

J. WHITAKER.
Journals and Bearings.

No. 145,467.

Patented Dec. 9, 1873.

Fig. 1.

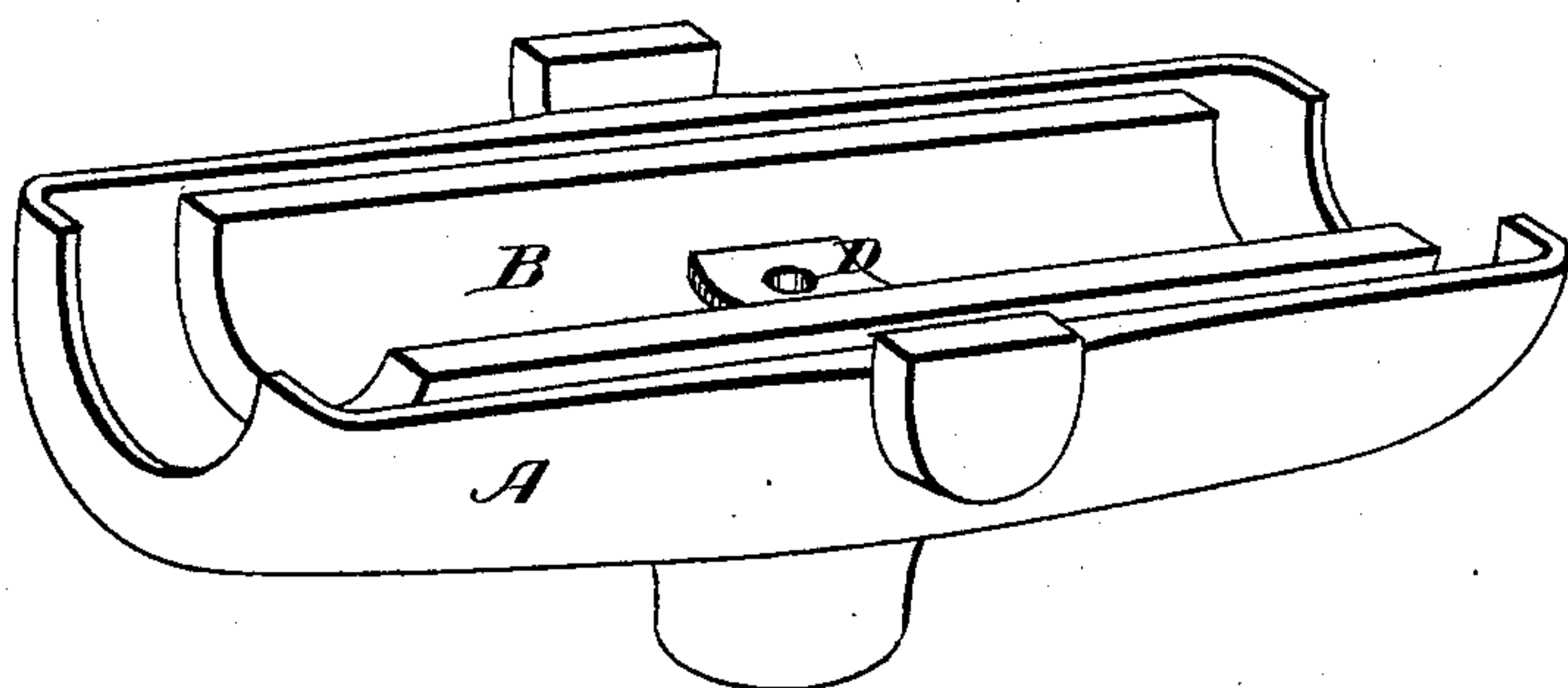


Fig. 2.

