

No. 673,104.

Patented Apr. 30, 1901.

W. WOOD.
ROCK DRILL.

(Application filed Jan. 15, 1901.)

(No Model.)

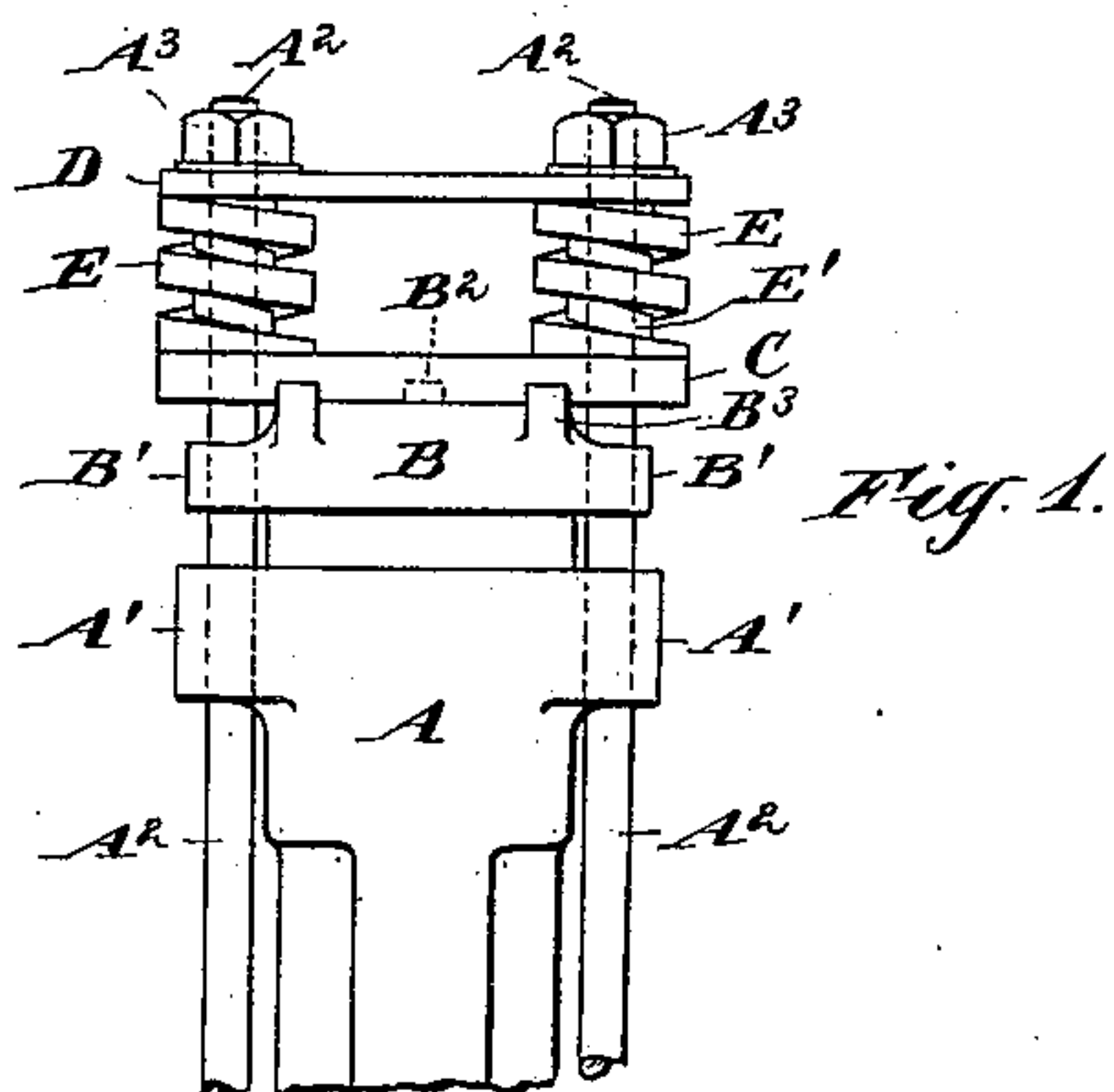


Fig. 2.

