No. 777,529. PATENTED DEC. 13, 1904.

T. J. MURPHY.

VALVE FOR ROCK DRILLS.

APPLICATION FILED AUG. 15, 1904.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 3

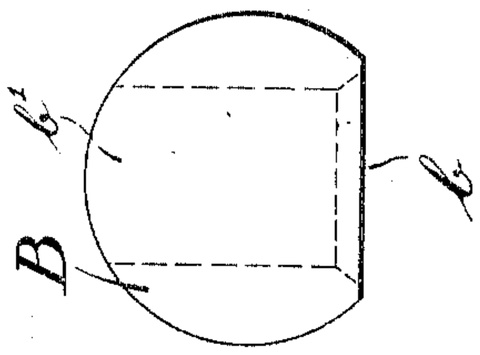


Fig. 4

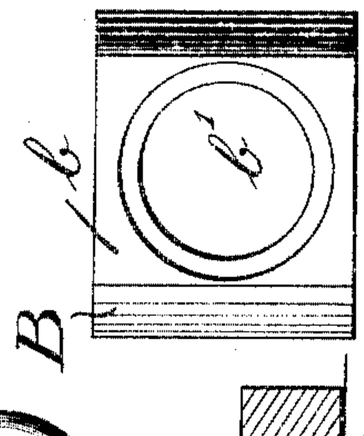


