

No. 680,386.

Patented Aug. 13, 1901.

J. F. MEIGS & S. A. S. HAMMAR.

BREECH MECHANISM.

(Application filed Jan. 18, 1901.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

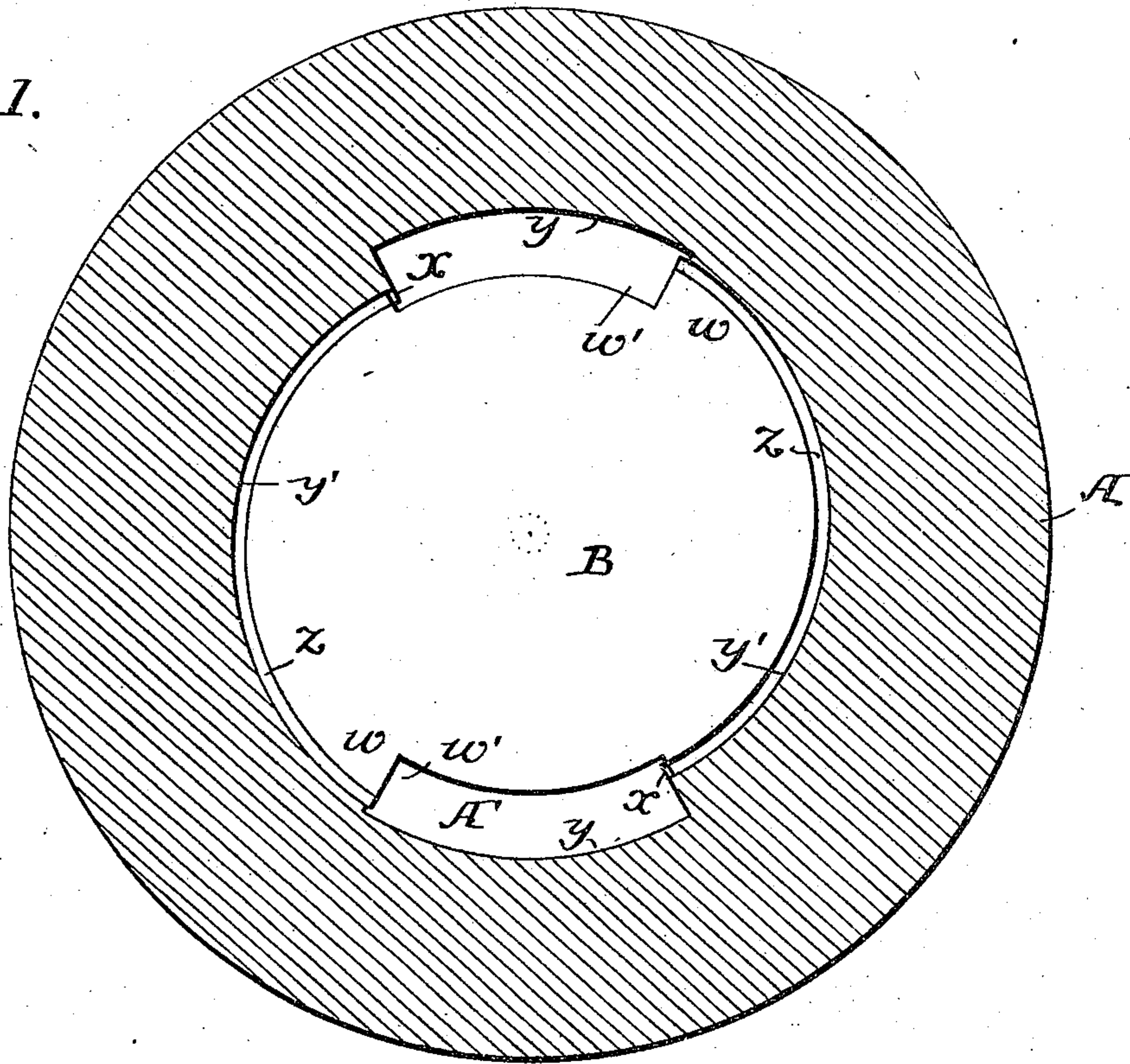
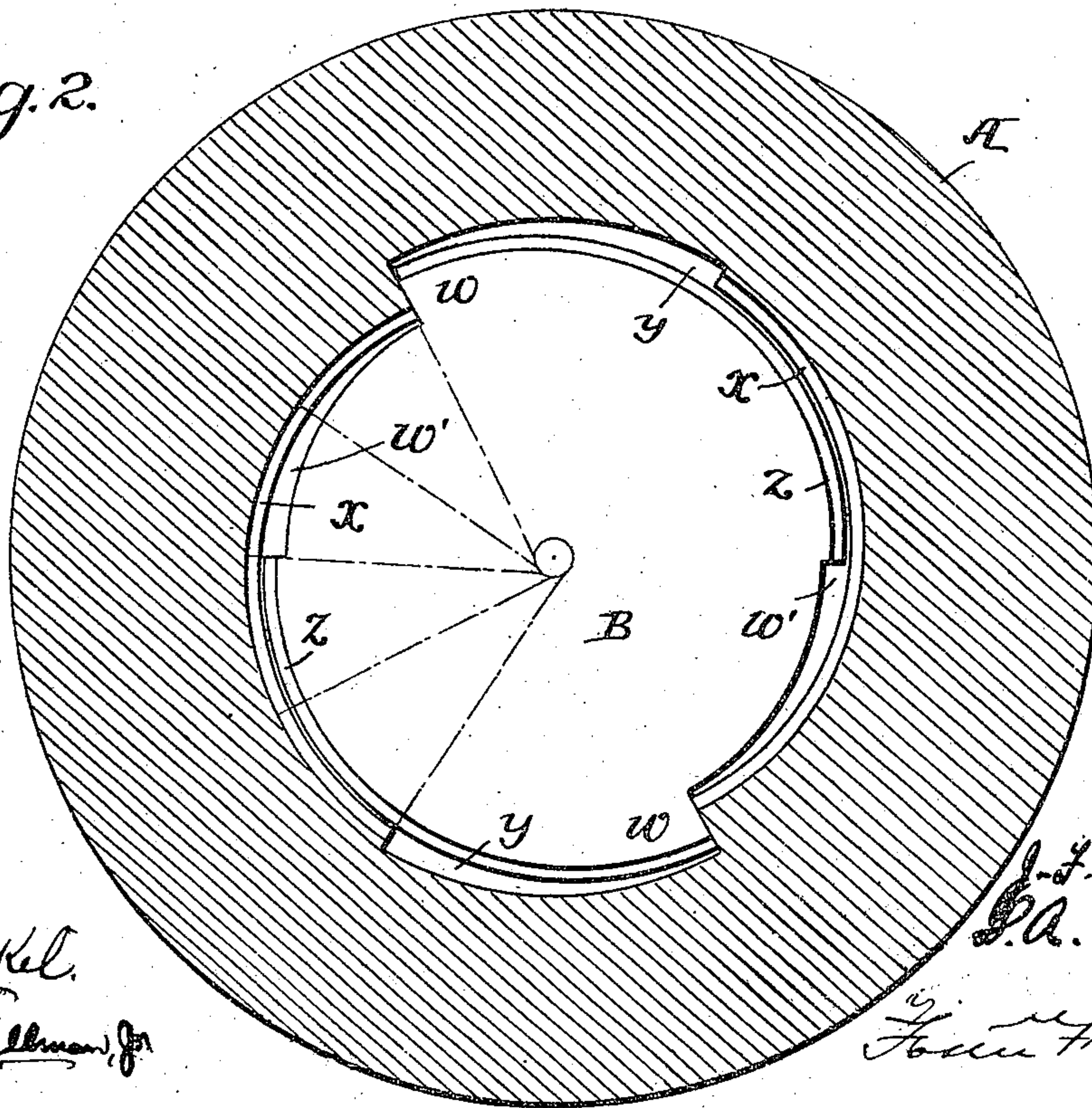


