No. 883,576. PATENTED MAR. 31, 1908.

E. SCHNEIDER.

FIRING MECHANISM OF ORDNANCE.

APPLICATION FILED FEB. 2, 1907.

8 SHEETS—SHEET 1.

Fig. 1.

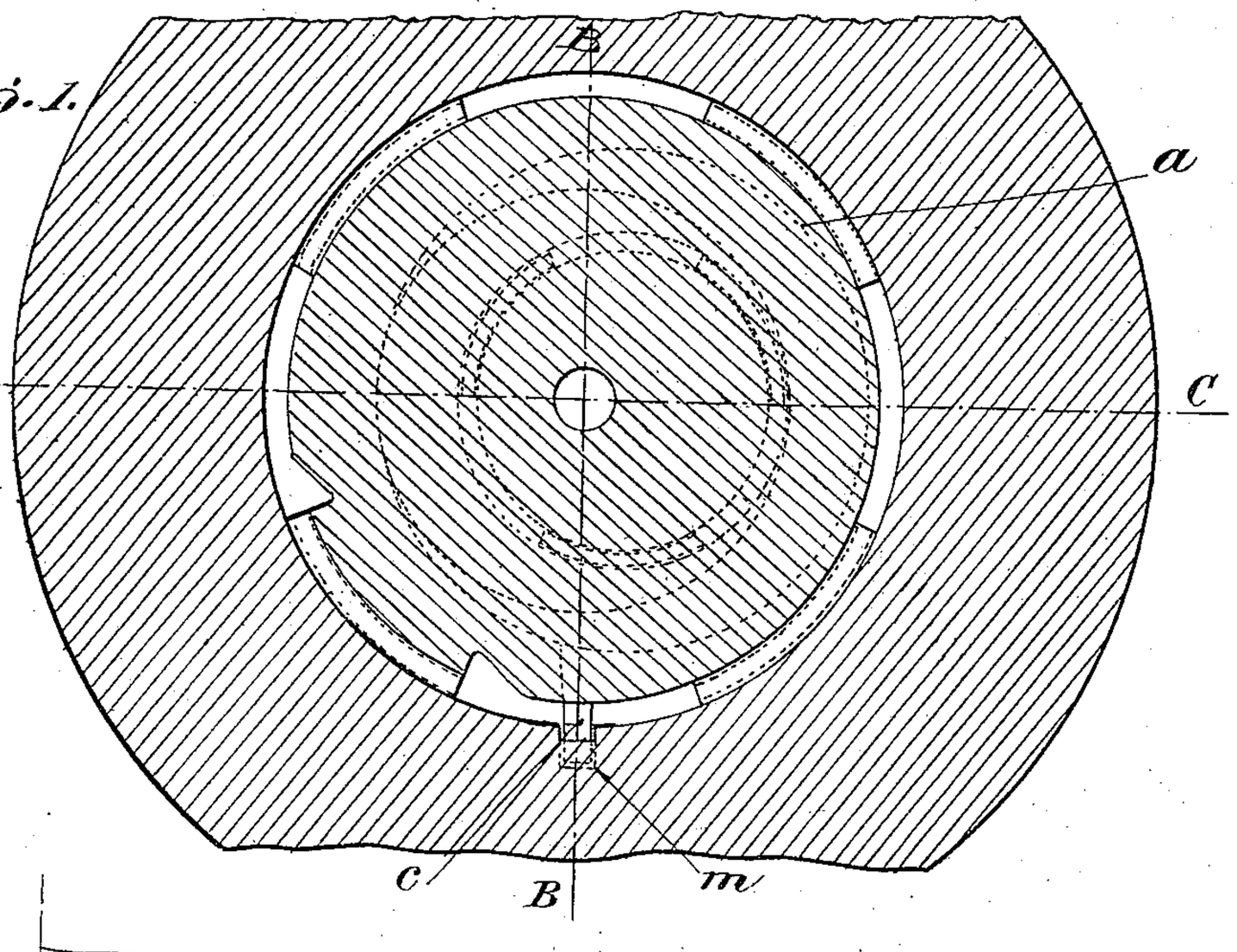

Fig. 2.

Witnesses:-
Ruth C. Fitzhugh
Frederick A. Holton

Inventor:-
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by Mauro, Cameron Lewis & Musser
Attys.

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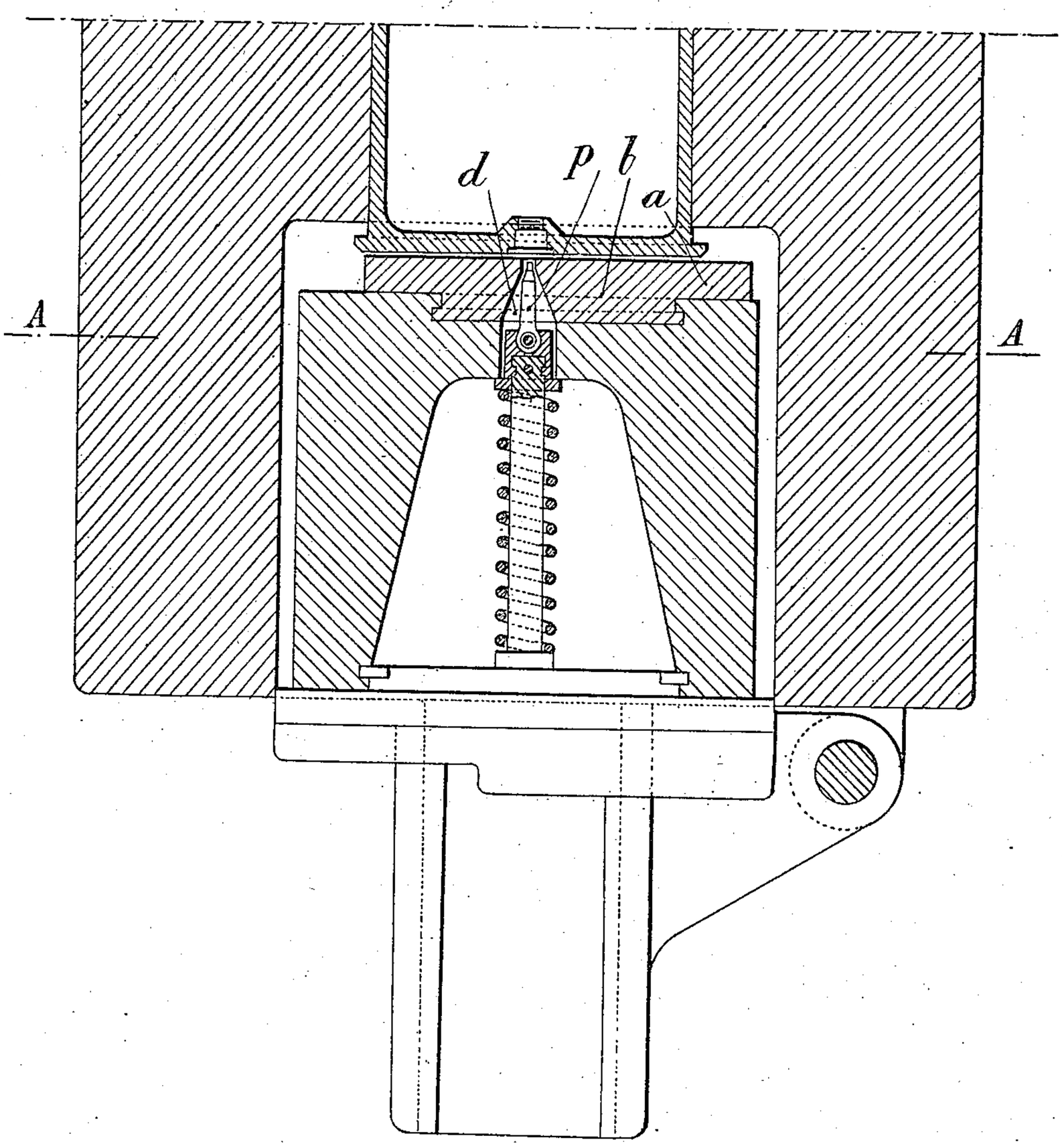
8 SHEETS—SHEET 2.