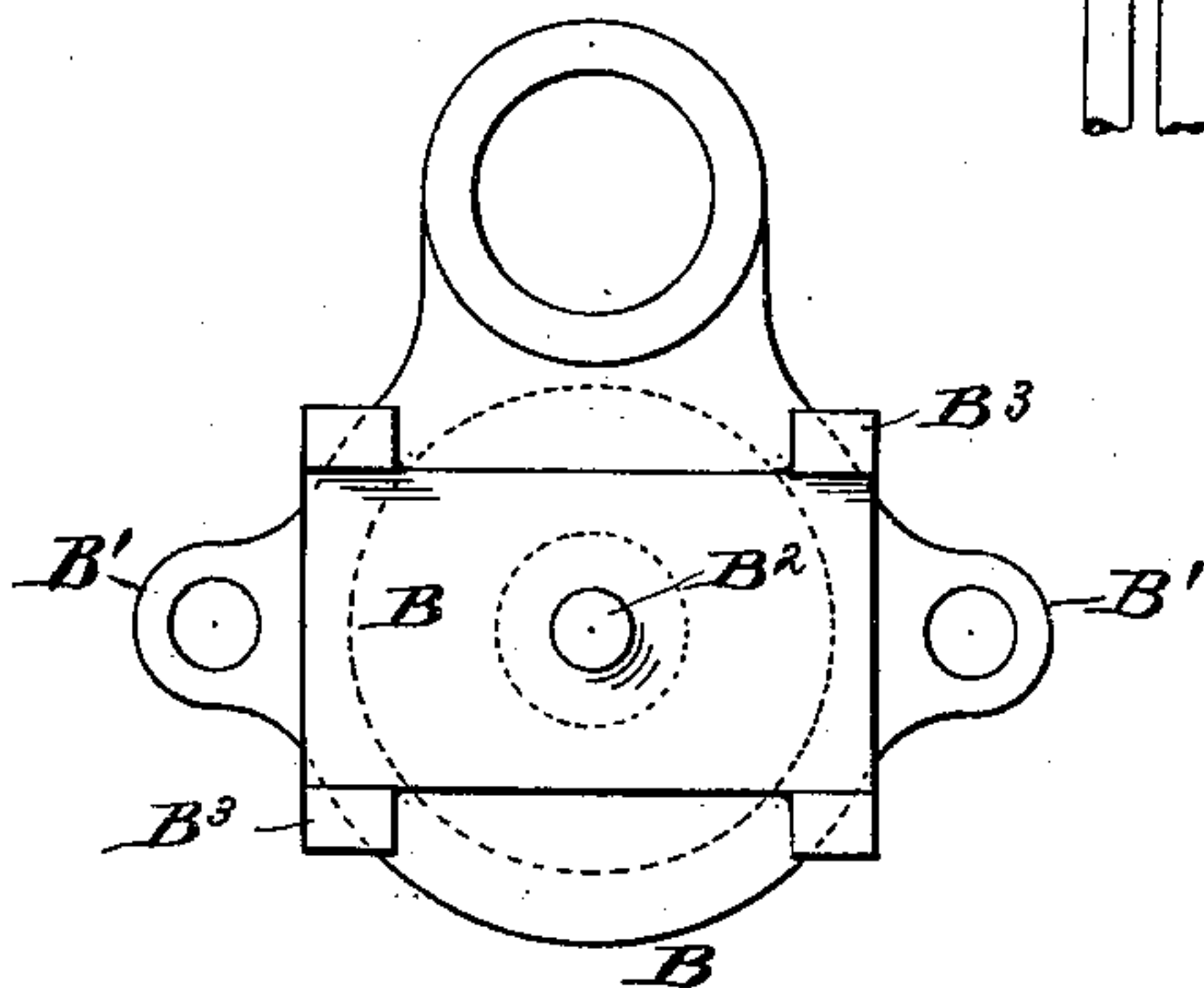


Fig. 3.

