

No. 734,005.

PATENTED JULY 21, 1903.

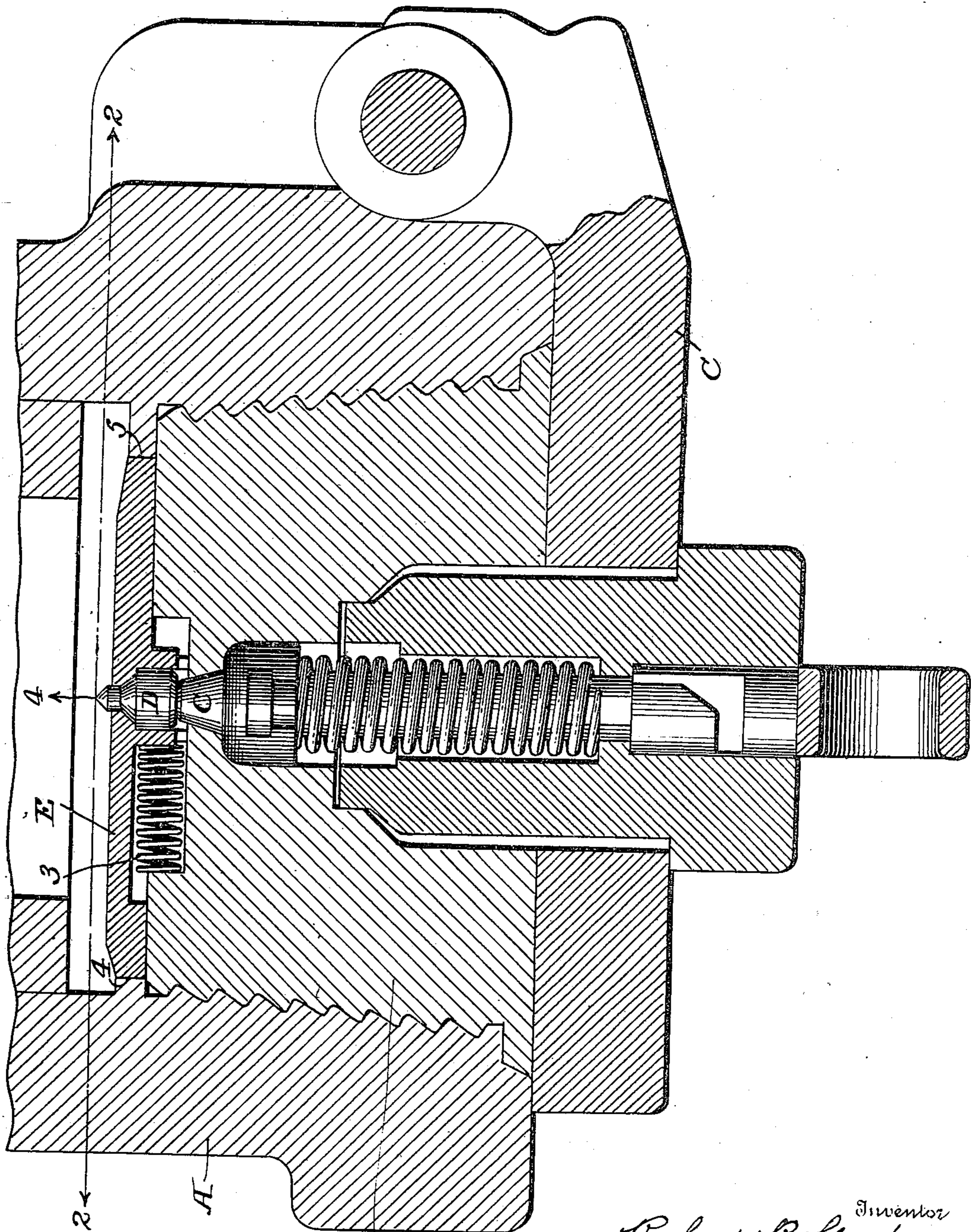
R. P. STOUT & F. G. HUGHES.

