

No. 859,590.

PATENTED JULY 9, 1907.

F. ZIEGENFUSS.

IMPACT FUSE.

APPLICATION FILED AUG. 3, 1906.

Fig. 1.

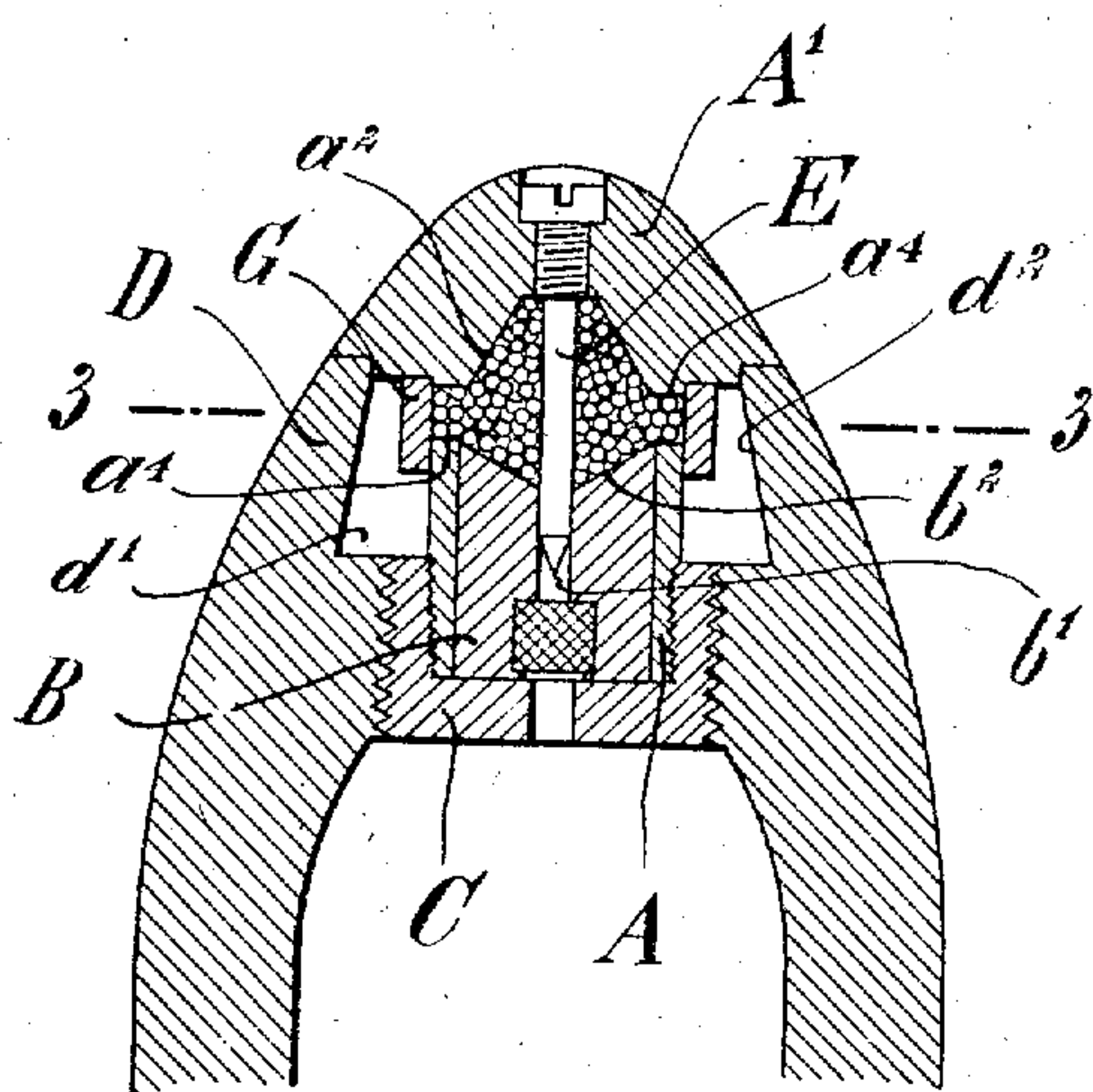


Fig. 2.