Fig. 2.



Witnesses

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Fig. 3

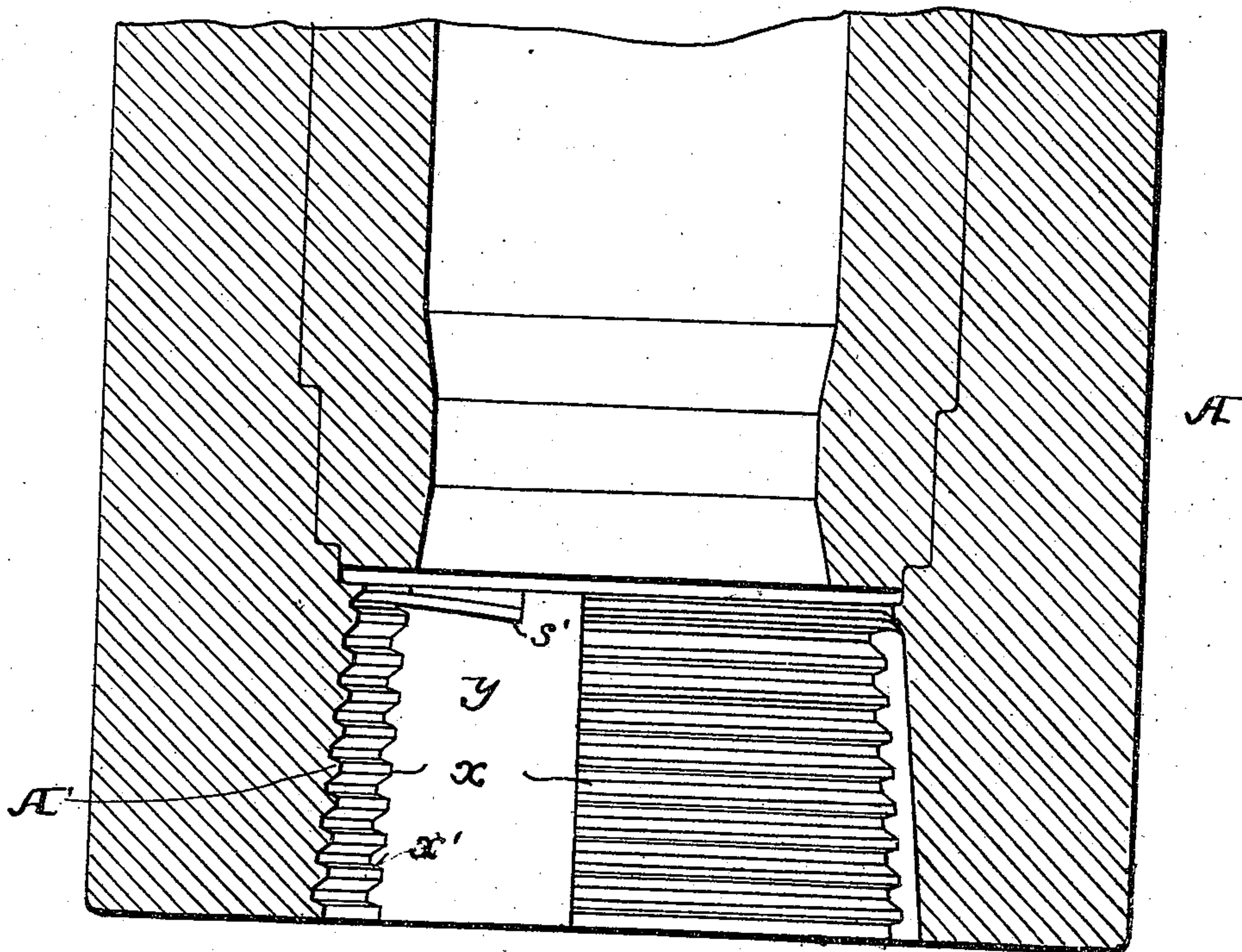
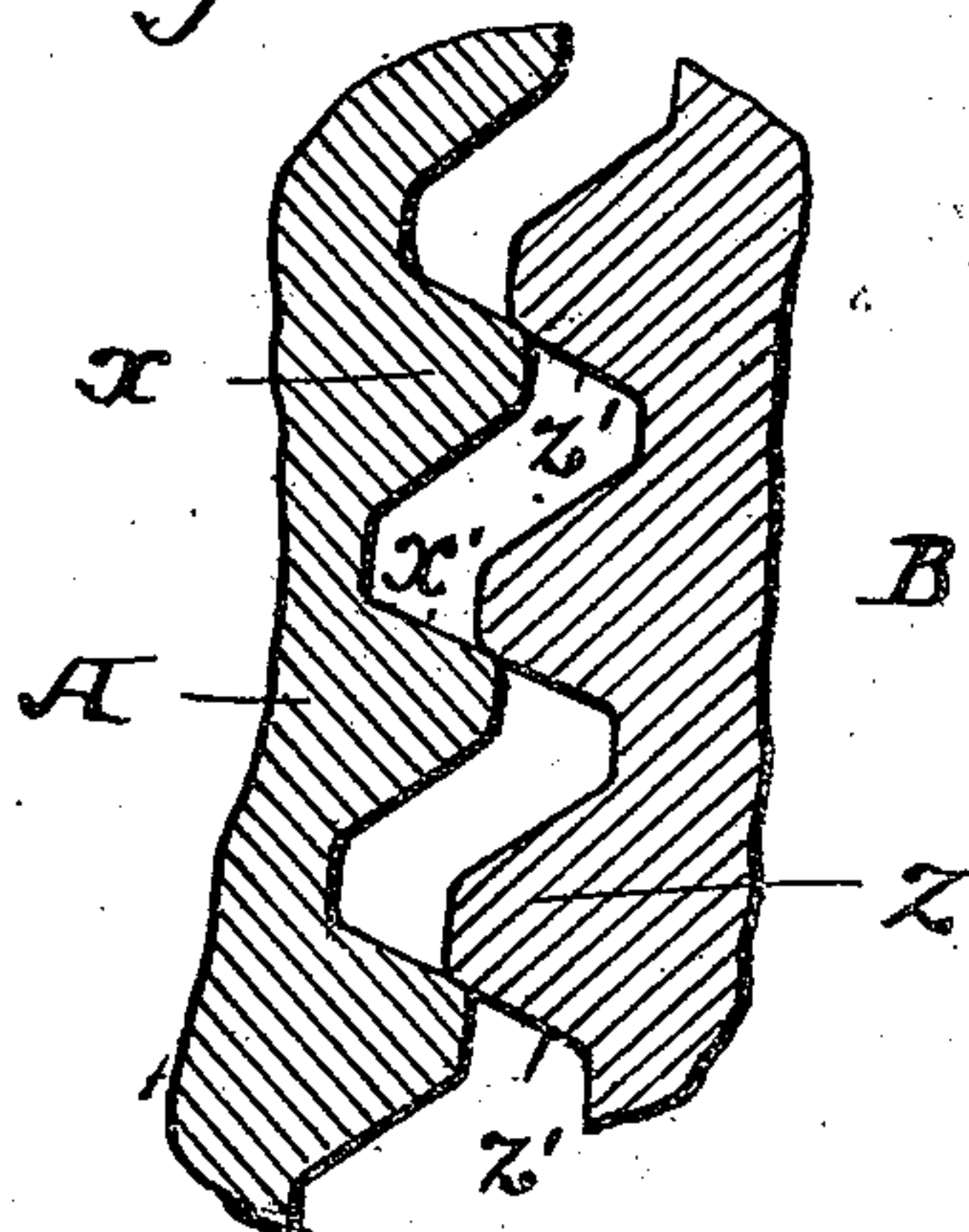