FIRING MECHANISM.

APPLICATION FILED DEC. 22, 1902.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses  
*J. G. Hinkel*  
*A. C. Stannum.* *Fig. 1.*

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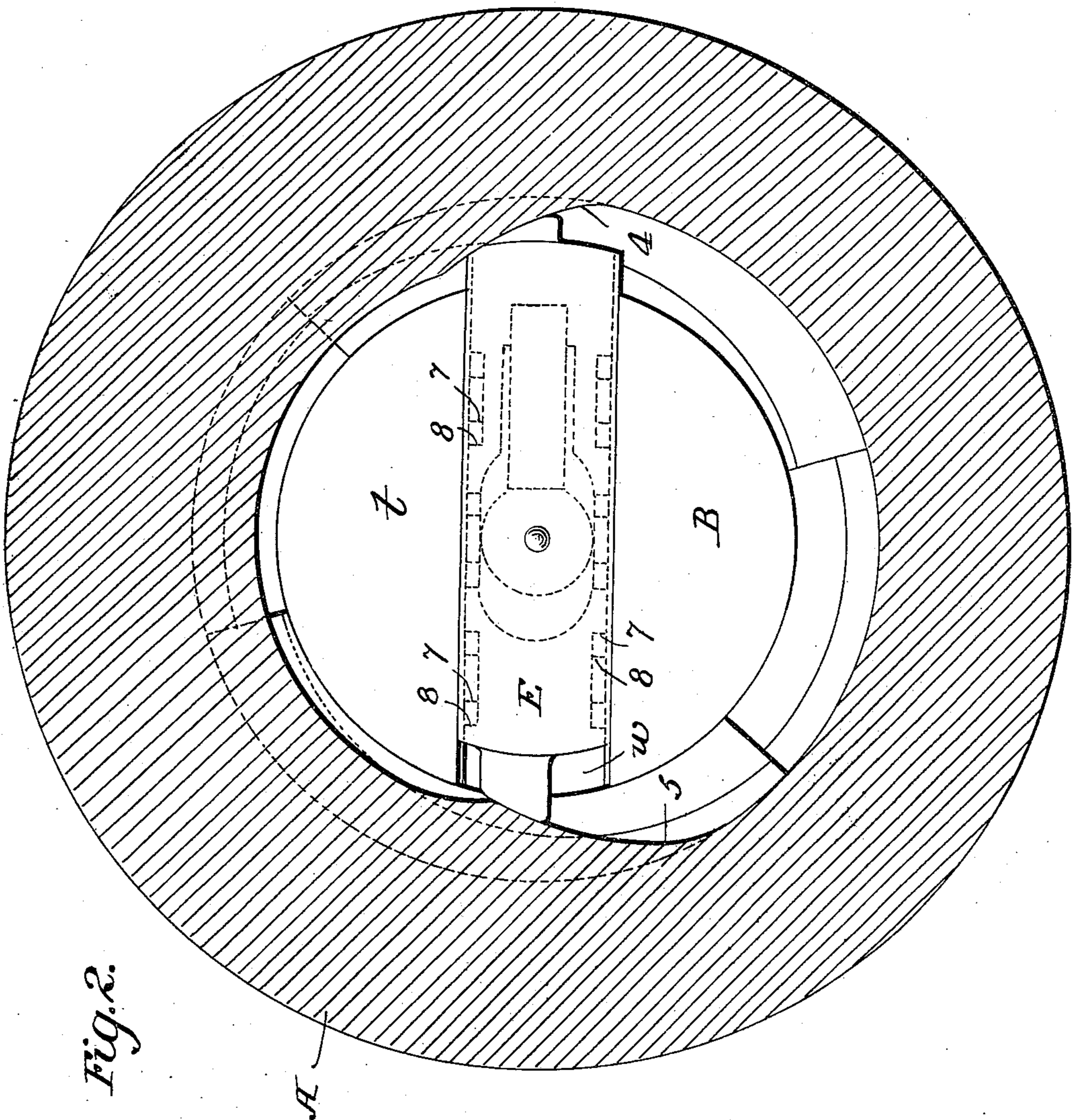


Fig. 2.

