

(No Model.)

2 Sheets—Sheet 1.

J. T. MURRAY.

JOURNAL BEARING.

No. 413,081.

Patented Oct. 15, 1889.

Fig. 3 - Fig. 1 -

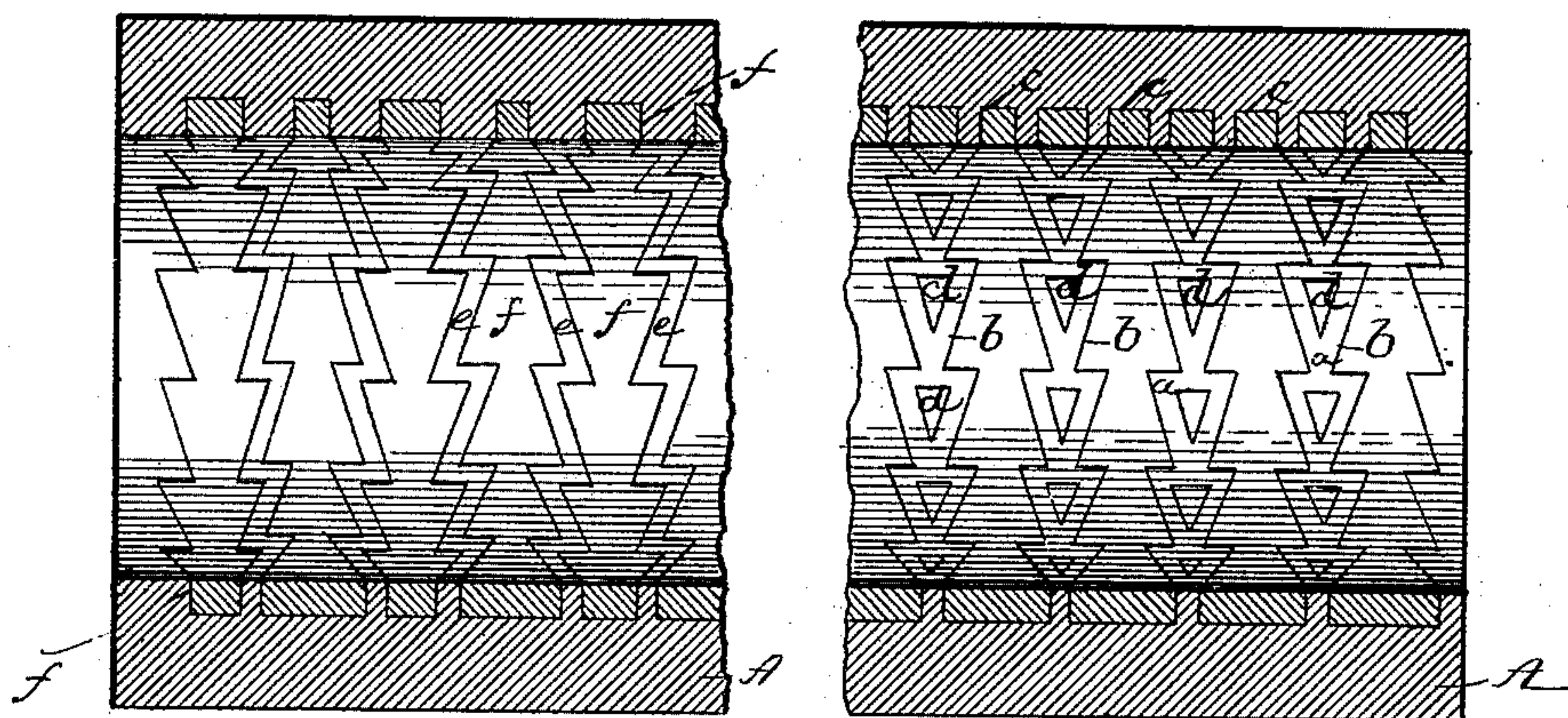