Fig. 2

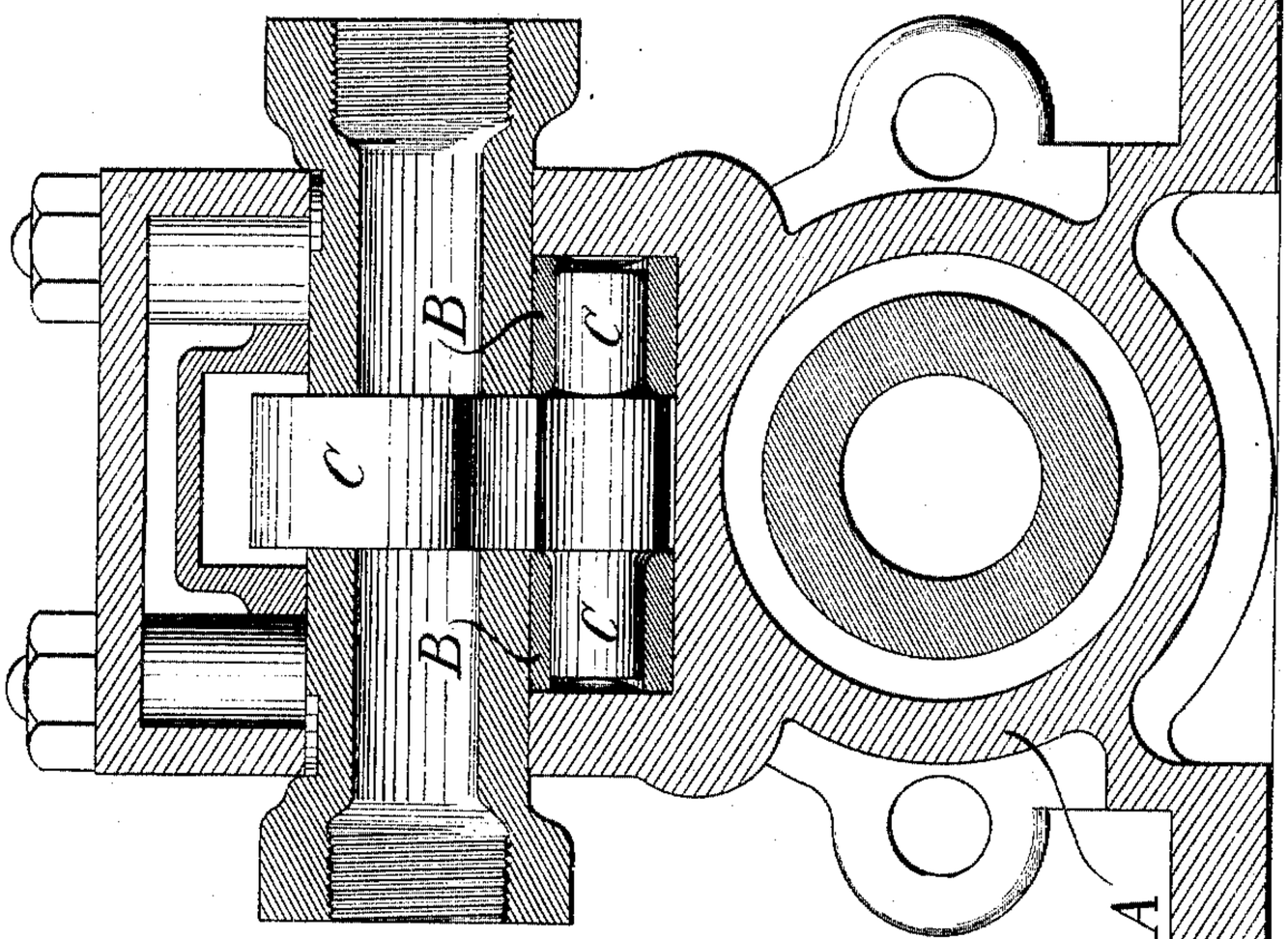
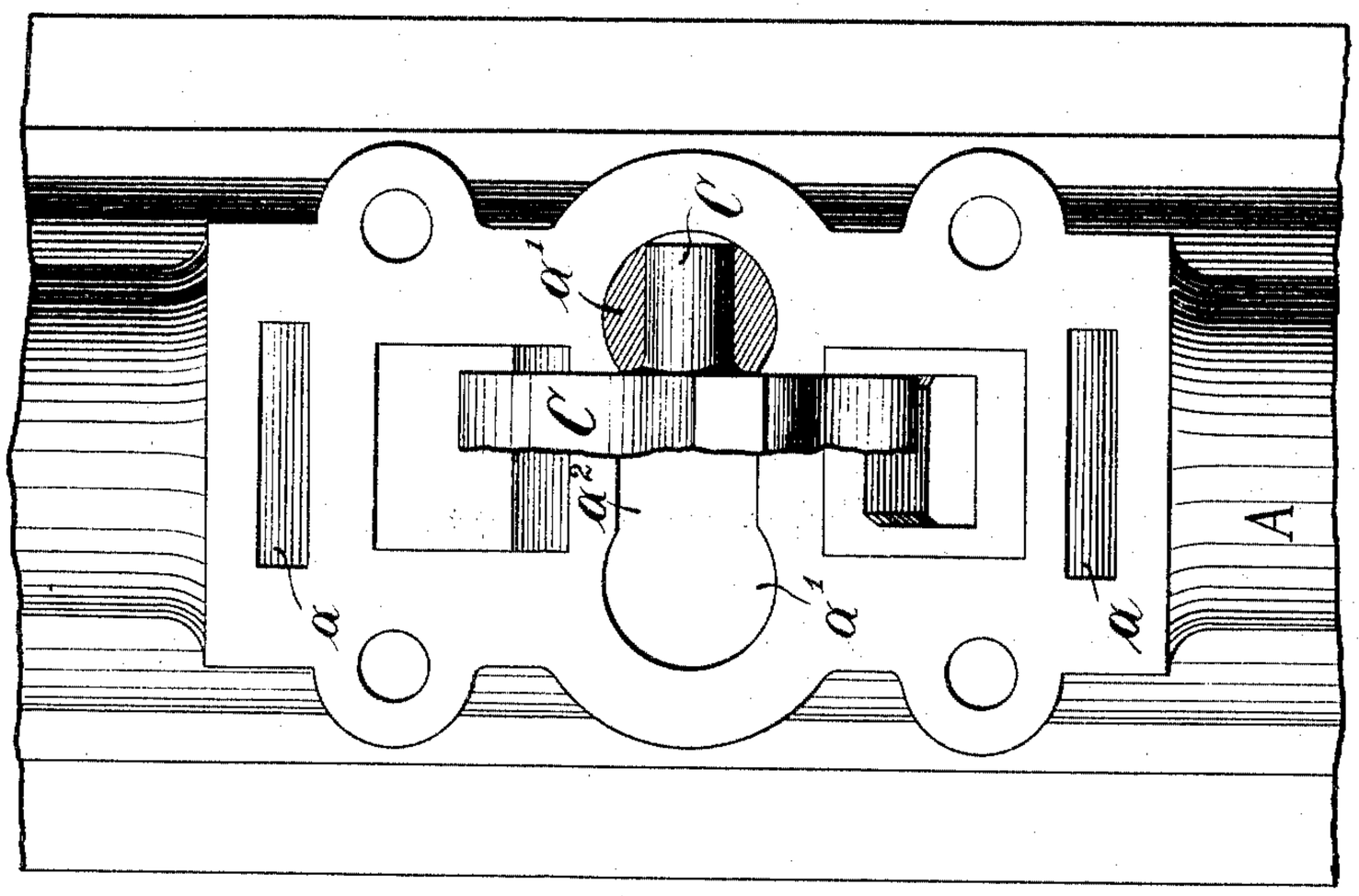


Fig. 1



Witnesses
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Thomas J. Murphy Inventor
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VALVE FOR ROCK DRILLS.