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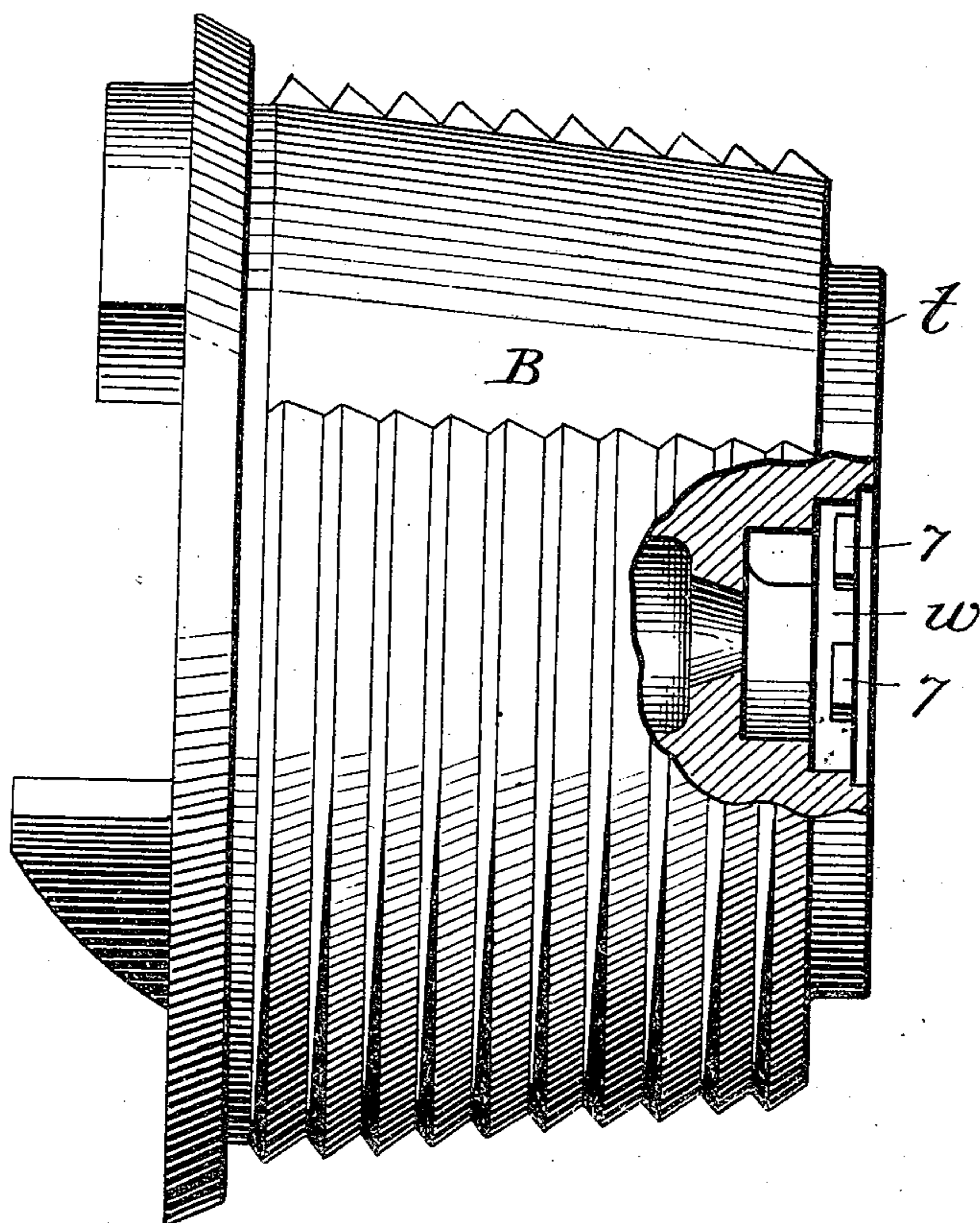