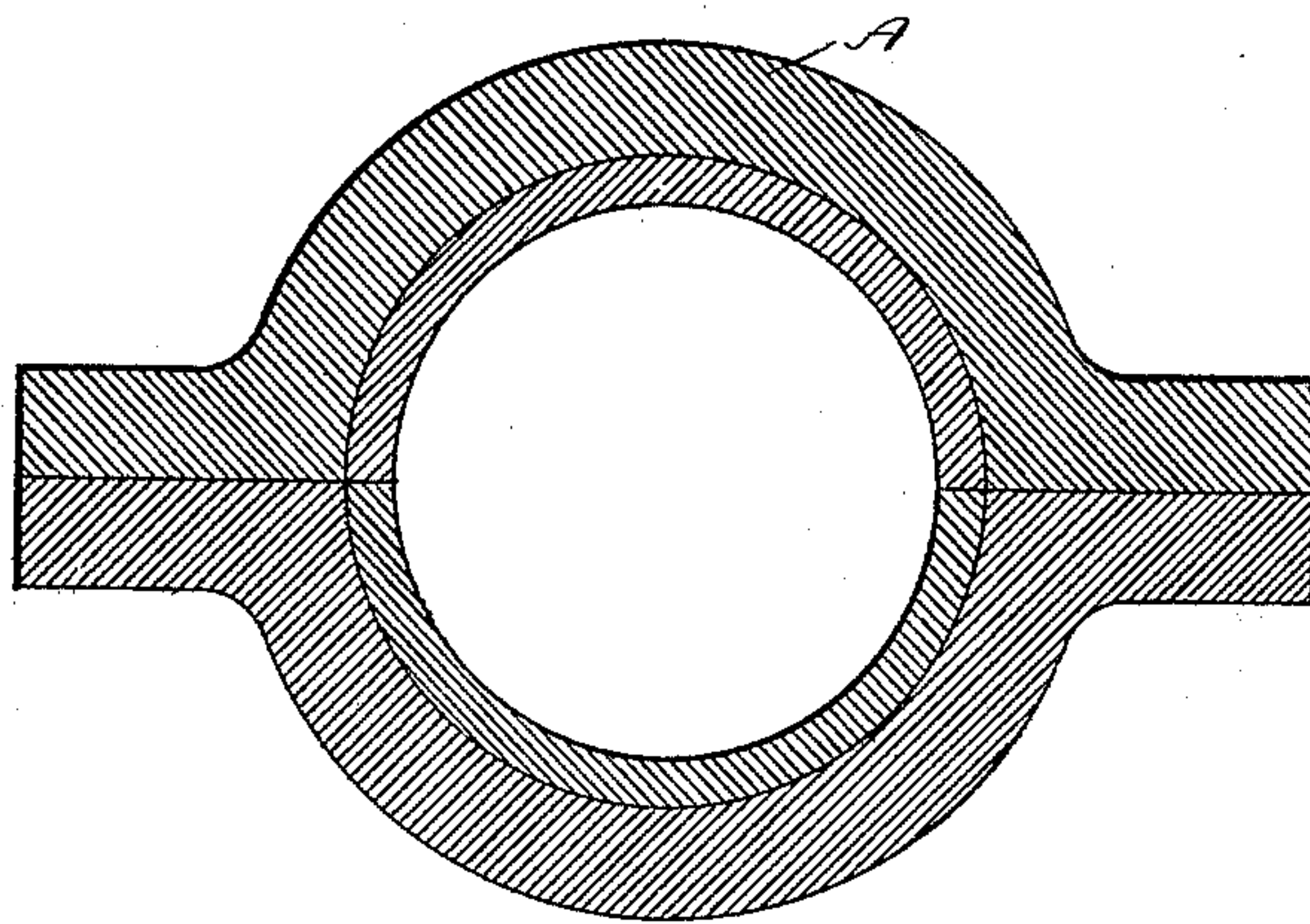


Fig. 2 -



WITNESSES -

Albert B. Blackwood  
J. H. Harmon

Joseph T. Murray  
INVENTOR -

By C. C. Connelley  
att'y.

