

No. 720,339.

PATENTED FEB. 10, 1903.

G. E. FIEDLER.
PROJECTILE FUSE.

APPLICATION FILED JUNE 19, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1,

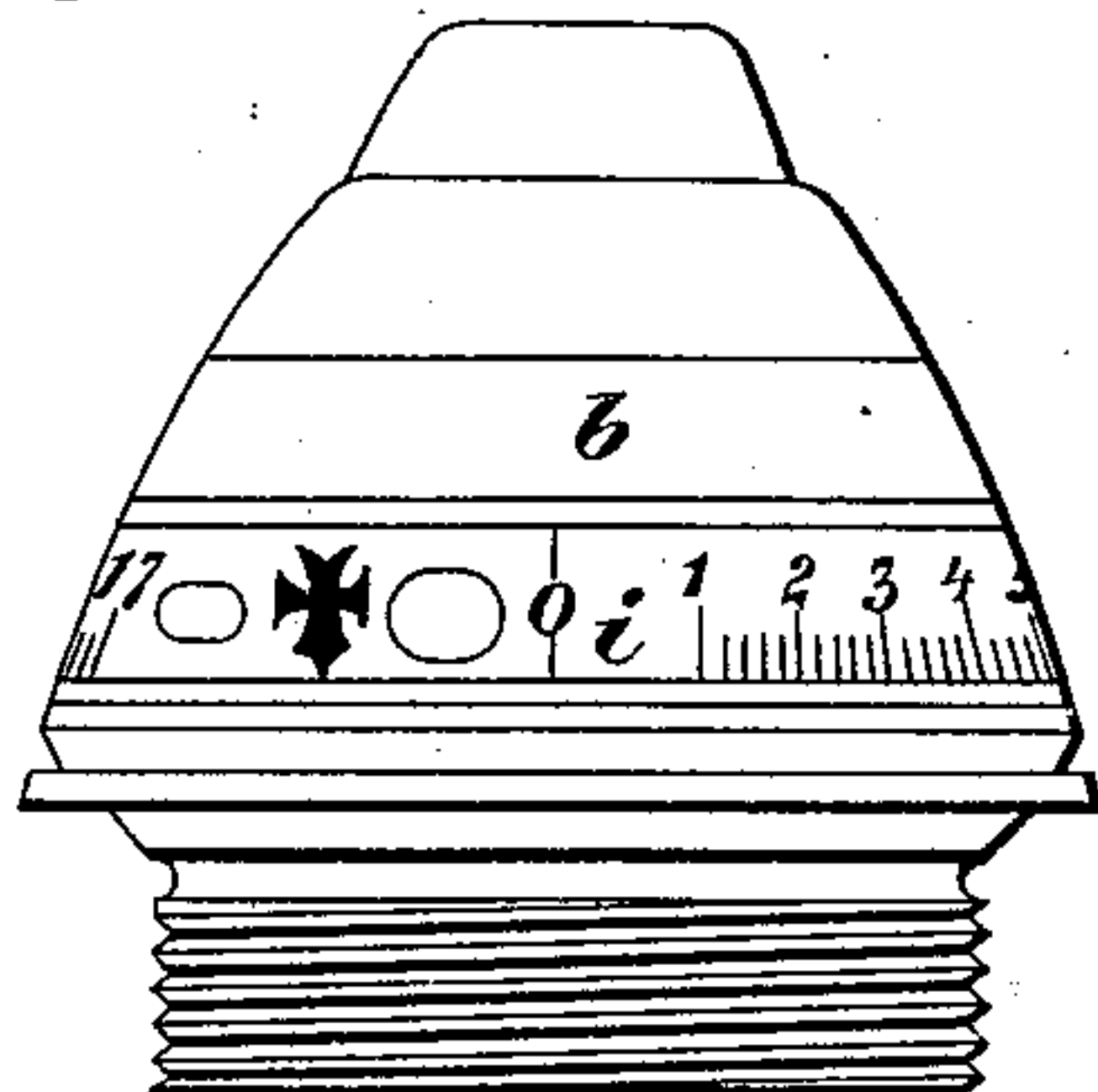


Fig. 3,

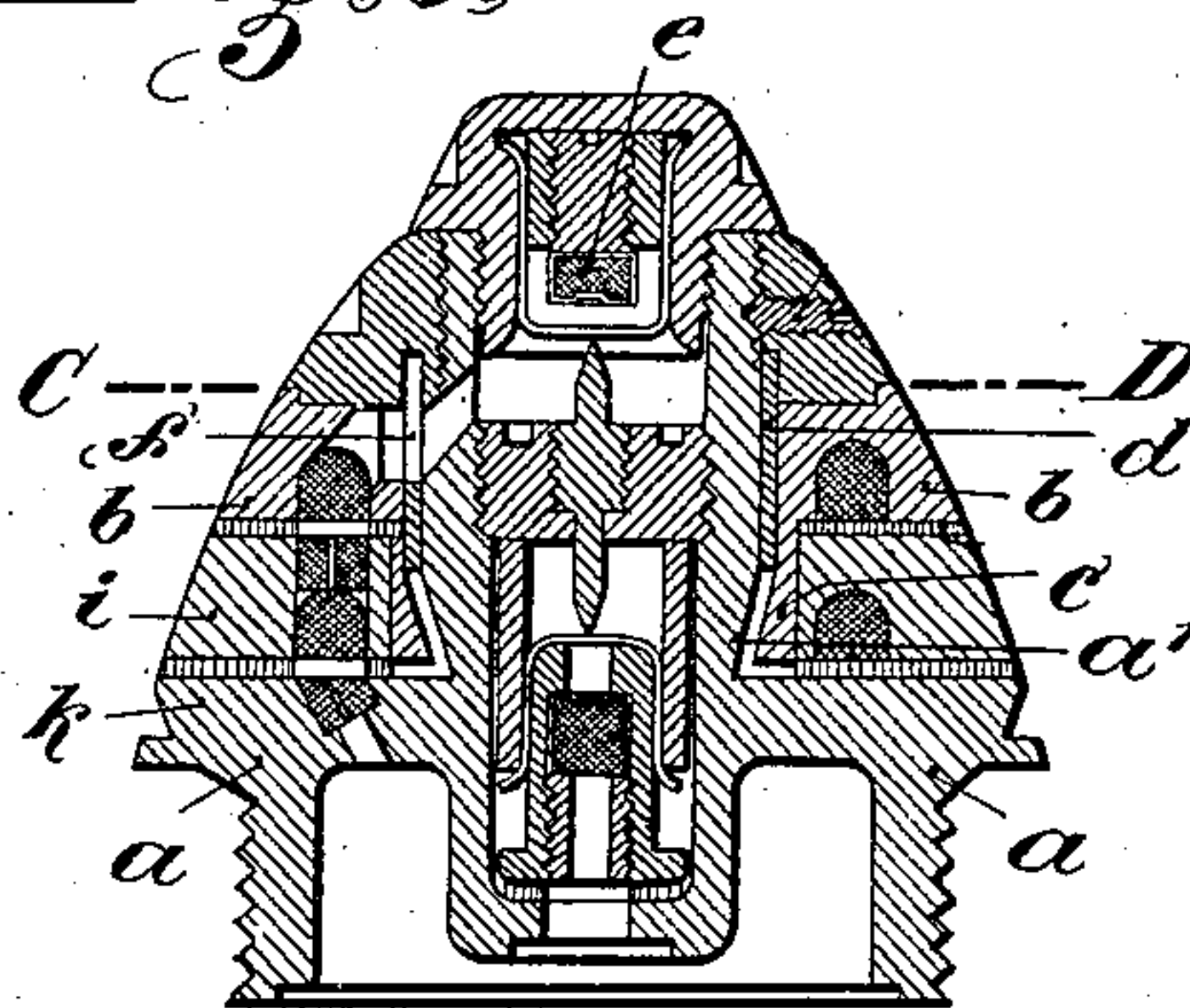