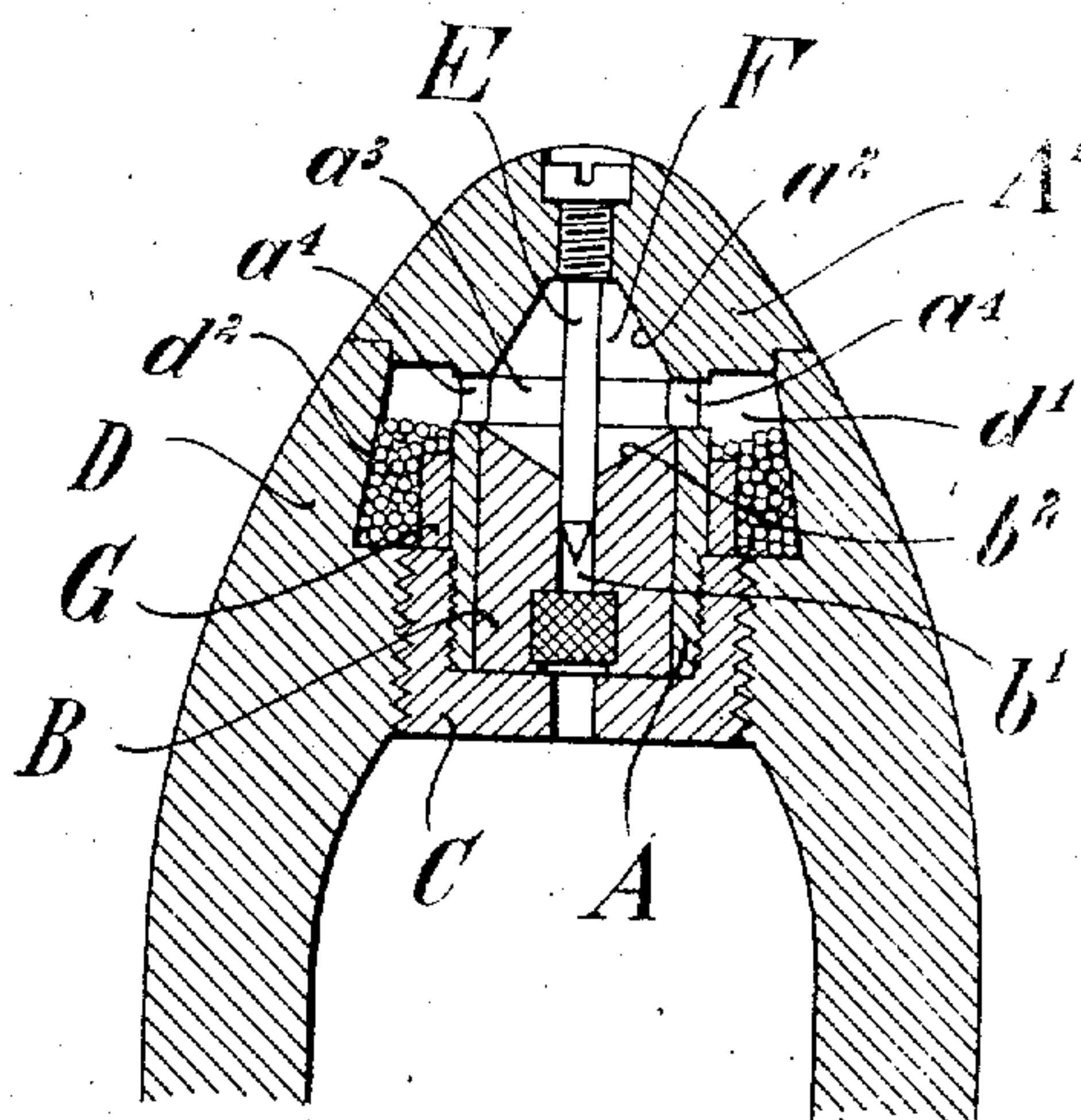