(No Model.)

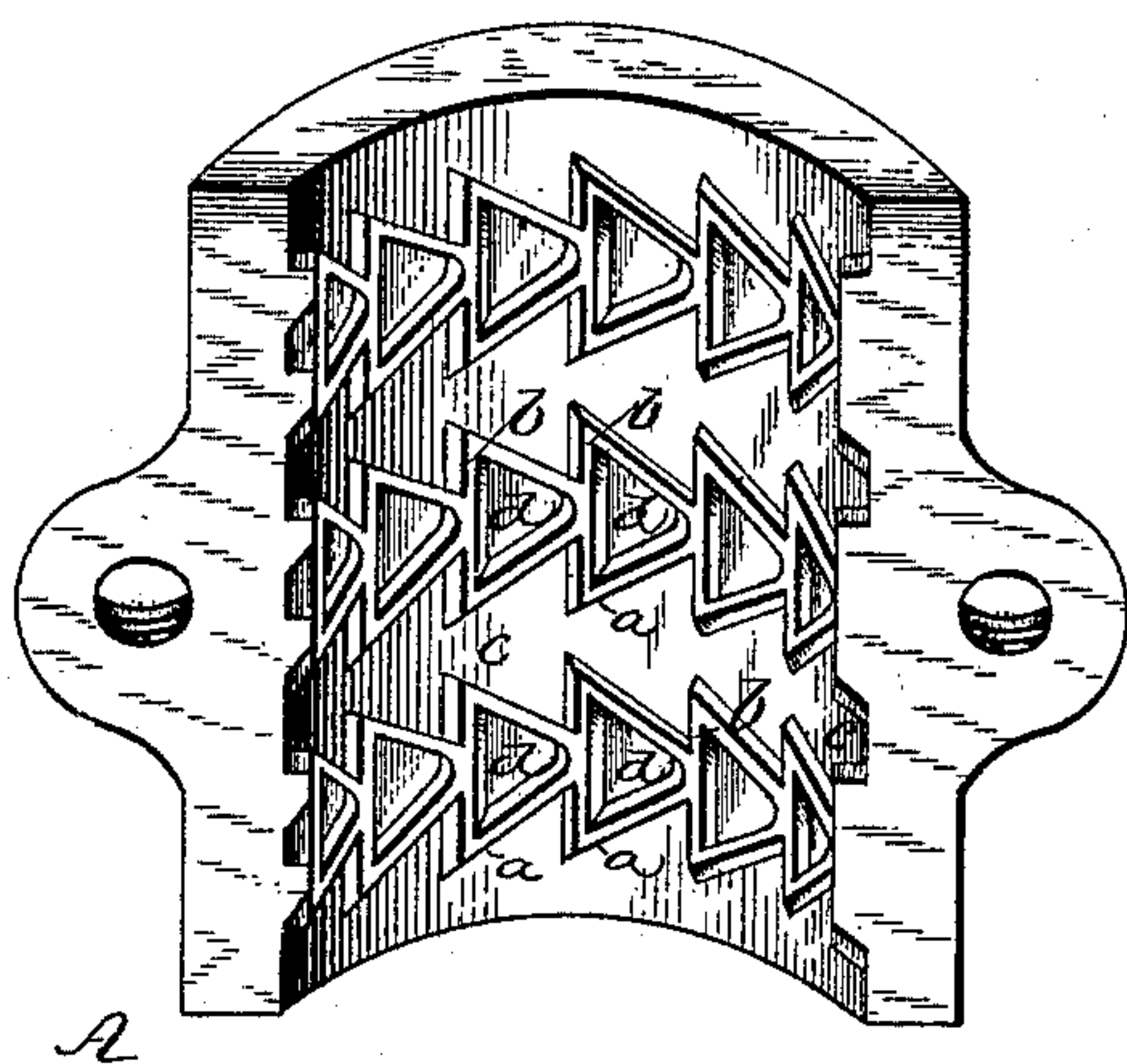
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J. T. MURRAY.