Fig. 3.



Witnesses:-
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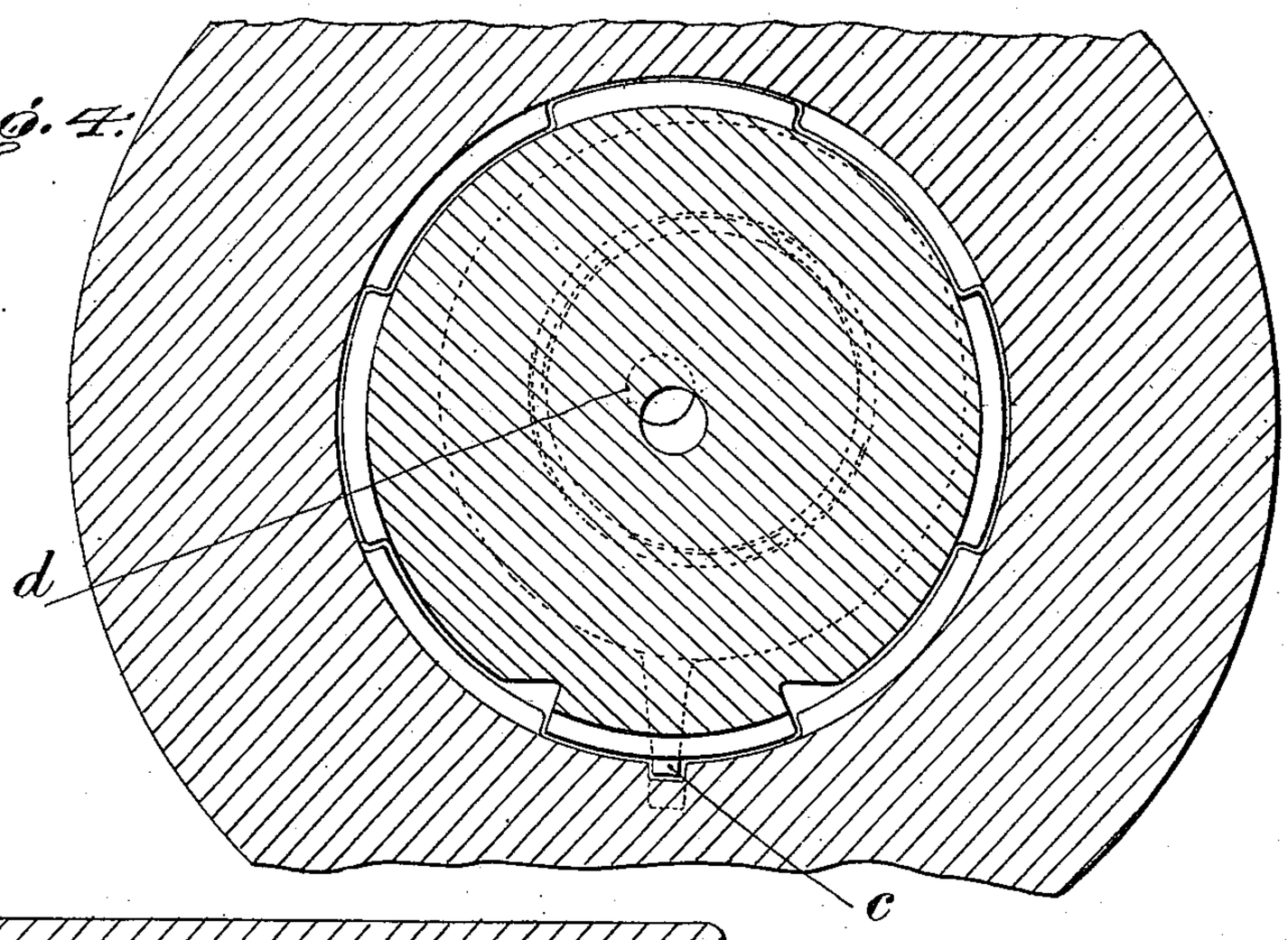
8 SHEETS—SHEET 3.

Fig. 4.



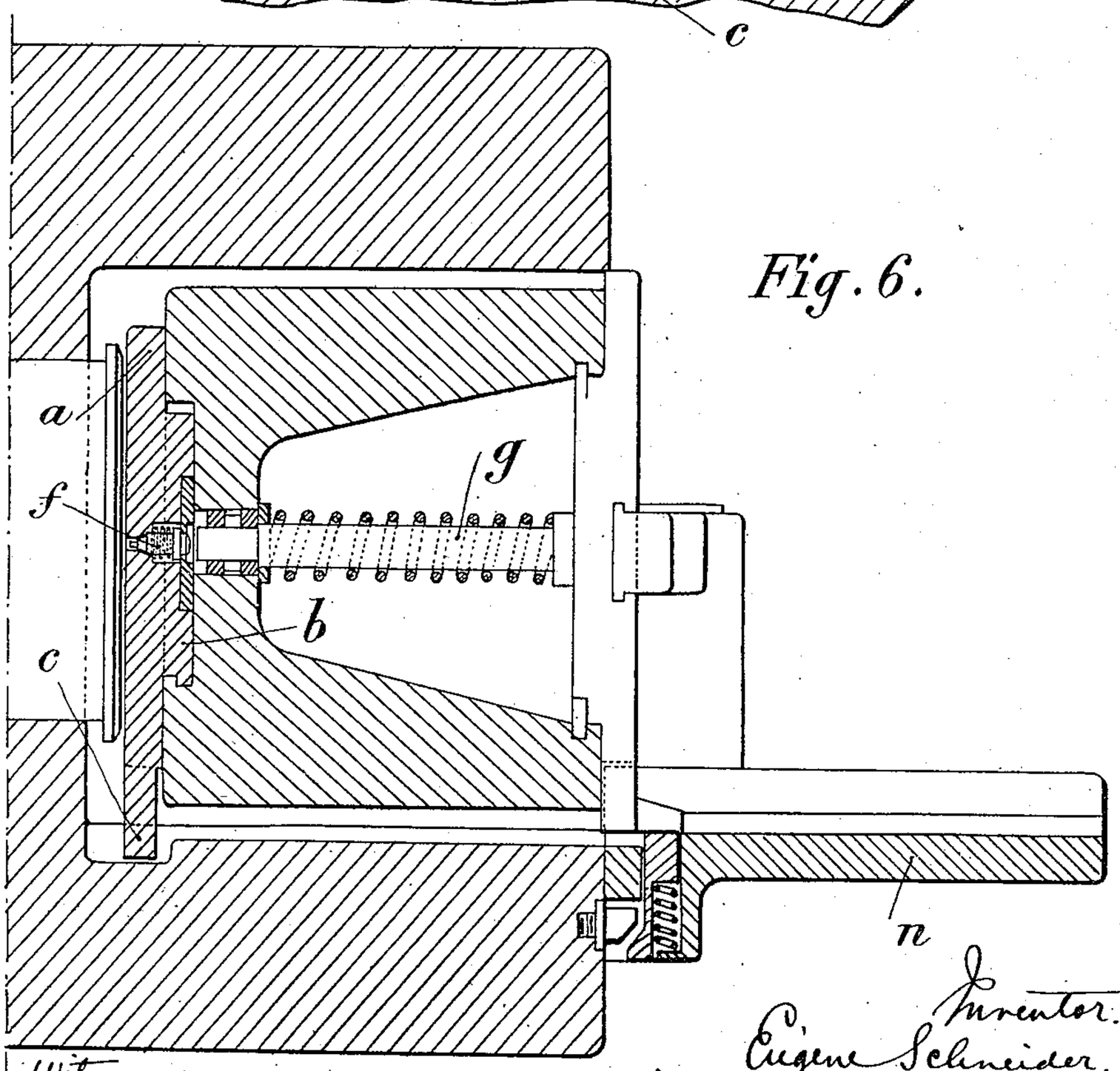


Fig. 6.

