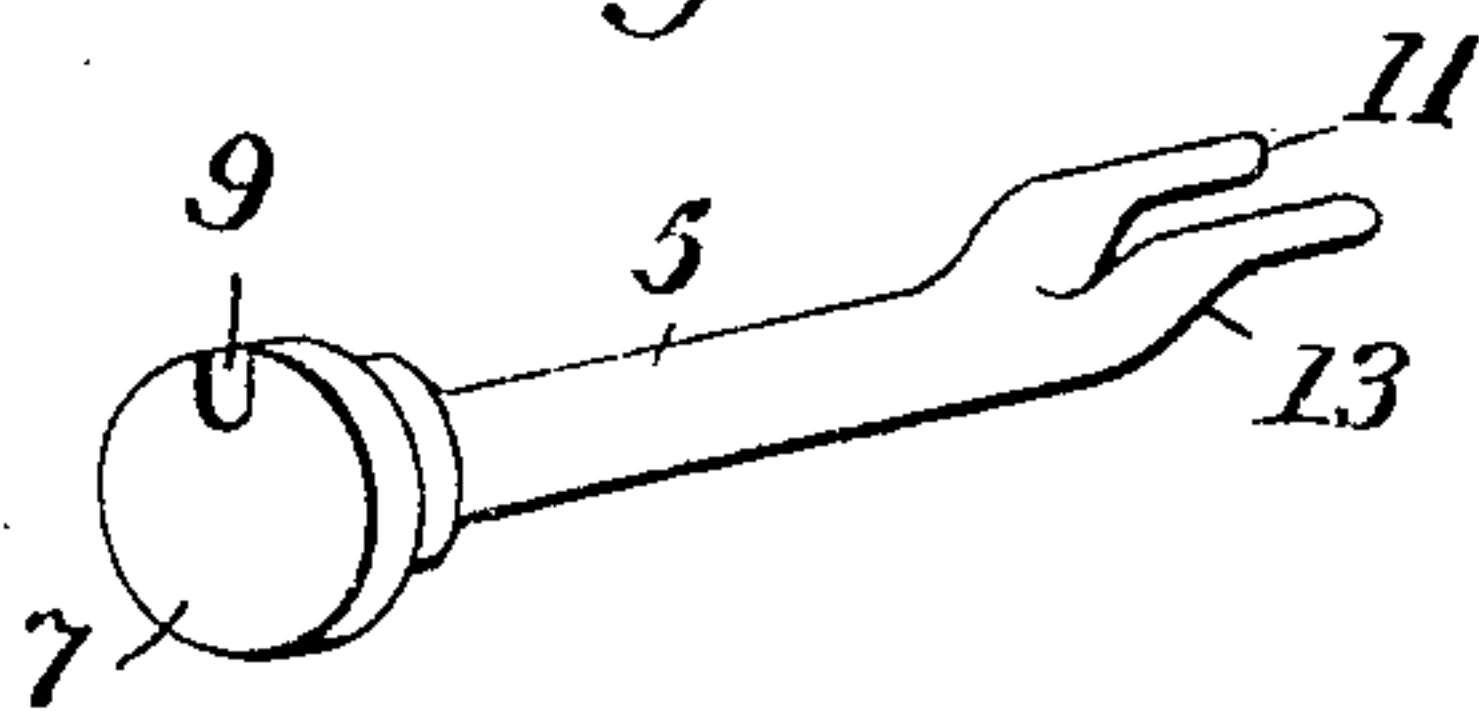


Fig. 3.



Witnesses

J. P. Lintell

Thos. Howe

Inventor

by John C. Graybill.

Foster H. H. H. H. H.

Attorneys

UNITED STATES PATENT OFFICE.

JOHN E. GRAYBILL, OF YORK, PENNSYLVANIA.

FUSE.

No. 808,200.

Specification of Letters Patent.

Patented Dec. 26, 1905.

Application filed March 22, 1905. Serial No. 251,505.

To all whom it may concern:

Be it known that I, JOHN E. GRAYBILL, a citizen of the United States, residing at York, in the county of York and State of Pennsylvania, have invented certain new and useful Improvements in Fuses, of which the following is a specification.

This invention relates to means for protecting electric circuits, which consists in a fusible strip which is inserted in the circuit to be protected, the strip being chosen of such dimensions and material that it will fuse, and thereby open the circuit at a current below that at which apparatus connected in the circuit would be damaged.

The practical application of devices of the character thus described is well understood in the art.

The present invention relates more particularly to the type of protecting devices known as "inclosed" fuses, but is not necessarily limited thereto in all of its aspects.

The object of the invention is to provide an improved protecting device of the character described, which can best be set forth in connection with the accompanying drawings, of which—

Figure 1 is a plan view, partly broken away, of an inclosed fuse. Fig. 2 is a longitudinal section on the line *a b* of Fig. 1, and Fig. 3 is a perspective view of a detail.