Fig. 2,

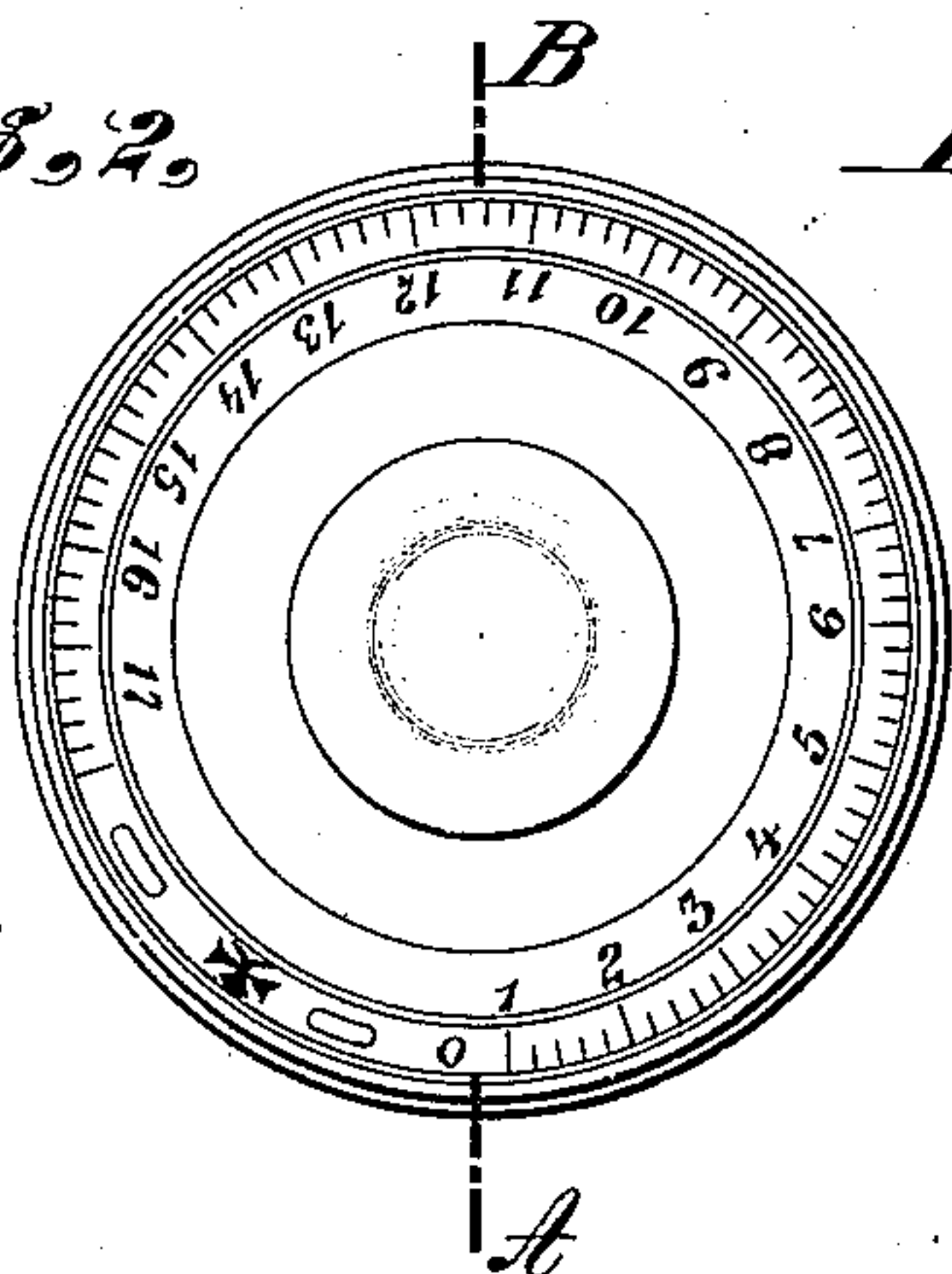


Fig. 5,

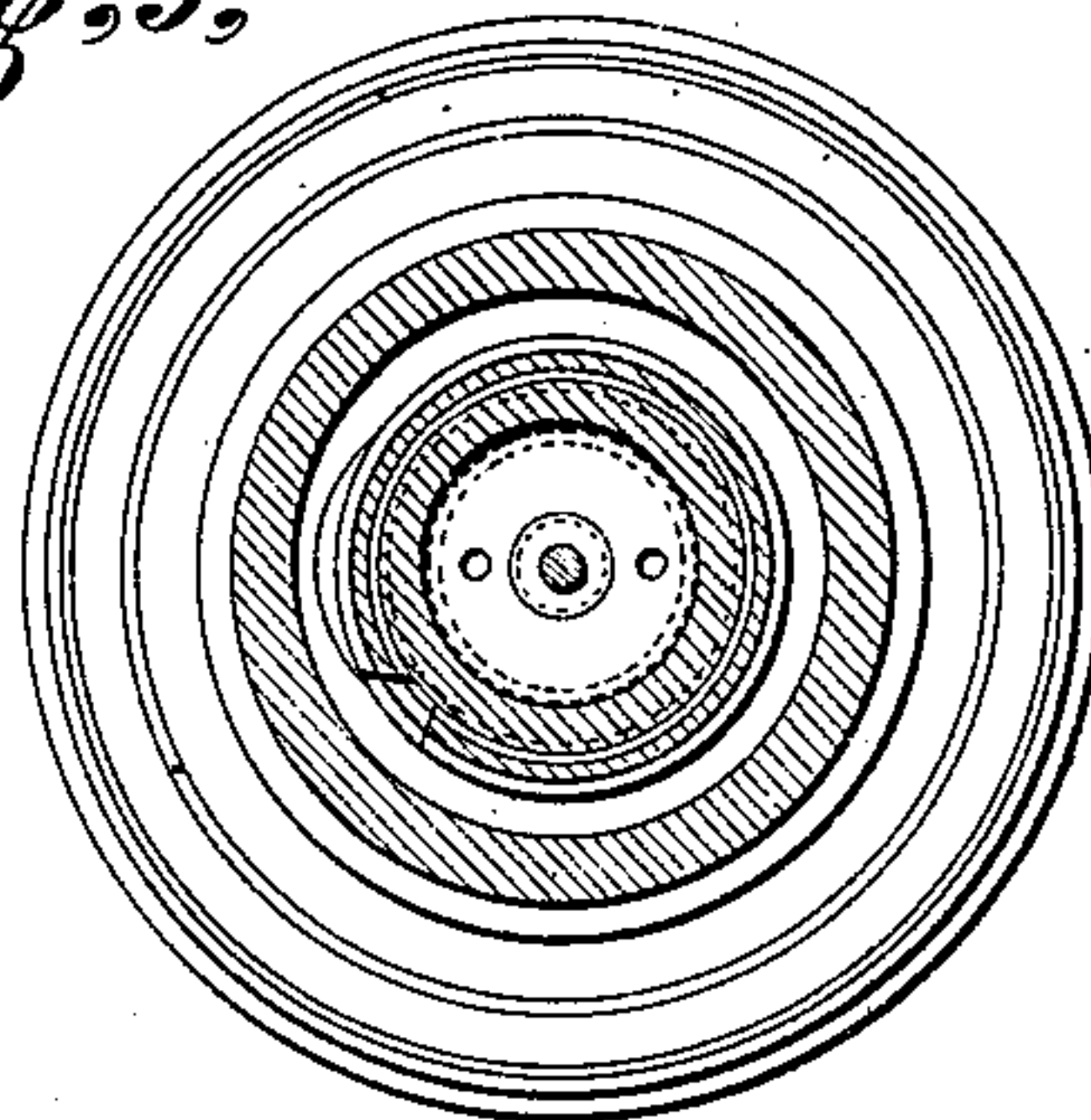