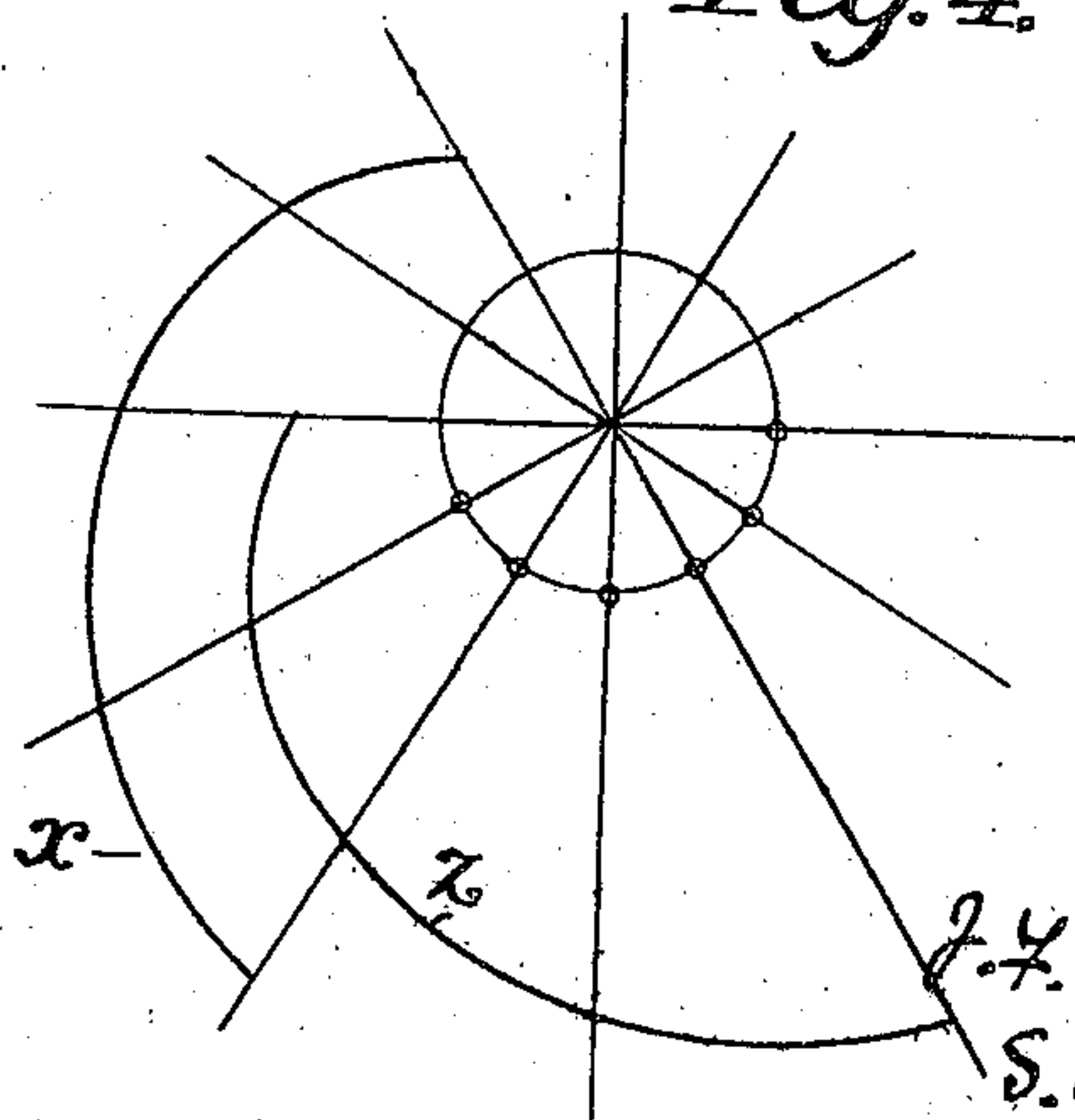
Fig. 5.