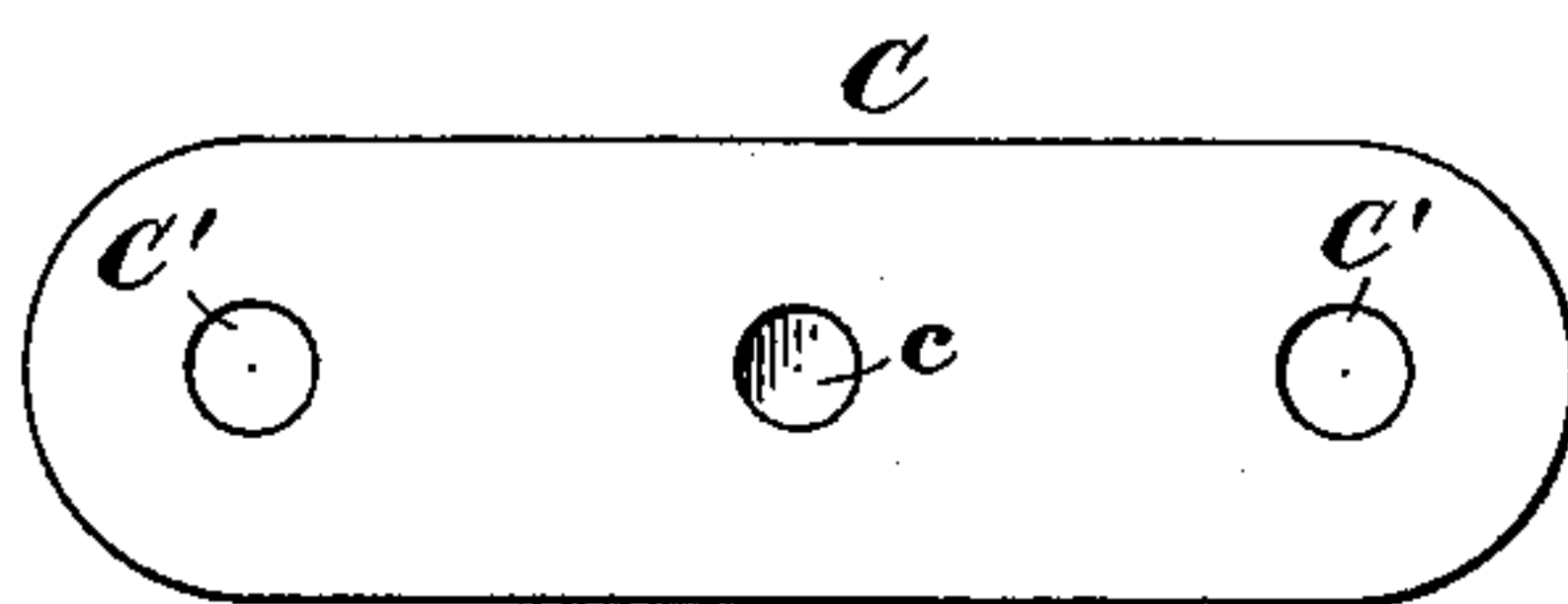


Fig. 6.