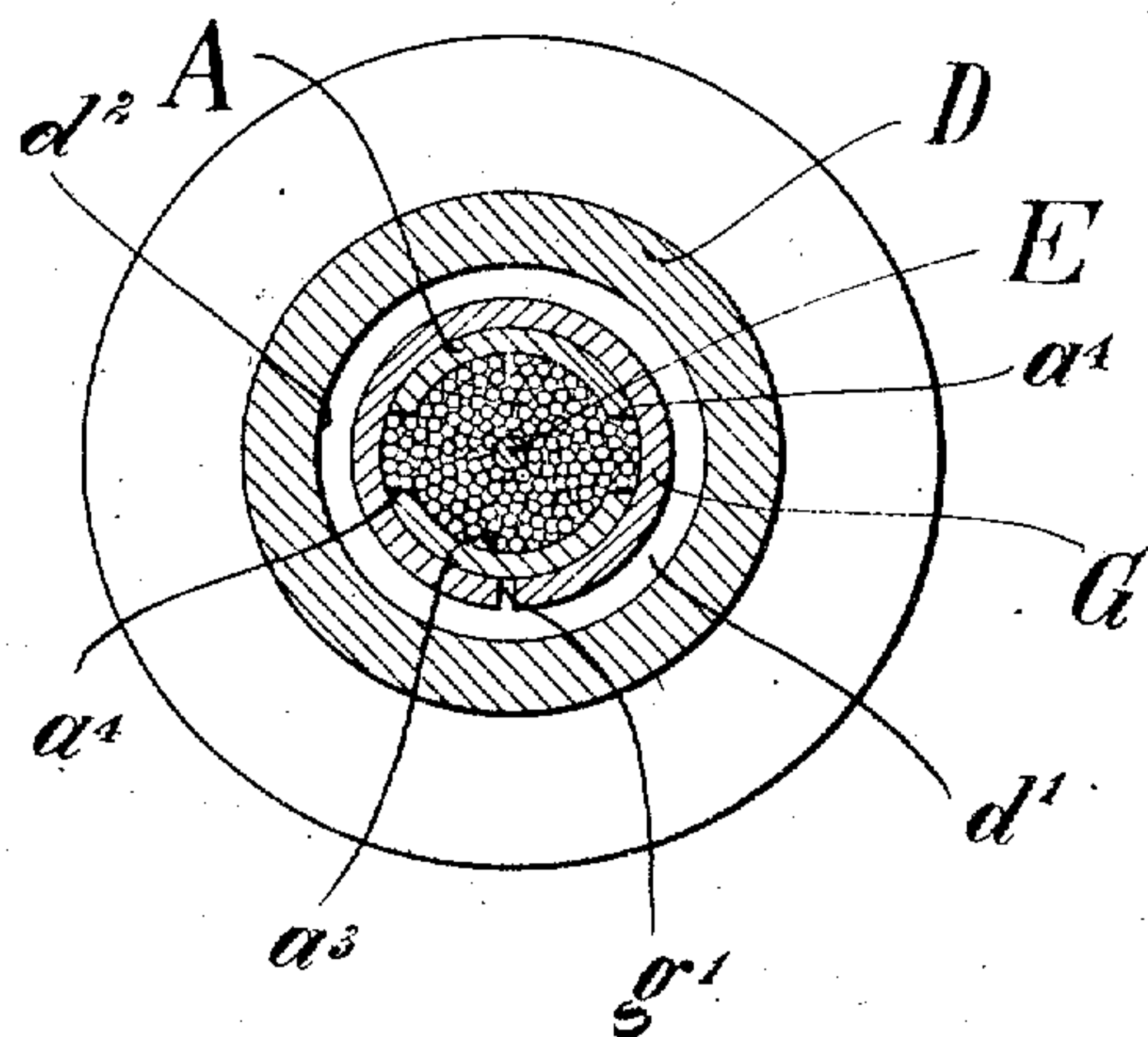