Witnesses:-
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8 SHEETS—SHEET 4.

Fig. 5.

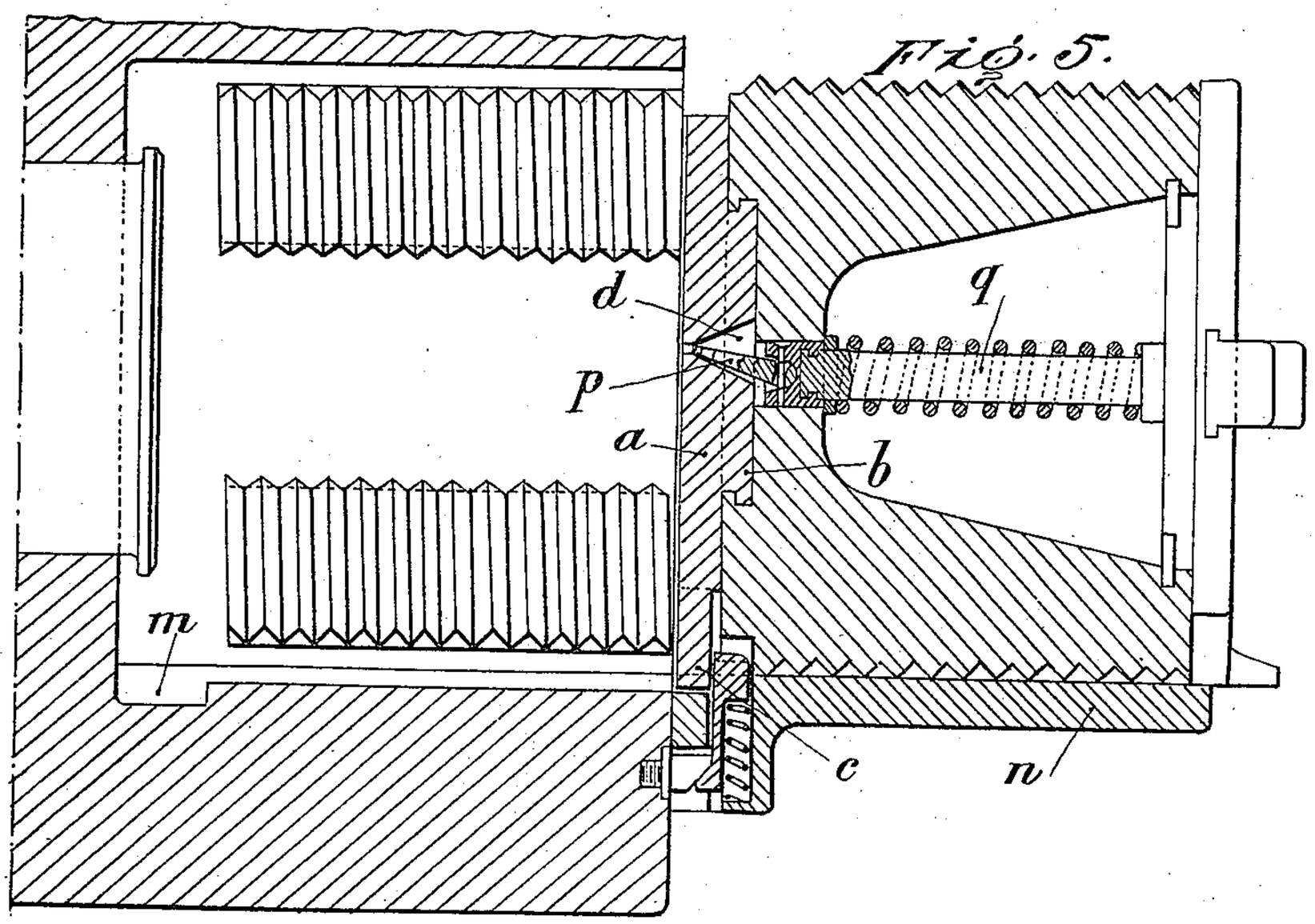
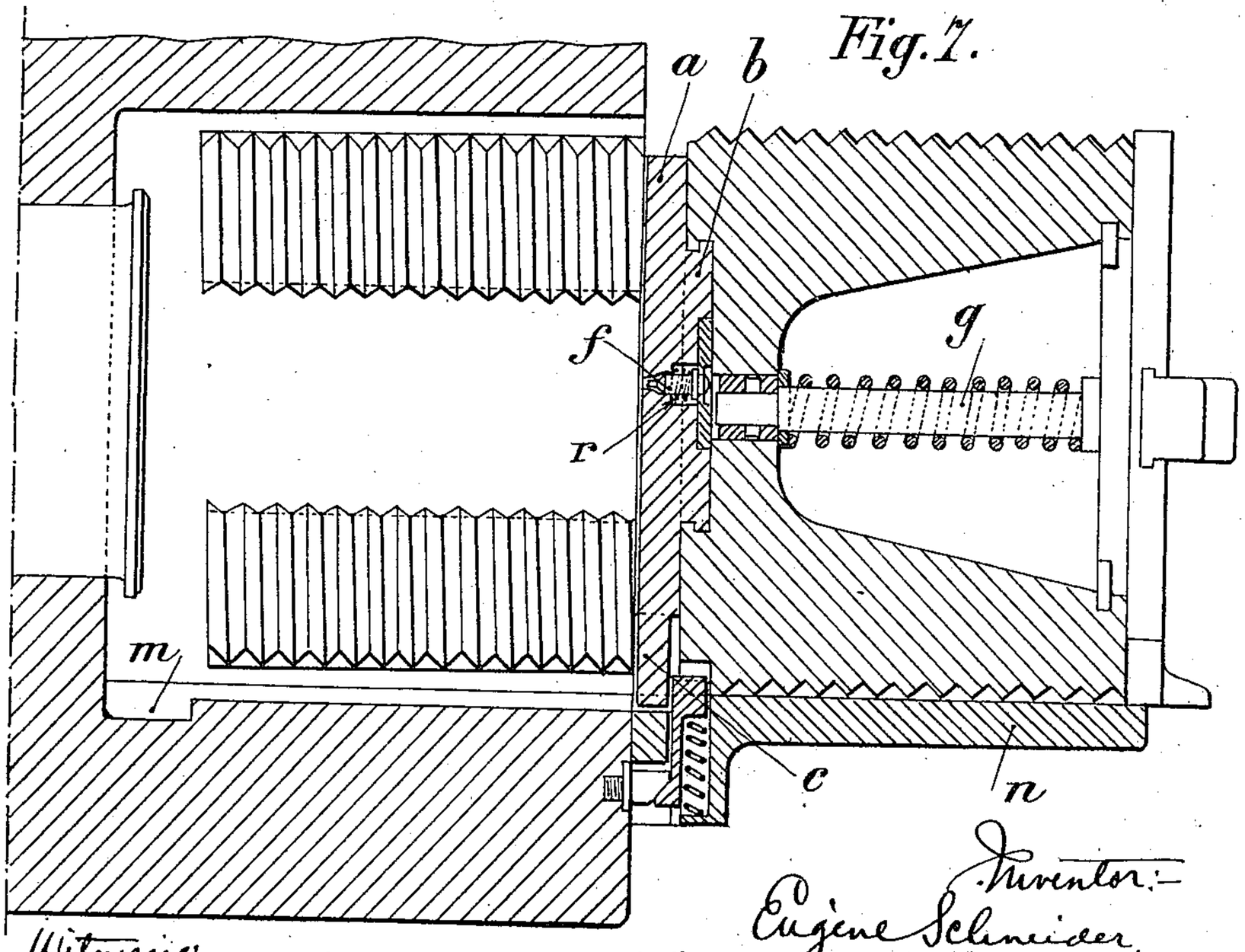


Fig. 7.