Fig. 4,

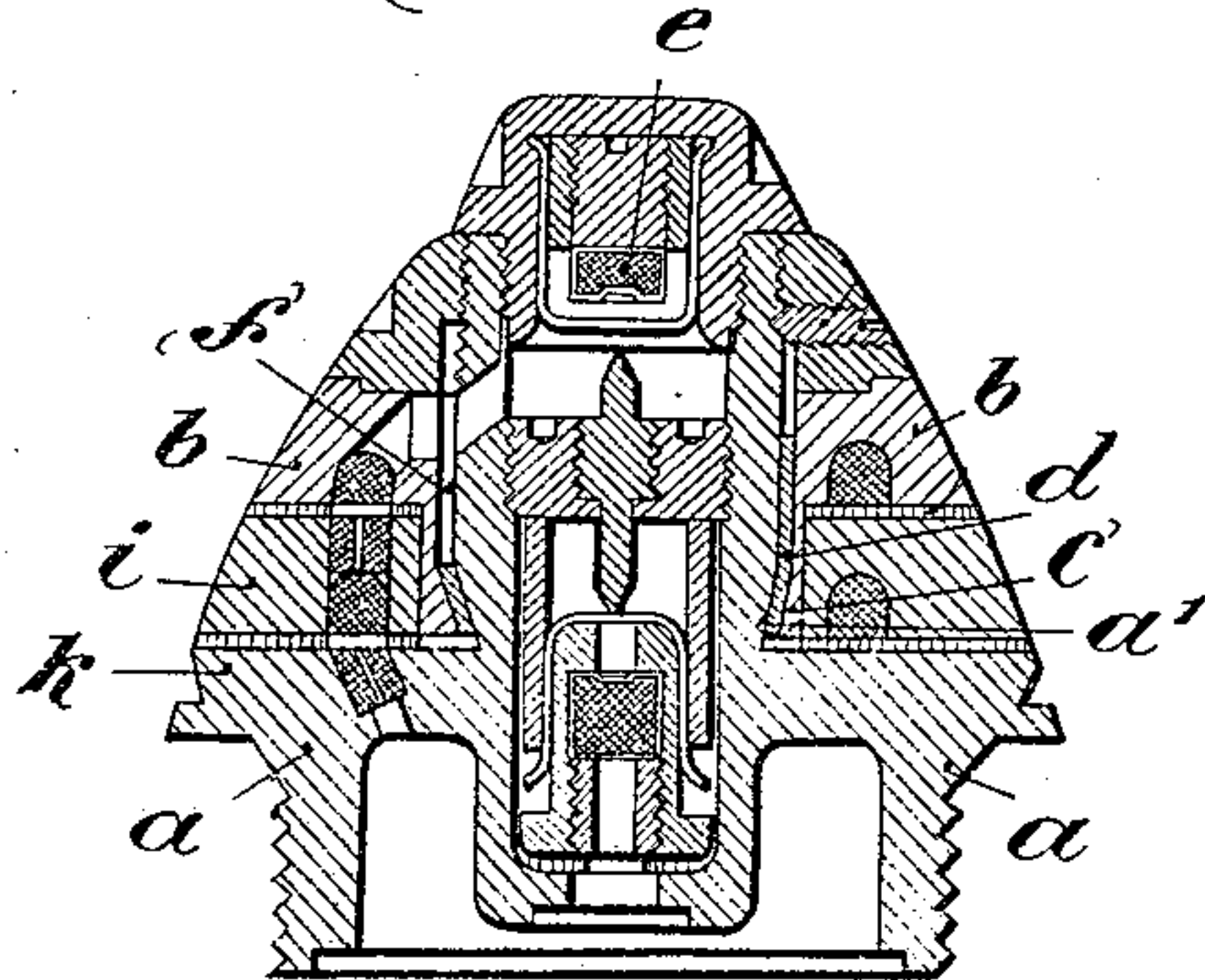


Fig. 6,

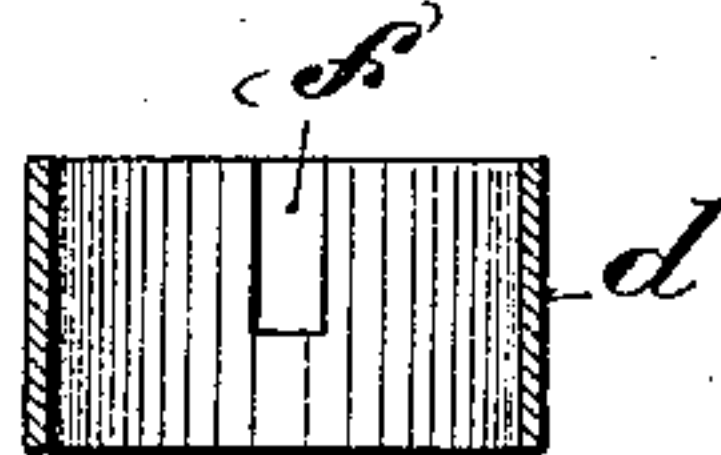
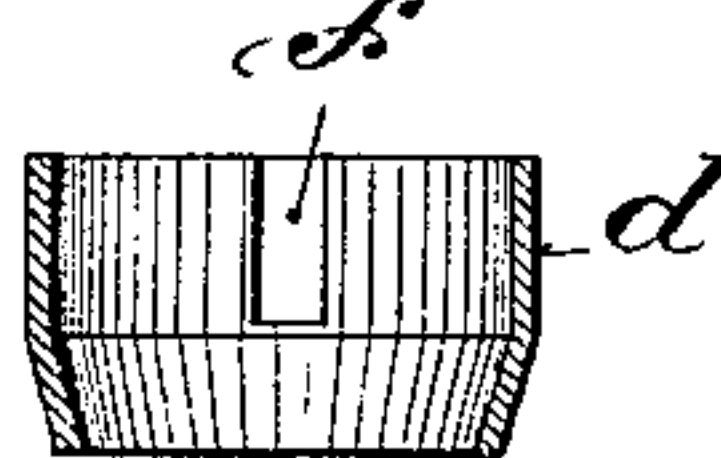


Fig. 7,



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2 SHEETS—SHEET 2.