Fig. 3.



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IMPACT-FUSE.

No. 859,590.

Specification of Letters Patent.

Patented July 9, 1907.

Application filed August 3, 1906. Serial No. 329,129.

To all whom it may concern:

Be it known that I, FRIEDRICH ZIEGENFUSS, a subject of the Emperor of Germany, and a resident of 119 Dreilindenstrasse, Essen-on-the-Ruhr, Germany, have invented certain new and useful Improvements in Impact-Fuses, of which the following is a specification.

The present invention relates to an impact fuse with a securing device which is withdrawn by the centrifugal force during the rotation of the projectile.

The invention has for its object to provide a fuse, the securing device of which is capable of retarding the release of the movable part of the fuse to a considerable extent and which at the same time is of condensed and simple construction and of which the cost of manufacture is low.

In the accompanying drawing, one embodiment of the invention is shown, by way of example.

Figure 1 is an axial longitudinal section of the secured fuse and part of the projectile. Fig. 2 is a view corresponding to Fig. 1, the securing device being withdrawn. Fig. 3 is a section on line 3-3, Fig. 1, seen from above.

The hollow cylindrical shaft A of the fuse-body A' receives the primer bolt B forming the movable part of the fuse and which rests on a cap C screwed onto the shaft A. The cap is provided with exterior screw-threads engaging with the interior screw-threads in the projectile body D. The firing pin E is screwed into the head A' of the fuse-body and projects into a bore b' in the primer bolt B.

In the position of shipment of the fuse (Figs. 1 and 3) a securing means is interposed between the primer bolt B and the head A' of the fuse-body, the securing means consisting of a great number of small shot. The chamber F Fig. 2, in advance of the primer bolt and receiving the shot, is inclosed by the walls a^2 , b^2 of a conical cavity in the head A' and in the primer bolt and by the cylindrical wall a^3 of the part of the shaft A projecting beyond the primer bolt. Two restricted passages a^4 for the shot are provided in the shaft A and lead from the chamber F to a chamber or cavity d' in the projectile body D. In order to close the passages or outlets a^4 towards the cavity d' until firing takes place, a ring G is fitted about the shaft A, the ring being split at g' (Fig. 3) and lying yieldingly against the shaft A. In the position of shipment of the fuse, the passages or outlets a^4 are also filled with shot and the diameter of the openings is such that all the shot in the chamber F cannot pass through the passages at the same time. The cavity d' in the projectile body serves to receive the shot when the movable part of the fuse is released and the cavity is closed towards the exterior by a rearwardly flared wall d^2 .

On firing, the ring G first slides under the effect of its inertia until it engages the cap C. The passages a^4 are then open towards the cavity d' and by reason of the

above-described shape of the chamber F, all the shot in the chamber pass through the passages a^4 into the cavity d' under the influence of the centrifugal force. The passage of the shot, however, take place gradually because all the shot cannot pass simultaneously through the passages a^4 . By reason of the conical shape of the walls, a^2 and b^2 the shot exert a wedge-action on the primer bolt B, which consequently, is pressed against its support C, that is to say, secured against forward movement, as long as there is still a corresponding number of shot in the chamber F. The shot which first pass through the openings a^4 move, under the action of the centrifugal force, along the rearwardly flared wall d^2 and into the wider rear part of the cavity d' , and they, therefore, do not prevent the remaining shot from leaving the chamber F.

In the above-described securing device, the number of shot and the area of the passages a^4 can be selected in such a manner that the release of the movable part of the fuse is retarded to a considerable extent even when the initial velocity of the projectile is the greatest practicable.

Without departing from the scope of the invention, one might substitute any other suitable flowing or granular material for the shot.