Witnesses:-
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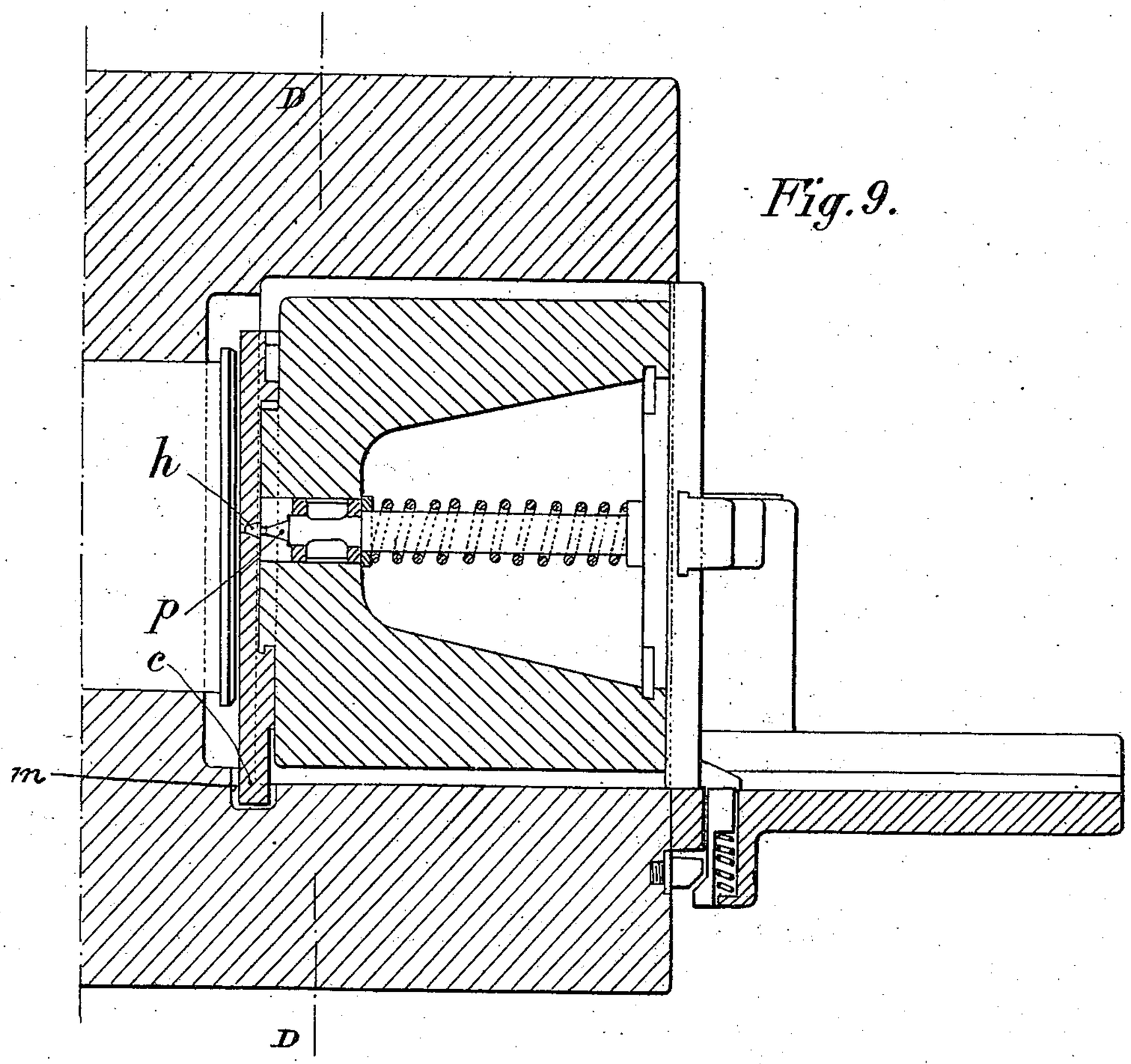
8 SHEETS—SHEET 6.

Fig. 9.



Witnesses:-
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8 SHEETS—SHEET 5.

Fig. 10.