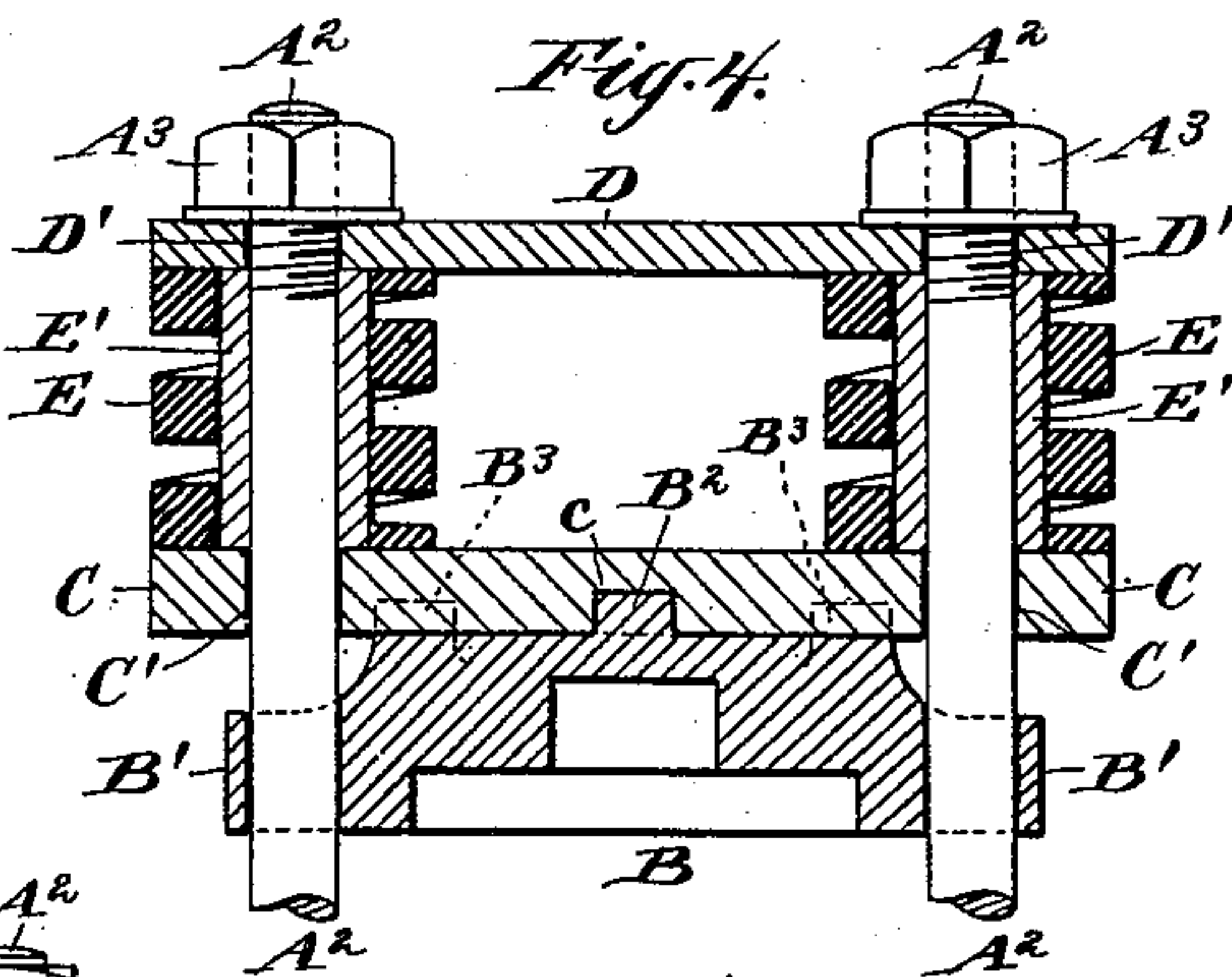