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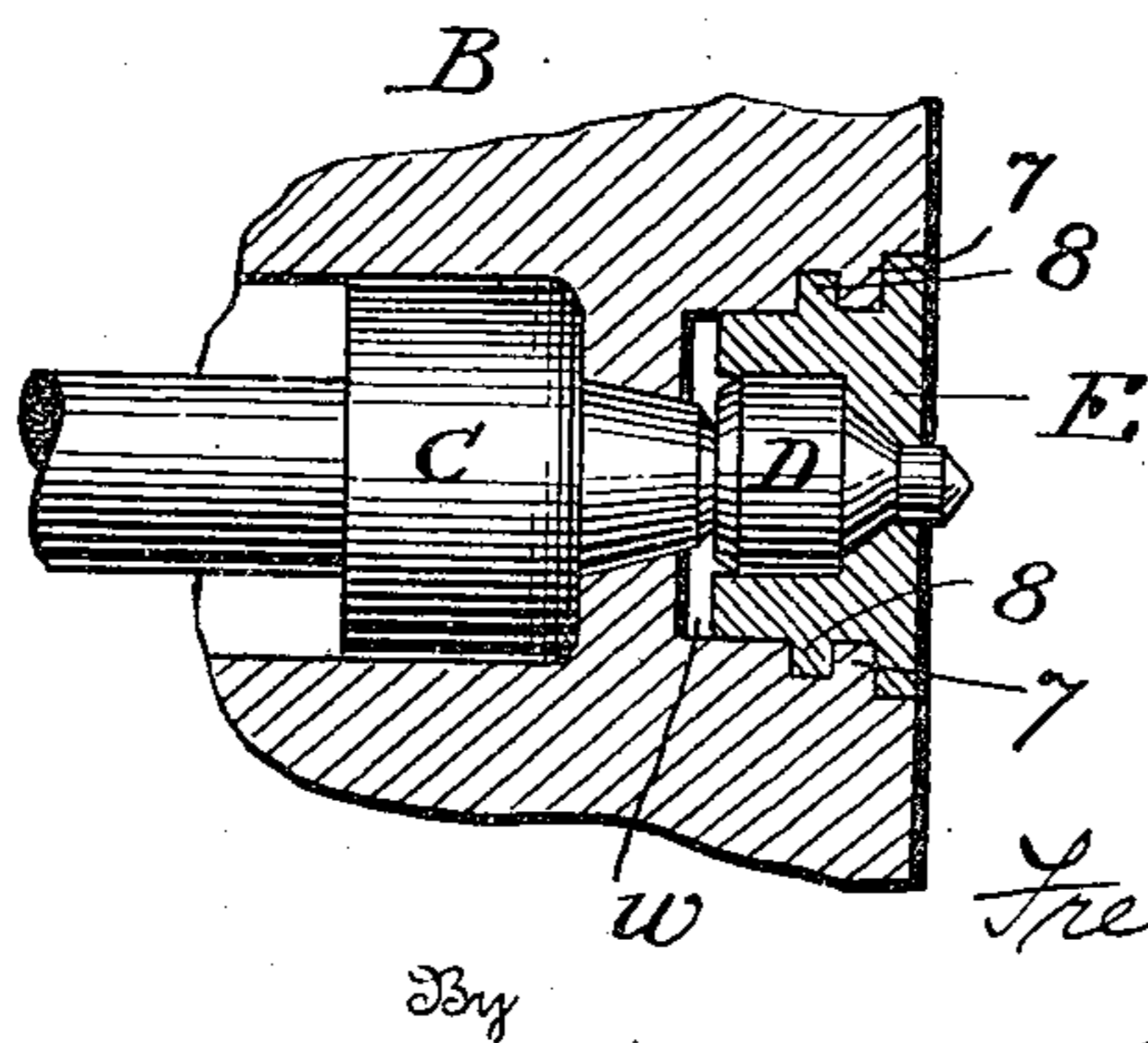
NO MODEL.