Fig. 8,

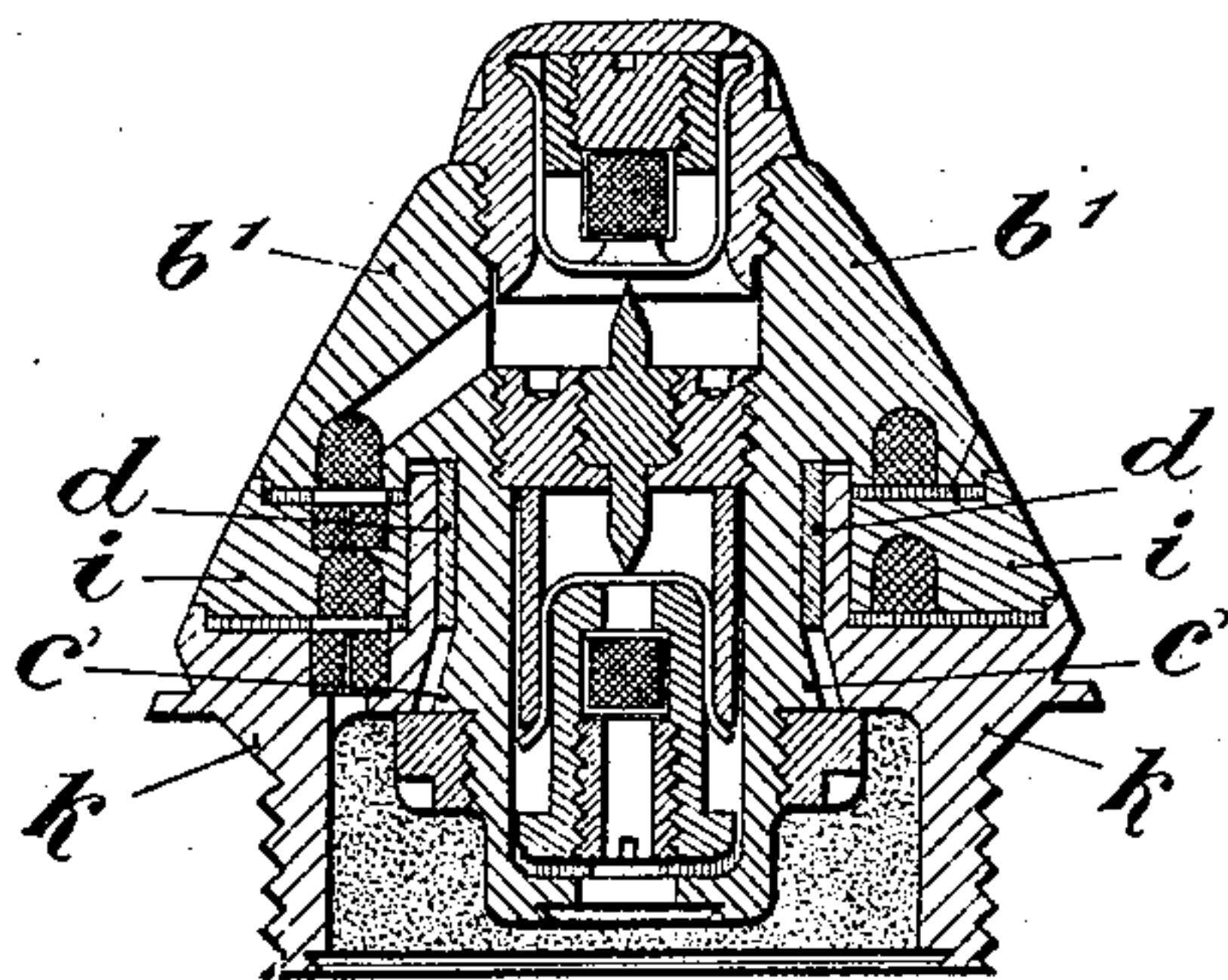
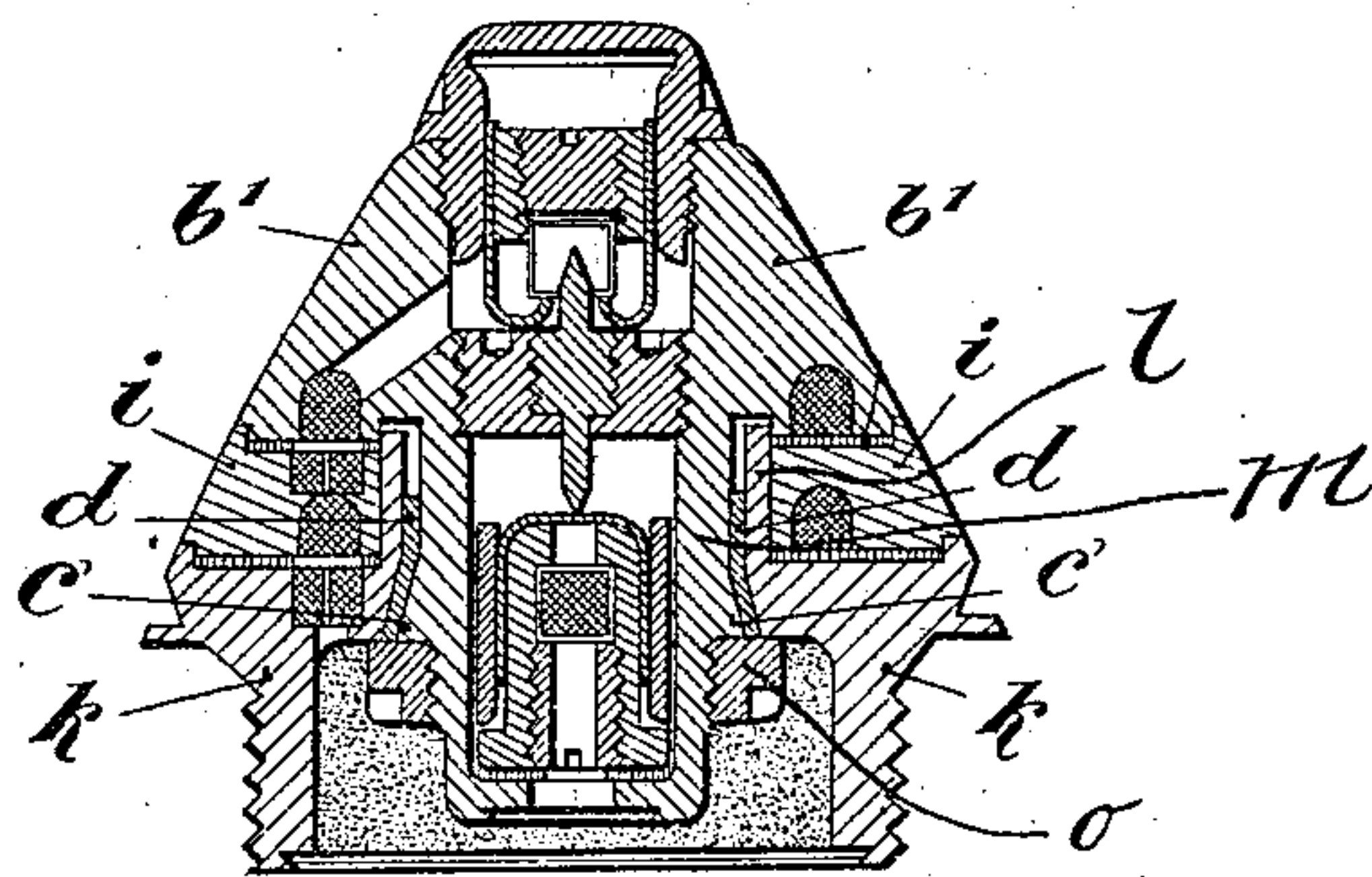