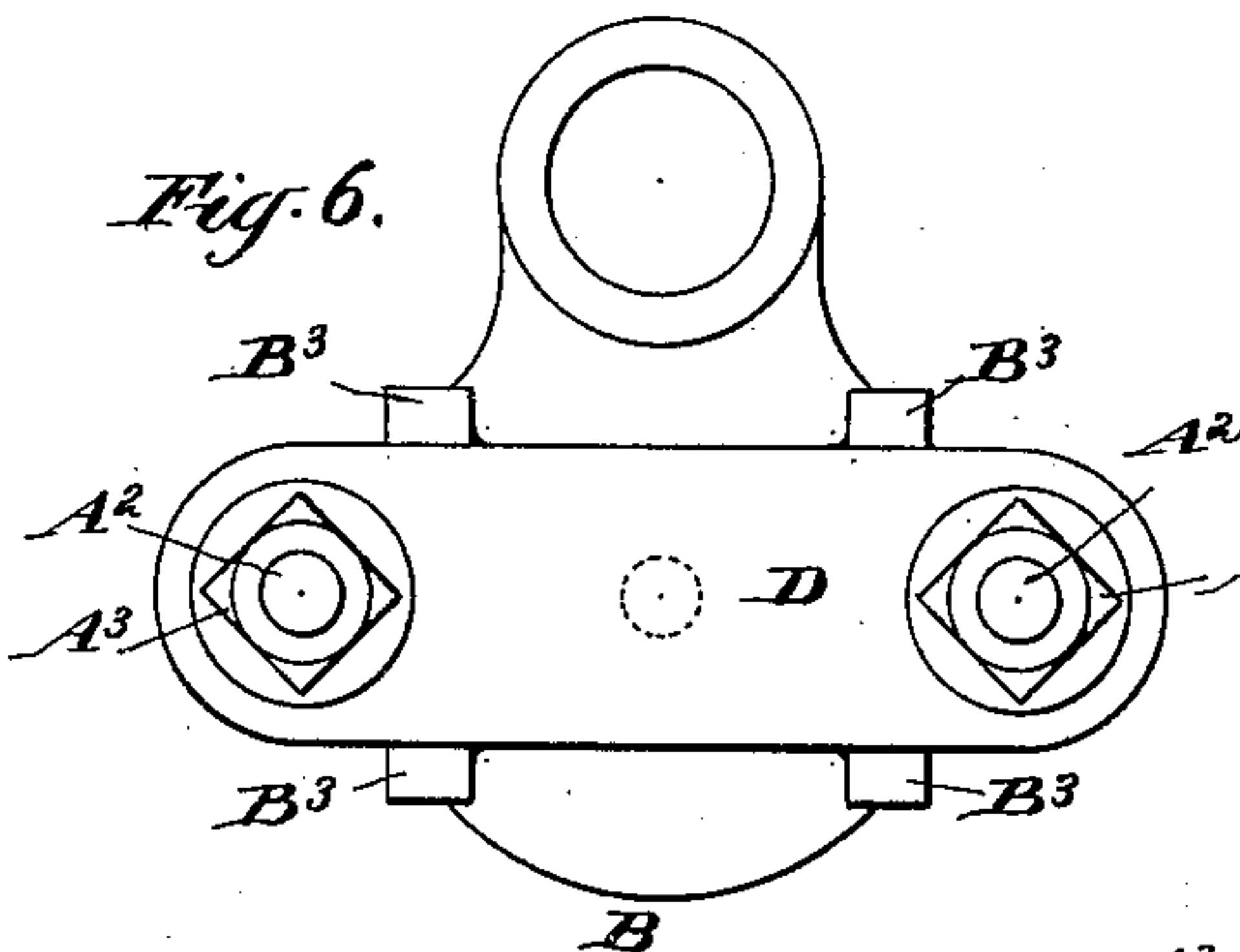