Having now described the invention, what is claimed as new and desired to secure by Letters Patent is:

1. In an impact fuse, the combination with a movable part and a stationary part, of a chamber located between said parts, a second chamber surrounding the first-named chamber and a restricted passage between the two chambers the walls of the first-named chamber being formed to direct a flowing material to the restricted passage when the fuse is rotated upon firing.
2. In an impact fuse, the combination with a movable primer bolt, of a chamber located in advance of the primer bolt, a second chamber surrounding the first-named chamber, and a restricted passage between the two chambers the walls of the first-named chamber being formed to direct a flowing material to the restricted passage when the fuse is rotated upon firing.
3. In an impact fuse, the combination with a primer and a firing pin one of which is stationary and the other of which is movable, of a chamber located between said parts, a second chamber, a restricted passage between the two chambers, and flowing material arranged in the chamber between the parts.
4. In an impact fuse, the combination with a primer and a firing pin one of which is stationary and the other of which is movable, of a chamber located between said parts, a second chamber, a restricted passage between the two chambers, and granular bodies arranged in the chambers between the parts.
5. In an impact fuse, the combination with a movable part and a stationary part, of a chamber located between said parts, a second chamber surrounding the first-named chamber, a restricted passage between the two chambers the walls of the first-named chamber being formed to direct a flowing material to the restricted passage when the fuse is rotated upon firing, and means closing said passage and movable to open the passage under its own inertia.

6. In an impact fuse, the combination with a primer and a firing pin one of which is stationary and the other of which is movable, of a chamber located between said parts, a second chamber, a restricted passage between the two chambers, flowing material arranged in the chamber between the parts, and means closing said passage and movable to open the passage under its own inertia.
7. In an impact fuse, the combination with a primer and a firing pin, one of which is stationary and the other of which is movable, of a chamber located between said parts, a restricted outlet from said chamber, and flowing material located in said chamber and moved therefrom by centrifugal force.
8. In an impact fuse, the combination with a primer and a firing pin, one of which is stationary and the other of which is movable, of a chamber located between said parts, a restricted outlet from said chamber, flowing material located in said chamber and moved therefrom by centrifugal force, and means closing said outlet and movable to open said outlet under its own inertia.
9. In an impact fuse, the combination with a stationary part, of a movable part, a chamber located between said parts, a restricted outlet from said chamber, said chamber being partially formed by a cavity in the stationary part which cavity increases in area towards the outlet, and flowing material arranged in the chamber.
10. In an impact fuse, the combination with a stationary part, of a movable part, a chamber located between said parts, a restricted outlet for said chamber, said chamber being partially formed by a cavity in the movable part, which cavity increases in area toward the outlet, and flowing material arranged in the chamber.
11. In an impact fuse, the combination with a stationary part, of a movable part, a chamber located between said parts, a restricted outlet for the chamber, said chamber

being partially formed by cavities in both of said parts which cavities increase in area toward the outlet, and a flowing material arranged within said chamber.

12. In an impact fuse, the combination with a stationary part, of a movable part, a chamber located between said parts, flowing material arranged in said chamber, and a chamber communicating with the first chamber and into which the flowing material is delivered, said latter chamber being formed to carry the material away from the communication.

13. In an impact fuse, the combination with a stationary part, of a movable part, a chamber located between said parts, flowing material arranged in said chamber and a chamber communicating with the first chamber and into which the flowing material is delivered, said latter chamber having a rearwardly flared wall.

14. In an impact fuse, the combination with a stationary part, of a movable part, a chamber located between said parts, flowing material arranged in said chamber, and a chamber communicating with the first chamber and into which the flowing material is delivered, said latter chamber having its rear part wider than its front part.

15. In an impact fuse, the combination with a movable part, and a stationary part, of a chamber located to prevent the movement of the movable part when filled with a flowing material, provided with a restricted outlet, and having its walls formed to direct a flowing material to the outlet when the fuse is rotated on firing.

The foregoing specification signed at Düsseldorf, Germany, this 17th day of July, 1906.

FRIEDRICH ZIEGENFUSS.

Witnesses:

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