Referring to the drawings, the improved fuse comprises a casing 1, which may be of any suitable insulating material. It is preferable that this casing shall be transparent, so that the condition of the interior may be observed. To the ends of the casing 1 are secured in any suitable manner electrical conducting-caps 2 and 3, which may be of brass or other suitable material. These caps constitute the terminals of the fuse, and to them is secured at its ends the fusible strip 4, so that electrical contact is established between the two terminals. Within the casing are also two longitudinally-movable members 5 and 6, which at their ends nearest the terminals have enlarged portions 7 and 8, which fit with easy clearance within the casing 1. Channels 9 and 10 for the passage of the fusible strip 4 are cut in the enlarged portions, these channels being located out of line with the points of attachment of the fusible strip to the terminals, so that this strip is given a direction parallel to the face of the terminal at each end. The other ends of the members 5 and 6—that is, those ends

which are not adjacent to the terminals—consist in offset forks 11 and 12. The shoulders 13, formed at the offsets upon the two members, are adapted to engage with each other to prevent relative longitudinal movement of the members and are held in engagement by the fusible strip 4, which, it will be seen, passes upon opposite sides of the two members and between the tines of their forks.

Means for causing relative longitudinal movement of the members may consist in a spring 14, bearing against the end of one member, as 5, and against a plate 15, preferably of insulating material, which has a channel 16 for the passage of the fusible strip, which channel is in line with the channel 9 in its adjacent member 5. The fusible strip is therefore given a direction at this end parallel to the face of the terminal 3, and the spring 14 operates to press the ends of the fuse against both the terminals.

In the positions shown the fusible strip is intact and the parts are in operative positions. If now an excessive current flows through the fusible strip, the strip will be melted. The members 5 and 6 being no longer restrained by the fusible strip will have relative longitudinal movement under the influence of the spring 14, when the forked ends of the members will ride upon each other, there being provided sufficient clearance within the casing at this point to permit it. The openings between the tines through which the fusible strip formerly passed will be closed, thus breaking the arc, and the ends of the members will substantially fill the casing at this point, thus rapidly cooling the arcing-space.

The blowing of the fuse at a point adjacent to the forked ends of the members may be brought about by reducing the cross-section of the fusible strip or in any other suitable manner.

While I have described my invention in what I consider its best embodiment, it will be understood that it may have other embodiments, and should not, therefore, be limited to the construction shown.

What I claim, and desire to secure by Letters Patent, is—

1. The combination with a terminal, of a fusible strip connected thereto, a member having a channel for the passage of said strip, said channel being out of line with the point of connection of said fusible strip to

said terminal, and means for pressing said member toward said terminal, substantially as described.

2. In an inclosed fuse, the combination
5 with a casing, of terminals, a fusible strip within said casing, having its ends connected to said terminals, longitudinally-movable members within said casing, said members having channels through which said strip
10 passes, said channels being out of line with the points of connection of said strip to said terminals, and means for forcing said members toward said terminals, substantially as described.

15 3. In an inclosed fuse, the combination with a casing, of longitudinally-movable members therein, means tending to cause relative longitudinal movement thereof, the ends of said members being adapted to en-
20 gage to prevent such movement, and a fusible strip holding said members in engagement, there being clearance between said casing and the engaging ends of said members so that the said ends of the members
25 may ride upon each other to fill the arc-gap upon relative longitudinal movement, substantially as described.

4. In an inclosed fuse, the combination with a casing, of a terminal at each end there-
30 of, of a fusible strip within said casing and secured at its ends to said terminals, longitudinally-movable members within said casing, said fusible strip passing along one side of one of said members and along the oppo-
35 site side of another of said members, and means for causing relative longitudinal

movement of said members, substantially as described.

5. In an inclosed fuse, the combination with a casing, of a terminal at each end, lon- 40
gitudinally-movable members therein, a fusible strip connected to said terminals within said casing, extending along said members and holding them in engagement, a plate hav-
45 ing a channel for the passage of said fusible strip, which channel is out of line with the point of connection of said fusible strip with the one of said terminals adjacent to said plate, and a spring interposed between said
50 plate and one of said members, the other of said members bearing against the other end of said casing, substantially as described.

6. In an inclosed fuse, the combination with a casing, of a fusible strip therein, lon- 55
gitudinally-movable members within said casing, each of said members comprising an offset fork, the shoulder formed at the offset of one member being adapted to bear against the like shoulder upon the other of said mem-
60 bers, said fusible strip passing along opposite sides of said members and between the tines of said forks, and means for causing relative longitudinal movement of said members, substantially as described.

In testimony whereof I have signed my 65
name to this specification in the presence of two subscribing witnesses.

JOHN E. GRAYBILL.

Witnesses:

A. E. HAUSMANN,
THOS. HOWE.