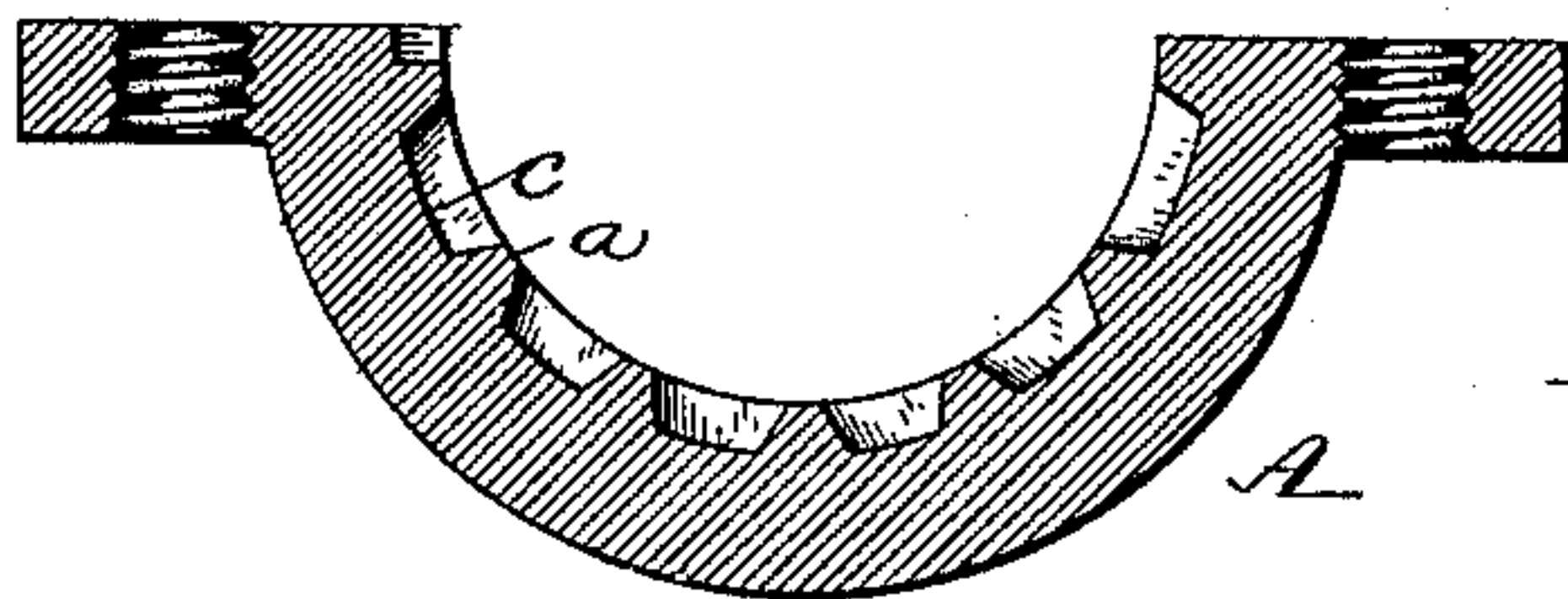
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*Fig. 5.*



*Fig. 4.*

WITNESSES.

Albert B. Blackwood  
Oscar W. Humphrey

*Joseph T. Murray.*

INVENTOR.

*by Convey Pro*  
*att*



# UNITED STATES PATENT OFFICE.

JOSEPH T. MURRAY, OF NEWARK, NEW JERSEY.

## JOURNAL-BEARING.

SPECIFICATION forming part of Letters Patent No. 413,081, dated October 15, 1889.

Application filed January 22, 1889. Serial No. 297,196. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH T. MURRAY, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Journal-Bearings; and I do hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, which form part of this specification.

This invention relates to journal-bearings, and has for its object to provide for the perfect distribution of the lubricating material upon the entire wearing-surface with but little waste or use of the lubricant.