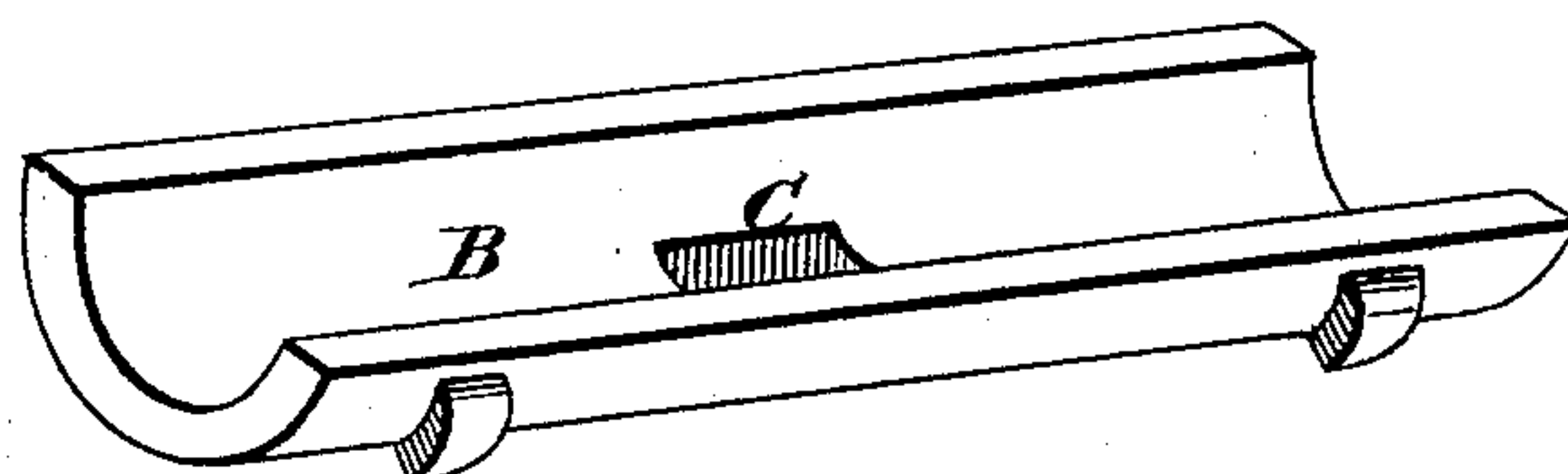


Fig. 3.

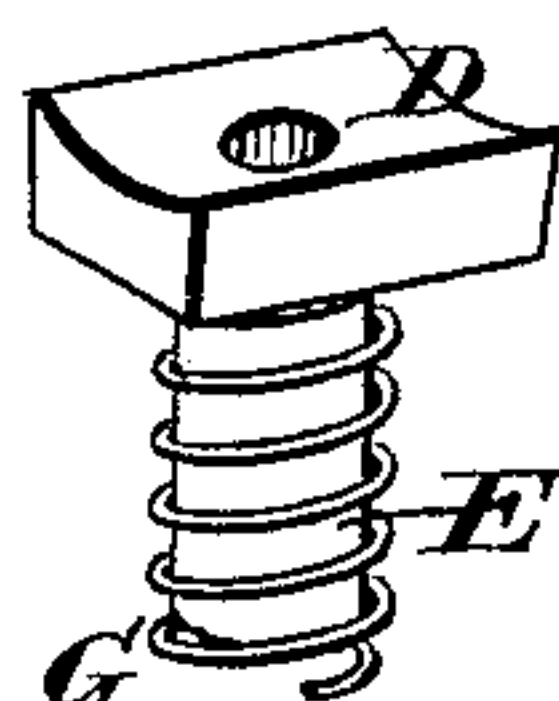
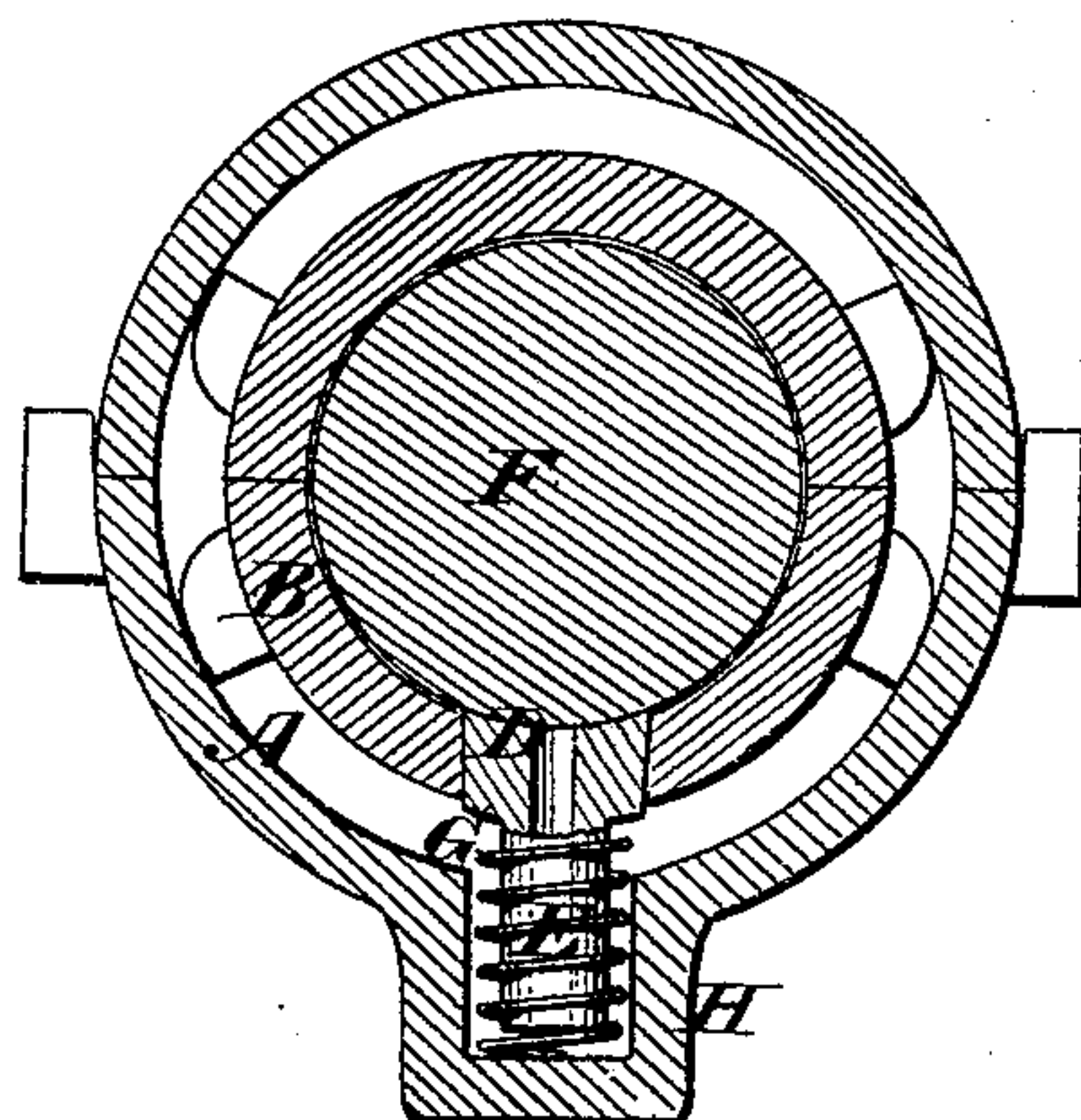