Fig. 4.

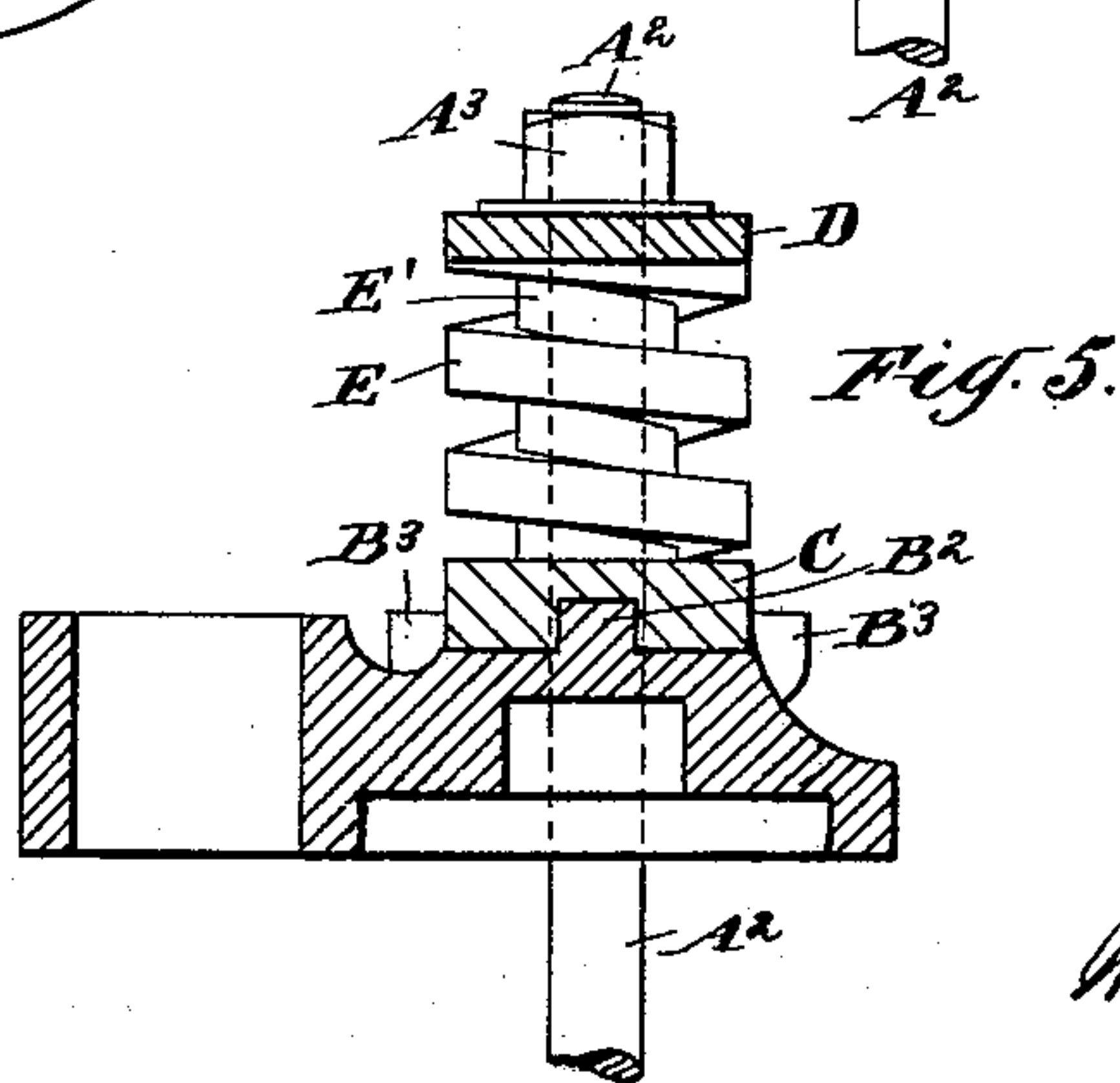


Fig. 5.

Witnesses:
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Inventor:
Warren Wood,
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UNITED STATES PATENT OFFICE.

WARREN WOOD, OF PATERSON, NEW JERSEY.

ROCK-DRILL.

SPECIFICATION forming part of Letters Patent No. 673,104, dated April 30, 1901.

Application filed January 15, 1901. Serial No. 43,366. (No model.)

To all whom it may concern:

Be it known that I, WARREN WOOD, a citizen of the United States, residing at Paterson, in the county of Passaic and State of New Jersey, have invented a certain new and useful Improvement in Rock-Drills, of which the following is a specification.

The invention relates to that type of rock-drills in which the cylinder-heads are held to the cylinder by through-bolts or side rods reaching from one to the other and extending beyond the top head, through a cross-piece and plate, and springs, interposed between the latter, exerting their force to bind the whole yieldingly together. Machinery of this class is subjected to severe usage, especially in mining operations, where in transferring the drill from one position to another in cramped space and over loose rock the heavy cylinder and its immediately-connected parts are peculiarly liable to injury by falling. The extended ends of the side rods especially are exposed to such accidents, being bent or otherwise distorted frequently, and as the rods are shackled together by the cross-pieces and plates a shock to one is communicated directly to the other. As ordinarily constructed the usual result of such accident is the fracture of the guide-lugs on the cylinder, either as the direct result of the fall or by the rough attempts to straighten the rods by such means as are at command at the time. Such breakage renders the drill inoperative until the broken cylinder can be replaced.