Fig. 9,



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UNITED STATES PATENT OFFICE.

GEORG EMIL FIEDLER, OF SOMMERDA, GERMANY.

PROJECTILE-FUSE.

SPECIFICATION forming part of Letters Patent No. 720,339, dated February 10, 1903.

Application filed June 19, 1902. Serial No. 112,389. (No model.)

To all whom it may concern:

Be it known that I, GEORG EMIL FIEDLER, merchant, a subject of the King of Saxony, residing at Sommerda, in the Kingdom of Prussia and German Empire, have invented certain new and useful Improvements in or Relating to Projectile-Fuses, of which the following is a specification.

My present invention relates to a double fuse, the lower setting portion of which can be adjusted by hand without the aid of a tool; and its novelty consists in a cylindrical ring, being easily fitted into the cylindrical portion of a space tapered or widened at its lower end between the fuse-body shaft and the upper setting-piece, which ring upon firing and in consequence of its momentum of inertia is driven into the conical portion of the space and on undergoing a deformation is so held that the setting parts are tightly pressed upon each other and against the touch-plate, and thus are tightened against each other and secured against rotation.

In the drawings are shown two constructions, Figures 1 to 7 being one modification in which the space between the fuse-body shaft and the upper setting-piece is narrowed at the lower end of the cylindrical portion, while in Fig. 8 this portion of the space is shown as widened. Fig. 1 is an outer view of the fuse. Fig. 2 is a top plan view. Fig. 3 is a vertical section of the double fuse on the line A B of Fig. 2. Fig. 4 shows the position of the cylindrical locking-ring in the fuse after its deformation. Fig. 5 is a horizontal section of the fuse on the line C D of Fig. 3. Figs. 6 and 7 represent longitudinal sections of the locking-ring; and Fig. 8 is a longitudinal section of a modified construction of a fuse, showing the firing-ring before firing. Fig. 9 is a view similar to Fig. 8, showing the firing-ring after firing.