Fig. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN JOURNALS AND BEARINGS.

Specification forming part of Letters Patent No. **145,467**, dated December 9, 1873; application filed
November 19, 1873.

To all whom it may concern:

Be it known that I, JOSEPH WHITAKER, of Woonsocket, in the county of Providence and State of Rhode Island, have invented a new and useful Improvement in Self-Lubricating Journal-Bearings; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective view of the lower half of my improved journal-bearing. Fig. 2 is a perspective view of half of the inner shell which supports the shaft, showing the orifice for the spring-bearing. Fig. 3 is a perspective view of the spring tube and bearing; and Fig. 4, a transverse vertical section, representing all the parts in place.

Similar letters of reference in the accompanying drawings denote the same parts.

This invention relates to that class of self-lubricating journal-bearings in which the rotation of the shaft over an orifice in the bearing connected with an oil-reservoir produces a vacuum in said orifice and pumps, or draws the oil to the bearing-surface.

In devices of this class it is highly necessary to keep the revolving shaft and the bearing in extremely close contact, in order to prevent the admission of air between the two and preserve the vacuum in the oil-supplying reservoir.

In case the belts exert an upward strain on the shaft, a slight separation between the shaft and lower bearing results, this separation producing a crevice which admits air to the mouth of the oil-channel or orifice, destroys the vacuum, and prevents the upward flow of oil.

My invention is an improvement on the patent of W. W. Crane, patented April 28, 1868; and has for its object to provide a journal-bearing in which a perfect vacuum shall be maintained in the oil-supplying tube under all circumstances; and to this end it consists in providing the lower bearing-shell with a vertical spring-tube communicating with the oil-reservoir, instead of the fixed tube employed in the patent above mentioned. The spring-tube is provided on its upper end with a con-

cave face fitting the periphery of the shaft, and is pressed against the latter by a spiral spring, or its equivalent, so that the mouth of the oil-tube is always held in close contact with the shaft, and a perfect vacuum maintained, as I will now proceed to describe.

In the drawings, A represents the oil-reservoir; and B, the inner shell or journal-bearing, both of which in general form resemble those shown in the patent above mentioned. Instead of providing the lower half of the bearing B with a rigid tube or channel extending downward into the oil-reservoir, I cut an aperture, C, in the center, of any desired shape, with its sides somewhat inclined inward, and in this aperture the block or head D of the tube E is fitted. The head D is provided with a concave face fitting the periphery of the shaft F, against which it is pressed by the spiral spring G. The tube E extends downward into a boss, H, in the lower portion of the oil-reservoir, as shown in Fig. 4, and connects the latter with the shaft.

The operation will be readily understood. The revolution of the shaft creates a vacuum in the tube E, on well-known principles, and the oil is drawn thereby from the reservoir. The head D, fitting closely against the shaft, is kept in contact therewith by the spring G; hence any slight upward movement of the shaft cannot produce a crevice sufficient to admit air to the mouth of the tube E. The wear of the head D is taken up by the spring, which renders the head self-adjusting.

Having thus described my invention, what I claim as new is—

1. In combination with a journal-box, having an upper and lower bearing, an independent self-adjusting oil-tube, working in an aperture in the lower bearing, and held in contact with the shaft by a spring, substantially as described, for the purpose specified.

2. The bearing B, having the aperture C, in combination with the tube E, having the concave head D, and spiral spring G, substantially as described, for the purpose specified.

Witnesses: JOSEPH WHITAKER.

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