The object of my invention is to brace the rods so that shocks to one shall not be so readily transferred to the other and also to relieve the guide-lugs from such strains.

It consists in forming the top head with a central boss and side lugs on the upper face, upon and between which the cross-piece matches, so that strains tending to move either side rod toward or from the other will be resisted by the central boss and any torsional strains tending to throw the rods out of parallelism will be resisted by the side lugs.

The accompanying drawings form a part of this specification and show the invention as I have carried it out.

Figure 1 is a front elevation of the upper portion of a rock-drill cylinder and its connected parts. The remaining figures are on

a larger scale. Fig. 2 is a plan view of the top head alone. Fig. 3 is a corresponding view of the under face of the cross-piece. Fig. 4 is a vertical section through the top head and its connections in the plane of the side rods. Fig. 5 is a corresponding central section at a right angle to Fig. 4, and Fig. 6 is a corresponding plan view.

Similar letters of reference indicate the same parts in all the figures.

A is the upper portion of a rock-drill cylinder, and A' A' guide-lugs cast thereon, which pass the side rods A² A², extending from the front head or lower cylinder-head (not shown) through the lugs A' A' and corresponding lugs B' B' on the top head B and also through holes C' and D' in the cross-piece C and spring-plate D and receive holding-nuts A³ A³. Between the cross-piece and spring-plate are the stiff helical springs E E, encircling sleeves E' E', inclosing the side rods. So far as described the construction is as usual, and it will be seen that any movement of either rod toward the center line of the cylinder is resisted by the guide-lugs alone, the cross-piece, being free to move in either direction, merely transferring the strain of any shock to the other rod.

In my improved construction I provide a central boss B² on the plane upper face of the top head and holding-lugs B³ B³, placed in pairs, one on each side of the face near the rod, and make a cross-piece C of such width as to match between the lugs. A recess c in the center of the cross-piece receives the boss B². Thus arranged the ends of the side rods are supported well beyond the guide-lugs A' and B', and any bending of the ends must be above the cross-piece E, where a limited amount of distortion is not fatal to the operativeness of the drill. The guide-lugs A' A' on the cylinder are entirely relieved from direct strains, and the support offered by the cross-piece is so far above them that they are not likely to be affected by reflex bending below the cross-piece.

I claim—

1. In a rock-drill, the combination of a cylinder having guide-lugs, a top head and its guide-lugs, side rods extending through the lugs of each, a cross-piece mounted on said top head and engaging said side rods, and means for locking said cross-piece and top

head against movement relatively to each other, and means serving with said side rods to hold said cross-piece and top head to said cylinder, substantially as herein specified.

- 5 2. In a rock-drill, a cylinder and its guide-lugs, a top head and its guide-lugs, and side rods extending through and beyond said lugs, a boss B^2 and holding-lugs B^3 B^3 on said head, and a cross-piece matching between said hold-
10 ing-lugs and having a recess c receiving said boss, and engaging said side rods, and means serving with the latter to hold said cross-piece and top head to said cylinder, all combined and arranged to serve substantially as
15 and for the purposes set forth.

3. The cylinder A , and guide-lugs A' A' thereon, the top head B and its guide-lugs B'

B' , the boss B^2 and holding-lugs B^3 on said head, in combination with the cross-piece C matching between said holding-lugs and hav- 20
ing the recess c receiving said boss, and the holes C' C' , the side rods A^2 A^2 extending through said guide-lugs and holes, spring-plate D , springs e e and holding-nuts A^3 A^3 , all arranged to serve substantially as and for 25
the purposes herein specified.

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

WARREN WOOD.

Witnesses:

CHARLES R. SEARLE,
EDWIN GOULD.