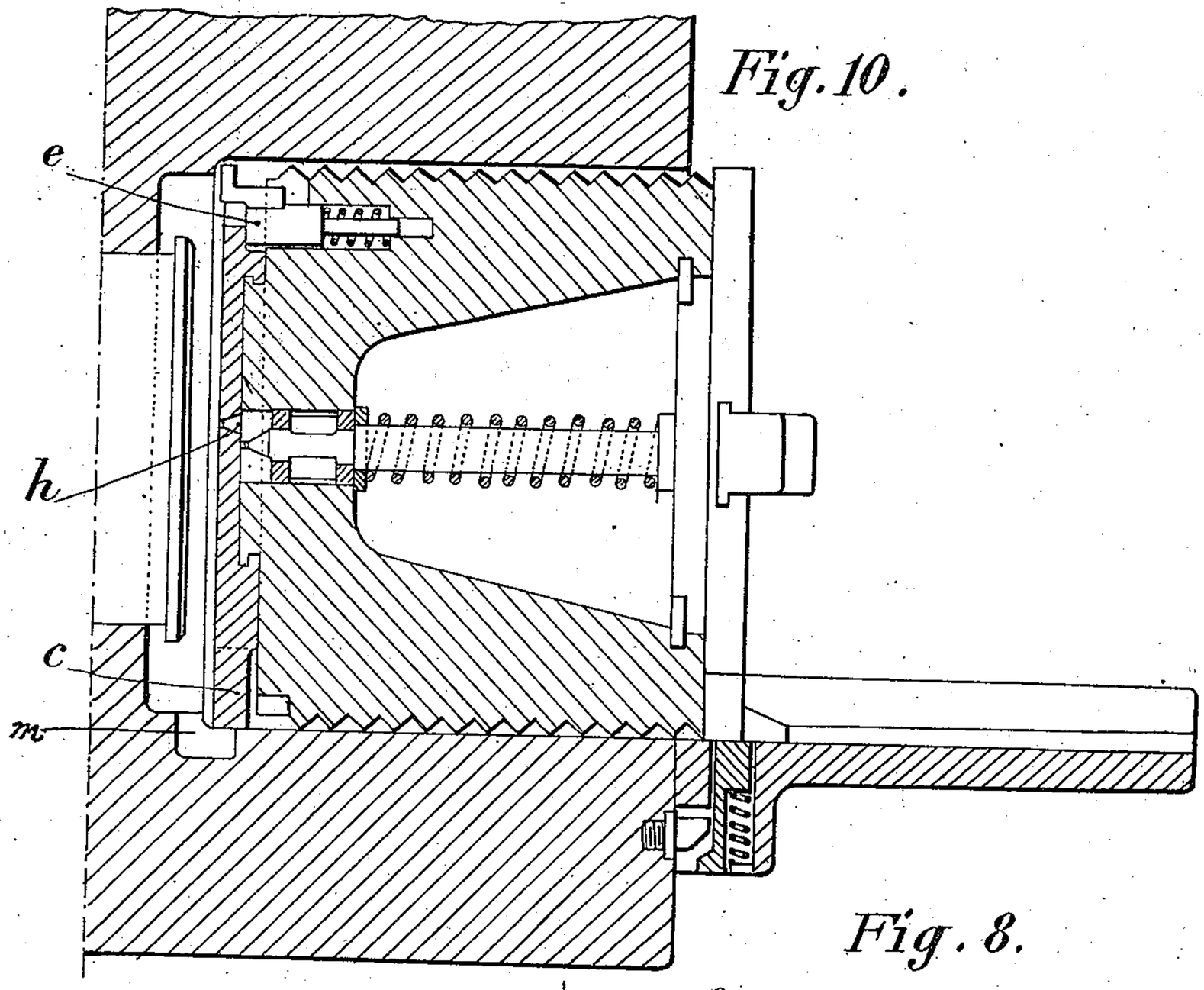
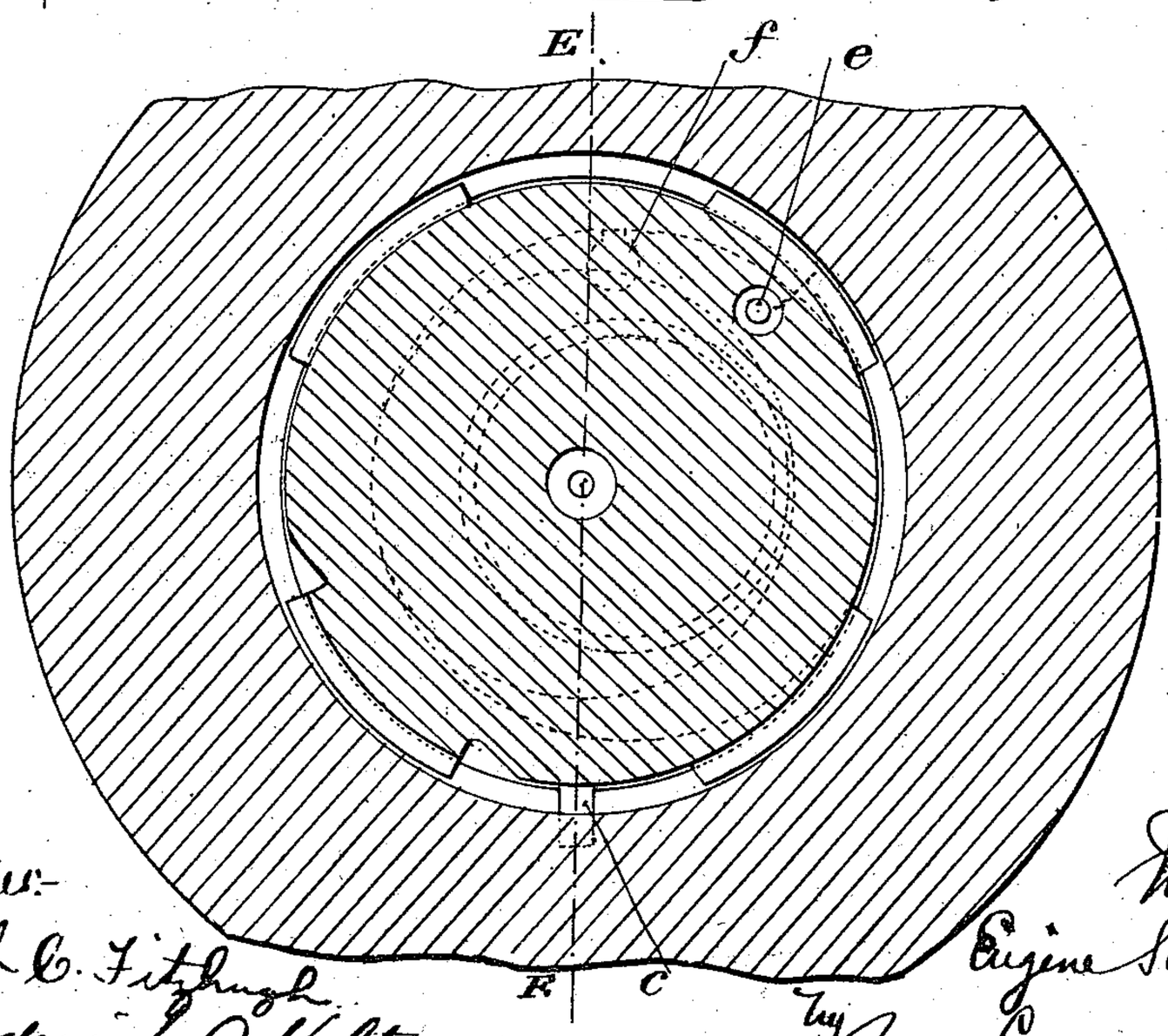


Fig. 8.



Witnesses:-
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No. 883,576. PATENTED MAR. 31, 1908.

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FIRING MECHANISM OF ORDNANCE.

APPLICATION FILED FEB. 2, 1907.