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Fig. 4.



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UNITED STATES PATENT OFFICE.

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BREECH MECHANISM.

SPECIFICATION forming part of Letters Patent No. 680,386, dated August 13, 1901.

Application filed January 18, 1901. Serial No. 43,809. (No model.)

To all whom it may concern:

Be it known that we, JOHN FORSYTH MEIGS, a citizen of the United States, residing at South Bethlehem, and SIGARD A. S. HAMMAR, a subject of the King of Sweden and Norway, residing at Bethlehem, in the county of Northampton and State of Pennsylvania, have invented certain new and useful Improvements in Breech Mechanism, of which the following is a specification.

Our invention relates to breech mechanism for guns, and has for its object to improve and simplify such mechanism; and it consists in the features of construction and arrangement of parts having the general mode of operation substantially as hereinafter more fully set forth.

Referring to the accompanying drawings, wherein we have illustrated a preferred embodiment of our invention, Figure 1 is a transverse section of a breech, showing a plug therein in its locked position. Fig. 2 is a similar section showing the plug in its unlocked position. Fig. 3 is a longitudinal section through the breech, showing collars in the screw-box. Fig. 4 is a diagram illustrating the involute faces of the threads or collars of the breech-plug and screw-box, and Fig. 5 is an enlarged detail view of the collars having inclined pressure sides.

Among the principal objects of our invention we may mention that we provide such a construction that an extended rotation of the breech block or plug is not required in order to engage or disengage it from the screw-box, that the threaded or collared portions of the circumference of the breech-block and screw-box are greater than the slotted portions, that the threads or collars on the breech-block and screw-box move radially with relation to each other when the breech-block is rotated, that the bearing-surfaces of the threads or collars on the breech-block and screw-box are true and parallel to each other and make contact along their whole opposing faces, and even when the block is screwed a little beyond or a little short of the correct position to which it should go the bearing-faces remain true, that there is a uni-

form and therefore the least possible clearance between the threads or collars of the breech-block and the screw-box, and consequently the least possible rotation of the block is required to engage or disengage its threads or collars from those of the screw-box, and that proper means are provided to secure the seating of the gas-check and the withdrawal of the same, and these and other objects are accomplished by a construction substantially such as is set forth hereinafter. In order to attain these and other objects, we provide the breech-block and screw-box with threads or collars the edges or faces of which coincide with involute curves, and, further, we construct and arrange the parts substantially as hereinafter set forth.