This invention therefore consists in the provision of a journal-bearing with grooves and pockets so arranged that the lubricant can be applied either in a solid or semi-solid or a liquid condition, and in either way it will be thoroughly applied with but little, if any, waste to the entire bearing-surface of the journal.

My invention further consists in the provision of a journal-bearing having a series of grooves so arranged that the heating and cutting of the journal and bearing will be reduced to a minimum, if not entirely avoided.

My invention still further consists in the provision of a journal-bearing having certain peculiar and novel features, which will be more fully described hereinafter, and specifically pointed out in the claims.

Referring to the accompanying drawings, Figure 1 is a longitudinal sectional view of a journal-bearing of my improved form; Fig. 2, a transverse sectional view of the same; Fig. 3, a longitudinal sectional view of a modification of the same. Fig. 4 is a transverse sectional, and Fig. 5 a perspective, view of the bearing.

A represents the body of the journal-bearing having a number of ridges or projections *a a*, which, as shown in the drawings, are saw-tooth shaped, so as to form a series of wedge-shaped pieces *b b*, having their sides converging at one end and diverging at the other end, the larger end of one piece being adjacent to the smaller end of the next piece. These ridges or projections *a a* form between their outer edges a series of similarly-shaped depressions or continuous grooves, (designated *c*

*c*.) In the center of each of the wedge-shaped pieces *b b* are formed triangular pockets *d d*. It will be noted that the raised portion consists of a series of saw-tooth lines which run at an angle with the line of motion of the shaft, and that as the shaft is rotated a portion of its surface will bear upon one or the other of these lines at all times, but that the bearing will not be in a line with the motion of the shaft. The grooves and pockets in which the lubricant is stored overlap each other in such a manner that it is impossible to rotate the journal without its entire surface coming into contact with the lubricant during a single rotation. The walls of the grooves or channels are made to converge in the direction of rotation of the shaft, and hence there is no tendency of the lubricant to be forced out of its seat, but, on the contrary, it will be forced by the pressure and impact of the shaft more firmly into place, thus preventing waste and keeping the shaft constantly and permanently lubricated. The grooves *c c* are filled with a solid or semi-solid lubricant, and the pockets *d d* are either filled in the same way or with a liquid lubricant, or else allowed to become filled with the lubricant drawn from the grooves during the rotation of the journal. Where the grooves are filled with a solid lubricant the same may be forced therein under pressure, so as to form a practically solid lubricating bearing for the shaft.

In the modification shown in Fig. 3 of the drawings the raised lines (designated *e e*) are of the general saw-shaped form as that shown in Fig. 1; but instead of having angular pockets in each of the wedge-shaped pieces the lines form continuous grooves *f f* between them. This form of bearing I prefer where it is to be applied to a reciprocating shaft—as, for instance, to piston-rods—although either of the forms may be used on reciprocating or rotary shafts.

I am aware that it is not new to provide a journal-bearing with depressions for the reception of a lubricating material, and I do not broadly claim the same.

What I claim as new, and desire to secure by Letters Patent, is—

1. A journal-bearing provided with a series of grooves or depressions whose outer edges

diverge and converge throughout their entire length, and form continuous circumferential channels consisting of a series of wedge-shaped communicating chambers adapted to hold a  
5 solid or semi-solid lubricant, the sides or walls of said chambers converging in the direction of rotation of the shaft, substantially as described.

2. A journal-bearing provided with a series  
10 of wedge-shaped grooves and a series of angular pockets, said grooves and pockets overlapping each other at their ends, the grooves forming continuous circumferential channels

consisting of a series of wedge-shaped communicating chambers adapted to hold solid 15 or semi-solid lubricant, the sides or walls of the chambers converging in the direction of rotation of the shaft, substantially as described.

In testimony that I claim the foregoing I 20 have hereunto set my hand this 8th day of January, 1889.

JOSEPH T. MURRAY.

Witnesses:

FREDERICK K. FITCH,  
WM. H. DONINGTON.