The double fuse (shown in Figs. 1 to 7) is conically recessed at a certain height a' . The upper setting-piece b is provided with an outwardly-cylindrical and inwardly-conical extension or sleeve portion c , so that the setting-piece provides an equally-dimensioned space around the main body of the fuse. In this space is situated a ring d , of soft material—for instance, tin, lead, or the like. This ring is before firing situated in the cylindrical por-

tion of the space and bears with its lower end against the upper part of the conical extension c , as shown in Fig. 3. Upon firing the ring d is driven, in consequence of its momentum of inertia, into the conical part of the space, and thereby undergoes a deformation and produces a frictional or wedging action between the fuse-body a and the upper setting-piece b . In being so driven it exerts a pressure upon the upper setting-piece b and in carrying the latter presses it upon the lower setting-piece i and the latter upon the touch-plate k , whereby a convenient tightening is attained against the separation of the setting-rings, and at the same time the manually-adjustable setting-piece i is secured against displacement by the rotation produced by the shot. The ring d , which by its deformation prevents these two actions, is provided with a recess f for the passage of the fire of the time-fuse e .

According to the modified construction illustrated in Figs. 8 and 9 the fuse-body k is provided with a cylindrical extension or sleeve portion l . Surrounding this extension or sleeve portion is the lower setting-piece i . The shaft of the fuse in this construction is formed by the extension m of the upper setting-piece b' . As will be seen from the drawings, the shaft m is provided with a conical enlargement or flared portion c' . At its lower end below the conical enlargement c' the fuse-body shaft m is screw-threaded to receive the ring o , which bears against the fuse-body k , as shown, and holds the upper setting-piece and the fuse-body shaft in engagement with the fuse-body. Arranged between the sleeve portion l of the fuse-body and the conically-enlarged fuse-body shaft m of the upper setting-piece b' is the deformable ring d .

The operation is principally as follows: When the projectile is discharged, the ring d by the momentum of inertia slides along the shank a of the fuse-body in downward direction. The outer and lower edge of this ring strikes immediately at the beginning of the motion against the beveled faces c or a' . The lower part of the ring d being deformable bends inwardly and follows the conical shape of the plate b or of the fuse-body a . The ring d is thus bent inward at its lower edge and deformed, as shown in Fig. 7. As

this action takes place almost instantaneously and at any rate coincides with the pressing action of the priming-plate *b* upon the lower plate *i* and of the latter upon the fuse-plate *k*, owing to the momentum of inertia of the former, the deformation of the ring effects a maintenance of the pressing action of the plates upon the lower parts and for this reason also a complete tightening. The ring *d* after the deformation does not allow any backward motion of the plates *b* and *i*, which remain during the whole flight of the projectile strongly pressed upon one another and upon the fuse-plate *k* as if they were preliminarily depressed by the pressure-screw. Besides a good tightening of the plates the effect is obtained that during the rotation of the projectile and in consequence of the pressing action the lower rotary plate *i* cannot move from the adjusted timed position.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. A projectile-fuse consisting of a fuse-body shaft contracted at one end and enlarged at the other, a sleeve portion surrounding said fuse-body shaft, the inner wall of said sleeve portion and the outer wall of said fuse-body shaft being substantially parallel, an adjustable setting-piece surrounding said sleeve portion, and a soft-metal ring located

in the upper part of the space between said fuse-body shaft and said sleeve portion which, when the projectile is fired, slides along said fuse-body shaft and is deformed in the lower part of the space between said fuse-body shaft and said sleeve portion, for the purpose specified.

2. A projectile-fuse consisting of a fuse-body shaft contracted at its lower end, an upper setting-piece, surrounding said fuse-body shaft, having a downwardly-projecting sleeve portion, the inner wall of said upper setting-piece and said sleeve portion, and the outer wall of said fuse-body shaft, being substantially parallel, a soft-metal ring located in the upper part of the space between said fuse-body shaft and said upper setting-piece and sleeve portion which, when the projectile is fired, slides along said fuse-body shaft and is deformed in the lower part of the space between said fuse-body shaft and said sleeve portion, for the purpose specified, and an adjustable setting-piece surrounding said sleeve portion.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

GEORG EMIL FIEDLER.

Witnesses:

MAZ MEYER,

ERNEST EBERHARDT.