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NO MODEL. 2 SHEETS—SHEET 2.

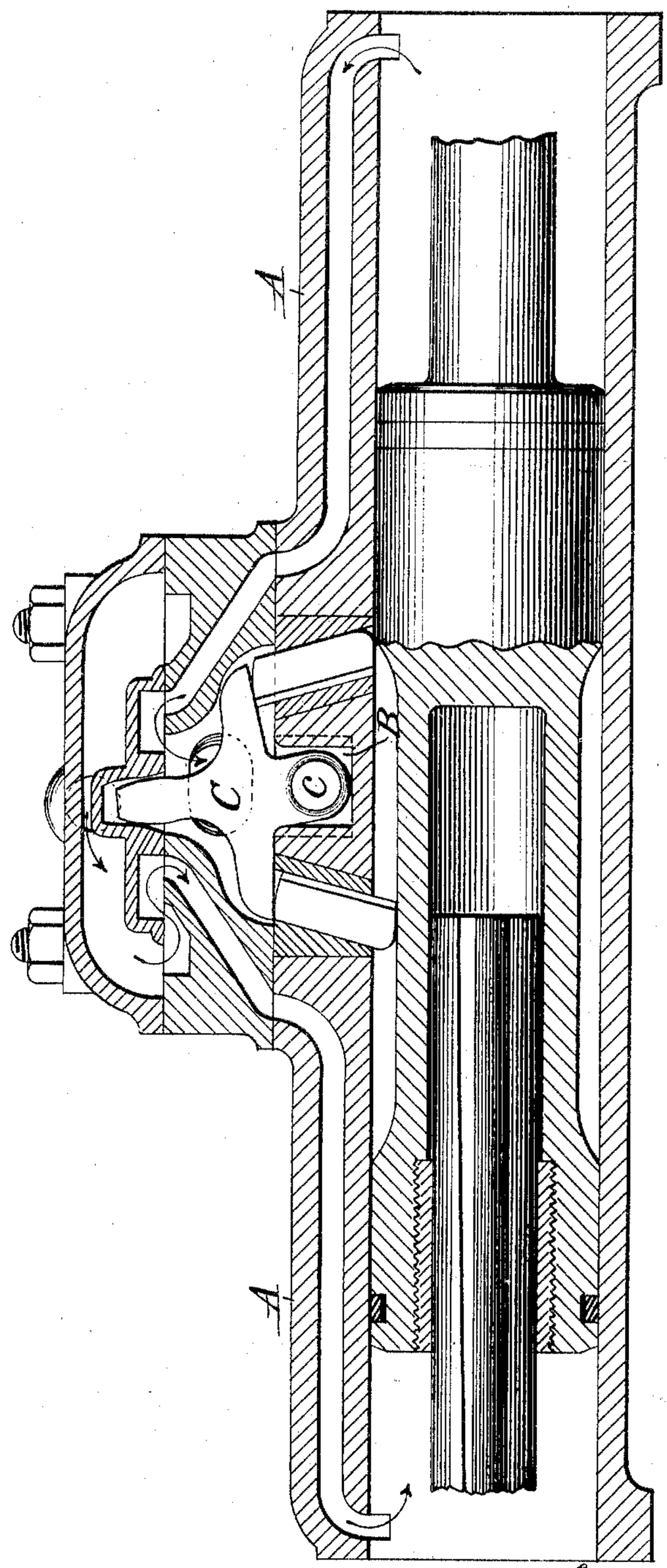

Fig. 5.

WITNESSES:

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No. 777,529. Patented December 13, 1904.

UNITED STATES PATENT OFFICE.

THOMAS J. MURPHY, OF NEW YORK, N. Y.

VALVE FOR ROCK-DRILLS.

SPECIFICATION forming part of Letters Patent No. 777,529, dated December 13, 1904.

Application filed August 15, 1904. Serial No. 220,843. (No model.)

To all whom it may concern:

Be it known that I, THOMAS J. MURPHY, a citizen of the United States, residing at New York, in the county and State of New York, have invented certain new and useful Improvements in Valves for Rock-Drills and the Like; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in valves for rock-drills and similar devices.

One object of my invention is to provide a valve whose valve-case will have a minimum width, so as not to interfere with the withdrawal of the bits from the hole during the process of changing the bits.