8 SHEETS—SHEET 7.

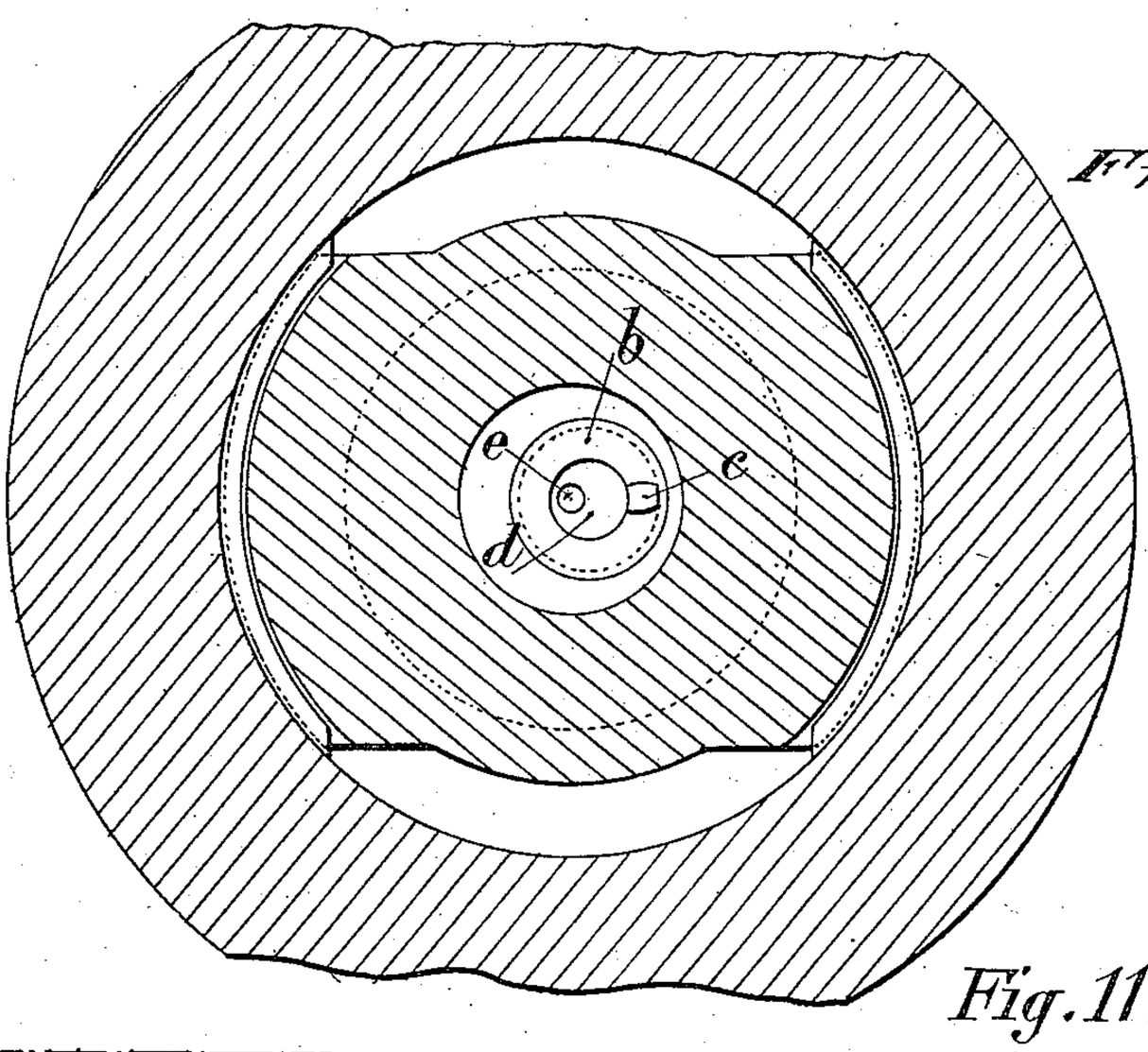

Fig. 12.

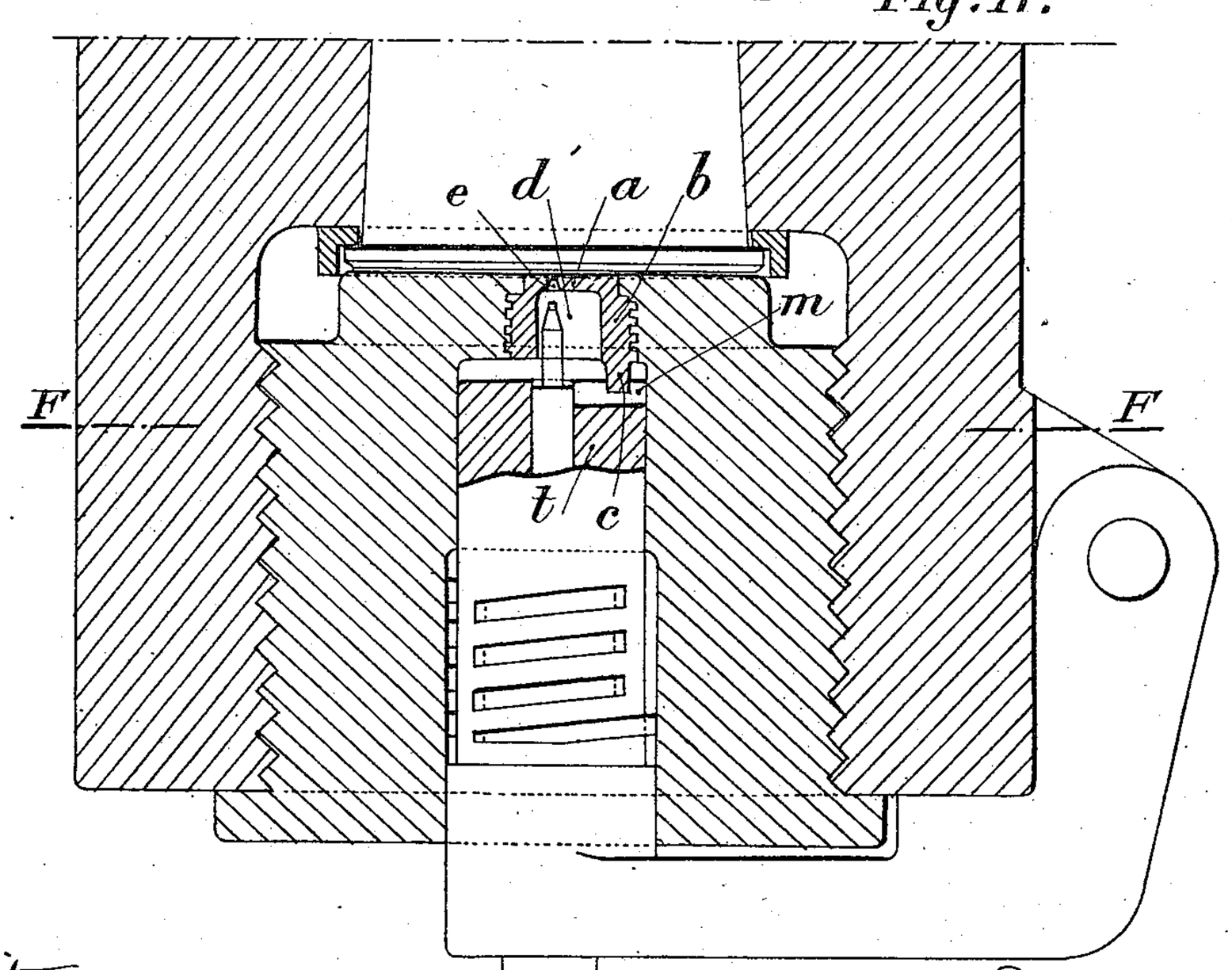

Fig. 11.

Witnesses:-
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No. 883,576.

E. SCHNEIDER. PATENTED MAR. 31, 1908.

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8 SHEETS—SHEET 8.