Thus, referring to the drawings, the breech A is provided with a screw-box A', which receives the breech block or plug B, which plug may be supported upon any suitable carrier in any suitable or well-known manner not necessary to show herein, and the screw-box may be cylindrical or tapering or of other form, as desired. The interior of the screw-box is divided in the present instance into alternate recesses y and projections y' , the latter having internal threads or collars x , and the block B has alternate projections w and recesses w' , the projections being provided with threads or collars z . Preferably the projecting portions having the threads or collars are greater circumferentially than the intermediate recessed or slotted portions, as shown, as by this construction we are enabled to secure a greater extent of bearing-surface and a better support with a shorter block than when the block and screw-box are provided with recessed and projecting portions equal in circumferential extent. The internal and external threads or collars x and z are so formed that their edges or faces conform to involute curves, and these curves on the breech-block and screw-box are parallel to each other when the block is in its locked or unlocked position or in any intermediate position. This parallelism is indicated in a general way in Fig. 4. The threads or collars on the breech-block move radially with

relation to the threads or collars on the screw-box when the breech-block is rotated and make contact along their whole opposing faces when the breech-block is in place, and even when the block is rotated a little beyond or a little short of the correct position the bearing-faces remain true, and when the block is rotated to unlock the same there is a uniform clearance, and the least possible rotation of the block is required to disengage the threads or collars.

In order to insure such a movement of the breech-block in the screw-box that will properly seat the gas-check, the parts are so constructed that the advancing and turning motion of the breech-block, constituting a screw motion, has a pitch or advance which is greater than the pitch of the thread in the screw-box. The pitch of the thread in the screw-box may be zero; as when collars are used. The means by which we accomplish this consists in making the pressure sides of the collars on the breech-block or the screw-box, and preferably both, inclined. Thus, as indicated in Fig. 5, the sides x' and z' of the threads or collars x and z are inclined, and when the breech-block is rotated, so as to bring the threads or collars x and z into engagement, their inclined pressure sides x' z' engage each other, and as the breech-block is rotated the block is forced forward and the gas-check is properly seated.

When collars are used, the rotation of the breech-block to disengage the collars has no effect in forcing the breech-block backward or to detach the gas-check, and we provide suitable means for doing this, shown in the present instance in the form of one or more inclined bearing-ribs s' , arranged in the slotted portion or portions of the screw-box, so as to engage one of the collars as the breech-block is turned to disengage the collars and so as to force the block outwardly and detach the gas-check.

What we claim is—

1. A breech-loading gun, the screw-box and breech-block of which are provided with threads or collars the faces of which threads or collars coincide with involute curves, substantially as described.

2. A breech-loading gun, the screw-box and breech-block of which are provided with alternating slotted and threaded or collared portions, the curves of the threads or collars being involute curves, substantially as described.

3. A breech-loading gun, the screw-box and breech-block of which are provided with alternating slotted and threaded or collared portions, the threaded or collared portions being circumferentially greater than the intermediate slotted portions, and the curves of the threads or collars being involute curves, substantially as described.

4. In a breech-loading gun, the combination with a screw-box and breech-block each having threads or collars the faces of which coincide with involute curves, of means to seat the breech-block by an advancing and turning motion constituting a screw motion the pitch of which screw motion is greater than the pitch of the threads or collars into which the threads or collars of the breech-block seat, substantially as described.

5. In a breech-loading gun, the combination with a screw-box, of a breech-block each having collars the faces of which coincide with involute curves, the pressure sides of the collars being inclined, substantially as described.

6. In a breech-loading gun, the combination with a screw-box and breech-block, each provided with collars, of means for forcing the breech-block outward when it is rotated to disengage the collars, substantially as described.

7. In a breech-loading gun, the combination with a screw-box and breech-block each provided with alternating collared and slotted portions, of inclined ribs arranged in the screw-box, substantially as described.

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

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Witnesses:

ABRAHAM S. SCHROPP,
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