3 SHEETS—SHEET 3.

*Fig. 3.*



*Fig. 4.*



Witnesses

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# UNITED STATES PATENT OFFICE.

ROBERT P. STOUT AND FREDERICK G. HUGHES, OF BETHLEHEM, PENNSYLVANIA, ASSIGNORS TO BETHLEHEM STEEL COMPANY, OF SOUTH BETHLEHEM, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

## FIRING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 734,005, dated July 21, 1903.

Application filed December 22, 1902. Serial No. 136,300. (No model.)

*To all whom it may concern:*

Be it known that we, ROBERT P. STOUT and FREDERICK G. HUGHES, citizens of the United States, residing at Bethlehem, in the county of Northampton and State of Pennsylvania, have invented certain new and useful Improvements in Firing Mechanism, of which the following is a specification.

Our invention relates to the firing mechanism of a gun; and it consists in supporting a firing-block movably at the inner end of the breech-block in such relation to the firing-rod or other actuating device and so combined with actuating means that the firing-block and its point will be in position to explode the primer only when the breech-block is properly closed, as fully set forth hereinafter and shown in the accompanying drawings, in which—

Figure 1 is a sectional plan of the breech mechanism of a gun embodying our invention. Fig. 2 is a transverse section on the line 2 2, Fig. 1. Fig. 3 is a side view of the breech-block in part section; and Fig. 4 is a section on the line 4 4, Fig. 1.

The gun A is provided with the usual threaded breech for the reception of the breech-block B, and the latter carries suitable firing mechanism—for instance, a spring-actuated firing-head C, although it might be an electric or other firing device. As shown, the firing-block D has a firing-pin and is carried by the breech-block, but is capable of lateral movement thereon, and we provide means whereby the said pin is brought into position to explode the cartridge only when the breech-block is practically fully home to firing position. Different means may be provided for shifting the firing-pin into and out of position. As shown, the firing-block D is supported to slide longitudinally by a carrier, (shown as a plate E,) which slides transversely at the inner end of the breech-block in a projection *t*, less in diameter than the block, and is held to one side before inserting the breech-block by a spring 3, lying partly in a groove of the breech-block and partly in a recess in the plate E. The firing-pin is thus normally maintained in safety position until the breech-block is inserted. To shift the carrier-plate

and pin as the breech-block is closed, we provide inclines or cams 4 5 within the breech in position to receive the carrier-plate between them with its ends opposite the inclines, the latter so arranged that the final rotary movement of the breech-block will shift the carrier-plate against the stress of the spring 3 and bring the firing-pin properly opposite the firing-point of the cartridge just as the movement of the breech-block is completed. The cartridge may then be fired by releasing the firing-head, which is projected against the firing-block, driving its point into the cartridge. It will be seen that as the firing-block is not in position to coact with the cartridge until the breech is fully closed no premature firing can occur.

To facilitate the connection of the carrier-plate with the breech-block, the latter has a transverse groove *w*, with side lugs 7 7 at each edge, said lugs separated by spaces equal in length to the lugs and adapted for the passage of lugs 8 at the edges of the carrier-plate. The lugs are relatively so arranged that the carrier-plate can be applied to pass its lugs between those of the block until the face of the plate is flush with the block, when the plate is moved longitudinally to carry its lugs back of those of the block. The outer part of the carrier-plate is of a width to completely fill the groove *w* outside, the lugs 7 thus closing the groove, practically securing dustproof joints between the carrier-plate and the breech-block, and as the projection *t* is less in diameter than the block the carrier can extend the length of and project beyond the ends of the groove, completely filling the same at all times.