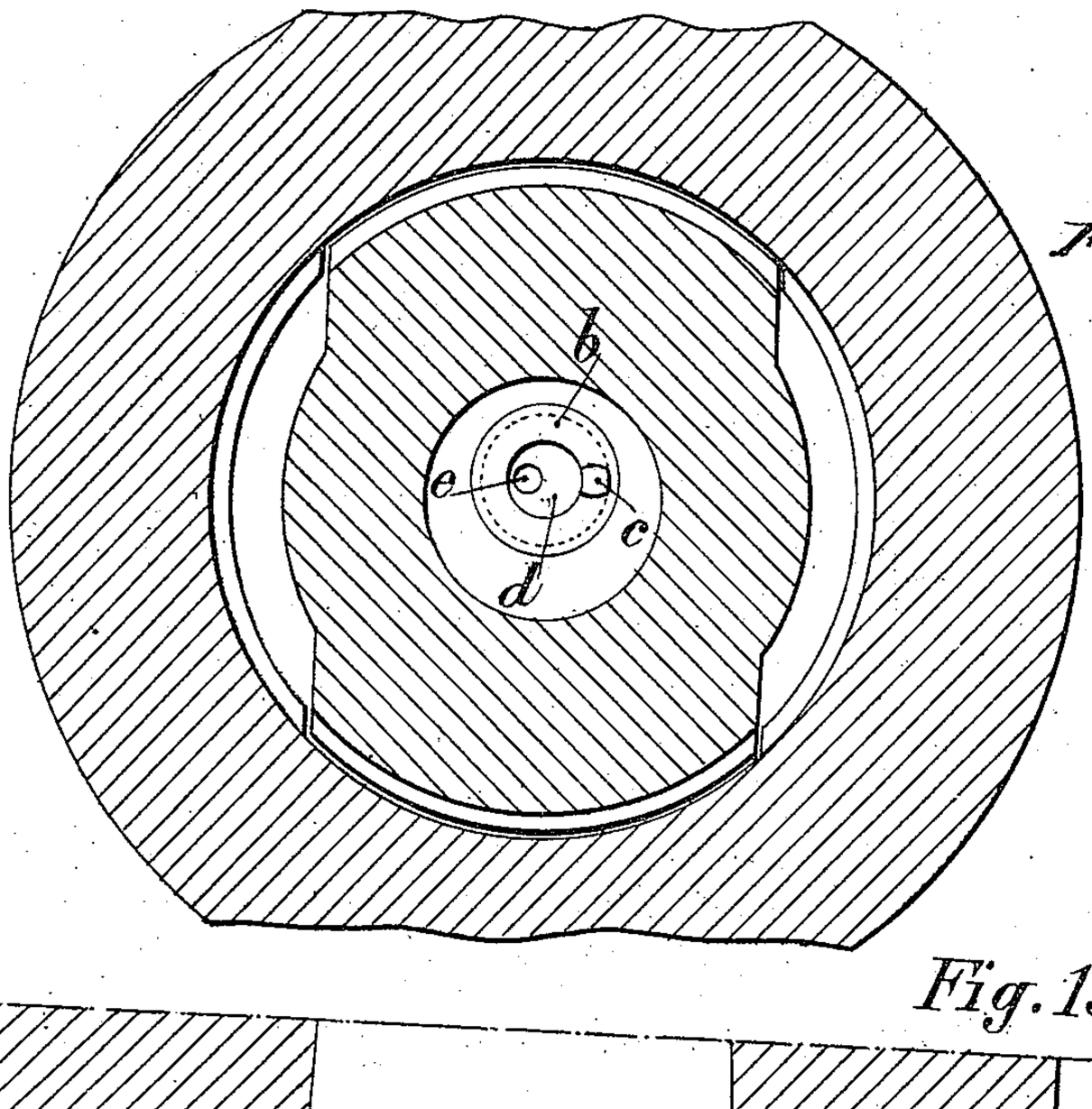
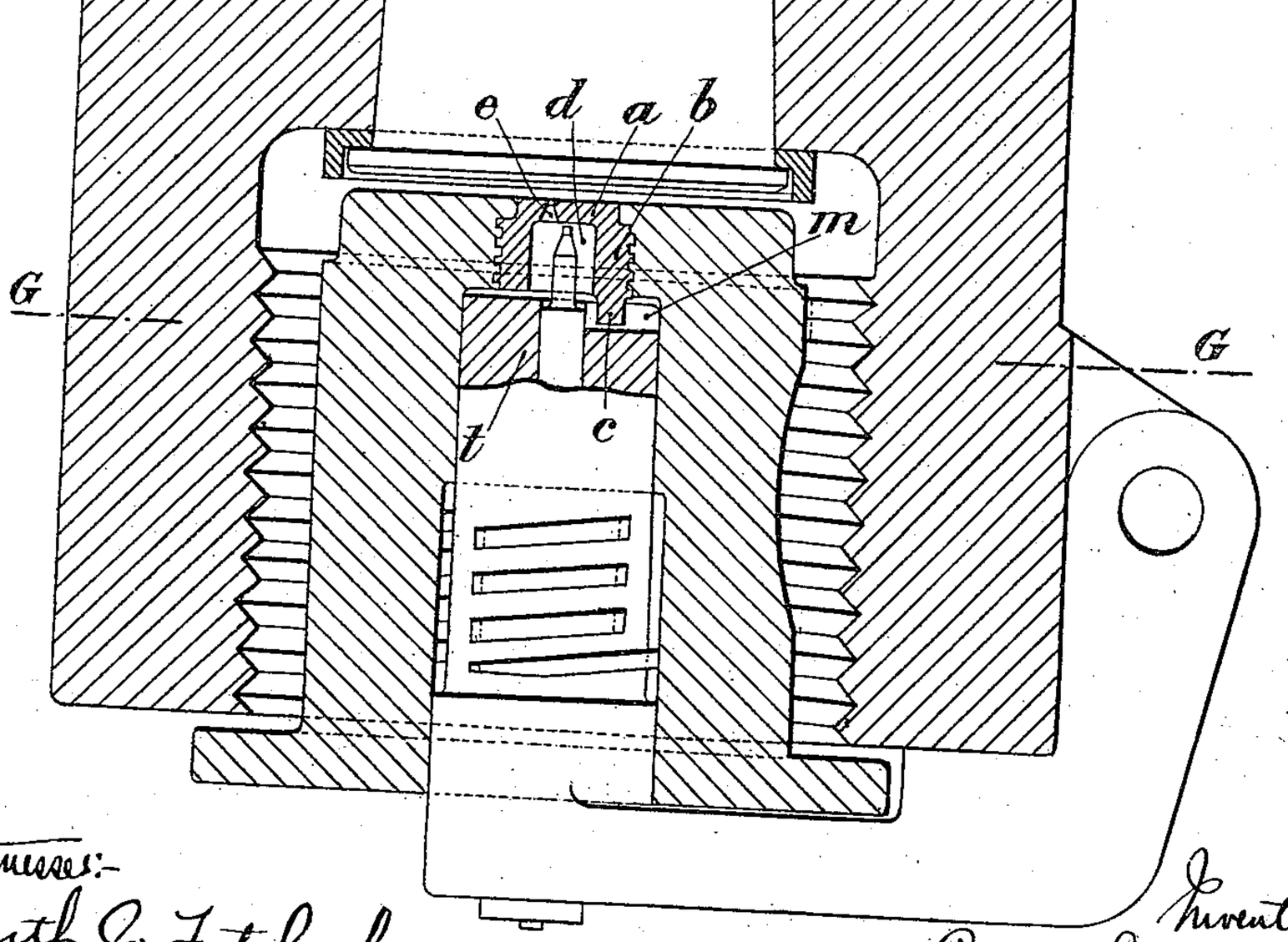


Fig. 14.

Fig. 13.



Witnesses:-
Ruth L. Fitzhugh.
Frederick A. Holton.

Inventor:-
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Attys.

UNITED STATES PATENT OFFICE.

EUGENE SCHNEIDER, OF LE CREUSOT, FRANCE.

FIRING MECHANISM OF ORDNANCE.

No. 883,576. Specification of Letters Patent. Patented March 31, 1908.

Application filed February 2, 1907. Serial No. 355,473.

To all whom it may concern:

Be it known that I, EUGENE SCHNEIDER, resident of Le Creusot, Saône-et-Loire, in the Republic of France, have invented a new and useful Improvement in or Relating to the Firing Mechanism of Ordnance, which invention is fully set forth in the following specification.

The present invention relates to firing mechanism for ordnance, and has for its object to prevent the premature or accidental explosion of the cartridge, by permitting the firing pin to be actuated only when the breech block is in firing position in the breech. This result is accomplished by eccentrically securing to the front face of a rotatable breech block a firing plate or shield having a firing-pin hole therethrough, and in preventing this plate from rotating with the breech block when the latter is rotated to release it from the screw-threads of the breech. The result is that the firing-pin hole is rendered eccentric and is in line with the firing-pin only when the breech block is in firing position in the breech, and at all other times the firing-plate constitutes a shield in front of the firing-pin to prevent it touching the cartridge. Or if the firing-pin is carried by the firing-plate said pin is removed from alinement with its actuating mechanism; in other words, rendered eccentric to the axis of the gun.