A further object of my invention is to provide a valve in which the rocker bearing-blocks may automatically adjust themselves to a proper alinement with relation to each other and to the rocker-trunnions.

With these general objects in view and some others which will be obvious to those skilled in the art from the description hereinafter my invention consists in the features, details of construction, and combination of parts which will first be described in connection with the accompanying drawings and then particularly pointed out in the claims.

In the drawings, Figure 1 is a partial plan view of the cylinder of a rock-drill embodying my invention, the valve-seat portion and steam-chest being removed; Fig. 2, a transverse section, partly in elevation, of such a rock-drill; Fig. 3, a plan view of one of the rocker bearing-blocks; Fig. 4, a side view of the same; and Fig. 5 is a longitudinal section through the center of the valve-chest, some of the parts being shown in full.

Referring to the drawings, A is a cylinder portion having steam-passages a, as usual, and also provided with two openings a', connected by a transverse slot a^2. The openings a' are each formed by boring or drilling a hole in the solid metal to the desired depth. Thereupon the transverse slot a^2 may be cut with a milling-cutter, the two openings a' allowing sufficient room at each end of the slot in which the cutter may begin and end its work. Into each opening a' is inserted a bearing-block B, each of which is formed, preferably, by cutting off the desired length from a round bar of cold-rolled steel, then flattening one side, as indicated at b, and then boring the trunnion-opening, (indicated at b'.)

The rocker (indicated at C) may be of any desired or usual construction, having trunnions c. These trunnions are inserted in the respective trunnion-openings b' of the corresponding bearing-blocks B, and then the blocks and rocker C are put in place in the respective openings in the cylinder portion A, the bearing-blocks B entering the respective openings a' and the lower end of the rocker C entering the transverse slot a^2. The remaining parts of the rock-drill valve may now be put in place, as usual.

In the drawings I have illustrated my improvement applied to a rock-drill of the kind shown in my Patent No. 540,330, issued June 4, 1895, and the parts shown in the drawings, but not specifically referred to herein, will be fully understood upon reference to said patent.

It will be noted that in the present invention the outer face of each bearing-block B and of its respective opening a' is arc-shaped. By this construction it is possible for the bearing-block to be rotated in its opening. Hence in the manufacture of the parts and in assembling them great accuracy is not necessary, because the blocks B will adjust themselves in their openings, so as to bring the trunnion-openings in alinement with the trunnions of the rocker C, thus making it impossible for the trunnions to bind or cramp in the bearing-blocks. It will be noted, futhermore, that the trunnion-blocks may be turned end for end, which is a great advantage, because the wear on the trunnions and blocks is principally upon the upper side. Therefore by turning the bearing-block end for end after such wear has taken place to a considerable extent a new bearing-surface is presented and the wear taken up.

Another very important advantage of my construction is as follows: As is well known to those skilled in the art, when drilling a deep hole it is necessary to exchange the bits

of the drill, replacing one bit by another one of a suitably-increased length. In doing this it is necessary that the rock-drill shall not be shifted or jarred from its position. The bit is loosened from the chuck and is sprung sidewise at its outer end and then pulled out of the hole. The clearance of the hole and the elasticity of the steel of the bit are depended upon to give sufficient lateral play to allow the outer end of the bit to pass the rock-drill at one side. It has been found, however, by practical experience that owing to the lateral projection of the valve-chest the outer free end of the bit will strike against such projecting valve-chest when the bit is being withdrawn, which frequently batters the chuck end of the bit, jars the drill, and sometimes injures the hands of the workmen moving the bit, thus in various ways increasing the difficulties of removing the bits. Hence by devising a construction in which the valve-chest of the rock-drill has a minimum width I avoid the above disadvantages.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a cylinder portion having two openings whose exterior walls are arc-shaped, said openings being connected by a transverse slot, of two rocker bearing-blocks fitted in said openings and having corresponding arc-shaped exterior faces, said bearing-blocks having trunnion-openings, and a rocker located in the transverse slot and provided with trunnions inserted in the trunnion-openings of the bearing-blocks.

2. The combination, with a cylinder portion having two circular openings connected by a transverse slot, of two rocker bearing-blocks located in said openings, said bearing-blocks being substantially circular in cross-section, slightly flattened on one side, and provided with trunnion-openings, and a rocker mounted in the transverse slot and provided with trunnions extending into the trunnion-openings of the bearing-blocks.

In testimony whereof I affix my signature to this specification in the presence of two witnesses.

THOMAS J. MURPHY.

Witnesses:
M. C. MASSIE,
P. A. E. FELDMAN.