Without limiting ourselves to the precise construction and arrangement shown, we claim—

1. The combination with a gun and its removable breech-block, of a movable firing-block carried at the inner end of the breech-block, and means for shifting the firing-block across the inner face of the breech-block to firing position as the breech is closed, substantially as set forth.

2. The combination with the gun and its rotatable breech-block, of a firing-block car-

ried at the inner end of the breech-block, means for maintaining the firing-block at one side of its firing position until the breech is fully closed, and means for shifting the firing-block across the inner face of the breech-block into firing position only as the breech-block is turned to fully close the breech, substantially as set forth.

3. The combination with the gun and its rotatable breech-block, of a firing-block carried at the inner end of the breech-block, and means for shifting the firing-block across the inner face of the breech-block into firing position by the rotation of the breech-block, substantially as set forth.

4. The combination with the breech mechanism of a gun, of a firing-block mounted at the inner end of the breech-block, and means for carrying the firing-block across the inner face of the breech-block into firing position as the breech-block is carried to its closed position, substantially as set forth.

5. The combination with the breech mechanism of a gun, of a carrier carrying a firing-block mounted at the inner end of the breech-block, and means for moving the carrier with its firing-block across the inner face of the breech-block, to bring the firing-block into firing position as the breech-block is carried to its closed position, substantially as set forth.

6. The combination with the breech-block having a transverse groove at its inner end, of a carrier fitting said groove and carrying a firing-block, and means for shifting the carrier across the inner face of the breech-block to carry the firing-pin to a central position as the breech is closed, substantially as set forth.

7. The combination with the breech-block having at the inner end a projection, less in diameter than the block, with a transverse groove, of a carrier fitting said groove and carrying a firing-block and means for shifting the carrier as the block is turned, substantially as set forth.

8. The combination with the breech-block, of a movable carrier at the inner end of the breech-block, a firing-block sliding in the carrier, and means for shifting the carrier, substantially as set forth.

9. The combination with the breech-block and a firing-rod, of a movable carrier at the inner end of the breech-block, a firing-block sliding in the carrier, and means for shifting the carrier and for carrying said rod against the firing-block when the latter is in firing position, substantially as set forth.

10. The combination of the rotatable breech-block, firing-block and carrier therefor at the inner end of the breech-block, and actuating-inclines on the gun for shifting the carrier, substantially as set forth.

11. The combination of the grooved breech-block, carrier sliding in the groove of the block, means to move the carrier, actuating-spring between the carrier and breech-block, and a firing-block carried by the carrier, substantially as set forth.

12. The combination of the breech-block having a projection with a transverse groove at the inner end and side lugs, firing-block, carrier for said firing-block fitting said groove and having side lugs engaging those of the breech-block, and means for moving the carrier as the breech-block is turned, substantially as set forth.

13. The combination of the breech-block having a projection with a transverse groove at the inner end and side lugs, firing-block, carrier for said firing-block fitting said groove, and having side lugs engaging those of the breech-block, the outer portion of the carrier-plate equal in width to said groove, and means for moving the carrier as the breech-block is turned, substantially as set forth.

14. The combination of the breech-block, its projection at the inner end with a transverse groove and side lugs, firing-block, carrier for said firing-block fitting said groove and having side lugs engaging those of the breech-block, and means for moving the carrier as the breech-block is turned, substantially as set forth.

15. The combination of the gun, breech-block, carrier sliding at the inner end of the breech-block, firing-block movable in said carrier, and inclines on the gun arranged to engage the carrier and shift it positively in both directions, substantially as set forth.

16. The combination of the gun, breech-block, carrier sliding at the inner end of the breech-block, firing-block movable in said carrier, inclines on the gun arranged to engage the carrier and shift it positively in both directions, and a spring for holding the carrier to one side when the breech-block is out of the gun, substantially as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

ROBERT P. STOUT.

FREDERICK G. HUGHES.

Witnesses:

JOHN ROSEWARNE, Jr.,

PAUL E. KRESSLY.