The invention will be better understood by reference to the accompanying drawings, wherein—

Figure 1 is a transverse section through the breech and breech block on the line A—A, Fig. 3; Fig. 2 is a section on the line B—B, Fig. 1, and Fig. 3 is a section on the line C—C, Fig. 1; Figs. 4 and 5 are sections corresponding, respectively, to those of Figs. 1 and 2, but with the breech unscrewed; Figs. 6 and 7 are longitudinal sectional views of another expression of the inventive idea; Figs. 8, 9, and 10 illustrate another modification, Fig. 8 being a transverse section on the line D—D, Fig. 9, Fig. 9 a longitudinal section on the line E—E, Fig. 8, and Fig. 10 a view corresponding to Fig. 9, the breech screw being shown in the position it occupies when partly unscrewed; and Figs. 11, 12, 13 and 14 illustrate still another modification, Figs. 11 and 13 being horizontal longitudinal sections showing the breech block screwed and unscrewed, respectively, and Figs. 12 and 14 are transverse sections on lines F—F and G—G of Figs. 11 and 13, respectively.

Referring to the drawings, and particularly Figs. 1–5 thereof, *a* is a firing-plate in the form of a disk secured to the breech block by a journal *b* concentric with said disk but eccentric to the breech block to which it is secured by a bayonet joint. This plate is provided with a finger or extension *c* which engages in a groove *m* formed in the breech portion of the gun, and in the platform *n*, so that plate *a* may be prevented from participating in the rotating movement of the breech block and so become displaced when the breech is open.

Firing plate *a* and its journal *b* are provided with a firing-pin hole *d* arranged eccentrically but which is in alinement with the axis of the screw when the breech block is screwed in firing position in the breech, at which time a firing-pin *p*, pivoted upon a support *q* carried by the breech block and projecting into said hole *d*, is then opposite the percussion cap or the primer, and the cartridge or shell may then be fired. If, on the other hand, the breech is open, Figs. 4 and 5, the firing-pin is displaced on its axis by the firing-plate *a* by reason of the fact that firing-pin hole *d* is then eccentric to the axis of the gun, and it is, accordingly, impossible to make the same contact with the primer to explode the cartridge or shell.

Figs. 6 and 7, which respectively illustrate the breech block in firing position in the breech and removed therefrom, show a different expression of the inventive idea. In this case also firing-plate *a* is provided with a finger or extension *c*, but the plate *a* carries a firing-pin *f* movable longitudinally of the gun in a recess *r* arranged at the center of plate *a* and its journal *b*, said firing-pin *f* being independent of the firing mechanism. When the breech block is screwed in the breech in firing position, the firing-pin *f* is concentric with the axis of the gun and is then opposite a plunger *g* of the firing mechanism, and accordingly in a position to be actuated by said plunger to fire the percussion cap. On the other hand, when the breech is open (Fig. 7)

the firing-pin *f* is eccentric; it is no longer located opposite plunger *g* nor in front of the percussion cap, and therefore cannot be actuated to fire the gun.

In the expression of the inventive idea illustrated in Figs. 8, 9 and 10, the firing-plate *a* is as heretofore, provided with a firing-pin hole *h*. When the breech is closed, the firing-pin hole is concentric with the breech and with the gun, so as to enable the firing-pin to pass through the firing-plate and strike the percussion cap. When the breech is open, the firing-hole is eccentric and the firing-plate is accordingly interposed between the percussion cap and the firing-pin, thereby preventing the latter from firing the charge.

In guns which are not supplied with a platform *n*, or constructed in such manner that it is impossible to form therein a continuation of the groove *m*, it is necessary to provide some other means for immobilizing firing-plate *a* when finger *c* leaves groove *m*. One such arrangement is shown in Figs. 8 to 10. When the breech is open, the finger *c* has left groove *m* and the firing-plate is then held in a position with a solid portion thereof opposite the firing-pin, by a spring-pressed bolt *e* which is arranged in the breech screw and which enters the firing-plate *a* in proportion as it loses contact with the gun during the first rearward displacement of the breech-screw, the plate *a* being thus effectively locked notwithstanding that finger *c* has left groove *m*. On closing the finger *c* is reintroduced into its recess while the bolt again comes into contact with the gun and is forced back, thus releasing the firing-plate before the movement of rotation of the breech-screw begins. The plate *a* is thus relieved from the bolt, but it is then held by finger *c* and the movement of rotation of the screw may be effected.

Another expression of the inventive idea is illustrated in Figs. 11-14 inclusive. This form comprises a plate or metal screen *a*, arranged in front of the breech-screw to shield the percussion cap from the point of the firing-pin so long as the breech screw is not completely screwed into the breech. This plate or screen *a* carries a cylindrical extension in the shape of a socket *b* which is mounted by means of screws or teeth and is eccentric in the breech. A small finger *c* which is engaged in a mortise *m* formed at the extremity of the supporting stem of the breech-screw prevents the screen *a* from rotating with the screw. The recess *d* in the socket *b* of the screen forms a housing for the front extremity of the firing-pin, and said plate or screen *a* has formed therein an opening *e* similar in shape to the point of the firing-pin, through which orifice the point of the firing-pin passes in order to strike the percussion cap. This opening is arranged so that it is only brought in front of the firing-pin, owing to the eccentricity of the screen-journal *a*—*b*, when the breech is completely closed.

What is claimed is:—

1. In a breech-loading gun, the combination of a removable breech-block, a shield eccentrically secured at the inner end of the breech-block, a firing pin, and means restraining said shield from participating in the unlocking movement of the breech-block to prevent said firing pin exploding the charge except when the breech-block is locked in the breech.

2. In a breech-loading gun, the combination of a rotatable breech-block, a plate or shield eccentrically mounted at the front of said breech-block and provided with an opening, a firing pin in alinement with said opening when the breech-block is locked in the breech, and means preventing said plate or shield participating in the rotation of the breech-block to remove said opening from alinement with the firing pin except when the breech-block is locked in the breech.

3. In a breech-loading gun, the combination of a rotatable breech-block, a plate or shield eccentrically mounted on the front of said breech-block, and means preventing said plate or shield participating in the rotation of the breech-block.

4. In a breech-loading gun, the combination of a breech-block rotatable concentrically in the gun-breech, a firing-pin, a shield for said firing-pin eccentrically mounted at the front of said breech-block and having an opening therethrough, and means preventing said shield participating in the rotating movment of the breech-block whereby said opening comes in line with said firing-pin only when the breech-block is in firing position in the breech.

5. In a breech-loading gun, the combination of a rotatable breech-block, a firing-pin, a shield therefor having a finger or projection engaging a fixed part of the gun mounted at the front of said breech-block, and having an opening therethrough which comes in line with said firing-pin only when the breech-block is in firing position in the breech.

6. In a breech-loading gun, the combination of a rotatable breech-block, a firing pin, a shield therefor having a finger or projection engaging in the recess in the breech mounted at the front of said breech-block and having an opening therethrough which comes in line with said firing-pin only when the breech-block is in firing position in the breech, the breech being also provided with a groove which joins said recess.

7. In a breech-loading gun, the combination of a rotatable breech-block, a firing pin,

a firing-plate therefor having a finger or projection engaging a fixed part of the gun and eccentrically pivoted to the front face of the breech-block, said firing-plate having an opening therethrough which comes in line with said firing-pin only when the breech-block is in firing position in the breech.

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

EUGENE SCHNEIDER.

Witnesses:

ROBERT DE SEVELINGER,

HANSON C. COXE.